



**LABOR MARKET DYNAMICS IN DEVELOPED AND DEVELOPING COUN-
TRIES**

Doctorate's Thesis

Sardar Naeem HAKIMZAI

Eskişehir 2025

**LABOR MARKET DYNAMICS IN DEVELOPED AND DEVELOPING COUN-
TRIES**

Sardar Naeem HAKIMZAI

Doctorate's Thesis

Economics

Economics Program in Doctorate Degree (Ph. D)

Supervisor: Prof. Dr. Mustafa ÖZER

Anadolu University

Institute of Graduate Studies

June 2025

Eskişehir

JURY AND INSTITUTE APPROVAL

Sardar Naeem Hakimzai's thesis titled "Labor Market Dynamics in Developed and Developing Countries" was evaluated by the jury on/...../2025 and accepted as a PhD thesis in the Department of Economics in accordance with the relevant articles of the" Anadolu University Graduate Education and Examination Regulations."

	Title, Name Surname	Signature
Member (Supervisor)	Prof. Dr. Mustafa Özer	
Member	Prof. Dr. Oytun Meçik	
Member	Assoc. Prof. Dr. Hakan Ulucan	
Member	Assoc. Prof. Dr. Sevilay KÜÇÜKSAKARYA	
Member	Assoc. Prof. Dr. Melik KAMIŞLI	

Prof. Dr. Nafiz Öncü CAN

Director of the Graduate School

ABSTRACT

LABOR MARKET DYNAMICS IN DEVELOPED AND DEVELOPING COUNTRIES

Sardar Naeem HAKIMZAI

Department of Economics

Program in Economics Doctorate (Ph.D)

Anadolu University, Graduate School, June 2025

Supervisor: Prof. Dr. Mustafa ÖZER

The primary goal of this study is to analyze labor market dynamics in both developed and developing countries using a search and matching model. To estimate the duration dependence parameter and matching function for both types of countries, we employed panel data and OLS techniques. For developed countries, the duration dependence results show that the coefficient for unemployment duration is negative and statistically significant. Additionally, the matching function results indicate that the job vacancy rate coefficient is positive but not statistically significant, while the unemployment rate coefficient is negative and highly significant. The matching function outcomes suggest that in Turkey and China, unemployment coefficients are negative and not statistically significant. However, job vacancies positively influence matches and are statistically significant. In Chile, the unemployment coefficient is positive and statistically significant. Although the job vacancy rate also has a positive effect, this effect was not statistically confirmed. For Costa Rica, the unemployment coefficient is positive but not significant, while the job vacancy rate coefficient is positive and statistically significant. In Korea, both the unemployment and job vacancy rate coefficients are positive and statistically significant. These findings enhance understanding of the resilience and transitions of the labor market before, during, and after the COVID-19 pandemic. They offer valuable insights for policymakers on designing labor market recovery strategies that address vacancies, unemployment durations, and employment transitions.

Keywords: Search and matching theory, Job finding rate, Labor market flows, Covid-19 crisis, Developed and developing countries.

ÖZET

GELİŞMİŞ VE GELİŞMEKTE OLAN ÜLKELERDE İŞGÜCÜ PİYASASI DİNAMİKLERİ

Sardar Naeem HAKIMZAI

İktisat Anabilim Dalı

İktisat Anabilim Dalı (Doktora)

Anadolu Üniversitesi, Lisansüstü Eğitim Enstitüsü, Haziran, 2025

Danışman: Prof. Dr. Mustafa ÖZER

Bu çalışmanın temel amacı, bir arama ve eşleştirme modeli kullanarak hem gelişmiş hem de gelişmekte olan ülkelerdeki işgücü piyasası dinamiklerini analiz etmektir. Her iki ülke türü için süre bağımlılığı parametresini ve eşleştirme fonksiyonunu tahmin etmek için panel veri ve OLS tekniklerini kullandık. Gelişmiş ülkeler için süre bağımlılığı sonuçları, işsizlik süresi katsayısının negatif ve istatistiksel olarak anlamlı olduğunu göstermektedir. Ayrıca, eşleştirme fonksiyonu sonuçları açık iş oranı katsayısının pozitif ancak istatistiksel olarak anlamlı olmadığını, işsizlik oranı katsayısının ise negatif ve oldukça anlamlı olduğunu göstermektedir. Eşleştirme fonksiyonu sonuçları, Türkiye ve Çin'de işsizlik katsayılarının negatif olduğunu ve istatistiksel olarak anlamlı olmadığını göstermektedir. Ancak, açık iş pozisyonları eşleşmeleri olumlu yönde etkilemektedir ve istatistiksel olarak anlamlıdır. Şili'de işsizlik katsayısı pozitif ve istatistiksel olarak anlamlıdır ve açık iş oranı da pozitif bir etkiye sahip olmakla birlikte bu etki istatistiksel olarak doğrulanmamıştır. Kosta Rika için işsizlik katsayısı pozitif ancak anlamlı değilken, açık iş oranı katsayısı pozitif ve istatistiksel olarak anlamlıdır. Kore'de hem işsizlik hem de açık iş oranı katsayıları pozitif ve istatistiksel olarak anlamlıdır. Bu bulgular, COVID-19 pandemisi öncesinde, sırasında ve sonrasında işgücü piyasasının dayanıklılığı ve geçişleri hakkında daha iyi bir anlayış sağlar. Politika yapımcılar için, işgücü piyasasının toparlanmasına yönelik stratejiler tasarlarken, boş pozisyonlar, işsizlik süreleri ve istihdam geçişleri gibi konuları ele almada değerli içgörüler sunar.

Anahtar Kelimeler: Arama ve eşleştirme teorisi, İş bulma oranı, İşgücü piyasası akışları, Covid-19 krizi, Gelişmiş ve gelişmekte olan ülkeler.

ACKNOWLEDGEMENT

First of all, thanks to Almighty God for protection and the ability to do work. I am also grateful to all who, in one way or another, contributed to the finishing and completion of my Ph.D thesis. My special, deep, and hearty thanks to my supervisor, Prof. Dr. Mustafa ÖZER, for his tolerance and the professional guidance that he gave me throughout the writing of the thesis. Moreover, I want to express my deep gratitude to Associate Prof. Dr. Hakan Ulucan and Associate Prof. Dr. Melik Kamışlı for providing me with valuable comments and insights throughout the thesis.

I am so appreciative to the Yurtdışı Türkler ve Akraba Topluluklar Başkanlığı (YTB) in English Presidency for Turks Abroad and Related Communities (YTB) scholarship scheme and the Faculty of Economics at Anadolu University, Eskişehir, Turkey for making it possible and allowing me to study here. I am greatly thankful to the professors and lecturers at the capacity building of the foreign students, particularly Afghan students, the librarians, and other employees of the faculty and university. I am also deeply indebted to Prof. Dr. EROL KUTLU, the Chair of the Economics department, for the cooperation and assistance with students. I am also deeply thankful to the Afghan Government, which provided the facility to take the doctorate at Anadolu University, Eskişehir, Turkey.

I would like to thank all members of the Institute of Graduate Studies. I am also so grateful to my uncles, especially Mr. Mohammad Ayoub and Mr. Mohammad Daud Samim, who motivated and encouraged me to get a doctorate. I would especially like to thank Prof. Mohammad Bashir Doudiyal, who is the Chair of the Finance and Banking Department at Nangarhar University, for motivating and supporting me. A special thanks and appreciation to my family. Words cannot express how thankful I am to my father, mother, and brothers, especially Mr. Sardar Hakim Hakimzoi, who strongly motivated me, my father-in-law, mother-in-law, and brother-in-law, especially Mr. Assadullah Sahil, for all of the sacrifices that you've made on my behalf. I would also like to thank my beloved wife and sweet children for staying with me for the years during my studies.

Sardar Naeem HAKIMZAI

Eskişehir, 2025

STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES

I hereby truthfully declare that this thesis/dissertation is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with “Scientific Plagiarism Detection Program” used by Anadolu University, and that “it does not have any plagiarism” whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.



Sardar Naeem HAKIMZAI

DECLARATION OF GENERATIVE ARTIFICIAL INTELLIGENCE USAGE

I declare that I did not receive support from generative artificial intelligence programs (ChatGPT, Gemini, DALL-E, etc.) while preparing this thesis/dissertation. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.



Sardar Naeem HAKIMZ

TABLE OF CONTENTS

	<u>Page</u>
TITLE PAGE	i
JURY AND INSTITUTE APPROVAL PAGE	ii
ABSTRACT.....	iii
ÖZET	iv
ACKNOWLEDGEMENT.....	v
STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES	vi
DECLARATION OF GENERATIVE ARTIFICIAL INTELLIGENCE USAGE	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xi
LIST OF FIGURES	xii
1 INTRODUCTION	1
1.1 Objective of the Study.....	10
1.2 Research Questions	12
1.3 Importance of the Study	12
1.4 Structure of the Study.....	13
2 LITERATURE REVIEW RELATED TO LABOR MARKET	14
2.1 Theoretical Review	14
2.1.1 The classical theory of employment.....	15
2.1.1.1 The output and employment determination.....	16
2.1.1.2 Say's Law.....	22
2.1.2 The labor market in the neoclassical economic regimes.....	23
2.1.3 Keynes and the labor market	25
2.1.4 Post-Keynesian and labor market.....	26

2.1.4.1 The post-Keynesian critiques.....	29
2.1.4.1.1 Production and the demand for labor.....	32
2.1.4.1.2 Labor supply and underemployment.....	35
2.1.5 Labor market dynamics during the COVID-19 recession in developed countries.	38
2.1.5.1 The effect of the COVID-19 pandemic on the Canadian labor market	41
2.1.5.2 The impact of the COVID-19 pandemic on Japanese labor market	43
2.1.5.3 The impact of the COVID-19 pandemic on German labor market.	46
2.1.5.4 The impact of the COVID-19 pandemic on French labor market...	49
2.1.5.5 The impact of the COVID-19 epidemic on Swedish labor market...	51
2.1.5.6 The impact of the COVID-19 epidemic on Italian labor market	52
2.1.5.7 The impact of the COVID-19 epidemic on Austrian labor market .	55
2.1.5.8 The impact of the COVID-19 epidemic on the Belgian labor market	57
2.1.5.9 The impact of the COVID-19 outbreaks on the labor market in the Netherlands.....	59
2.1.5.10 The impact of the COVID-19 pandemic on Spanish labor market	63
2.1.5.11 The impact of the COVID-19 pandemic on the Swiss labor market	66
2.1.5.12 The impact of the COVID-19 pandemic on the Norwegian labor market.....	68
2.1.5.13 The impact of the COVID-19 pandemic on the UK labor market.	70
2.1.6 Labor market dynamics during the COVID-19 recession in developing countries	75
2.1.6.1 The impact of the COVID-19 pandemic on the Turkish labor market	80

2.1.6.2 The impact of the COVID-19 pandemic on the labor market in Afghanistan.....	87
2.1.6.3 The impact of the COVID-19 pandemic on China’s labor market..	90
2.1.6.4 The impact of the COVID-19 pandemic on the labor market in Mexico	96
2.1.6.5 The impact of the COVID-19 pandemic on the labor market in South Korea.....	100
2.1.6.6 The effect of COVID-19 on the labor market in Costa Rica	105
2.1.6.7 The impact of the COVID-19 epidemic on the Colombian labor market.....	107
2.1.6.8 The impact of the COVID-19 pandemic on Iranian labor market	110
2.1.6.9 The impact of the COVID-19 pandemic on Chilean labor market	113
3 DATA AND RESEARCH METHODOLOGY	120
3.1 Data.....	120
3.2 Research Methodology.....	121
3.2.1 The general overview of the search-and-matching model	121
3.2.1.1 Search-and-matching model	123
3.2.1.1.1 Model setup.....	123
3.2.1.1.2 Forcing variables.....	124
3.2.1.1.3 Job-finding rates.....	125
3.2.1.2 Estimation and calibration of the model.....	128
4 EMPIRICAL ANALYSIS OF LABOR MARKET DYNAMICS IN DEVELOPED COUNTRIES.....	133
4.1 Labor Market Developments in Developed Countries	133
4.1.1 Employment rate	133
4.1.2 Unemployment rate	138
4.1.3 Job vacancy rates.....	142
4.1.4 Labor market transition inflows	149

4.2 Descriptive analysis for developing countries.....	206
4.2.1 Employment rate	206
4.2.2 Unemployment rate	277
4.2.3 Estimates of the duration dependence parameter for developed countries	340
4.2.3.1 Check the reliability and validity of the panel data models.....	342
4.2.3.1.1 Serial correlation test.....	342
4.2.3.1.2 Heteroskedasticity Test.....	343
4.2.3.1.3 Cross-ssectionals dependence (CSD)	344
4.2.4 Estimation of the matching function for developed countries.....	345
4.2.4.1 Serial correlation test and heteroskedasticity test	347
4.2.5 Estimation of the matching function for developing countries	348
4.2.5.1 Diagnostic checks	353
4.2.5.1.1 Multicollinearity Test.....	353
4.2.5.1.2 Breusch-Pagan and white tests for heteroskedasticity	355
4.2.5.2 Stability analysis	358
4.2.5.2.1 Chow test (structural break test).....	358
4.2.5.2.2 Ramsey RESET test for functional misspecification	359
5 CONCLUSION	361
REFERENCE.....	378
CURRICULUM VITAE (CV)	

LIST OF TABLES

	<u>Page</u>
Table 4. 1 Generalized Least Squares (GLS) regression	340
Table 4. 2 Robust standard errors	343
Table 4. 3 Regression result of the matching function.....	345
Table 4. 4 Clustered standard errors	347
Table 4. 5 Results of the matching function	349
Table 4. 6 Variance inflation factor	354
Table 4. 7 Breusch-Pagan test for heteroskedasticity	356
Table 4. 8 White test for heteroskedasticity	357
Table 4. 9 Chow test (structural break test)	359
Table 4. 10 Ramsey RESET test.....	360

LIST OF FIGURES

	<u>Page</u>
Figure 2. 1 The aggregate production function (a) and the marginal product of labor (b)	17
Figure 2. 2 Employment and Output determination in the classical model.....	20
Figure 4. 1 Total (Women and Men) employment rate: Working age population from 15 to 64 years, Calendar and seasonally adjusted	133
Figure 4. 2 Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted.....	138
Figure 4. 3 Quarterly Job vacancy rates, not seasonally and calendar-adjusted.....	143
Figure 4. 4 Annual average of active job openings-to-applicants ratio in Japan.....	148
Figure 4. 5 The transition from unemployment to employment (in %), age range from 15 to 74 years.....	150
Figure 4. 6 Transition from non-participation to employment (neither seasonally nor calendar-adjusted data) in (thousands of persons).....	153
Figure 4. 7 Transition from employment to non-participation (neither seasonally nor calendar-adjusted data) in (thousands of persons).....	159
Figure 4. 8 Transition from employment to unemployment (neither seasonally nor calendar-adjusted data) (thousands of per-sons).....	164
Figure 4. 9 Transition from non-participation to unemployment (neither seasonally nor calendar-adjusted data) (thousands of persons).....	169
Figure 4. 10 Transition from unemployment to non-participation (neither seasonally nor calendar-adjusted data) (thousands of persons).....	187
Figure 4. 11 Transition from job to job (in%), working age group of 15 to 74 years .	194
Figure 4. 12 Transition rate from fixed-term contracts to permanent contracts by age group 25-64.....	198
Figure 4. 13 The transition from part-time work to full-time work by age group 25-64	202
Figure 4. 14 Total (Women and Men) employment rate: Working age population from 15 to 64 years, calendar and seasonally adjusted.....	206

Figure 4. 15 Total (Women and Men) employment rate: Working age population from 15 to 64 years, Calendar and seasonally adjusted	210
Figure 4. 16 Total (Women and Men) employment rate: working age population from 15 to 24 years, Calendar and seasonally adjusted.....	215
Figure 4. 17 Total (Women and Men) employment rate: working age population from 25 to 54 years, Calendar and seasonally adjusted.....	219
Figure 4. 18 Total (women and men) temporary employment rate for the working age 15 years or over.....	222
Figure 4. 19 Part-time employment rate for the working age group 15 years or over.	232
Figure 4. 20 Employment rate by education level: Below upper secondary, working age population of 25-64 year	248
Figure 4. 21 Employment rate by education level: Tertiary, working age population of 25-64 years.....	259
Figure 4. 22 Employment rate by education level: Upper secondary. non-tertiary, working-age population of 25-64 year.....	269
Figure 4. 23 Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted.....	277
Figure 4. 24 Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted	281
Figure 4. 25 Total (women and men) unemployment rate: Working age population from 25 to 54 years, Calendar and seasonally adjusted.....	288
Figure 4. 26 Total (women and men) unemployment rate: Working age population from 25 to 54 years, Calendar and seasonally adjusted.....	292
Figure 4. 27 Unemployment rates by education level, below upper secondary, working working-age population of 25-64 years	308
Figure 4. 28 Unemployment rates by education level, tertiary, working working-age population of 25-64 years	317
Figure 4. 29 Unemployment rates with advanced education, male labor force participation	324
Figure 4. 30 Unemployment rates with advanced education, female labor force participation	329
Figure 4. 31 Total (women and men) youth unemployment rate: Working age population from 15 to 24 years	333

Figure 4. 32 Total (women and men) Long-term unemployment rate from 2010 to 2021	
.....	337



1 INTRODUCTION

The Great Recession of 2007 was no different, featuring record levels of long-term unemployment and a slower recovery in the labor market. That has sparked renewed interest in changes in the labor market over time and how long joblessness might haunt laid-off workers. A year later, the long-term unemployed are a lot less likely to hold down full-time work than those who were out of a job for shorter periods. Understanding of labor market dynamics is crucial for establishing the health of an economy and, ultimately the ramifications on living standards from changes in a domestic labor market. As a result, the unemployment rate is one of the most closely followed pieces of economic data. But the labor market is so variable that it seems something more precise than just how many people are unemployed. If that is the case, we need to look into what specific demographic groups are experiencing which changes, such as income class status, gender performance, education level, and skill set. Following the first case on 11 March, measures to curb COVID-19 spread included school closures, sectoral shutdowns, and curfews for specific age groups. There are several channels through which the COVID-19 pandemic can impact the labor market. As with all economic contractions, the first issue is that labor demand has fallen. When there are no restrictions at all, people simply reduce their economic activities due to a fear of contagion - households refrain from consuming services outside the home, and firms do not reopen or close down as sectors halt production ([Aum et al., 2021](#)).

Moreover, the COVID-19 crisis caused the most severe drop in both employment and hours worked on record, with activity plunging to unprecedented lows during the second quarter of 2020. The number of people in work fell by 3.2% (by an estimated 5.2 million employed) from April to June, compared with the end of December, which translates as a record annual decrease. Between the second quarter of 2013 and May-June 2020, a period represented by almost exactly ninety-nine months (or eight full years), only four staff-years were created; all have already been eliminated. According to a report released by the ILO, employment and hours worked recovered slightly in the third quarter but stayed well below levels of 2019 through the fourth quarter. According to Felstead and Rueschke (2020), the work from home (WFH) levels in the UK reached 43.1% in April 2020 and remained high at 36.5% in June 2020 ([Felstead & Reuschke, 2020](#)).

Sevilla et al. (2020) notes that due to the UK lockdown, domestic responsibilities increased and fell disproportionately on women who lost their jobs and went on furlough.

They also show that in the UK, for example, the distribution of childcare hours between men and women increased during the pandemic and was more equal compared to pre-pandemic times, whereas the gap between the proportion of childcare responsibilities undertaken by women and those taken over by men narrowed ([Sevilla et al., 2020](#)). Del Boca et al. (2020) found that women's housework increased independently of men's work performance during the lockdown in Italy, whereas men's housework increased depending on women's work performance ([Del Boca et al., 2020](#)).

The low female labor force participation rate in Turkey could be attributed to declining birth rates, discouragement of women from employment due to social norms, and the recent increase in school enrollment rates ([Aldan and Öztürk, 2020](#)). At the beginning of the pandemic, around 34% of women were employed. One of the very prominent features of the Turkish labor market is the high prevalence of contract workers. While it was around 34% before the pandemic, it has fallen significantly during the last ten years. Among young people and the female population, this informality was still more marked. The National Union of Afghan Workers and Employees indicates that the pandemic of coronavirus pandemic, with its attendant restrictions like the lockdown of cities, has caused close to two million workers and employees to lose their jobs. The Ministry of Economy has come up with a warning statement, saying that the mixture of unemployment and coronavirus is going to increase Afghanistan's unemployment rate to 40% and poverty to 70%.

Since 1978, when the Chinese economy began to reform, the Chinese labor market has experienced a lot of fluctuations. Indeed, massive rural-urban migration of laborers has taken place, resulting in spectacular redistribution between the public and the private sectors. For instance, from 1990 to 2012, around 8 million farmers migrated to urban centers every year. The number of rural migrant workers in metropolitan areas moved from about 25 million in 1990 to 159 million in 2012, which showed one of the largest migrations in history within a short period. According to a rural household survey, the National Bureau of Statistics of China said that migrant workers' share in the urban labor force increased from 7 percent in 1995 to 27 percent in 2009. Moreover, more than 50 million people also moved into the private sector due to SOE reforms from 1995 to 2005, again changing the structure of China's labor market dramatically.

A study by Zhang (2021) estimated the effect of lockdowns on labor market outcomes of the Chinese workforce in 2020. The measures lowered 13.2 percentage points of the likelihood of workers returning to work, hurting their mental well-being directly. This impacts the supply of labor directly since even people outside the strict lockdown areas remain vulnerable to infection. The uncertainty has thus caused a steep decline in family expenditure and social activities (Zhang, 2021). According to a study by Baker et al. (2020), the uncertainties brought forth by the pandemic have shown an abrupt decline in spending by families and socialization (Baker et al., 2020).

Iran was suffering from stringent sanctions by the international community, but then came COVID-19 to exacerbate the situation. In 2020, there was a steep fall in supply and demand following the lockdown, which led to severe job losses, especially in small businesses and sectors that had fewer than 10 employees, mainly related to tourism, hospitality, sports, and recreation. Out of those 1.5 million people who became jobless, most of them lost their jobs very quickly. The employment rate decrease for women was greater than that for men. Even though, in 2021, more than 710,000 people were successfully integrated into the labor market, the general level of employment was still below the 2018 indicator. For men, reintegration into the labor market was easier in comparison with women; a large percentage of women who were employed in the informal sector were still jobless by the end of 2020, according to the Iranian Statistical Center in 2021.

A recent forecast by the Biruni Institute says the Afghan economy, on average, will contract by 3.3 percent in the moderate-scenario view and by 9.9 percent in a more severe scenario, with the potential onslaught of the coronavirus characterized by sluggish economic activity. In addition, the already weak Afghan economy risks receiving a massive blow right after the US aid cut of 1 billion dollars. According to the World Bank, the country had an unemployment rate of 1.52 percent in 2019. The unemployment figures in the country are feared to surge in case the ongoing political turmoil and peace talks with the Taliban remain unresolved (World Bank, 2020). According to the National Union of Afghan Workers and Employees, nearly two million people became jobless due to the transmission of COVID-19 and the preventive measures implemented by the government, such as lockdowns in entire cities. The Ministry of Economy estimates that, based on the outbreak of the pandemic, Afghanistan will face a 40% increase in unemployment and a 70% in poverty. The imposition of quarantines in cities will further worsen the

economic challenges, given the fact that about 80% of the economic activities are being driven by informal businesses in the country ([ILO, 2021](#)).

The dynamics of the labor market in Latin America have been changing drastically during the COVID-19 pandemic. Following a decade of a positive growth cycle characterized by creating opportunities for formal employment, the pandemic has had a strong impact on the labor market in this region. These impacts are reflected in highly visible increases in the percentage of inactive people together with steep falls in informal jobs and comparatively low fluctuations in formal jobs. This innate inflexibility made the formal sector an important "social safety net" and contributed to the stability of employment levels and wages. With this analysis in mind, the current situation will probably lead to further increases in informality from 2021 onwards, to levels higher than those recorded before the COVID-19 crisis. This increased informality will no doubt lead to the creation of about 7.56 million more informal jobs as people re-enter the labor force to compensate for lost incomes. The study also shows that implementing policies such as income tax obligations and social security contributions contingent on creating formal employment can reduce an economy's rate of informality by 50 percent to 75 percent. At the same time, the improvement in the education system can greatly contribute to reducing the informality rate by as much as 50 percent ([Acevedo et al., 2021](#)).

An important contribution to the growing literature that has primarily studied the impact of the COVID-19 crisis on the labor market [[Bauer and Weber \(2020\)](#)] used the difference-in-differences estimation technique to "assess the short-term impact of COVID-19 containment measures in Germany on the labor market".

[Cahuc \(2022\)](#) investigates the impact of lockdown measures on France's labor market during the COVID-19 crisis. [Del Boca et al. \(2020\)](#) investigate "the impact of COVID-19 related work arrangements on housework, childcare, and homeschooling in couples where both partners work". [Bettin et al. \(2023\)](#) investigated the "impact of the COVID-19 lockdown on gender differences in the Italian labor market". [Sevilla and Smith \(2020\)](#) provide evidence that childcare hours shared in the UK by men and women during the pandemic were closer to equality than before it and that the gap between women's and men's shares of childcare tasks has narrowed. [Bonacini et al. \(2021\)](#) "explore the possible impact of occupational work-from-home attitudes on the GWG as reported, on average and along the distribution, by Italian workers." [Mangiacavalli et al. \(2021\)](#) forecast "the impact of lockdown on the time use and psychological situation and the current academic

performance of children staying at home or studying through distance learning. [Bettin et al. \(2023\)](#) analyzed the "impact of the COVID-19 lockdown on the gender gap in the Italian labor market". As for [Balgová et al. \(2022\)](#), it was reported on the impact of a pandemic recession on job search, based on long-term panel data from the Netherlands (LISS). [Hassink et al. \(2020\)](#) analyzed how regional lockdowns and COVID-19 hotspots impact the Dutch labor market by using weekly administrative panel microdata.

[Farr'e et al. \(2020\)](#) addressed the effect of the COVID-19 lockdown on gender gaps in paid and unpaid work in the case of Spain. [Blázquez et al. \(2022\)](#) study the evolution of intra-household gender gaps in paid working hours among full-time heterosexual employed couples based in Spain and their relation to the temporal aspects of the COVID-19 pandemic. [Oreffice and Quintana-Domeque \(2021\)](#) sought to explore changing attitudes and behaviors concerning inequalities across gender in several dimensions, three months following the first UK-wide lockdown implemented in March 2020, and used a sample of nearly fifteen hundred respondents in the UK. [Razzu \(2020\)](#) analyzes the UK gender inequality in the labor market during the time of the COVID-19 pandemic. [Taherpoor and Banasaz \(2023\)](#) looked at the data to "assess" the impact of the COVID-19 pandemic on female unemployment in Iran compared against men's unemployment using a VAR model. [Chodorow-Reich and Coglianesi \(2020\)](#) looking across three steps of simulation factor flows studied unemployment distribution duration, [Forsythe et al. \(2020\)](#) utilized a job vacancy dataset from Burning Glass Technologies, insurance claims of unemployment in the USA and job statistics responded to the question of how the pandemic has affected employment in the economy. [Lemieux et al. \(2020\)](#) looked at the "first phase impact of the COVID-19 pandemic on Canada's labor market". [Gallacher and Hossain \(2020\)](#) examine "Remote work and employment dynamics under COVID-19: Evidence from Canada". [Jones et al. \(2021\)](#) examined the main changes that took place in the Canadian labor market during the COVID-19 crisis using new data on job openings and labor force statistics.

[Aldan et al. \(2021\)](#) examined the impact of the COVID-19 pandemic on many labor market variables using individual-level data from quarterly labor force surveys from 2005 to 2020. The variability of the impact on different demographic groups, including those related to gender, age, education, and parenthood, is highlighted. They also applied the linear probability model. [KÜÇÜKEFE et al. \(2023\)](#) examine the fluctuations in the Turkish labor market between 2019 and 2020. They used the clustering approach. [Demir-Şeker et](#)

[al. \(2020\)](#) “analyze the extent to which jobs in different sectors in Turkey are at risk due to the COVID-19 crisis, taking into account both COVID-19-specific effects and sector- and employment-specific vulnerabilities”.

[Zou et al. \(2022b\)](#) assess the impact of COVID-19 on the Chinese labor market. Using data from an online survey, they first assess the short-term impact of the COVID-19 pandemic on home-based work, income, and employment of individual workers in China.

[Fang et al. \(2020\)](#) quantify the causal impact of mobility restrictions, in particular the lockdown of the city of Wuhan on January 23, 2020, on containing and delaying the spread of the novel coronavirus (2019-nCoV). They use a series of difference-in-differences (DID) estimates to separate the effects of the lockdown on the labor market.

[Cheratian et al. \(2021\)](#) examined the dynamics and hysteresis of the unemployment rate in Iran by region (urban and rural), gender (men and women), and age groups (19-24, 25-30, 30, and over). [Taherpoor and Banasaz \(2023\)](#) used a VAR model to assess "the impact of the COVID-19 pandemic on Iranian female unemployment compared to male unemployment". [Duman \(2020\)](#) deals with the study and elaboration of a potential work index (PWI) that takes into account the closure of workplaces and the possibility of working from home. In their study, [Aygun et al. \(2022\)](#) use a unique dataset collected through face-to-face interviews in September and October 2020 to examine the impact of the pandemic on the Turkish labor market. [Zou et al. \(2022\)](#) examine the "impact of COVID-19 on the labor market in China". [Zhang \(2021\)](#) examines the impact of lockdown measures on the Chinese labor market. [Arceo-Gomez et al. \(2023\)](#) examined the impact of the pandemic on the demand for labor in Mexico by analyzing job postings on a popular job placement website using web scraping techniques. [Hoehn-Velasco et al. \(2021\)](#) conducted a study looking at the impact of the Great Lockdown (GL) on employment using administrative data on Mexico's formal labor sector. [Moreno and Cuellar \(2021\)](#) analyze the impact of the COVID-19 pandemic on the formal and informal labor sector in Mexico, with a particular focus on gender. [Maldonado and Ruiz \(2020\)](#) analyze the impact of the COVID-19 pandemic, unemployment, and poverty in Mexico.

[Hoehn-Velasco et al. \(2022\)](#) examine the impact of the COVID-19 pandemic on the Mexican labor market, income levels, and time distribution in the country's population. [Lustig et al. \(2023\)](#) carry out simulations to investigate the short- and long-term distributional effects of COVID-19 in the major Latin American economies of Argentina, Brazil,

Colombia, and Mexico. The study "The labor market situation in Mexico before and during COVID-19" was conducted by [Jiménez Bandala et al. \(2020\)](#). [Lee and Yang \(2022\)](#) examine how the Korean labor market developed in the first ten months of the global COVID-19 epidemic using two different methods. [Shin \(2022\)](#) discusses how employment and work in South Korea have changed in the wake of COVID-19. The impact of the COVID-19 epidemic on the Korean labor market in January 2020 is examined by [Park and Cho \(2022\)](#). Using data from labor force surveys conducted in seven middle and high-income countries, [Soares and Berg \(2022\)](#) undertook an analysis of transitions within the labor market during the initial two quarters of 2020, juxtaposing them against transitions in the preceding year.

[Bonet-Morón et al. \(2020\)](#) analyze the economic impact of the lockdown measures imposed by the Colombian government to combat the spread of COVID-19 in the region. [Cardenas et al. \(2021\)](#) examined work from home in Colombia and highlighted the diverse effects of COVID-19 on formal and informal employment in the country. [Alvarez and Pizzinelli \(2021\)](#) conducted a study in which they examined the impact of the COVID-19 pandemic and subsequent lockdown measures on the labor market in Colombia. The study conducted by [Egana-delSol et al. \(2021\)](#) examines the impact of the COVID-19 crisis on the labor market in Chile. The study by [Rivera and Castro \(2021\)](#) examined the employment trajectory of workers in the ongoing pandemic in Chile. [Fosco and Zurita \(2021\)](#) present a novel methodology developed to assess the direct impact of lockdown measures on economic activity. [Viollaz et al. \(2023\)](#) examine the gender differences in the changes observed in labor market dynamics before and during the COVID-19 pandemic in four Latin American and Caribbean (LAC) countries: Brazil, Chile, the Dominican Republic, Mexico, and many others] is that we used the standard search-and-matching model to examine the labor market dynamics of the COVID-19 recession in developed and developing countries. Nonlinear models serve as the basis for our quantitative analysis.

Eurostat labor statistics, data from the Japanese Statistical Office, labor market data from OECD countries, the Turkish Statistical Authority and the Turkish Labor Force Survey, the National Bureau of Statistics of China, the World Bank Indicator, OECD country's labor market data, Statistical Center of Iran (SCI) and finally, National Statistics and Information Authority (NSIA) of Afghanistan were used in this study. The study covers the years 2010 to 2021.

Moreover, we use these data in the following ways. First, we use the data to calculate the labor market dynamics, such as Employment and unemployment before, during, and after the COVID-19 crisis. Second, we estimate the duration dependence parameter and matching function for developed countries. Finally, we examine the effect of unemployment and job vacancies on matches for developing countries. This is the first time investigating the labor market dynamics before, during, and after the COVID-19 recession in both developed and developing countries.

The results of the duration dependence parameter by estimation of the random effects model for developed countries show that the coefficient for the duration of unemployment is negative and statistically significant. This indicates a significant relationship between the duration of unemployment and the job-finding rate.

The results of the matching function for developed countries by estimation of the fixed effect model show that the coefficient of job vacancy rate is positive but statistically insignificant. We can conclude that there is no clear evidence that changes in the job vacancy rate have any effect on hiring(matches) within countries over time, once unobserved country characteristics and time shocks are controlled for. Whereas the coefficient of the unemployment rate is negative and highly statistically significant. this represents a robust negative relationship between the unemployment rate and matches. From an economic perspective, when unemployment rises, labor market slack depresses the flow into employment, consistent with standard search-and-matching models. Furthermore, we applied diagnostic, stability, and robustness tests to ensure that the results of our regression are valid, interpretable, and reliable.

The results of the matching function show that in Turkey and China indicate that the unemployment coefficients are negative and statistically not significant. Nevertheless, job vacancies have a positive relationship with the number of matches and are also statistically significant. In Chile, unemployment is positive and is found to be statistically significant. Job vacancy rates have a positive effect too, but this effect couldn't be proven with statistics.

Likewise, in Costa Rica, the unemployment coefficient is also positive, but the association between unemployment and matches is statistically insignificant. In addition, the coefficient of job vacancy rate is positive and statistically significant in determining job matches. Since the unemployment rate and job vacancy rate coefficients are both positive

in Korea, there are statistically significant links between the job vacancy rate, unemployment rate, and matches.

in developed countries, awareness and knowledge can be gained about the dynamics of joblessness and the effectiveness of the job market through the estimation of the duration dependency parameter and the matching function. It is that it draws us to recognize the social need for focused interventions, concentrating interventions for job loss persons, and matching labor skills to market requirements. It is politically imperative in that it determines the passage of laws concerning public trust, job creation programs, and unemployment compensation. From an economic point of view, unemployment is less costly the less financially expensive, and exchange produces better labor market productivity, growth, and efficiency. More comprehensive labor market regulations mean less instability in the economy and a better society, and this knowledge fosters it. Once the COVID-19 crisis ends, governments and labor unions in developed countries will measure policy instruments to improve the labor market situation, including the issues of temporary and permanent unemployment, job placement rates, job vacancies, duration of unemployment, and the changes in the labor market from one state to another.

In developing countries, the complex social, political, and economic implications arising from these identified interrelationships are extremely significant and require careful consideration and reflection. We have discussed some of the social, political, and economic implications as follows:

The social implications include a variety of critical issues such as labor market stability, the growing inequality gap, significant job losses associated with the escalation of economic inequality, increasing social tensions within communities, a burgeoning mental health crisis that is pervasive throughout society, the need for recovery and resilience in the face of adversity, the skills mismatch hindering employment opportunities, the rise of remote working alongside the digital divide separating different demographics, and the challenges posed by changing demographics impacting workforce dynamics.

At the policy level, the implications are equally notable and include an increased focus on labor market reforms designed to address these issues, governance challenges arising from navigating complex socio-economic landscapes, the need for regional cooperation among nations to promote stability, the urgent need for investment in inclusive growth policies designed to benefit all segments of society, and the notable shifts in geopolitical dynamics affecting international relations and policy-making.

Economically, the implications are far-reaching and include labor market disruptions that affect employment rates, sovereign debt concerns that could hamper fiscal policy, sectoral shifts that require a reassessment of economic strategies, the complexity of global trade and supply chains that affect market stability, job quality and wage considerations that affect worker satisfaction, and the urgent need for investment in emerging industries that promise future economic growth and innovation.

By systematically addressing these multifaceted issues through the implementation of carefully designed and targeted labor market policies in conjunction with the promotion of robust international cooperation among nations, these countries can rebuild and revitalize labor markets that are not only more resilient but also much more inclusive, especially after the profound economic and social dislocations caused by the COVID-19 crisis.

1.1 Objective of the Study

The general objectives of this study are as follows:

1. To examine labor market dynamics such as employment, unemployment, job vacancies, matching(hires), and labor market transitions (flows) before, during, and after the COVID-19 recession in developed countries, in particular OECD countries (Canada, Japan, the United Kingdom, Switzerland, Norway, Germany, France, Sweden, Italy, Austria, Belgium, the Netherlands and Spain).

Several key criteria were set upon which the countries were selected.

First, so far, there has been no previous comprehensive study that we know of that has analyzed labor market dynamics before, during, and after the COVID-19 crisis in this group of countries using the same methodological framework. Although individual countries have been studied independently, there have been no cross-country analyses looking at job flows, unemployment dynamics, and policy responses using a unified search and matching model for these advanced economies.

Second, the limitation of the study to these 13 countries allows for the maintainability of the analysis. However, when expanded to all OECD members, it would have led to complexity and potential limitations or inconsistencies due to the existence of more informal labor markets in some countries.

Third, all selected countries are advanced economies closely comparable in terms of their labor market institutions (muffled and structured unemployment benefits, strong labor regulations, solid social protection) that we capitalize on.

Fourth, these countries provide labor market data that is comprehensive, reliable and harmonized (employment, unemployed, job vacancies, and labor transitions sources from the OECD, Eurostat and national statistics offices). This consistency allows for robust cross-time, cross-country comparison, especially over 2010–2021.

Fifth, the measures to deal with the COVID-19 pandemic were varied in these countries at the level of labor market interventions (e.g., furlough, wage subsidies, hiring incentives). They allow you to study how different choices in policies influenced labor market dynamics and recovery.

2. To investigate the various types of labor market dynamics, such as employment, unemployment, and job vacancy rate, before, during, and after the COVID-19 recession in developing countries, particularly in Chile, Colombia, Costa Rica, South Korea, Mexico, Turkey, Iran, China, and Afghanistan.

These countries were selected based on the following key criteria:

First, these countries consist of developing nations and emerging markets, which come from three different regions: Latin America, Asia, and the Middle East. Examining the labor market dynamics in these economies helps researchers grasp how various developing or transitional economies reacted to the COVID-19 labor market disruption.

Second, each selected country implemented different approaches to COVID-19 pandemic management, which included varying degrees of lockdown measures as well as dissimilar labor market distribution between formal and informal sectors and public and private employment systems, and labor protection levels. The wide range of conditions across these countries creates excellent possibilities for analysing their differences.

Third, the majority of these countries possess trustworthy data about labor markets from national statistical offices, international sources such International Labor Organization (ILO), the World Bank, and household surveys for employment and job vacancy statistics throughout 2010–2021. Fourth, the existing research lacks comprehensive studies about labor market developments in selected nations during COVID-19 by making use of a standard labor economic model. This study makes significant empirical findings while focusing on particular countries because it targets under-studied areas that include parts of the Middle East and Latin America.

Consequently, this study contributes to filling the literature gap by deriving the first empirical study based on labor market adjustments before, after, and during the COVID-19 recession for both developed and developing countries. It offers valuable policy advice for policymakers, researchers, governments, international bodies, development organizations, and labor economists by elucidating some common trends and some country-specific labor market behavior in response to an unexpected global shock.

1.2 Research Questions

To achieve the above research objectives, the following questions should be answered:

1. How does the COVID-19 crisis affect the labor market dynamics, particularly the job placement (finding rate) in developed countries? This study is the first attempt to understand collective labor market trends in the aftermath of the economic downturn caused by the Covid 19 pandemic in Canada, Japan, the United Kingdom, Switzerland, Norway, Germany, France, Sweden, Italy, Austria, Belgium, the Netherlands, and Spain.
2. How does the COVID-19 crisis affect the labor market, particularly the matches (new hires), the job vacancy rate, the employment rate, and the unemployment rate in developing countries?

1.3 Importance of the Study

The impact of the unprecedented COVID-19 pandemic has led to one of the most severe economic downturns in recent history and has brought profound and far-reaching disruptions to the labor markets around the world. Nevertheless, it needs to be pointed out that the level and the nature of such disruptions vary greatly from one country to another. One of the credited reasons for this phenomenon is due to the different economic conditions, the labor market regulations, or the government intervention within each country.

The novelty of this study is therefore a groundbreaking and proactive investigation of the dynamics of the labor market before, during, and after unprecedented crisis times in developed and developing countries. This study represents an important step in building a picture of how the global health crisis has affected employment trends and workforce resilience in many developed and developing economies. Moreover, such an understanding of the labor market dynamics is crucial to a wide range of stakeholders, including policymakers, economists, and researchers alike, because of the ability it gives to a labor

market's resilience to such changes, employment patterns, and the appropriateness of policy responses during crisis.

1.4 Structure of the Study

Chapter 1 provides a brief introduction, Chapter 2 provides a brief overview of the debates related to labor market dynamics, Chapter 3 discusses the data and research methodology, Chapter 4 focuses on the empirical analysis, and the final chapter provides conclusions, discussion, and policy implications.



2 LITERATURE REVIEW RELATED TO LABOR MARKET

2.1 Theoretical Review

Labor market issues such as employment, unemployment, quality of work, productivity, income, and labor costs are at the center of social and political debate around the world. The most important features of labor markets in recent decades are the growing role of institutions, public policy, and government regulation, and their influence on labor market outcomes – wage rates and labor distribution. Moreover, the labor market is an important part of any economy and is closely related to the markets for financial, goods, and services. Most of these recent approaches in development economics that attempt to explain poverty and propose possible explanations include poorly functioning labor markets, for instance, high rates of informal employment, low job creation in the formal sector, and skill mismatches or persistent underemployment in rural areas. For instance, a considerable segment of the workforce, especially in developing states, is employed in low productivity forms of employment, without any job security or social protection such that which largely contributes to income volatility and longer-term poverty. A growing number of experiments have evaluated treatments that change the search behavior of workers and firms, on the assumption that this will improve outcomes such as the quality of matching ([Pissarides, 2000](#)).

The paradigm of labor economics was based on Neoclassical marginal productivity theory, which provided appropriate tools for analyzing decisions of particular subjects in competitive markets and obtaining efficient remedies. In these markets, rational individuals maximize utility, profits, and rents based on their preferences. Government, business, and labor unions have all intervened to limit Smith's "invisible hand" through legislation, personal corporate policies, and collective bargaining. Increasing regulatory intervention in labor markets and the desire to articulate the real world inevitably contribute to a growing body of institutional theory in contemporary labor economics. The discipline of labor economics has changed considerably since World War II. At the end of the Second World War, labor economics was dominated by a group of academics who were familiar with neoclassical theory but had their roots in the institutionalist approach to economics. Over the next thirty years, however, a labor economics paradigm based on neoclassical eco-

nomic theory gained the upper hand. During the same period, institutionalist labor economics declined in economics departments ([Diamond, 1982](#); [Mortensen & Pissarides, 1999](#)).

2.1.1 The classical theory of employment

During the 1930s, Keynes coined the phrase "classical framework" to encompass most macroeconomic models. This paradigm, which originated with Adam Smith in the 1700s and concluded with Pigou's research in the 1930s, was contested by John Maynard Keynes in his 1936 work "The General Theory of Employment, Interest, and Money." Keynes' theory presented a novel economic viewpoint, igniting a revolution in economic thought and policy. The "General Theory" was composed in the context of classical thinking, with Keynes referring to 'the classics' as Ricardo's followers who refined Ricardian economics, including Mill, Marshall, and Pigou. Keynes challenged the conventional economics of the traditional school that had prevailed for over a century. Grasping classical economics is essential to comprehending Keynesian economics, which critiques classical employment theory ([Rakhimov, 2024](#)). Classical economists contend that the economy naturally functions at full employment, regarding any deviation as unusual. Pigou asserted that labor supply and demand equilibrium resulted in full employment in the labor market. Unemployment was attributed to inflexible wage structures and interference with free market mechanisms, such as trade unions and minimum wage legislation. Full employment was considered to exist as long as individuals were willing to work at prevailing wages, with those unwilling to do so deemed voluntarily unemployed. Consequently, full employment was defined as a situation without involuntary unemployment, where anyone willing to work at the current wage rate could secure employment ([Cole, 2022](#)).

Classical theory is founded on Say's law of markets, as elucidated by economists like Marshall and Pigou. They demonstrated how production and employment are determined in individual labor, goods, and money markets, with each market possessing an equilibrium mechanism ensuring full employment. The fundamental assumptions of classical theory include full employment without inflation; a laissez-faire capitalist economy without government intervention; a closed economy without foreign trade; perfect competition in labor and goods markets; a homogeneous labor force; total economic output divided into consumption and investment; a fixed money supply used only for exchange;

flexible wages and prices; perfect information for all market participants; direct and proportional relationship between money and real wages; automatic investment of savings; interest rates balancing savings and investment; constant capital stock and technical knowledge; the law of diminishing returns in production; and a long-term perspective (Peach, 1995).

2.1.1.1 The output and employment determination

The neutrality property of the classical theory is that the level of real production does not depend on the amount of money in the economy. Let us now look at which factors influence and determine the level of real output in an economy. The short-run production function is an important part of the classical model. At the micro level, a production function describes the largest amount of output that a company can produce with a certain number of input factors.

The more labor (L) and capital (K) a firm uses, the greater the output produced (assuming the inputs are used correctly and effectively).

However, it has been argued that the only variable input in the short run is labor. It is assumed that the amount of capital employed and the level of technology are constant. If we consider the economy as a whole, the quantity of total output ($GDP = Y$) also depends on the quantity of inputs used and the efficiency of their use. This relationship, known as the short-run aggregate production function, can be expressed as follows:

$$GDP = Y = AF(L, K) \dots \dots \dots (1)$$

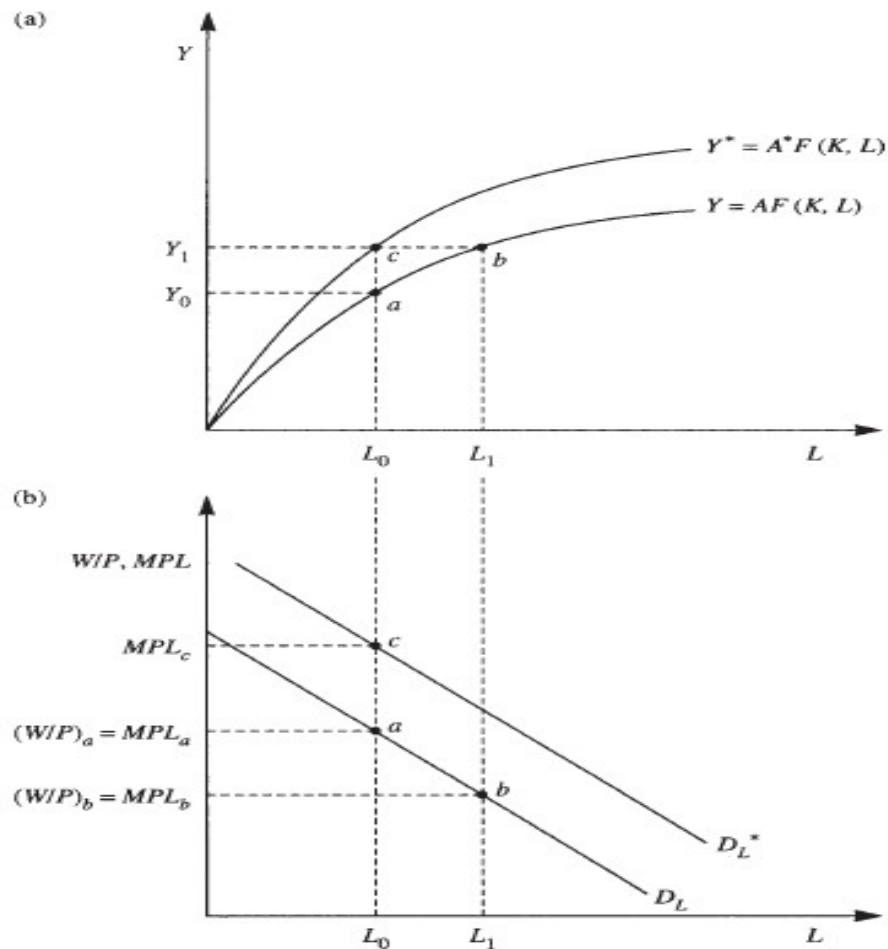
This relationship, known as the short-run aggregate production function, can be expressed as follows:

In the above equation, Y is the real output produced in an economy in a given period, K is the capital employed in a given period, L is the labor employed in a given period, A is an index of total factor productivity and F is a function representing the ratio between the real output and the inputs of K and L. The symbol A stands for an autonomous growth factor that captures the effects of technological progress and all other factors that increase the overall efficiency of utilization of an economy's production sources. Equation (1) simply states that total output is determined by the quantity of labor employed, given the

available capital stock, technology and organization of the means of production. The following diagram illustrates this relationship (Snowdon and Vane, 2005).

Figure 2. 1

The aggregate production function (a) and the marginal product of labor (b)



The short-run aggregate production function has several interesting properties. Three points should be emphasized. First, for given values of A and K , there is a positive relationship between employment (L) and output (Y), indicated by a movement along the production function from point a to point b . Second, the production function shows diminishing returns for the variable input labor. This is shown by the slope of the production function ($\Delta Y/\Delta L$), which decreases as employment increases. A successive increase in the number of employed workers leads to ever lower additional production. Since $\Delta Y/\Delta L$ measures the marginal product of labor (MPL), we can see from the slope of the production function that an increase in employment is accompanied by a decrease in MPL . This

can be seen in Figure 2.1 panel (b), where DL shows that MPL is both positive and decreasing (MPL decreases as employment increases from L_0 to L_1 , i.e., $MPL_a > MPL_b$). Third, when capital input is increased and/or the productivity of the inputs indicated by an increase in the value of A (for example, through technological progress), the production function shifts upwards.

Such a change is represented in panel (a) of Figure 2.1 by a shift in the production function from Y to Y^* caused by an increase from A to A^* . In panel (b), the MPL schedule shifts due to an upward shift of the production function from DL to DL^* . Note that after such a change, labor productivity increases (the quantity of labor input L_0 can now produce the quantity Y_1 instead of the quantity Y_0).

However, equation (2.1) and Figure 1 tell us a lot about the relationship between the output of an economy and the inputs used, but they do not tell us anything about how much labor is actually used in a given period. To understand how the total employment level is determined in the classical model, we need to examine the labor market model developed by classical economics. We first look at how many workers a profit-maximizing firm will hire. The generally accepted rule of profit maximization states that a firm should set its marginal revenue (MR_i) equal to the marginal cost of production (MC_i). For a firm with perfect competition, $MR_i = P_i$, the production price of firm i . Consequently, the profit-maximization rule can be written as follows:

$$P_i = MC_i \dots \dots \dots (2.1)$$

If a firm wants to hire workers in a perfectly competitive market, a nominal wage or money wage equal to W_i must be paid for each additional worker. The additional cost of employing an additional worker is $W_i \Delta L_i$. The additional revenue generated by an additional worker is the output produced (ΔQ_i) multiplied by the price of the firm's product (P_i). The additional revenue is therefore $P_i \Delta Q_i$. It is worthwhile for a profit-maximizing firm to hire workers as long as $W_i \Delta L_i < P_i \Delta Q_i$. To maximize profit, the following condition must be met:

$$P_i \Delta Q_i = W_i \Delta L_i \dots \dots \dots (2.3)$$

The equation 2.3 can be also as follows:

$$\frac{\Delta Q_i}{\Delta L_i} = \frac{W_i}{P_i} \dots \dots \dots (2.4)$$

Since $\frac{\Delta Q_i}{\Delta L_i}$ is the marginal product of labor (MPL), a firm should hire workers until the marginal product of labor equals the real wage (MPL=W). This is simply another way of expressing equation (2.3). Since MC_i is the cost of the additional labor (W_i) divided by the additional output produced by that worker (MPL_i), we can write this relationship as follows:

$$MC_i = \frac{W_i}{MPL_i} \dots \dots \dots (2.5)$$

We are now combining equation (2.3) and equation (2.5) and we get the equation (2.6).

$$MC_i = \frac{W_i}{MPL_i} = P_i \dots \dots \dots (2.6)$$

The marginal product of labor (MPL) curve is downward sloping because it is a decreasing function of labor input due to the influence of diminishing returns (see box (b) in Figure 2.1). Profit is maximized when the firm maximizes its MPL_i with W_i/P_i , the marginal product curve, equal to the firm's demand curve for labor (DL_i), as mentioned earlier. This relationship is expressed in equation (2.7):

$$DL_i = DL_i \left(\frac{W_i}{P_i} \right) \dots \dots \dots (2.7)$$

According to the above equation, a company's demand for labor is an inverse function of the real wage: the lower the real wage, the more labor is used advantageously. In the previous study, we looked at the behavior of an individual company. The same logic can be applied to the economy as a whole. Since the demand for labor in an individual firm is an inverse function of the real wage, aggregating such functions across all firms in an economy leads to the classical postulate that the aggregate demand for labor is also an inverse function of the real wage. In this scenario, W stands for the average money wage in the whole economy, while P stands for the general price level. This relationship is labeled DL in Figure 2.1, panel (b). Employment increases from L_0 to L_1 when the real wage is reduced from (W/P) a to (W/P) b. Equation (2.8) expresses the aggregate labor demand function:

$$D_L = D_L \left(\frac{W}{P} \right) \dots \dots \dots (2.8)$$

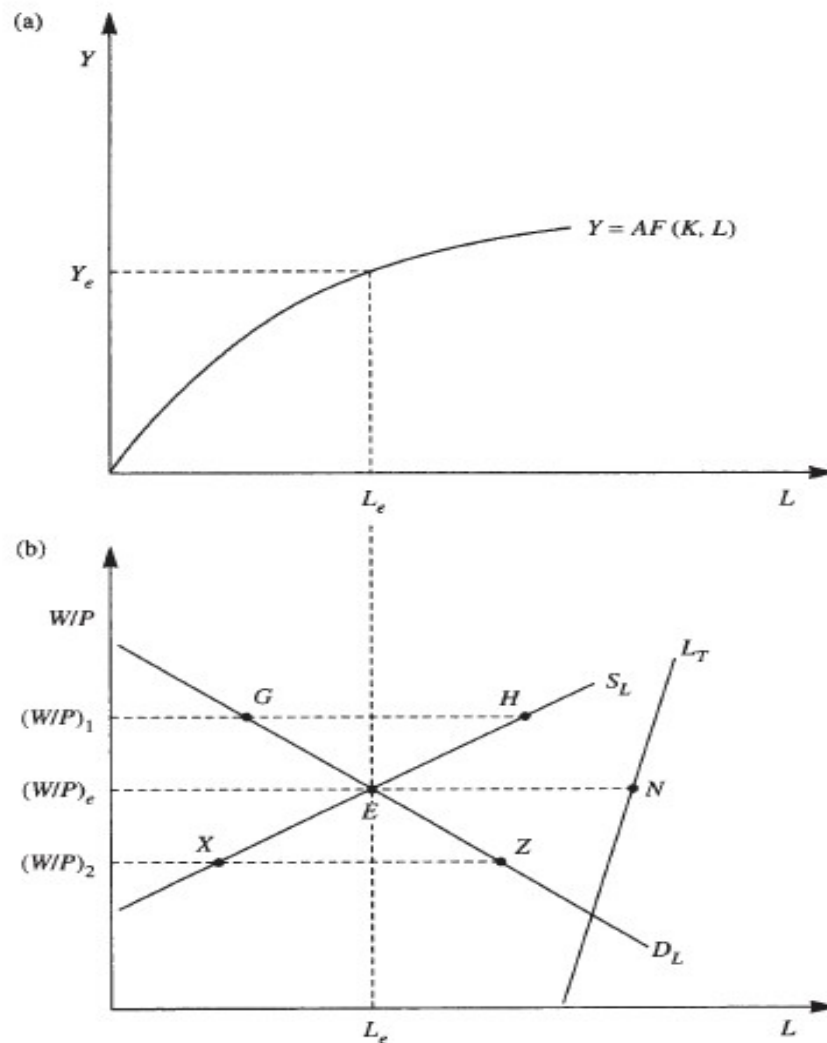
Until now, we have looked at the factors that determine labor demand. Now we are forced to evaluate the supply side of the labor market. The classical model assumes that households want to maximize their utility. The labor supply in the market is therefore a positive

function of the real wage rate, as shown in equation (9), and is represented as the SL in panel (b) of Figure 2.2.

$$S_L = S_L\left(\frac{W}{P}\right) \dots \dots \dots (2.9)$$

Figure 2. 2

Employment and Output determination in the classical model



How much labor is available for a given number of people depends on household spending and leisure preferences, both of which generate positive utility. However, in order to be able to spend, income must be generated by replacing working time with leisure time. Work is seen as useless. Consequently, the labor supply equilibrium is determined by workers' preferences and the real wage.

An increase in the real wage makes leisure time more expensive in the sense of foregone income and tends to increase the supply of labor. This is known as the substitution effect. However, an increase in the real wage also means that employees are better off, which

prompts them to choose more leisure time. This is known as the income effect. The classical model assumes that the substitution effect outweighs the income effect, so that an increase in the real wage has a positive effect on the supply of labor (Begg et al., 2003). At this time that we have examined how the demand and supply curves for labor can be determined and derived, we can look at how the classical model determines output and employment in competitive equilibrium. Panel (b) in Figure 2.2 shows the classical labor market where the forces of demand and supply determine an equilibrium market-clearing real wage $(W/P)_e$ and an equilibrium employment level (L_e) .

If the real wage were lower than $(W/P)_e$, e.g. $(W/P)_2$, there would be excess demand for labor of ZX , and money wages or nominal wages would rise in response to competition among firms, bringing the real wage back to its equilibrium value. If the real wage were higher than the equilibrium value, e.g. $(W/P)_1$, there would be an excess supply of labor equal to HG . In this scenario, money wages would fall until the real wage returns to $(W/P)_e$. The classical model guarantees this result because classical economists assumed perfectly competitive markets, flexible prices, and complete knowledge. The equilibrium employment level (L_e) symbolizes 'full employment' in the sense that all members of the labor force who want to work at the equilibrium real wage can do so.

The S_L curve shows how many people are willing to accept job offers at each real wage rate, while the L_T curve shows how many people want to be employed at each real wage rate. The L_T curve has a positive slope, which means that more people want to join the labor market when real wages rise. The labor market equilibrium of the classical model is associated with unemployment, which corresponds to the distance E_N in panel (b) of Figure 2.2.

The conventional or classical full employment equilibrium is fully consistent with the existence of frictional and voluntary unemployment, but does not allow for the possibility of involuntary unemployment. Later, when considering the equilibrium of unemployment in the labor market, Friedman (1968a) proposed the concept of the natural rate of unemployment. The position of the aggregate production function determines the level of output once the equilibrium level of employment in the labor market is determined. From panel (a) of Figure 2.2, we can see that L_e employment quantity will lead to Y_e output level (Snowdon and Vane, 2005).

The simplified basic model described here has so far enabled us to understand how classical economics explains the determination of the equilibrium level of real output, employment and real wages as well as the equilibrium level of unemployment. Changes in the equilibrium values of the above variables are clearly possible when the labor demand curve and/or the labor supply curve shifts. For instance, if the production function shifts upwards due to technological development, the labor demand curve shifts to the right. As long as the labor supply curve has a positive slope, employment, production and real wages will increase. Population expansion would boost employment and production while lowering real wages by shifting the labor supply curve to the right. According to the above analysis, competition in the labor market ensures full employment in the classical model. No one who wants to work at equilibrium real wage is unemployed. The classical postulates do not allow for the concept of involuntary unemployment.

The classical economists knew very well, however, that prolonged unemployment beyond the equilibrium level is possible if the equalizing function of real wages is artificially restricted. If the monopoly power of labor unions or minimum wage regulations keep real wages above the equilibrium level (such as $(W/P)_1$, in panel (b) of Figure 2.2), then anyone who wants to work at the 'distorted' real wage will not be able to do so. The answer to such 'classical unemployment' was simple and clear for the classical economists. The money wage should be adjusted to reduce real wages. The equilibrium shown in Figure 2.2 was regarded by Keynes as a "special case" that was not representative of the "economic society in which we actually live".

The full employment equilibrium of the classical model was a special case because it referred to a scenario in which aggregate demand was just sufficient to absorb the level of output produced. Keynes complained that such a level of aggregate demand was not guaranteed. The classical economists denied the possibility of a lack of aggregate demand by invoking "Say's law", which "corresponds to the proposition that there is no obstacle to full employment" (Snowdon and Vane, 2005).

2.1.1.2 Say's Law

J.B. Say, an early 19th-century French economist, explained that "supply creates its own demand." Therefore, there can be no general overproduction and unemployment in the economy. When there is general overproduction in an economy, some workers have to leave their jobs. In the short term, the problem of unemployment arises in the economy.

When supply and demand for goods are in balance, the economy will automatically move towards full employment in the long term. When a manufacturer produces goods and pays workers' wages, the workers purchase those goods in the market. The process of providing (producing) goods, therefore, assumes that there is a demand for them. In this approach, supply creates its own demand ([Kates and Elgar, 2009](#)).

2.1.2 The labor market in the neoclassical economic regimes

Labor economics has progressed much during the last few years after the Second World War. Eventually, labor economics came under the domination of scholars who were institutionally primarily trained but were very intimately familiar with neoclassical theory. However, for the next thirty years, he had full control over labor economics and viewed it through very neoclassical economic theory. Labor economics was institutionalized and relocated to either the industrial relations or economics departments during this period. Labor market equilibrium and general economic equilibrium are relatively important in the economic literature; One can argue that each side of the coin reflects both orthodox and modern readings. Recently, [Yuval \(1998\)](#) has provided two rather radical ways of interpreting economic phenomena as embedded in neoclassical economic theory and the concept of institutionalism.

According to [Stigler \(1969\)](#), neoclassical economics emerged in the late nineteenth century as a reaction to the classical economics of David Ricardo and John Stuart Mill. As a result, it "replaced the individual economic agent as a sociological or historical datum with the utility-maximizing individual" ([Boyer and Smith, 2001](#)). Institutionalism emerged in the United States around the same time that Alfred Marshall's *Principles of Economics* (1890) laid the foundation for what is now known as neoclassical labor economics. The origins of institutionalism can be traced back to the German historical school of economics, and some of its pioneers, such as Richard Ely, were educated in Germany ([McNulty 1980 and Kaufman 1993](#)). Ely described the economics taught in American colleges in the 1870s and 1880s as "dry bones" that focused exclusively on "natural economic laws" and laissez-faire, viewing man as "the instrument by which wealth is created rather than the end for which it exists" (Ely, 1938). Ely rejected this "barren" approach, instead focusing on the investigation of actual issues (particularly those confronting the American labor movement) utilizing a range of methodologies.' ([Boyer and Smith, 2001](#)).

Neoclassical theories of employment essentially deduce A.C. Pigou's model of perfect competition in the labor market, based on some assumptions. To begin with, all economic agents in the form of workers and companies possess full knowledge and information about wages and employment available in the market, hence making the labor market extraordinarily open and transparent. First, both employers and employees are "rational" in an economic sense, with employers striving for maximum profit and employees striving for maximum real wage satisfaction. Second, since any single employer or employee constitutes only an infinitesimal portion of total labor demand, individual actions of employers and employees have little effect on wages. Third, there are no barriers to the free mobility of workers or other factors of production. The workers or other factors of production have no barriers to their free movement. There is no kind of consultation between the employers in making wage or employment decisions and neither is their consultation between employees. Labor in certain markets is homogenous and mobile in the economic sense ([Jarmołowicz and Knapieńska, 2011](#)).

According to the neoclassical theory of equilibrium in the labor market, the existence of unemployment cannot be ruled out. This phenomenon is characterized as a consequence of restrictions on the free functioning of the wage mechanism resulting from the interaction of workers' activities with the demands of the free market. Unemployment is therefore seen as a voluntary phenomenon associated with the increasing imbalance in the labor market. As causes of unemployment, A. Marshall cited factors such as the shift in demand for goods, insufficient 'human capital' and the economic situation. He also pointed out that this phenomenon was temporary and voluntary, meaning that workers accepted the action of their unions and allowed themselves to be represented by them. As a result, they had to accept the possibility of becoming unemployed. The persistence of unemployment led to the emergence of new theories. In the 1960s, G. Stigler developed the economic theory of information, which also includes the concept of job search, in which information is regarded as a valuable commodity that is expensive to obtain. The acquisition of information is an expensive aspect of the job search ([Stigler, 1961](#)). A person will look for work as long as the expected earnings are higher than the cost of the search. This is because if one is not working and it is not optimal to accept the first job offer, one must search, and the alternative is less expensive. This suggests that people often remain unemployed because they have made a rational decision to keep looking.

Stigler introduced a new perspective on job search that is useful in broadening the understanding of unemployment. A certain proportion of the unemployed is a voluntary component of the market equilibrium (Brožová, 2015).

Mortensen (1970) has extended the economic theory of job search. According to him, "search unemployment" is the result of voluntary behavior on both sides of the labor market. He was followed by a whole series of authors who conducted both theoretical and empirical studies on job search in the labor market. He was followed by numerous authors who conducted both theoretical and empirical studies on job search in the labor market (Mortensen, 1970). It was shown that in the event of an economic downturn or a cyclical decline in demand, wages and salaries on the labor market do not fall, as predicted by neoclassical theory, which would clear the market, but employees are laid off instead. The lack of a market-clearing wage illustrates the gap between theory and reality. C. Azariadis (1975) proposed an implicit wage theory. Employees prefer lower, stable wages paid over a longer period to higher but uncertain wages because they are risk-averse. Therefore, companies offer long-term quasi-contracts that ensure longer economic and income stability (Brožová, 2015).

2.1.3 Keynes and the labor market

As already stated, if there is perfect flexibility in both wages and prices in a competitive labor market, then the classical model guarantees that employment to be maintained at full employment levels. This is in sharp contrast to Keynes' assumption that the labor market functions or behaves in a way that ensures continual market clearing. Thus, involuntary unemployment is probably a part of the labor market when nominal wages are rigid or have little flexibility. However, Keynes pushed this idea further, arguing that although a system featuring nominal wage flexibility might supply sufficient incentives, it would still not be enough to move the economy back to a position of full employment (Snowdon and Vane, 2005). To the extent that this implies that Keynesians have a diminished confidence in the ability of free markets to respond both promptly and efficiently, this statement is true. The core of the Keynesian analysis is the contention that wages and prices can be characterized as 'rigid' or 'sticky,' which prohibits them from rapidly changing to the market-clearing equilibrium (Blanchard and Johnson, 2013). To the extent that the wages and prices are inelastic, the economy can go through long-run phases of divergence from the general equilibrium. Consequently, the proper reaction to an exogenous

shock is not a long recession in a free market; it is, on the other hand, a disequilibrium, where high unemployment results from the excess supply of labor over demand for labor. It is very important to understand what allows wages and prices to be rigid, since their rigidity forms the basis of both Keynesian theoretical constructs and related policy prescriptions ([Keynes, 1936](#)).

Classical economists have had a good deal of criticism of the Keynesian theorists since the early 1970s, not only for the assumption of wage and price rigidity but also for not being able to offer a cogent economic reason for this rigidity. The bottom line of traditional economic lessons is that wages and prices in an economy are never determined but end up resulting from numerous choices by individuals and businesses ([Minsky, 1986](#)). If wages are set too high, causing unemployment, why don't those who are unemployed agree to work for lower wages until the firms are willing to hire them? If prices are not at a level where quantities supplied equal quantities demanded, why don't companies just change their prices? Classical economists challenged Keynesians to show that wage and price rigidity is consistent with the assumption that individuals and firms are economically rational—in other words, that they make optimal economic decisions. Keynesian researchers took up this challenge by offering explanations of wage and price rigidity that are compatible with the theory of economic rationality. Then we turn to core readings in Keynesian phenomena of nominal wage rigidity versus nominal wage flexibility ([Abel et al., 2017](#)).

Keynes himself followed a practical way of handling these themes. He finally became convinced that, due to several constraints implicit in the price mechanism, there is a need for government intervention in dealing with the issue of involuntary unemployment. This phenomenon could persist in certain conditions, and the system could be trapped in a situation of underemployment equilibrium. In the authors' definition, the subnormality to which this referred, in the context of a market economy, implied "no clear tendency towards recovery or outright collapse" ([Snowdon and Vane, 2005](#)).

2.1.4 Post-Keynesian and labor market

The labor components of post-Keynesian theory have not yet been methodologically developed, and such a post-Keynesian analysis leads to a result that is very much at odds with the conventional, neoclassical approach. This is because the real wage does not influence either the supply or demand for labor. Consequently, changes in the wage rate

cannot eliminate unemployment, which proves that the labor market is not legitimate because the price attached to it, the wage rate, is incapable of performing a market-clearing function. Soon after the marginalist revolution gained popularity in economic theory at the turn of the century, some economists began to criticize the new ideas for being too far removed from the workings of modern institutions. In this nation, Thorstein Veblen led the charge, as did members of the historical school in Germany ([Eichner, 1978](#)).

Alfred Marshall, who held the only chair in economics at one of the two major British colleges offering economics courses at the time, had a rather ambivalent reaction. On the one hand, he was convinced that the new marginalist theories had a superior analytical capacity. They matched his passion for transforming the research of political economy into the science of economics and his mathematical mindset. Indeed, the *Principles*, which he first published in 1890, were the most comprehensive exposition of marginalist analysis available at the time, and the seven subsequent editions were to become the standard textbook in the English-speaking world long after the Second World War. Marshall, however, was conscious of his role as the successor to the Ricardian legacy in economics ([Lavoie, 2014](#)).

The attitude towards the company's workforce follows three central assumptions on which economic theory in this area is based. Business entities set up to reap the maximum from the market are driven by the single goal of reaping the maximum, from that market; and the law of diminishing returns also applies in the short term, this process only works with nouns. It has, therefore, to be believed that those firms that make use of labor and capital in any ratio and can alter this ratio in response to price changes of either factor are surely behaving flexibly. In that case, labor demand by the firm would be determined by the model of labor demand according to which labor should be hired up to the point where the additional product of the last worker equals the wage rate. Need for labor is a function of the following factors such as the marginal product of labor, the price of the firm's output, and the prevalent wage rate. On the other hand, the classical theory of labor supply rests upon several assumptions that help to influence the individual workers' decision-making process. It's based on the fact that a worker will want to be paid for the job he does, which the company is ready to pay for ([Stockhammer, 2011](#)). Apart from that, the worker's welfare might be associated with the time available for leisure as well as the purchasing power. Every worker-or at times, every family, aims at augmenting their overall happiness through exploiting different avenues concerning leisure and salary. Workers

will invest money through labor in the best way to increase their wealth after their initial wealth, including wages and expenses (King, 2002).

The combination of each worker's decision on the number of hours they work helps estimate the total labor supply, and this type of work is positively correlated with the real wage rate. It is therefore necessary to examine the influence of the real wage rate on these three variables, both on the total demand for labor and on the supply of labor. Depending on how these things are related to the relationship between supply and demand in the labor market, the actual dependence of real wages on initial employment can be revealed by macroeconomics. Without the mortgage, the interplay of supply and demand would simultaneously determine real wages and the level of employment. It allows us to justify the idea by first assuming equilibrium in the goods, money, and labor markets and then observing the effects of a decline in independent expenditure (Harvey, 2016). The efficiency of this argument becomes clear if we first assume equilibrium in the goods, money, and labor markets and then look at the results of a weakening of independent expenditure. Immediately after the decline in independent expenditure, there are fewer goods for sale in the markets than firms produce at full employment. Initially, however, firms cannot anticipate the shortage and maintain production at the level of full employment. As the supply of goods exceeds demand, it is most likely that prices will fall. In this situation, it is assumed that real wages will rise if nominal wages do not change (Ramsay, 2002).

Accordingly, the demand for labor would decrease and the supply would increase. This deficit between the supply of labor (LS) and the demand for labor (LD) would lower money wages if money wages could fall. In this way, the demand for money would fall out of this fall in prices and wages. Bond prices would rise while interest rates would fall because people and businesses would buy bonds as less cash is needed for everyday transactions. The lower interest rates increase investment spending, which would increase production and thus create jobs. Real wages would remain essentially unchanged in this process until eventually an equilibrium is reached at the level of full employment, with falling prices, money wages and interest rates (Barradas, 2023).

The conventional wisdom, however, is that money wages are rigid and workers become involuntarily unemployed. The "neoclassical synthesis" - a blend of pre-Keynesian and Keynesian thinking - suggests that some degree of involuntary unemployment must be tolerated. In balancing supply and demand for labor, this approach implies that real wages can also change, provided that money wages are flexible. In other words, flexible wages

would serve as a market equalizer and balance out any excess supply or demand in the labor market. Full employment could only be restored by market forces. The government would therefore not need to be involved in eliminating unwanted unemployment. Be that as it may, even conventional economists agree with the Keynesian vision that full employment must be restored and that the decline in autonomous spending due to the flexibility of money wages must be compensated for by the role of the state in the economy (Stockhammer, 2006).

In any case, the conventional wisdom would be that monetary policy is aimed at lowering interest rates to encourage investment, while fiscal policy is aimed directly at boosting aggregate demand to reduce unemployment. Unfortunately, orthodox economists consider Keynesian economics to be "depression economics" because "Keynesian policies are only relevant during a severe recession or depression." Policies aimed at increasing aggregate demand to reduce unemployment are likely to increase the demand for labor and consequently increase the money wage rate over time (Strunk, 2021). Policies aimed at increasing aggregate demand to reduce unemployment are likely to increase the demand for labor and consequently raise money wages over time. According to classical economics, the money wage is determined by the interplay of supply and demand in the labor market, leading to inflationary consequences. This results in a trade-off, represented by a Phillips curve, which illustrates the relationship between unemployment and inflation. Due to this fact, standard economic theory believes that unemployment should rise to the level required to keep inflation within reasonable limits (Appelbaum, 1979).

2.1.4.1 The post-Keynesian critiques

As Sidney Weintraub put it, "Keynes's entire intellectual commitment was to use reason to eliminate economic disease, rather than 'exchanging one disease for another' - and it is this legacy that post-Keynesian economists invoke when they deny that full employment and stable prices are incompatible. We have seen that, according to orthodox economics, fixed money wages are the main cause of unemployment. They are now arguing that since money incomes would fall when aggregate demand fell, real wages would also fall and the level of employment. Furthermore, orthodox economists can claim that it needs an increase in real wages to get more people to work. Firms that must hire more employees have to pay higher wages because wage bargaining impacts real wages (Fer-

[nández-Huerga & García-Arias, 2019](#)). They assume this will be accompanied by an increase in money wages. The implication, then, is that low unemployment and price stability are incompatible, and this is how conventional economists derive that conclusion. However, the theory of wage determination upon which this argument is based is firmly rejected by post-Keynesian economists. Of course, Keynes himself had long earlier responded to the arguments of contemporary orthodoxy. Keynes opposed two propositions: (1) that workers, by accepting a lower money wage, can decrease their real wage and increase the amount of employment; and (2) that the money wage bargain between workers and employers determines the real wage. Keynes indicated that even if one were to accept the general tendency of orthodox theory, these two propositions would not be true. All in all, a reduction in the general level of money wages would decrease marginal costs; each firm would then try to increase its production at the market price of its product. It is conventionally expected that, in general, prices would fall with a rise in the quantity of all kinds of goods. The effect on real wages would not be very great, since money incomes as well as prices are falling. Therefore, money wages adjustment would be very unlikely to affect the real wages even in conventional economic models ([Stockhammer, 2006](#)).

According to Sidney Weintraub, "Keynes's entire intellectual commitment was to use reason to eliminate economic disease, rather than 'exchanging one disease for another'" Post-Keynesian economists deny that full employment and stable prices are incompatible, invoking this legacy. As we have seen, according to orthodox economics, fixed money wages are the main cause of unemployment. They claim that if money incomes fall when aggregate demand falls, real wages would also fall and employment would rise. Furthermore, orthodox economists argue that an increase in real wages is necessary to get more people to work. They claim that companies that want to hire more workers must pay higher money wages because they believe that wage bargaining affects real wages. They believe that rising money wages will follow growth in the demand for labor. This is the reasoning that conventional economists use to conclude that low unemployment and price stability are incompatible. However, this theory of wage determination is rejected by post-Keynesian economists. Keynes had long ago addressed the arguments of contemporary orthodoxy. Keynes opposed two concepts: (1) that workers could lower their real wage and increase the volume of employment by accepting a lower money wage; and (2) that real wages depend on the money wage agreement reached between workers and employers. Keynes pointed out that these two propositions would not be true even if one were to

adopt the general tendency of orthodox theory. All in all, a reduction in the overall level of the money wage will lower marginal costs. Consequently, every company will strive to increase production at market prices for its products. Conventional wisdom says that prices will generally fall as the quantity of goods of all kinds increases. The impact on real wages is unlikely to be very large, as both money incomes and prices fall. Therefore, adjustments in money wages are unlikely to affect real wages, even under conventional economic models ([Davidson, 1998](#)).

According to Keynes, money wages and real wages would increase in different ways and would have quite different short-run effects. Money wages, according to post-Keynesians, are determined by normative conventions and the relative bargaining power of employers and employees. All these factors were captured in one form or another in what Eichner terms fundamental wage bargains or incremental compensation patterns. On the other hand, it is determined by a firm's market position and internal financing needs to maintain investment. Since real wages and money income do not always rise together, a fall in money income would usually have little impact on the expansion of employment ([Stockhammer, 2015](#)). Real wages can go up, down, or remain constant depending on how much prices fall. A lowering of money wages and prices would likely undermine business confidence and reduce investment demand, thereby entailing fewer jobs. A fall in money incomes to the price level would doubtless reduce consumer demand and entail fewer jobs. Over the years, post-Keynesians have also agreed to the idea that fixed money wages are not what causes involuntary unemployment. While variable money wages may certainly be a source of increased insecurity for companies, making it more difficult for them to plan future activities, at least they will not have any important effects on employment or real wages.

Keynes countered that the volume of labor hired at any given money wage depends on the amount of employment offered at that wage in response to the assertion that an increasing cost of labor can only be offset by rising real wages and monetary interest rates. Further, he explained that although the real wage of labor may have fallen, the supply of labor, in reality, does not necessarily alter with any fall or rise in the real wage because the laborer has no choice but to supply his services even if the price level increases. Keynes also observed that though the employment rate had wide variations, no significant changes took place either in real wages or in the efficiency of labor. These observations are contrary to the conventional theory of economics and to the concept of labor supply

and demand depending upon real wages. Therefore, post-Keynesians have developed various alternative models of labor supply and demand([Appelbaum, 1979](#)).

2.1.4.1.1 Production and the demand for labor

The post-Keynesian argument linking labor demand to production consists of three parts: The first part conceptualizes the institutional structure of the corporate sector, the second defines the dominant technology, and the third explains the pricing strategies of dominant firms. The quantity of output that firms want to produce can then be linked to the demand for labor without using the theory of marginal productivity. Galbraith's theory of a dual economy is the simplest assumption about the industrial structure of the US that is fairly accurate. That is, one way to look at the American economy is to divide it into two parts: (1) a core, which includes oligopolistic market structures, a high ratio of capital to labor, the use of sophisticated technology, high wages, substantial training costs for professional, supervisory, and technical workers, the need for a stable and educated workforce, and the existence of strong union organizations; and (2) periphery, which includes industries that lack market power, use outdated management practices, have low capital and skill requirements, low wages, seasonal employment and/or an unstable workforce, and little to no unionization. Compared to companies in the periphery, firms in the core tend to belong to industries with a high degree of concentration and consequently have some control over the pricing of production ([Harcourt et al., 2023](#)). The prices set by firms in the core region are high enough to allow the replenishment of depleted capital and the internal financing of most planned expansions, as well as the payment of wages to workers that include part of the social surplus and the generation of a profit margin that is higher than the average for the economy. Peripheral products tend to have lower prices than their "normal" counterparts, but firms can only maintain low prices by refusing to replenish depleted capital, reducing labor costs, and/or making a lower profit margin. So, we see that in non-oligopolistic companies, there are marginal workers who need social benefits to survive even if they work full-time. At the same time, companies in this category usually have a below-average rate of profit on invested capital, and their survival is sometimes quite uncertain ([Eichner & Kregel, 1975](#)).

Companies on the periphery are not in the same competition as oligopolistic companies in the center for workers of a certain caliber. Firms operating in an oligopolistic market

can pay workers more, but they can also offer better benefits, greater job stability, opportunities for advancement, and the protection that comes with union membership. Oligopolistic companies therefore have workers who are essentially always employed by them. Workers who are laid off by these firms may seek temporary employment elsewhere, but they return to their former jobs at the plant when production at that location reaches its former level. The oligopolistic sector may, for similar reasons, draw labor from the non-oligopolistic sector when it needs it during periods of rapid expansion. Assuming that factor inputs can be mixed in any proportion, traditional business theory assumes that the only way to increase production is to mix increasing amounts of variable inputs (raw materials and labor) with fixed inputs (usually capital stock, but occasionally management skills) (Davidson, 1990s). Output per unit of input increases and decreases as production increases, so that the variable cost and marginal cost curves eventually rise in step with the output growth. Since no firm would produce output at which marginal costs exceed marginal revenue, rising marginal costs both limit the ability of any firm to expand its output and force price increases as output rises. According to this concept, fluctuations in demand are responsible for the majority of price fluctuations. This model is widely used but mainly applies to companies that produce food and raw materials. In other companies, hiring more employees for a second shift can often increase productivity, even in the short term (King, 2008).

Production usually increases or decreases, but the quotient of the capital products and “variable” inputs does not change appreciably when all inputs, both “fixed” and “variable,” are fully utilized. Full utilization is the exception, not the rule. In practice, a great part of production is conducted by a company with fixed factors or technical coefficients, not influenced by short-term troubles. Therefore, variable average costs and marginal costs are constant over a long range. Most companies can meet short-term rising demand for their products by increasing current production at the current cost level, as long as they have production capacity reserves (Robinson, 1969). The 'vertical supply curves' are lost as the production supply is elastic. Firms cannot adjust marginal revenue to marginal cost to produce a level of output that would optimize their short-term profitability by the traditional pricing method, so the traditional pricing method is not practical. Some other methods must be found to decide on production and prices. Today's versions of the markup model of Weintraub, Eichner, and others were largely developed by Polish econ-

omist Michal Kalecki. In these models, average fixed costs decline as production increases even though they remain constant in these models, and overhead costs are spread out over a larger volume of production. Hence, it is the reason why companies are calculating the fixed and total costs per production unit before setting a price. They do this by estimating a production volume that will be sold in the next period or using a normal capacity utilization rate of the plants ([Pacitti, 2020](#)).

A gross margin is often added to the average variable costs to find prices. This is so that both the production volume and the net profit that the company would earn if it sells the expected quantity are obtainable. However, the large fluctuations in production have only a moderate effect on pricing and a significant effect on net profit. If actual production sold is lower than the forecasted production, ex-post it will result in higher fixed costs per unit, and net profit will be below the desired level. The opposite will be true if the factory is operated more than forecast and if the product is sold more than was forecasted ([Stockhammer et al., 2014](#)). Changes in wage rates or commodity prices affect prices, but small fluctuations in demand do not. This pricing, as long as everything goes as planned, will enable the market leader to get the target profit, and other companies (smaller, less productive) will have higher expenses and thus a worse net profit. In the short run, a firm produces the amount of output it will produce after prices have been set, this amount of output depends on the demand curve of the firm's production for the firm. They set prices and make the quantity of goods that they believe the market will take. When demand gradually grows or extra capacity becomes available, companies serving an emerging economy targeted to protect or boost their role in a market will raise production instead of pricing aggressively. The first one is pretty obvious: if there is a significant increase in projected sales of a company's product, we may then need to scale up production capacity. These may be sectors in which companies are in need of more internally produced capital to finance investments. But with this investment, the capital not raised by them is already increased, supplied with less money by them, and is available for them to issue with higher prices and wider profit margins ([Harvey, 2016](#)).

This means that if demand for an industry's output becomes large enough to encourage firms to do so, then demand translates into higher profit margins (or, if not profit margins, then into higher prices) under continuous surges. However, in this case, marginal cost factors are not standard and pricing doesn't bow directly to demand. Many threads of the argument can then be combined to explain why labor is demanded. A part of the planning

process of companies involves the forecast of the expected GNP and industry-wide sales, along with the estimate of the amount of products they should manufacture. The amount of output that the company intends to sell in the period for which the plans are being prepared is forecasted for each company by referring to the percentage of the market the company is looking to dominate (Piluso, 2024). Prices consist of a markup over the average variable costs and are set to cover the fixed costs of the expected production and to make a targeted profit if this output is sold. Forecasting of output sold by each entity is the amount that it expects to sell in the period or time for which the plans are developed, considering the market share that it is likely to achieve. Prices are added to the average variable costs to pay the fixed costs of the expected production and achieve the targeted profit once the output is sold. If there is excess capacity in terms of positioning the firm on the horizontal segment of its cost and supply curves, fixed technical coefficients force businesses in the center, if not the periphery, of the economy to demand labor from businesses in the same sector that varies directly with the amount of output that businesses in that sector plan (Lavoie, 2014). In enterprises at the center, special technical and professional staff and managers are frequently regarded as quasi-fixed production components. Finally, the employment of these workers is not directly related to the production the firm is trying to achieve. Instead, the company requires exactly that many overhead personnel to handle the operation of each of the company's divisional or facility operational units. To have that same number of these people, the corporation never needs to see less or more of a certain plant or plant department, regardless of how often they may operate. The output increases, and more factories are added; it follows that overhead personnel are needed to meet that demand. The sum of the demands of all companies is the demand of the business sector as a whole (Appelbaum, 1979).

2.1.4.1.2 Labor supply and underemployment

Even though most of the labor supplied in this economy is categorized as alienating or unsatisfactory, it omits many important considerations of labor supply and creates output that does not show up in reality. This slightly warped perspective assumes that upon experiencing a decline in real wages, a laborer or a family will balance the distaste of working more with the gain of receiving more. If this is so, then they will work less or drop out of the labor force entirely. According to Eli Ginzberg, there are three kinds of job satisfaction. The majority of households, whether the salary level required is high or low,

need a family member who can work and earn enough money to be able to sustain themselves ([Pacitti, 2020](#)). Families work because they must and have no choice but to do so, because there is simply no other option available. Options for alternative forms of compensation besides wages include welfare benefits, paid participation in workforce training programs, and the opportunity to earn money through illegal or quasi-legal activities. As Bennett Harrison has argued, however, these are a meaningful alternative to paid work only for the lowest-paid workers. However, the level of replacement between low-paid work and welfare is quite high. Notably, having a job makes people have meaningful activity, and employment has huge effects on how valuable individuals can feel about themselves. Lastly, employment allows many out-of-school youth to apply existing skills and develop new ones, though not all occupations offer personal development and training opportunities. So, employment is valuable not only for the money one earns but also for the value that is added to one's self-esteem and its contribution to how he/she go about acquiring new skills ([Harvey, 2016](#)).

Radical economists such as David Gordon, Michael Reich, and Richard Edwards, as well as the analysis of internal labor markets by Peter Doeringer and Michael Piore, and the model of job competition by Lester Thurow, are important sources of inspiration for the post-Keynesian analysis of unemployment. Submarkets within the labor market are distinguished by differences in pay, working conditions, and growth prospects as workers compete for available jobs. The historical process that produced larger, less technologically advanced firms in the periphery of the economy and technologically advanced, oligopolistic firms in the core sectors led to a high degree of labor market segmentation. The production processes of the central companies have become more complicated, hierarchical and networked ([King, 2008](#)). In this scenario, many of the specific skills that workers need can only be acquired through prolonged employment in a particular position or company. Therefore, organizations using modern technologies have an incentive to support employees with a steady employment history in positions where productivity correlates with length of service by making changes to working conditions and pay and implementing a promotion system to advance employees to higher positions. Career ladders allow employees to stay with the same company for a longer period by stratifying them. For this reason, it is now more important than ever for centralized companies to establish different job categories, regardless of whether or not technological progress requires it.

Companies incur costs when they promote employee stability. Therefore, even core organizations have an incentive to limit these additional costs to the narrowest possible range of positions ([Rolim et al., 2023](#)).

It is therefore not unexpected that even highly developed technical companies have developed highly stratified internal job clusters with clear admission criteria, in which certain important areas of work are arranged in such a way as to promote employment stability, while others allow for highly volatile work patterns. This creates a divide in the labor market between the primary sector, which rewards consistent work habits, and the secondary sector, which has a high turnover rate, does not require consistency, and often discourages it. The main cause of unemployment, which is concentrated in the secondary sector, is employee characteristics, not wages. Employers have used superficial characteristics as a low-cost screening tool because it is difficult to evaluate new employees to assess likely employment stability. They tend to discriminate against women, minorities, and black workers who have a history of irregular work schedules when filling senior positions where tenure is critical. Members of these groups will always have a high unemployment rate because discrimination has created a vicious cycle. The training and promotion opportunities offered to an employee are strongly influenced by their classification in the "right" job cluster. Because the acquisition of skills depends on a particular job, discrimination against women, blacks, and other minorities limits their access to job mobility and training opportunities, keeps them at the bottom of the skill and labor income distribution, and keeps many of them in the lower strata of the labor market. Unemployment rates for women, blacks, and other minorities are particularly high due to the combination of the characteristics of secondary sector occupations and the recruitment of those with fewer opportunities ([Barbosa-Filho & Taylor, 2006](#)).

Other than gender and ethnicity, there are other methods for controlling access to different sections of the labor market. Similarly, access to higher-level positions in the primary sector is segmented by unequal educational opportunities and socioeconomic background. Such market pressures on the compensation structure of the company and the protection of primary sector workers from competition with other workers by laying out the conditions of hiring and further promotion along an internal job ladder are provided to the company. How quickly workers can climb the career ladder and how quickly graduates with the right training can get work in the primary sector is, in turn, dependent on the pace of economic growth. That is, if degree or training educated or trained worker

became scarce for the higher ranks of the primary sector compared to the demand for well-educated and/or trained workers, credential inflation rather than wage deflation would be the driving force toward more applicants for those positions in the higher ranks of the primary sector ([Pacitti, 2020](#)).

However, the increasing educational requirements for access to various professions serve at times of slow economic growth as an impediment to the career aspirations of college graduates. As such, these people are mostly placed on odd jobs in the primary sector, where there is little scope for moving ahead. Rather than being landed with outright unemployment, we see a real cycle of systemic frustration between striking workers and employers trying to discredit their right to a fair wage. On the other hand, the elements of that scenario are widely different than in the sectors besides the primary labor market. In this location, there is an oversupply of highly skilled young people, and the qualifications demanded in a broad variety of jobs have increased ([Lavoie, 2014](#)). Surprisingly, qualification level does not always correspond to real practical job requirements, but many companies rely on qualifications as an inexpensive way to screen job applicants. Taken in this context, individuals whose family does not belong to the more privileged background and who have only a high school diploma start their integration into the labor market when they have personal financial needs but no employment opportunities in the first sector. As a result of the restrictive immigration policies, these people are compelled to face job insecurity and low pay. Lack of access to better opportunities in the primary sector means they earn meager wages and face periods of unemployment. On the contrary, a lot of companies running in the periphery and the core of the economy can employ an abundance of relatively unskilled labor willing to work for the existing low wages. A further reduction in the wage rates is unlikely to cause a fall in unemployment in the secondary sector ([Appelbaum, 1979](#)).

2.1.5 Labor market dynamics during the COVID-19 recession in developed countries.

Probably the most important debate in the economic literature is related to the effects of the COVID-19 pandemic on the labor market. In developed countries, the early days of the epidemic were characterized by disruptive problems in the labor market and brought about changes unrivaled by previous ones. Subsequently, the labor market recovery was very strong and rapid as well. The surprise of supply and demand global shocks about the

pandemic, in a mix that is uniquely combined, acted to unleash general financial havoc and engineered quite catastrophic losses of life. Politicians have been under pressure from the multiple waves of infection, leading to the implementation of regulations safeguarding human lives, yet suppressing economic activity and exacerbating prevailing problems. Many studies have found this COVID-19 outbreak to be first-class in its impact on women, unlike previous financial downturns. Their socioeconomic opportunities (Brodeur et al., 2020). Montenovo et al. (2020) investigate mothers in families with fathers of young children and uncover very much the same results (Montenovo et al., 2020). Lofton et al. (2021) examine the differences in the effects of parenthood for men and women in the United States. They found that the decline in employment and labor force participation was significantly smaller for fathers than for mothers and male non-parents and that the recovery was more dramatic for men and women without children (Lofton et al., 2021).

Adams-Prassl et al. (2020) find that mothers are more likely to choose redundancy, although there are no gender differences among childless workers in the UK. Another source of differences in the impact of the COVID-19 epidemic could be age. In a normal recession, young people will be the most affected, as workers with long tenure will be able to keep their jobs, and the decline in hiring rates will severely impact new entrants to the labor market (Hoynes et al., 2012).

Many studies – Cortes and Forsythe (2020) and Lee et al. (2022), suggest that young people were disproportionately negatively affected by the labor market impact of the outbreak in the early months of the outbreak. However, empirical data also suggests otherwise. The number of employed people fell by 31.2% or 5.2 million in the second quarter of 2020 compared to the end of 2019. Affected by the employment growth since the second quarter of 2013, the decline in employment in the first half of 2020 accounts for approximately 44% of the total increase. In the third quarter of 2019, employment and hours worked showed some improvement, but remained significantly lower in the fourth quarter. Quarter-over-quarter changes in employment have been relatively small compared to changes in GDP, although the first half of 2020 saw record employment growth. The total number of hours worked changed dramatically, more than employment or GDP. In the second quarter of 2020, when the containment measures had the greatest impact, average working hours fell by 14.3% and the total number of hours worked fell by 16.8%.

Following [Brynjolfsson et al. \(2020\)](#), by May 2020, nearly half of the US workforce will be retired. They say that with men losing jobs, going on furloughs, and working from home, their involvement in childcare increased. It has thus become very important to study how the epidemic is changing men's and women's roles at home and WLB and gender gaps in housework. The Japanese situation concerning childcare and housework differs very significantly in comparison with other countries between men and women. According to Zhou (2021), there is a high rate of work absence and temporary leave in the case of the pandemic, and specifically among the female portion, citing already subsisting differences between males and females, in terms of family responsibilities. It is considered that the inequalities in Japan have mainly been caused by excessive working hours by men and gender stereotyping. One factor is that men are not at home or come home late and therefore take less care of the household and childcare. Hence, their involvement in household chores and childcare might have increased since their home became their workplace during the pandemic ([Takami, 2021](#)). [Kalenkoski and Pabilonia \(2020\)](#) estimated the initial effect of COVID-19, workplace closures, and hours worked by unregistered self-employed individuals on gender, marital status, and child-rearing status. The study used random effects models and difference-in-differences models to examine the initial differential impact of the COVID-19 pandemic lockdown. This research shows how married women and the status of self-employed women have been negatively impacting job retention.

Pandemic-related job losses in the euro zone's largest countries are expected to reach 1 1/2 million by 2030, dampening robust pre-pandemic job growth of 5 million from 2018 to 2030. Reducing the number of transitions during periods of unemployment or inactivity, particularly for low-skilled workers, has in practice been an important part of successful labor reallocation. A high degree of flexibility in labor and product markets, as well as effective macroeconomic policies, will undoubtedly be important. Given the still uncertain nature of employers for these types of individuals, temporary and targeted hiring subsidies and wage loss insurance are particularly needed to attract these particularly vulnerable potential workers into occupations and industries where relatively low starting wages are expected, but employment growth is expected to be strong and will drive employment development. Such subsidies can also be used to attract workers to other, more promising industries, paving the way for employment development through documented skills gap closure. It would be crucial to efficiently retrain and upskill the workforce to

respond to the growing skills gap predicted by many studies and to improve digital skills, although this could prove very difficult given recent experience (Narita and Ando, 2022). Forsythe et al. (2020) used real-time data on job vacancies collected by Burning Glass Technologies to explore the effects of the COVID-19 pandemic on the labor market, along with the initial data from UI claims and conventional employment data from the Bureau of Labor Statistics. To get an insight—albeit subtle—into the challenges that businesses and applicants are going through in today's economic climate, researchers used an integrative approach in which multiple sources of data were integrated into understanding the complex impacts of the present crisis on labor market dynamics. Forsythe et al. provided major contributions to understanding changing labor market conditions throughout this enormous disruption of the global health crisis by using both proven statistical approaches and state-of-the-art technologies.

2.1.5.1 The effect of the COVID-19 pandemic on the Canadian labor market

There were huge shifts in the numbers of entrants and leavers of the Canadian labor force from 2020 to 2021, while important statistics revealed variations. A huge chunk of the economy was shut down in March 2020, after the first wave of the disease and the resulting lockdowns. The structure of labor flows during the early phase of the pandemic was characterized by a large contribution from temporary layoffs. Indeed, from February to April 2020, about 5% of workers lost their prior jobs temporarily, and 5% had to stay idle while remaining on the payroll of their former employers. The market is starting to shake itself off from the period of temporary "put on hold," characterized by abnormally high ratios of persons employed but on temporary leave or recall unemployment, employed but absent, and unemployed in anticipation of being re-employed. By now, there are two encouraging signs: the percentage of rising new jobs is between 50% and almost 80% of the pre-crisis situation. Moreover, the data point to workers previously laid off due to the lockdown can now start re-entering the labor market, hence the rise in jobs during May 2020. These types of trends suggest that the labor market might be able to rebound rather quickly (Jones et al., 2021).

A large portion of this inflow to the strengthening of the border points to temporary separations. All told, in an astoundingly brief period, roughly 25% of those working in February 2020 had stopped working in April 2020 but remained attached in some way to their old jobs. This temporary layoff process began to reverse rapidly as early as May 2020,

and in a few months, the vast majority of persons who had been temporarily laid off and missed work returned to work, following a rapid reversal of the temporary layoff process already begun in May 2020. During the first months of the crisis, the proportion of people actively seeking employment remained low. Whereas the probability of jobseekers at work beginning fell at first glance, for the early months of the pandemic the labor demand decreased right away, as reflected in job posts. Following that, in April, the number of job seekers began to rise due to both short-term layoffs and a lower number of job seekers. While the share of people without work almost doubled by August 2020, starting May 2020, the overall unemployment rate declined because the rise in search unemployment was lower than the outflows from temporary unemployment ([Macklem, 2023](#)).

Lemieux et al. (2020) examined the "initial effects of the COVID-19 epidemic on the Canadian labor market". Taking into account the typical monthly fluctuations of these variables, they focus on the changes in employment and total hours worked between February 2020 and April 2020. According to the study results, COVID-19 causes an overall 32% decrease in weekly hours worked among 20–64-year-olds, associated with a 15% decrease in employment. They describe how the lost jobs are distributed and find that more than half of all employment losses are among workers in the lowest income quartile. The majority of those affected by COVID-19 are younger, hourly-paid, non-unionized workers with public service positions in the sectors hardest hit by the closures (food and lodging). The percentage of unemployed people who do not have a job and of participants who are actively looking for work is starting to rise, which is a warning sign([Lemieux et al., 2020](#)).

[Gallacher and Hossain \(2020\)](#) examine "Remote Work and Employment Dynamics under COVID-19: Evidence from Canada". According to this study, 41% of Canadian employment is performed remotely, with significant regional, urban, and industrial differences. They complement this conclusion with micro data on the labor market and provide information on the links between the feasibility of teleworking and worker characteristics such as age, gender, and income inequality. They then show that there were greater job losses in March and April for people in occupations where remote working is less likely. In one of the specifications, this correlation also applies to job losses in different industries and locations. There is a negative correlation between provinces in turnover between February and March 2020([Gallacher & Hossain, 2020](#)).

Jones et al. (2021) used new data on job openings and labor force statistics to analyze the main changes that hit the Canadian labor market during the COVID-19 crisis. Stock and flow data are analyzed for the most important developments under the assumption of a period of dissolution of temporary employment relationships, followed by a period of more conventional job search and placement. They find that in 2020, there were some important developments in employment, unemployment, and labor market attachment, where there is a unique recovery underway, with robust labor demand coexisting with the very persistent low employment rates (Jones et al., 2021).

2.1.5.2 The impact of the COVID-19 pandemic on Japanese labor market

In the Japanese labor market, they have two types of employment clearly distinguished between them, namely, regular and contingent. They are referred to differently in Japanese depending on the situation or data source. As an illustration, in ESS, regular employment comprises company managers as well as employees as referred to by some as regular employees. Part-time workers, temporary workers, dispatched workers, and contract workers amongst others constitute contingent workers. Contingent workers are sometimes referred to as irregular or nonregular workers. As reported by İmrohoroglu et al. (2019) and Kitao and Mikoshiba (2020), the incomes of contingent workers are significantly lower for both men and women. Women also have a higher share of contingent workers compared to men, as well as workers with lower levels of education compared to higher degree holders. In addition—and of importance—contingent workers are more likely to experience changes in jobs and be in unstable employment, with several empirical studies documenting this, including Esteban-Pretel et al. (2011). In particular, the COVID-19 shocks affected Japanese labor markets differently for different ages, genders, kinds of work, educational levels, occupations, and industries.

While unemployment in Japan did not rise as fast as in other countries after the onset of the crisis, at 2.6% in April 2020 (e.g., 14.9% in the United States in April 2020), labor market shocks are relatively unevenly distributed among workers. The unemployment rate in the United States peaked in April before falling to 13.3% in May and 11.1% in June. During this period, Japan's unemployment rate remained relatively steady at 2.9% in May and 2.8% in June. The COVID-19 shocks disproportionately hurt a group of females, dependent, low-skilled workers who are in social and non-flexible employment and do not have a partner from another group (Kitao and Mikoshiba, 2020).

[Hoshi et al.\(2021\)](#) use micro-data from February-June 2020 to see how mobility has affected absenteeism, work hours, and unemployment. They found out that the groups most hit were women, specific age groups of 31-45 years old for absenteeism and 60-65 years old for unemployment, irregular workers, the self-employed, and those with low educational attainment. [Kikuchi et al. \(2020\)](#) pointed out that different occupations and sectors are more vulnerable to changes; thus, there are fears of increased inequality, which we show has already been echoed within wage differentials and employment of workers in the data within the first few months following the crisis.

[Fukai et al.\(2021\)](#) use individual data to assess the impact of employment status (employed or not) through June 2020. They show that unemployed or part-time workers in the hospitality industry and younger and female workers are disproportionately affected. [Yamamoto et al. \(2021\)](#) find that employment status (regular or nonregular) and firm size are the most important predictors of variation in employment outcomes based on a May 2020 labour market survey conducted by Keio University. Based on other Keio University surveys, there was no major increase in unemployment or job change as a result of the pandemic, but family income decreased, especially among women([Schmittmann and Kotera, 2022](#)).

[Kikuchi et al. \(2021\)](#) build a life-cycle model of heterogeneous actors and simulate that the most affected groups are female, irregular, low-skilled, working in social occupations, and not able to work remotely. Moreover, they argue that the crisis would hit low-income groups disproportionately and exacerbate inequality. To avoid the spread of COVID-19 infection, a growing number of businesses have implemented a system of telecommuting or working from home for their employees. Even once the current crisis has passed, teleworking is anticipated to become increasingly popular in the Japanese labor market. This home-based work approach, however, is not appropriate for many vocations. As a result, it would be beneficial to evaluate the possibility of working from home for certain vocations, assess the extent to which telecommuting has been applied during the current crisis, and estimate probable structural changes in the future labor market. Although conducting work from home requires some IT equipment or system, the estimate in this study does not regard this issue and determines whether a given job can be done at home based solely on the nature of the tasks at each occupation. I also examine the differences in the potential of telecommuting by region (prefecture) and the industry, as well as the characteristics of workers.

According to Persol Research and Consulting (2020), the percentage of persons who regularly worked remotely within seven prefectures after the state of emergency was declared approached 28%. This went out on a nationwide survey of people aged 20 to 59 who worked outside the home regularly. According to a survey by the Recruit Works Institute, the results of which found that only about 9 percent of regular employees teleworked in December 2017, it seems that employers are beginning to allow teleworking from afar to reshape work style in Japan. This shows that productivity losses resulting from home-based work are largely due to poorly equipped home offices and communication technologies, as indicated by [Kitagawa et al.\(2021\)](#). On April 7, 2020, the Japanese government ordered a nationwide state of emergency. The state of emergency expired May 25, but the prefectural self-restraint request was extended through June 19. The government is meanwhile urging companies to allow their workers to work from home whenever they can. The Japan Institute for Labor Policy and Training (2020) survey shows that the number of working-from-home workers nearly doubled from early April to the second week of May 2020. After the late May lifting of the state of emergency, it started to fall and had plummeted by the end of July. Finally worth noting is also that the government had made a declaration of the state of emergency on request, though it was not necessary and it was the employers that made the final decision in the case of WFH. Besides, many Japanese companies left it to each workplace to determine whether or not to start WFH. Nevertheless, even within the same company, while some employees worked totally from home, others had to go to the office, even though both groups of employees performed comparable activities. We may evaluate if there are productivity losses or gains owing to WFH by looking at changes in WFH within the same organization. However, because enterprises and division managers had the freedom to comply or resist the official order, the decision to choose WFH may have been endogenous if individuals with certain unobserved workplace attributes or positions were likely to be picked for WFH. According to Kotera (2020), the ratio of employees who can work from home is 28% to 41% for regular employees and 18% to 23% for non-regular employees. There is a large difference in the practicality of working from home between regular and non-regular employees, with the former being 1.6 to 1.8 times more practical. Nonregular employees are more likely than regular employees to be unable to work from home due to the nature of their jobs, suggesting that they are under the circumstances of self-restraint([Schmittmann and Kotera, 2022](#)).

2.1.5.3 The impact of the COVID-19 pandemic on German labor market

The predictions for the economic effects of COVID-19 published in March 2020 were pretty optimistic, especially those made relative to the associated labor market. However, the published estimates by June already were a lot more negative: the German government and the German Council of Economic Experts, for example, had forecast a decline of respectively 6.3% and 6.5% of GDP last year. Estimates from September and October 2020, published before the reintroduction of a national (partial) freeze at the beginning of November, predict a GDP decline of up to 6% in 2020. However, in general, these estimates are more optimistic and argue in favor of a V-shaped recession, with an economic recovery in 2021 that would allow for the achievement of GDP growth of 4 to 5% in the year. The number of registered jobless remained well steady at 2.75 million, about 25% higher compared to October 2019, according to the Federal Employment Agency. In contrast, the disaggregated movement indicated that a quarter of this increase in COVID-19-related unemployment was due to a slightly lower number of unemployed people. For instance, as a result of the far-reduced long-term labor market policy measures, individuals who previously could have been swept off statistics data did find a place in the figures of registered unemployed persons. Another quarter could be attributed to increased layoffs, and another fifth due to lower hiring activity.

According to Brenke et al. (2013), short-time work has, in the current crisis, already reached a much higher level compared to that during the Great Recession, which peaked at around 1.5 million short-time workers. Although these figures are still subject to a higher degree of uncertainty, are only reported with a significant time lag, and are subject to revisions, the latest available updates and forecasts indeed show a steady decline—so, the share of short-time workers in all employees subject to social security contributions has come down from a peak of 20% in April 2020 to around 10% in October 2020(Eichhorst & Rinne, 2020). Hence, far-reaching measures of containment were ordered all over Germany and several other states in mid-March. This introduced the closure of shops and institutions in sectors like hotels and restaurants, commerce and culture, and leisure institutions in the public sector. Isolated contact restrictions and curfews followed. Measures on the one hand, and the economic and social damage they have been inflicting, are currently hotly debated topic(Baldwin & Weder, 2020).

Bauer and Weber (2020) examine the "short-term labor market effects of COVID-19 containment measures" by applying the difference-in-differences method. As per the research, the containment measures caused 60% of the labor force to slip into unemployment during April 2020. They further showed that the hiring margin contributed 82 percent to the unemployment effect of the separation margin. Last but not least, based on the findings, the measure increased the unemployment rate by 117,000 in the short run. Business confidence reached zero in April 2020. It then rose consistently till September 2020 before falling once again. However, this rise in the unemployment rate is not due merely to the increased number of redundancies but also to the lower hiring activity of companies, which means fewer people leave unemployed (Bauer and Weber, 2020).

Bertschek and Erdsiek (2020), the risk of unemployment is particularly high in some sectors, e.g., hotels and restaurants, retail, some other service sectors, and, to a lesser extent, healthcare and logistics. These sectors are directly affected by the restriction of economic activities and social interactions, indirectly through disrupted value chains, or simply through a dramatic drop in demand. However, some sectors of the German economy have been largely spared (e.g., the public sector, banking, education, and agriculture). Employment losses are more likely among workers on fixed-term contracts, temporary workers, marginally employed workers, the self-employed, and freelancers. For example, one in four solo self-employed people believe it is very likely that they will have to give up their solo self-employment in the next twelve months (Block et al., 2022).

From today's perspective, one can very well imagine a scenario in which the number of unemployed persons in Germany increases to 3.5 million in spring 2021 from 2.75 million in October 2020 if other causes and current events are taken into consideration. Where STW numbers in 2020 will drop more sharply to about two million by the end of 2020, it may still be the case. Because the maximum duration of STW compensation has risen to 24 months, this figure may reduce only gradually until 2011. There is a risk of hidden unemployment increasing, corresponding to a rise in STW and an increasing withdrawal from the labor market. According to Moehring et al. (2020), the lockdown phase has increased working from home in Germany. This not only includes the share of employees working from home at least occasionally but also the intensity of working from home among those who have worked from home. About one in four German employees worked from home in the period March–April 2020, and the proportion was far higher among employees with a higher education and better wages (Eichhorst and Rinne, 2020).

Using individual-level panel data collected before and during the lockdown, [Möhring et al. \(2021\)](#) investigate two issues: how people's satisfaction with their family and job changed during the lockdown and how changes in the labor market due to lockdown—for example, remote work and short-term work—affect satisfaction. In this paper, first-difference regressions are computed for parents, childless individuals, and mothers. Our results suggest that family satisfaction is decreased. We also find a decline in general job satisfaction, which is especially strong for mothers and childless people who are forced to switch to part-time work. On the other hand, family members' satisfaction increases when the father switches to part-time work, with less negative effects on well-being ([Möhring et al., 2021](#)).

According to Von Gaudecker et al., (2021), Germany used to be a latecomer when it came to working from home. During the crisis, this changed abruptly as acute health concerns as well as contact restrictions put pressure on both companies and employees to encourage and facilitate working from home. Even in professions and positions where (regular) physical presence was not required, this was often the only alternative to maintain economic activity. Apart from the benefits of a lower risk of infection and the ability to stay in business, working from home often leads to stressful situations and a whole new set of challenges in terms of balancing work, care responsibilities (especially during school and childcare hours), and personal life in general. In the current situation, the dormant political debate in Germany about whether restrictions on working from home should apply has flared up again. The debate revolves around whether a formal legal framework is necessary or whether this can be left to discussions between employers and employees (or within teams in the workplace).

In addition, a new divide could emerge in the labor market between workers who can work from home (with differences between workers with and without care responsibilities) and those who work in the service sector, i.e., those who work on the front line (with a higher risk of infection) and those who have a high risk of losing their job (e.g., in restaurants). Low-skilled workers may suffer the most from the current crisis as they spend less time working from home and are more likely to work fewer hours or lose their jobs ([von Gaudecker et al., 2021](#)).

Apart from these average consequences, the impact of the crisis is likely to vary greatly depending on the industry and company. Firstly, some sectors could be hit harder and consequently shrink in the medium or long term (e.g., hotels and restaurants, tourism, and

local retail). This would also lead to an extremely low hiring rate in these industries. Secondly, other sectors (e.g., healthcare) could experience a structural and therefore permanent increase in demand for labor. Thirdly, companies that entered the crisis in reasonably good shape or with a longer-term strategic perspective could benefit from less competition for staff. These companies could even increase their recruitment efforts, especially for younger people with in-demand talent. (Eichhorst and Rinne, 2020).

2.1.5.4 The impact of the COVID-19 pandemic on French labor market

France initiated a strict lockdown on March 17, 2020. The lockdown entailed the closure of all schools, restaurants, and other businesses except pharmacies and grocery shops. On the 24th of March, a decree limited mobility to only those reasons indicated. People were then allowed to travel around only for specific reasons, with those intending to move needing permission from their company or even a signed document just stating the reason for the trip. Their violation is punishable by a fine of between 135 euros and 3750 euros, and a 6-month prison sentence. The measures were tough, so 15 days into the lockdown, the government announced 5.8 million checks and 350,000 fines. Deconfinement progressed from 11 May, with the reopening of schools and stores still subject to restrictions according to sector and region. The restaurants and cafés closed until June 2, and the schools remained closed until the end of June. Due to this very strict lockdown, economic activity slowed significantly in April 2020 (Costa & Machin, 2020).

France has combined forceful control with some other measures, such as the need to support families, businesses, and self-employed people. This emergency aid to businesses is supposed to amount to 40 billion euros in the course of 2020 and 2021, while 36 billion euros were already used for temporary unemployment, which is equivalent to 3% of GDP, and a further 300 billion euros in a budget to ensure money keeps flowing from banks to businesses. These have already made a remarkable difference in cushioning the lockdown's impact on jobs, household incomes, and business revenues. If one weighs the momentum of rescue measures in the year 2020, then France appears to be in the middle of main European countries like Germany, Italy, Spain, and the UK. In this respect, expenditure on short-term work in France corresponds to the average ones of Spain and Italy but is lower than that of the UK —2.5 percent and stands higher than that of Germany —0.6 percent. Very intensive use of short-time work mitigated employment decline, reaching about half of the private sector workforce by the end of April 2020. The number of paid

jobs fell by 715,000 or 2.8% between the end of December 2019 and the end of June 2020. This record-breaking decline remained far lower than the fall in employment (-13.8% in the second quarter after -5.9% in the first quarter). The employment declined as a result of freezing all hiring. As such, most young people have been affected while the employment rate of older workers has reduced very little (Cahuc,2022).

Next, employment has rebounded quickly, and in the third quarter of 2021, it was 2 percent higher in total compared to when the pandemic broke out. Employment of home workers shifted and rose in Q2 2021. Then the percentage plummeted hard to rise again in the period of the second shutdown. Generally, the percentage of teleworkers has increased from 2020 to 2021. In April 2020, approximately one-quarter of employees teleworked continuously during the week. In April 2020, working from home, or simply teleworking, was most frequent in the IT and communications sector with 63% of employees, and in the insurance and financial services sector with 55%, where it was already very common before the recession. It is less common in the accommodation and food service industry at 6%, manufacturing at 12%, the food industry at 12%, and transportation 13%. In a bit to promote the spread of teleworking also known as remote working, the social partners agreed on an interdisciplinary agreement that defines circumstances under which both employees and employers can refuse to work from home teleworking, the costs of teleworking, and the right of employees to leave their workplace (Cahuc,2022).

Lambert et al. (2021) examine how lockdown measures intended to slow the spread of COVID-19 affected the health and gender equality of French families with children. The authors adopt a multidimensional approach: First, it looks at gaps in terms of paid work between men and women, and second, it probes into different dimensions of living conditions. During the first lockdown period, from March to June 2020, there were differences according to gender regarding the availability of a personal job at home, possibilities for leisure activities outside the home, and local support systems. Key findings show that French mothers were more likely to cut back their working hours or stop working for other reasons, and dual employment was often the case in heterosexual couple families with dependent children. Fathers and mothers were differently situated in responding to day leaving, with mothers less likely to leave than fathers, and more often for private leisure activities. Where children lived in the household, such gender-specific differences in work and living situations also grew larger (Lambert et al., 2021).

2.1.5.5 The impact of the COVID-19 epidemic on Swedish labor market

As has been true elsewhere, the COVID-19 epidemic also provided a hard shock to the Swedish labor market. The rate of unemployment reached 9.2 percent in 2020, higher than the peak attained during the 2008 financial crisis of 8.9 percent. On the gender side, male unemployment was far more volatile during both financial crises (2008-2011), though the increase in this crisis has been quite similar since March 2020 (actually a bit larger for women). Female employment rates have fallen a bit more than those for men over this period, which has added to a reduction in the employment gap. The other important implication of the pandemic on the Swedish labor market has been the massive use of state-subsidized leave plans. While the Swedish government, in mid-March 2020, introduced leave plans, this is likely to cost about USD 4.2 billion by the end of the year (Campa, et al., 2021).

In particular, the number of people on leave surged by 225,000 from March to April. The total is enormous, representing a sizeable share of the total pool of people who are "not currently working" (that is, the sum of "furloughed" and "formally unemployed"). By gender, inequalities in unemployment were roughly similar, although female labor force participation was a little lower than male. Furloughs, on the other hand, affected men more. In May 2020, the percentage of furloughed workers in the labor force was 9.7 percent for men and 6.5 percent for women. The unemployment rate had increased by 2.2 percentage points from February to June 2020. For people between the ages of 15-24, it increased by 7.2 percentage points during the same period and by 3.7 percentage points for foreign-born people.

The restrictions and proposals to contain the outbreak of the pandemic thus disproportionately affected workers with jobs in the service sector, particularly in transport and hospitality. Moreover, those working on short-term contracts were at higher risk. In the first half of 2020, the number of workers holding short-term contracts dropped by 12 percent. Workers on long-term contracts were much less affected and had nearly returned to prereading levels by December. The greatest concern now is the rise in the level of long-term unemployment. A quarter of all persons who registered as unemployed from March to May 2020 remained unemployed after one year, which categorizes them as permanently unemployed (Campa, et al., 2021).

Sweden, similar to other European nations, has created an innovative short-time work allowance policy set to be implemented on March 16, 2020 (Hensvik & Skans, 2020).

Companies facing temporary financial or production issues because of the COVID-19 outbreak can utilize the new initiative. The program that has just been introduced is suitable for companies facing temporary financial or operational issues caused by the COVID-19 pandemic. The primary distinction between the Swedish initiative and that of other Nordic countries is that workers can cut their hours by up to 60% (increased to 80% from 1 May), with the government providing financial assistance through short-term employment benefits and aid ([Juranek et al., 2021](#)).

2.1.5.6 The impact of the COVID-19 epidemic on Italian labor market

Due to the COVID-19 recession, Italy was under several tight lockdown measures to prevent and control the COVID-19 pandemic. The lockdown measures reduced more than 30% of the industrial output of Italy in March 2020, with a 4.7% GDP shrinkage. In April 2020, Italian industrial production went down by 19.1% from March, at its lowest level. Still, how much the lockdown is going to impact employment is yet to be shown. Social safety nets are cushioning and layoffs postponed; this has reduced the short-term impact of COVID-19 on the labor market. According to the National Institute of Statistics, ISTAT, there is a decrease in the number of unemployed people compared to March 2019 of minus 11.1 percent, while the employment rate decreased only by 0.1 percent. The decline in unemployment extended into April to levels last experienced in 2007. However, the employment rate fell by 1.2% in April compared to March 2020. ([Tommaso Colussi, 2020](#)).

Since July 2020, employment has been growing at a constant rate (+0.4% per month).³ Nevertheless, employment in August 2020 will be 1.8% lower than in August 2019. The decline in employment is mainly because fixed-term contracts are not being renewed. In addition, the unemployment rate has risen since June 2020, mainly due to a decrease in the number of unemployed in the third quarter of 2020 (-4.1% compared to the second quarter of 2020). To combat the spread of COVID-19, Italy has implemented sectoral lockdown measures, including the closure of non-essential businesses, affecting around 8 million people. Employees in the financial, banking, and insurance sectors as well as in government and the liberal professions can work from home. In contrast, employees in the manufacturing, construction, tourism, and retail sectors are the hardest hit ([Barbieri et al. 2020](#)). The Italian Social Security Authority (INPS) reported a 2,953% increase in applications for temporary reduction of working time subsidies in April 2020 compared

to April 2019. Various and several researchers focused on the widespread use of remote/smart working techniques and their impact on labor market outcomes, especially because Italy had one of the lowest shares of teleworking among European countries before the outbreak of the pandemic (Eures, 2019).

Bettin et al. (2023) investigated how the COVID-19 lockdown affected gender disparities in the Italian labor market. During the temporary lockdown, it was discovered that gender differences in a wide range of job opportunities were exacerbated in low-impact industries. More precisely, women had a 0.7% higher chance of being laid off from their jobs than men. During the return phase, exposures were greater compared to the entire lockdown period. The probability of receiving benefits from the pay guarantee program, a government subsidy given when work is reduced, was greater for female workers who were affected by closure and reopening (Bettin et al., 2023).

Barbieri et al. (2022) categorized jobs by the ability to work from home and discovered that employees who worked remotely reduced the risk of dispersion in key sectors that were not forced to close (e.g., the service industry) (Barbieri et al., 2022). Del Boca et al. (2020) examine "the impact of COVID-19 related work arrangements on housework, childcare, and home schooling in couples where both partners work." According to the results, women are responsible for most of the increased housework and childcare associated with COVID-19, but childcare is more evenly distributed within the partnership than housework. Furthermore, the changes in the amount of housework performed by women during the emergency do not appear to depend on the employment status of their spouses. Except for those who continue to be employed in their normal job, most of the women surveyed spend more time on housework than before the crisis (Del Boca et al., 2020). According to Depalo and Giorgi (2021), the increase in working from home was greater among female workers, and they also benefited more from teleworking in terms of disposable income, hours worked, and access to redundancy funds (CIG). Aina et al. (2021) examined the 'impact of the COVID-19 pandemic on wage distribution using quantile regression analyses based on LFS data up to the second quarter of 2020 and found that "women would more benefit from the increased possibility of working from home" (2021).

In contrast, Bonacini et al. (2021) "investigate the potential impact of occupations' work-from-home attitudes on the gender wage gap reported by Italian workers on average and along the distribution". They use the Oaxaca-Blinder decomposition and unconditional

quantile regressions. In this way, they could describe how such an epidemic catastrophe would have long-term negative effects on women due to the already large gender pay gap in occupations where much work is done from home, with an emphasis on older and married female workers([Bonacini et al., 2021](#)).

Del Boca et al. (2021) use the survey data from interviews with a representative sample of employed women that took place during two COVID-19 waves: April and November 2020, while investigating how hours worked during a pandemic impact the traditional division of domestic work in Italy. The results of the study show that the gender gap in family care tasks was most pronounced during the initial period of the epidemic. Although it was less pronounced in the second wave, it is bigger than before the COVID-19 recession. The time spent by women on housework, childcare, and supporting their children in distance learning did not depend upon work arrangements by their partners. Still, men spent fewer hours working from home in housework and distance learning. Curiously, it can be noticed that while being unemployed or working remotely allowed men to spend more time on housework and childcare, their longer time at home did not seem to have caused any redistributions in couples' time from work into childcare and housework ([Boca et al., 2021](#)).

Mangiavacchi et al. (2021) estimate how the lockdown is going to affect the use of time by children, their psychological situation, and academic performance at home or in distance learning. In particular, they use real-time survey data on households with children under 16 collected in April 2020 containing information on parents' market and household responsibilities and their assessment of their children's well-being, investigating whether the redistribution of tasks within the household during the lockdown is associated with an integral part of this process. Changes in the division of domestic responsibilities and childcare by parents, primarily constrained by labor market dynamics during lockdown, point to the increasingly higher involvement of fathers in childcare and home education. Increased parental involvement has been associated with an increase in children's mental well-being and decreased television viewing and passive screen use. On the other hand, the effectiveness of home schooling in children does not depend on parents' supervision over work but on the nature of homework by the teachers([Mangiavacchi et al., 2021](#)).

2.1.5.7 The impact of the COVID-19 epidemic on Austrian labor market

As in other European countries, the COVID-19 epidemic hurt the Austrian economy. Actual Austrian GDP growth would be around 6.3% lower in 2020. The number of unemployed rose, manufacturing, and business services were hit hard, especially in contact-intensive sectors such as tourism, and production fell. On the demand side, private spending and investment fell sharply (Hassine et al., 2021). Previous studies have shown that employment in regular jobs fell sharply during recessions and did not return to pre-crisis levels. Jaimovich and Siu (2020), for example, found that over the past four decades, more than 90% of jobs in regular occupations were lost within 12 months of confirmed downturns. Moreover, unlike high- and low-skill occupations, these highly routinized middle-skill jobs did not return throughout the recovery period. This polarization of employment occurred at a time when automation technology was advancing rapidly. The impact of the COVID-19 epidemic on the labor market is inextricably linked to lockdowns and other restrictions on economic activity. For example, the Austrian government imposed the first lockdown on March 16, 2020. The proposal includes the closure of schools, a curfew, and a ban on setting up new businesses, except for stores offering food, medicines, or medical products; restaurants could offer meals (Bock-schappelwein et al., 2021).

When the second round of COVID-19 began to spread in the fall, attempts were made to combat the outbreak with a limited lockdown (also known as "lockdown light"). As a result, a second, stricter lockdown was imposed from mid-November to early December. These restrictions applied until 18 May 2021 for restaurants, accommodation establishments, sports facilities, events, leisure centers, and cultural institutions. The number of people in employment fell drastically in spring 2020 due to the first lockdown (March 4.9%, April 5.0% compared to the previous year). The difference between the number of people in employment by year narrowed to 1.0% by September, when the economy recovered and summer tourism increased, but grew to 3.3% by the end of the year due to the second lockdown in November and the loss of the winter travel season. Looking at the months before the first lockdown, the average decline in total employees in 2020 was 2.0% or 76,108 jobs. A greater loss of jobs was averted by the coronavirus temporary work scheme (Bock-schappelwein et al., 2021).

Within a few days, unemployment simply skyrocketed to its highest level since 1945. The commencement of the summer travel season and the limited resumption of business activity in the affected sectors did not mitigate the upward run. But it ascended again at the end of the year when the winter ended. The number of unemployed rose in the spring but dropped sharply in the winter when the winter season ended, and more people than usual began to leave unemployment. Whereas the number of applications for unemployment benefits was slightly higher in the winter of 2020 than the year before. In terms of the effect the lockdowns induced in the fall and winter of 2020 upon the labor market, the impact was not as strong as with the lockdowns in the spring of 2020. In 2020, 409,639 (men +34.4%, women +37.8%) unemployed people were registered with the Public Employment Service, meaning 108,312, or 35.9% more on average, than in 2019. That national calculation method puts the unemployment rate up to a steep 9.9%, the highest since 1945. Short-time work programs provide companies with the opportunity to scale down working hours with government subsidy which is to compensate for hours lost income. And that helps companies in extreme crises. Austria already had a short-term employment program in place before the pandemic, although take-up remained very low even during the Great Recession of 2009 (Hofer et al., 2020). Huemer et al. (2021) provide an overview of the advantages and disadvantages as well as the design of this labor market policy instrument by comparing the Austrian corona short-term employment model with variants in some European countries. It turns out that the regulations in Austria are pretty lax when it comes to temporary work. Moreover, this country offers a wide range of fixed-term employment contracts. It is possible to change the instruments of temporary employment in the event of a predicted economic upturn. Depending on the nature and intensity of the crisis, both discrete short-term measures and phased models can be used (Huemer et al., 2021).

The new program is much more attractive to companies overall, partly because of its greater scope (the state pays full social security contributions) and flexibility (working hours can be reduced to zero in certain months). In addition, maintaining the wage bill through the short-time work program was a necessity to qualify for additional COVID-19-related subsidies. In April 2020, around 30% of employees were working part-time. General economic conditions have been severely impacted. In particular, the rise in unemployment has been significantly reduced as a result. For example, the national definition of unemployment in April 2020 was around 5 percentage points higher than the rate

in April 2019. In the worst-case scenario, which would have led to the immediate dismissal of all employees registered for short-time work benefits, the unemployment rate would have risen by 30 percentage points compared to April 2019 ([Ragacs & Reiss, 2021](#)).

2.1.5.8 The impact of the COVID-19 epidemic on the Belgian labor market

As in other European countries, Belgium's experience with the coronavirus disease 2019 (COVID-19) is similar. At the beginning of 2020, the COVID-19 crisis reversed this positive trend. In Belgium, as elsewhere, the public was shut out, businesses shut work was generally reorganized and activity started to resume again. While COVID-19 began as a health disaster that quickly became an economic and social crisis. It is not expected that the pre-crisis levels will be reached again until around 2021. While the labor market is still going through the crisis in June 2020, the hit is not as strong. Thanks to the crisis, the Belgian employment rate at the end of 2020 was slightly lower than at the end of 2019. Compared to the major blow to economic activity, the labor market has proved to be very robust. Since the crisis started, temporary layoffs and bridging plans were streamlined and edged into more areas where employees and self-employed needed to stop working because of social and economic hardships. At the same time, some 40 percent of private sector workers, or around one million people, were receiving temporary unemployment benefits, in April 2020. That's more than five times the peak during the Great Recession when the highest number of people receiving temporary unemployment benefits was 230,000. On the bridge between employment and freelancing, some 400,000 employees, or 1 in 2 have used this privilege. In July 2021, the statistics almost returned to normal, with 148,000 employees laid off and 15,500 self-employed workers laying the bridging privilege. Other forms of resilience have been the increasing use of work from home. Companies have managed to keep their employees working for their wages and make it possible to keep their operations wherever possible ([Coppens et al., 2020](#)).

The temporary lay-offs, bridging rights, financial support to businesses, telework, and the ban on bankruptcies have played an important role in containing job losses in 2020. In the last year, domestic employment has decreased by a net 800 persons, according to national accounts statistics. Although this balance is very positive given the size of the shock, it must be kept in mind that the Belgian economy had created an average net gain of around 70,000 jobs annually before the health crisis and therefore offers better precision in establishing the impact on the labor market. The economy has recovered, and a

new series of measures to support employment can fairly predict the creation of 45,000 jobs in the first half of 2021, with that growth likely to persist in the second half of the year. Taking into account the risk of a backlash from bankruptcies in employment growth, it can become less dynamic in 2022 and regain its pace in 2023. The package of measures adopted by the government, consisting of short-term job cuts and financial support for people and independent contractors or self-employed, has minimized job losses. All the same, Belgium is still facing an exceptional economic crisis with important repercussions in terms of employment and unemployment rates. Even though the National Bank of Belgium indicates that the economic recovery started earlier than expected by an increase of 0.6% in the first quarter of 2021, the Federal Planning Bureau still assumes a drop of about 30,000 people in total domestic employment during 2021 ([EURES, n.d.](#)).

As in many other European countries, there was a strike in Belgium on March 18. People began to work from home wherever possible, but it was not feasible in many critical sectors—for instance, in grocery stores. Many people were compelled to give up work in non-core areas wherein working from home was not practical. All these comprehensive safeguards were operational and to reduce the socio-economic damages, several measures to protect jobs and the purchasing power of workers were brought in a jiffy. Of these measures, the most important to workers are temporary layoffs. Though this method was in operation since long, the procedure, eligibility criteria and the ratio for severance pay have been revised on 13th March 2008.

Working from home already existed before the introduction of COVID-19 and mainly affected people with higher education who already sometimes or routinely worked at home one or more days a week ([Colophon, 2022](#)). According to data from the labor force survey, people born outside the EU are less likely to work 'sometimes or regularly' at home¹⁰ than people born in Belgium or an EU Member State (by around 13 percentage points). From the first quarter of 2020 to today, the share of remote workers is increasing for all population groups, but especially for those born in Belgium or in the EU (with the latter group seeing the largest increase, probably due to the additional difficulties for foreign workers to get there).

short-term layoffs can be claimed in most cases for jobs where work had to be interrupted due to the epidemic but no remote work was allowed. The National Employment Office (NEO) data on temporary layoffs can be broken down by ethnicity. The statistics show a high proportion of workers of foreign nationality receiving short-term unemployment

benefits from March 2020 to November 2021 (of people who were temporarily unemployed for at least one day a month). This overrepresentation increased from +6.7 percentage points in March 2020 concerning their share of the total workforce to +11.0 percentage points in August 2021. After that, the margin decreases slightly again, although it is still larger than at the beginning of the crisis ([Colophon, 2022](#)).

For the first time, Lippens et al. (2021) investigated the likely influence of the COVID-19 pandemic on professional outcomes and career expectations. Around 21% of them are afraid of losing a job as a result of the crisis, while 14% are afraid that it might happen soon. Furthermore, about 26% expect not to be promoted to a position they would have reached if the circumstances with COVID-19 had been different. It can be suspected that vulnerable groups, such as migrants, may more often fear the negative consequences. We also underline that a significant share of the respondents believe that their opinions about the labor market and what they want in terms of work will change over time. More than 50% of the respondents replied that they are now paying greater attention to work-life balance and working conditions compared to before the COVID-19 crisis ([Moens et al., 2022](#)).

2.1.5.9 The impact of the COVID-19 outbreaks on the labor market in the Netherlands

The COVID-19 outbreak in early 2020 is an extremely developing working life in the whole world. Over 200,000 people lost their employment between March and May 2020. However, when these more and more restrictive restrictions were progressively eased, steady recovery started, and improbably, progressed more or less unbroken during the second wave of the epidemic. Between May 2020 and September 2020 and March 2021, it took a month for employment to fall further, but beyond that, it fell less each month. Between June 2020 and July 2021, employment increased on average by 17 thousand per month. At the end of the month, 9.2m people were in jobs. That means that, while this is still only slightly more than the number in employment in February 2020, just before the start of the epidemic in the Netherlands, it is still more than half a million. Increase in over 150,000 unemployed between March and August 2020. The working population's unemployment rate peaked at 4.6 percent in August of 2020 and most recently has decreased generally, falling to 3.1 percent in July of 2021 and closing the uptrend with a small rise back up to 3.2 percent in August of 2021; at least 0.3 percentage point more

than the historical low of 2.9 percent in February of 2020. The gross labor force participation rate peaked in July 2021 and stood at 71.6 percent of the population, the highest rate to date and since the first year included in the current time series. Recovery had been swift in the labor force participation rate following the sharp decline between February and May of last year when it fell from 71.4 percent to 70.2 percent. In July 2021, it was still below the pre-crisis level. The majority of workers who lost their jobs due to the COVID-19 pandemic were previously young, had a low to medium level of education, were not from the West, and had non-standard employment contracts. For most of these groups, the situation in the labor market has now improved significantly. People with a non-Western migration background are less likely to be unemployed today than at the beginning of the COVID-19 pandemic. But the unemployment rate for 15 to 25-year-olds is still 1.0 percentage points higher than in February 2020 ([Jongen et al., 2021](#)).

The unemployment rate among persons of low educational attainment was 1.0 percentage points higher in the second half of 2021 compared with the year 2020. Especially workers with non-standard employment contracts were hard hit in the first wave of the pandemic, while workers with permanent contracts on average fared better. Compared with the first quarter of 2020, the second quarter of 2021 showed 115 thousand fewer employees with atypical contracts and 96 thousand more employees with permanent contracts. The extraordinary reduction in weekly working hours in April 2020 preceded the sharp decline in employment (160 thousand people). The average number of hours worked per week per employee fell by 12% (4.0 hours) in the immediate period following the commencement of the initial lockdown in March 2020. Hours worked per employee continued to decline through April and May 2020 before stabilizing at a level of 5.9 hours per week, 18% below the level at the start of March.

From the first wave onwards, weekly working hours picked up in June again, accompanied by an easing of the restrictive measures; the number of hours remained almost unchanged in September 2020. It then increased by 5% between September and December 2020, reaching a level still 10% lower than at the beginning of March 2020 (3.1 hours per week). The re-introduction of restrictive measures, such as partial lockdown in October 2020 and further measures in November 2020, has thus far failed to stem this rise ([Jongen et al., 2021](#)).

The study by Dvořák et al. (2020) examines the "economic impact of the COVID-19 pandemic on human capital and labor markets". In particular, it examines the problems

that the pandemic has caused for workers and human resources during the coronavirus lockdown. The results of the study show that despite all the negative consequences of the pandemic, including the overburdening of the healthcare system, large economic losses, and disruptions in the labor market (including the loss of human capital and the widening of gender inequality) caused by the lockdowns in several countries, which were intended to stop the spread of the infection and straighten the curve representing the number of COVID-19 patients, there were nevertheless many positive economic effects of the current scenario.

We also note that the COVID-19 pandemic has helped to optimize workloads and cut unnecessary work in many large and small companies and public institutions. Most of them will likely continue this optimization and digitalization of work even after the pandemic is over. Finally, we note that family life and interpersonal relationships have improved, which undoubtedly contributes to the quality of human capital and happiness levels (Dvořák et al., 2020).

At the same time, temporary work has brought about expensive costs to public budgets. It is due to this fact that the question related to the continuation of these measures during a longer period has turned into one of the central themes of the political debate in many countries. According to the LISS panel (Longitudinal Internet Studies in the Social Sciences), hours worked per employee have seen the largest drop ever in the Netherlands during the first wave, amounting to 18% in May. Working hours partly recovered from May to September. Employment for people reduced more slowly and dropped to -2.2% in May and further went upwards until October to -1.2%. The steep increase in short-term employment, reaching as high as 36% of the workforce between March and May before declining to 18% between June and August, does not doubt a significant fillip to the ongoing increase in employment of people (Eichhorst et al., 2021).

Balgová et al. (2022) evaluate the influence of the recession triggered by a pandemic on job searching. The data applied were from long-term panels in the Netherlands, LISS. The number of applications, which includes employed and unemployed respondents searching for jobs, will be provided by the survey. They built an empirical model of job search over the business cycle from 2008 to 2019 to understand the gap between the expected and observed job search behavior of the workers in 2020. Particularly, we find that the pandemic recession is quite different compared to other downturns concerning job search: the number of job seekers is much below what one should expect to see at this

point of the crisis. A propensity to search for work among the employed is much higher than one would expect, whereas those searching are far less likely to apply for a job. Expectations about the duration of the epidemic seem to play a very important role in explaining the job search effort of the unemployed in 2020. Moreover, employed people whose workplaces have been affected by COVID-19 are actively looking for new employment ([Balgová et al., 2022](#)).

Using adjusted panel data for the entire year 2020, Janys et al. (2021) examined the patterns of family income and working hours at different points in time during the COVID-19 epidemic. They show that fluctuations in working hours are closely related to socioeconomic position, especially in cases of severe financial hardship. On the other hand, household income is unchanged in all socioeconomic categories. After examining what led to these results, they conclude that the socioeconomic differences in the total number of hours worked can be explained by particular employment characteristics related to the epidemic (e.g., the ability to work from home and the position of an essential worker). Household income is essentially independent of shocks to worker hours. They provide evidence that widespread labor hoarding has helped protect workers from shocks to their employers ([Janys et al., 2021](#)).

Bussink et al. (2022) document the employment potential of low-skilled workers in the Netherlands during the COVID-19 recession. They looked at two recent graduate cohorts and compared them with two cohorts before the COVID-19 crisis: the 2019 cohort was hit, against all expectations, by the COVID-19 crisis about six months after entering the labor market, and the 2020 cohort graduated and entered the labor market in the middle of a lockdown period. According to the findings, restrictive measures may exert short-term impacts on the prospects of employment, particularly for people entering the labor market at a lower level of education. When the lockdown eases, the impact tends to reduce. Short-term imbalances may result from the fact that men seem to be more sensitive than women, and that there are sectors more sensitive than others. Probably, two major reasons why overall consequences seem less serious than they would be in an economic downturn are the tight labor market and, also, the far-reaching measures that have been adopted by the government to soften the consequences of the COVID-19 crisis on the labor market ([Bussink et al., 2022](#)).

2.1.5.10 The impact of the COVID-19 pandemic on Spanish labor market

Due to the early and severe impact of the epidemic, Spain has some of the strictest lockdown measures in Europe. Realizing the aggravation of the situation, the Spanish government declared a state of emergency on 14th March 2020, which implied restricting people's freedom of movement, and closure of businesses, schools, stores, and all other public places except essential services. On March 30, the government tightened the lockdown measures even further and ordered all non-essential activities, including construction work, to cease by April 9. All in all, from March 15 to early May, Spain had the most rigid lockdown in Europe, while the countrywide lockdown itself lasted until midnight on June 20, 2020. For mothers and fathers, the effects of the total closure of some industries and increased duties due to the COVID-19 epidemic were probably very different ([Dolado et al., 2020](#)).

Due to the high proportion of service sectors, especially tourism, and the widespread use of temporary contracts in Spain, the COVID-19 epidemic not only took a considerable number of lives within the country but has put an extraordinary impact on its economy. Employment and working hours experienced a greater decline in 2020; particularly in Q2, it was double the average EU27 average. While the decline in employment was almost identical to that during the Great Financial Crisis, that in hours worked was much more severe. One key characteristic of the COVID-19 shock is that it differentially affects the labor market outcomes of various demographic groups. As documented by the IMF's World Economic Outlook of April 2021, this epidemic affected youths and low-skilled workers more adversely. This is partly because vulnerable populations are more likely to be concentrated in the sectors most affected by the epidemic. This therefore necessarily means that policy measures focused on those very sectors most hit by the crisis—for instance, the public credit guarantee and Spain's successful temporary job retention program ERTE—ought to curb the rise in inequality induced by the crisis. However, in case labor market inequality is caused by variables other than the heterogeneous sectoral effects of the shock, further policy measures would be needed to reduce its negative impact on inequality ([Lariau & Liu, 2022](#)).

According to the Spanish Labor Force Survey, EPA, over 1.1 million jobs were lost in the second quarter of 2020 alone, and the number of families in Spain where all members are actively jobless rose to 1.14 million from 992,000 in the same period in 2019. Two factors could be behind these high figures. While most of the European nations had much

more lax lockdowns compared to Spain, according to Google's mobility reports, secondly, that Spanish economy is more dependent, unlike other EU economies, on the tourism sector that has suffered the most from imposed restrictions. In October 2020, the Spanish government declared a new nationwide state of emergency, under which a nationwide curfew was imposed until 9 May 2021, against the resurgence of coronavirus cases. Local authorities ordered travel restrictions for different regions. Under the new state of alarm, amidst which it had to make a modest recovery in the fourth quarter of 2020—the employment growth was 167,400 according to the EPA—now has the third wave again hard-hitting the Spanish labor market, as registered unemployment went up by 44,436 during February 2021 alone. After more than a year of fighting the COVID-19 pandemic, the Spanish labor market is still under strain. Since the introduction of the first restrictions in March 2020, 401,000 more people are unemployed. Furthermore, in March 2021, almost 750,000 people were still on the government's ERTE furlough scheme and unemployment rose steadily to over 4 million for the first time in 5 years. It is also important to highlight that unlike the Great Recession of 2008, where male-dominated industries such as construction and manufacturing were hit the hardest, this dangerous, unique COVID-19 economic crisis may have had a harsher impact on female workers (Blázquez et al., 2022). Farré et al. (2020) investigate the impact of the COVID-19 lockdown on gender inequality in paid and unpaid work in Spain. They adduce evidence of important job losses during the lockdown, particularly in "quarantined" sectors and non-essential sectors where telework is not permitted. Temporary job losses overwhelmingly affected people of a lower level of education. Whereas the unemployment rate was a bit higher for women than for men, among those employed, more women worked from home compared to men. Due to closed schools, and no possibility of outsourcing of jobs, child care, and housework increased substantially during this lockdown. It is found in the study that while men contributed a bit more to childcare and housework, the bulk of the workload belonged to women since they were already responsible for the bulk of the housework before closure. In sum, they find that inequalities between men and women in paid and unpaid work appear to have increased temporarily as a result of the COVID-19 lockdown (Farré et al., 2020).

Pinilla et al. (2021) estimate the economic impact of SARS-COVID-19 (COVID-19) in Spain. To perform a retrospective study about the macroeconomic impact of the COVID-

19 pandemic in 2020, using the key economic indicators for the 17 Autonomous Communities (ACs) of Spain, the intensity of the impact on each of the variables studied was estimated by use of Bayesian structural time series. They also established the relationship between the GDP decline rate in 2020 and the sum of COVID-19 cases per 100,000 persons in the ACs. According to the results, the effects on GDP generally were -11.41 percent with a 95 percent credibility interval of -13.46 ; and -9.29 . The business turnover index recorded a shift of -9.37 percent -12.71 ; -6.07 . The weakest indicators were for the ACs, which are primarily dependent on services as the driver of their economic growth. As explained by Pinilla et al. (2021), the events of COVID-19 in 2020 and the decrease in GDP in ACs are not statistically related (Pinilla et al., 2021). Raimo et al. (2021) tested the influence of the COVID-19 pandemic on supply and demand in the labor market across Spanish municipalities, along with the factors that may condition the levels of employment. The results put front and center what the characteristics of the economic structure are in explaining supply and demand for employment during the first months of the pandemic. Moreover, they indicate that municipal economic activity and demographic characteristics of the population are the determinants of the labor market (Raimo et al., 2021).

Blázquez et al. (2022) examine how within-household gender inequality in terms of paid working hours, as a consequence of the COVID-19 epidemic, has changed among heterosexual couples with both partners working full-time in Spain. From the Spanish Labor Force Survey 2019–2020, the authors use a difference-in-differences strategy to test the short- and possibly medium-term effects of gender inequality on paid working hours during the three pandemic phases: rigorous lockdown, de-escalation, and partial closure. The results of the study confirm that, during the hard lockdown, there was a trend to fall back on more traditional, gendered family patterns in an effort to retain work-family balance; mostly this was in male-headed households with young children. However, it does appear as if this is more of a short-term side effect of the pandemic. It widened more in families where the head of the household was male and in the case that the female spouse worked in non-essential sectors; this was related to the sector of activity (Blázquez et al., 2022).

2.1.5.11 The impact of the COVID-19 pandemic on the Swiss labor market

Switzerland's population includes the economically active and the non–economically active section. According to the ILO description the economically active labor force comprises of the employed- the self-employed, contributing family workers, employees, and apprentices-and the unemployed. The retired, male and female housewives and the students are considered as not employed. Despite a sharp rise in demographic aging (67.1% of the working population in 2022 compared to 67.7% in 2002), the relative share of persons aged 15 and over in the working population has stood the same in the last 20 years. However, in the working population, the number of shares of employees has increased together with the fall in shares of self-employed entrepreneurs/family members working in family businesses. Notable is the fact that the economically inactive age bracket has an increase in senior citizens and a decrease in the number of housewives (ILO, 2021).

In the fourth quarter of 2022, there were 5.242 million employed people in Switzerland—0.8% more than in the same period in 2021. Compared to most EU Member States, in 2022 part-time employment is 37.0%. The employment rate per sector stands at 2022 statistics as follows; the service sector employs 77.4% of employees, industry, and commerce take about 20.2%, and the primary sector takes about 2.3%. The population has been increasing very rapidly in Switzerland, as in the majority of other nations. In 1970, there were 6.1 million residents in Switzerland; that figure today is projected to be 8.7 million by 2020, many of whom are to be immigrants, 25% of them (EURES, 2023).

The International Labour Organisation (ILO) reported that during the last quarter of 2022, the country had 206 000 jobless individuals, which was 15, 000 less than the previous year at the same period. The rate of unemployment among these people also reduced from 4.4% in the fourth quarter of 2021 to 4.1% (ILO, 2021).

Sheldon (2020) investigates "Unemployment in Switzerland in the wake of the COVID-19 pandemic: an intertemporal perspective". Results show that at some point in time, Switzerland has not always been over 4%, but the last time was in the 1990s. An analysis of the unemployment rates broken down into their main components reveals that lockdown has brought a new record in frequency and almost equaled the previous records in terms of the duration of unemployment. Frequency and Duration of Unemployment. Moreover, the projections about the future development of the unemployment rate and

the share of long-term unemployed resulting from the frequency and duration of unemployment in June 2020 reveal that the unemployment rate and the portion of unemployed will at least match if not surpass the record of the 1990s and that both will considerably surpass the old reference values ([Sheldon, 2020](#)). The number of vacancies in the Swiss labor market had fallen by 45% by mid-March (lockdown period). Due to the decline in demand for labor, short-time work was used to an unprecedented extent, accounting for 37% of the workforce at the end of May. Temporary work and fixed-term contracts have now been included in the extended plan. The relatively slight increase in unemployment to 3.4% mainly affected young people([Arni, 2020](#)).

Dubois et al. (2022) focus on the "Impact of the pandemic on gender differences in labor market outcomes in Switzerland." They use information from the Swiss Labor Force Survey to provide strong documentation for an increase in gender differences in labor market participation. Women were more likely to take up temporary work during the pandemic, although there is no evidence that gender inequality in unemployment has increased. Contrary to the case in the US, the employment gap has not increased where children are living in the household. Sector and type of employment do, however, have an important explanatory power for gender inequalities. More specifically, using a new remote work index, we show that the effects of the crisis on hours worked, temporary employment, and wage outcomes depend importantly on how easily accessible the respondent's occupation is employing remote work ([Dubois et al.,2022](#)).

Hijzen and Salvatori (2022) examine the various ways in which the COVID-19 pandemic has influenced the socio-economic strata in Switzerland, as well as the role of the short work program in the country for the period starting from the beginning of the pandemic until the end of 2020. As can be noted from the available data, the short work program in Switzerland was fit for purpose in the first year that the COVID-19 pandemic was affecting the country. This, coupled with the short-term work program—helping people reduce the risk of job loss—explained a lot about the resilience of the labor market in Switzerland. In that respect, based on the Swiss Labor Force Survey, the probability of a worker being placed on STW rose from approximately 1% before the crisis to a record 13% in Q2 2021 as a result of the crisis and the very steep decline in economic activity. Consequently, the risk of job loss for workers remained low, at 4%, barely 1 percentage point higher than in the five years before the crisis itself ([Hijzen & Salvatori, 2022](#)).

2.1.5.12 The impact of the COVID-19 pandemic on the Norwegian labor market

Like in most European countries, the situation in the Norwegian labor market became worse during the recession of the COVID-19 period and further deteriorated when the government announced very strict lockdown measures to try and contain the COVID-19 outbreak. During the first wave in winter-spring 2020, there were implications for the workers which were something and also new schedules of work and distance work most likely permanent dismissal and therefore lack of wages. Throughout most of the pandemic, contrary to the full-time employees, the part-time workers were observed to have a higher incidence of negative changes in income; the involuntary PT employees recorded the highest change. However, particular full-time and involuntary part-time employees could not be differentiated from each other in case the working staff was dismissed for a specific period or if their working hours were reduced. This paper has mentioned earlier those studies have revealed that indeed, the majority of part-time workers do work many hours regularly. They include the following; unemployment insurance as well as policy on the provision of short-term benefits is already in place in Norway. Due to unanticipated financial and production factors that affect these companies COVID-19 and similar businesses may decide to let off all or some employees. In this case, they will all be in the same benefits as unemployed employees are witness to within their jobs. As the epidemic raged into the next areas, some interim changes were improvised. Several of these kinds of benefits have experienced shifts in terms of the length and number of people who could qualify to receive them. Originally, organizations had to proceed with paying the wages for the first 15 days of the work strike.

Since March 20, 2020, the employee's requirement was cut to two days, but starting from September 1, 2020, it became ten days. Half of the surveyed working participants worked fewer hours and would have received at least \$5062 in state-funded compensation, which means 62.4% of lost (annual) income. The compensation would cover lost income during days 3-20 if the leave of absence started on/after March 20, 2020, and ended on September 1, 2020. From the 21st day, the state paid 80% of the income below appr. NOK 300,000 and 62.4% of the income between NOK 300,000 and NOK 600,000. Beyond this point, the government did not offer any compensation at all. Besides, there was a temporary cut of the prescribed minimum working time reduction of 40% ([Hauge et al., 2024](#)).

Ingelsrud (2021) analyses how the work-related consequences of COVID-19 in Norway diverged for workers in different employment relationships during the first wave. Generalized linear regressions with an exact representation were run on 3002 workers, which calculate the relative risk of being asked to work elsewhere, being temporarily laid off, having fewer working hours, and suffering from income losses. The models compare voluntary and involuntary part-time employees to full-time employees and the self-employed and temporary workers to employees working long-term. Results show that the self-employed were more likely to reduce their working hours and have a corresponding decrease in income. No increased likelihood of an assessed outcome was associated with short-term employment. Compared to full-time workers, part-time workers faced a greater risk of income reduction, but a lower risk of being asked to work from home. Also, according to the results, part-time employees are more likely to work fewer hours. The results are discussed concerning issues of risk and flexibility and how standard employment shapes welfare and regulation. It also emerges that the government has done little to extend the safety nets to other groups of workers. In this regard, non-traditional employment entails personal financial risks (Ingelsrud, 2021).

Ingelsrud (2021) examined how the consequences of COVID-19 for workers at their workplace in the first wave separately and dissimilarly affected workers as per their employment relationships in Norway. Generalized linear regressions with exact representation are performed on 3002 workers that estimate the likelihood ratio of being asked to work somewhere else, temporary joblessness, having low working hours, and experiencing losses in income. The models contrast voluntary and involuntary part-time workers with full-time workers and the self-employed and temporary workers with long-term employees. The study also indicates that while the self-employed were able to cut down their working hours they also had to accept the consequential low incomes. There was no correlation between attaining short-term employment and a higher likelihood that an assessed outcome would be produced. Part-time employees were more vulnerable to having their income cut than full-time workers but less likely to be required to work from home. Moreover, the outcomes suggest that part-time staff members will work fewer hours than full-time staff members. About questions of risk and flexibility, and welfare and regulation embedded in standard employment, the findings are presented. It also becomes evident that the government has not done much to extend those safety nets to other categories

of employees. In this regard, nontraditional employment is associated with potential personal financial vulnerability (Holgersen et al.,2020).

Alstadsaeter et al. (2020) use real-time registration data to describe the nature, dynamics, and socio-economic characteristics of temporary and long-term unemployment resulting from the economic downturn in Norway. Evidence suggests that these effects are already spilling over into non-SDP-exposed industries. About 90 percent of redundancies are temporary. There are, however, encouraging signs that a proportion of companies get distressed so fast that it results in long-term rather than short-term layoffs. It was further found that the shock was due to redundancies in smaller, less profitable, and financially weaker companies, that there were large socio-economic differences, and that parents with younger children and the financially weaker were affected (Alstadsæter et al., 2020).

2.1.5.13 The impact of the COVID-19 pandemic on the UK labor market

COVID-19 is considered an outspread pandemic, and it threatens to destabilize the world and slow the country and the global economy deeply. The COVID-19 epidemic caused the deaths of over 90,000 people by January 2021 in the UK. As mentioned earlier, lockdown was the most severe measure or method used to curtail the COVID-19 scourge. The UK government adopted unprecedented measures to help in the situation: The Coronavirus Job Retention Scheme, which gave amounts to companies to pay wages up to 80% percent to limit job losses. Ferreira et al (2020) stated that in the UK, the claimant count, which is an indication of applications for unemployment benefits, went up by 125.9% while job vacancies reduced by 58% from March to May (Ferreira et al., 2020). Even though the rate did not rise, the unemployment rate started to exhibit an increasing trend by the close of the year and stood at 4.9% in December 2020 (Office for National Statistics, 2020).

The study by Arthur (2020) entitled "The UK labor market in times of COVID-19 crisis based on Internet job advertising data" made use of the data collection from the online job board Reed.co.uk. He considers how job, contract, and pay trends have deviated since the pandemic emerged and reached the UK last March. By the time the lockdown had been implemented, the total postings were falling by 60 to 70% in the new vacancies advertised during the first few weeks. Although the numbers turned much more positive towards the end of the year, the job adverts were still over 40 percent behind the 2019 rates. The occupational vacancies by company (sector) reveal far fewer vacancies for

graduates and in hospitality. Still, there were more vacancies in nursing and healthcare during the lockdown. The geographic differences are less marked than those between sectors, with some signs that local closures are undermining the bounce-back, and less severely affected places seeing a smaller fall in job postings. Small but significant shifts were seen in the number of full-time and permanent jobs and income distribution (Arthur, 2021).

According to Costa Dias et al. (2020), the public health response to COVID-19 has resulted in a steep fall in labor demand for many economic sectors in the UK. While travel restrictions brought air travel in particular to a halt, the quick and decisive response of the government to the epidemic led to the forcing of closure of whole sectors of the economy, most notably non-essential retail and hotel and leisure businesses. Before the crisis, there were only more than 5 million people employed in these sectors in the UK. Many more lost their jobs when the March 23 lockdown came into effect. The proportion of UK workers who were without meaningful employment in the early months of the crisis increased to unprecedented levels when the impact of such closures on other businesses in the supply chains of these sectors is factored in. By the end of May, official figures revealed that approximately 8 million workers had been furloughed and lost their job, at least temporarily (Costa Dias et al., 2020).

Using the new projections in the Labor Force Survey from February to April 2020, it was not felt that the epidemic had effects on employment, unemployment, or the economically inactive. These more "traditional" forms of data have clear weaknesses when trying to capture the full extent of the pandemic's impact on the labor market in their ways. One would need to consider other data, such as the actual real-time data or Labor margin, without talking about the total hours worked. This actual real-time data from HMRC has one advantage: it shows that between March 2020 and May 2020, there were 612,000 fewer paid workers. The Institute for Fiscal Studies (IFS) has examined the distributional effects of the COVID-19 recession. They estimated that about 15% of the workers in the UK worked in industries that were either fully closed or partly so on the eve of the crisis as a direct result of the lockdown. This includes services in arts and leisure, eating establishments, accommodation, passenger transport, and personal shopping. 17% of female workers and 13% of male workers worked in shut-down sectors, with women being about one-third more likely than men to do so (Joyce & Xu, 2020).

According to [Adams-Prassl et al. \(2020\)](#), there is a direct correlation between the proportion of work that can be done from home and job losses; in the UK, this correlation has intensified as the crisis has worsened. They also confirm the fact that the proportion of people who have lost their jobs varies greatly between companies and occupations. In addition, they collected data from around 15,000 people in the USA and the UK in two waves. In mid-April, they found that 15% of the UK population had lost their jobs due to the economic impact of the coronavirus. In addition, women in the UK are four percentage points more likely to have lost their jobs than men: 17% of newly unemployed women compared to 13% of men. Actual hours worked have also been affected by the epidemic. Similar to the factors mentioned above, fluctuations in the level and distribution of overall economic activity, shifts in labor supply due to health restrictions or other obligations such as childcare can also influence the intensive margin of employment. In addition, they point to a sharp decline in hours worked, which averaged 7 hours in the UK in February compared to a normal week ([Adams-Prassl et al., 2020](#)).

Oreffice and Quintana-Domeque (2021) used an online sample of close to 1,500 UK-based professionals to examine gender inequalities in several aspects three months after the first UK shutdown in March 2020. The results show that women are more afraid of catching the virus than men, the infection is more common and more deadly according to women than to men, and that women's mental health is worse than men's. No comprehensive set of control factors can explain either the gender differences in increases in hours spent on childcare and housework or the gender differences in health and economic concerns related to COVID-19. Rather, they find that the differences between men and women in COVID-19-related health problems can partially explain the gender gap in mental health ([Oreffice & Quintana-Domeque, 2021](#)).

Hupkau et al. (2020) examine how the COVID-19 crisis and subsequent restrictions on economic activity have affected paid and unpaid work for men and women in the UK. The study uses data from the COVID-19 Understanding Society supplement to test whether there is evidence that there has been a broadly equal effect on the incidence of job loss or leave of absence, as a measure of labor market outcomes for men and women. Women lost slightly fewer hours and less in earnings, which means they lost less on average. Although women took on a larger share of the increased demand for childcare in most families, in an important minority of households, the father was the primary care-

giver. On distributional effects: as already mentioned, to understand the possible influence of the pandemic over the long term on inequality, these distributional effects would have to be taken into account. They calculate that some 39%/46% of working men/women work in essential sectors, while 13%/19% work in closed industries. That is, in terms of employment and hence earning, around 35% of women and 48% of men are relatively less exposed. But the feasibility of working from home is an important characteristic of a job. Therefore, their ability to maintain their earnings and employability is based on their capacity to work at home ([Hupkau et al.,2020](#)).

It has been the case that the labor market has experienced the largest ever increase in claims for unemployment benefits, a sharp drop in employment and self-employment, an increase in short-time work, as well as a record decline in hours worked alongside this, and a sharp drop in vacancies. Indeed, even in the past few months, these effects—hardest felt among young workers—have barely recovered. While the government's income support program for independent contractors and its job retention program for workers helped keep unemployment rates stable until midsummer, there has been a sharp rise in the last couple of months. The most important challenge to the economic recovery is making sure that those affected do not slide into long-term joblessness ([Costa & Machin, 2020](#)).

According to [Felstead and Rueschke \(2020\)](#), the share of WFH in the UK was 43.1% in April 2020 and as high as 36.5% in June 2020. As observed by Sevilla et al., domestic responsibilities increased during the lockdown in the UK as women lost their jobs and went on leave. They make it clear that, in the UK, the division of childcare hours between men and women increased during the pandemic and was more balanced than before; thus, the gap between the proportion of childcare responsibilities taken on by women narrowed with those taken on by men.

There is a body of recent literature looking at the economic impact of the COVID-19 pandemic in OECD countries. [Pizzinelli & Shibata \(2022\)](#) employed a hidden-state Markov model (HMM) to study the dynamics of the labor market, which includes the unobserved labor market attachment of workers. [Bauer and Weber \(2020\)](#) used the difference-in-differences estimation method to assess the immediate impact of COVID-19 containment measures in Germany on the labor market. [Cahuc \(2022\)](#) examined the impact of lockdown measures on the labor market amid the COVID-19 crisis in France. [Andersson et al. \(2022\)](#) have elaborated on the development concerning the total number of employed persons, sectoral and regional distribution, and changes in employment figures

within different groups compared with 2019 in Sweden, excluding self-employed persons, conditions of employees with respect to wages, working hours, and working environment. [Bettin et al. \(2023\)](#) examined "the impact of the COVID-19 lockdown on gender differences in the Italian labor market". The authors used the labor force survey data from the first three quarters of 2020 and developed a triple difference-in-differences strategy by exploiting the exact timing of the introduction of the lockdown.

[Bonacini et al. \(2021a\)](#) estimated the potential effect of hiring occupations for telework on the gender wage gap among workers in Italy, using the Blinder–Oaxaca decomposition technique (also known as Kitagawa decomposition). In particular, unconditional quantiles regressions of the so-called recentered influence functions were estimated to obtain a rather complex Oaxaca–Blinder-type decomposition beyond the average. [Oreffice and Quintana-Domeque \(2021\)](#), looked at gender differences in a range of dimensions three months after the first lockdown in the UK in March 2020 using an online survey of almost 1,500 UK-based professionals.

[Forsythe et al. \(2020\)](#) merged real-time job vacancy data from Burning Glass Technologies with the initial UI claims and traditional statistics of employment from BLS to assess the effect of COVID-19 on the labor market. [Lemieux et al. \(2020\)](#) examined the "Preliminary Impacts of the COVID-19 Pandemic on the Canadian Labor Market." [Gallacher and Hossain \(2020\)](#) explored the "Remote Work and Employment Dynamics Under COVID-19: Insights from Canada." Besides, [Jones et al. \(2021\)](#) exploited new data about job vacancies and labor market indicators in the study of dramatic changes in the Canadian labor market amidst the COVID-19 crisis.

[Mangiavacchi et al. \(2021\)](#) made forecasts about lockdown influences on children's management of time, emotions, and educational activities undertaken during home or distance learning. Using survey datasets from the period of April 2020–April 2020, the two authors constructed children two fixed-effects models to determine the extent to which lockdown affected their emotional well-being and academic achievement while at home. At the moment, the [National Bank of Belgium](#) is conducting research on the rational economic repercussions of the COVID-19 crisis on income and labor conditions. This research has the potential to tell how the disease outbreak has borne on different economic factors in the Belgian economy. [Balgová et al. \(2022\)](#) studied job search behavior during the pandemic-induced recession by using a rich set of longitudinal datasets from the Netherlands

(LISS). Their research was concerned with job search variables such as the levels and incidences of job seeking by currently employed and jobless persons.

In another study based on weekly administrative panel microdata [Hassink et al. \(2020\)](#) analyzed how regional lockdowns and COVID-19 hot spots affected labor market outcomes in the Netherlands. [Farré et al. \(2020\)](#) focused on how COVID-19 affected the gender gaps in paid and unpaid work during the lockdown in Spain. Effects of the pandemic on various aspects of the realm of work were also explored by them and this showed a gendered division of the effects. Building upon [Raimo et al. \(2021\)](#), this paper relates to the impact of the COVID-19 crisis on the supply and demand of labor in Spanish municipalities as well as factors that could possibly affect those employment dynamics. Besides, [Blázquez et al. \(2022\)](#) look at the influence of the COVID-19 outbreak on within-household gender equity regarding hours paid for in work by full-time working heterosexual couples in Spain, using data obtained from the Spanish Labor Force Survey for the period 2019 to 2020. They then applied a framework for difference-in-differences analysis. Finally, [Chodorow-Reich and Coglianese \(2020\)](#) used a sophisticated three-step methodology that honed in on the simulation of factor flows, where the distribution of unemployment duration was particularly unrealistic. Their approach contains valuable impressions about the dynamics of unemployment in difficult economic times.

2.1.6 Labor market dynamics during the COVID-19 recession in developing countries

The topic of the labor market involves a variety of themes in the field of economic and social processes in any economy. Labor market is a complex system of supply and demand for labor with employers as the “demand” and employees as the “supply”. Capital market, product market, and service market are one of the most related concepts of the labor market. In the last decades, the literature on the theory of development economics has highlighted insufficient labor markets as a potential driver of poverty. Hence, finding improvements, for instance, how to influence the quality of job placement, becomes a topic for the growing economics and business literature. In general, the themes that are discussed in the world's social and political discourse are associated with the details of the labor market, taking into account such factors as employment, unemployment,

productivity, wages, and labor costs. As noted, different forces governing the labor market, including expansions of institutions, government regulations, public policies, and their implications on labor market outcomes, such as labor force distribution and wage levels, have collectively influenced the labor markets for several years. For decades, the marginalist tradition underlying labor economics has provided the conceptual foundation for better understanding the behavior of several actors in competitive markets and developing salient remedies. In such markets, rational agents decide to maximize their utility, income, and rental revenue. Over the years, Smith's development of the "invisible hand" in the labor market has been circumscribed by economic agents, including government agencies, industries, and unions, who use mechanisms such as collective bargaining, individual business practices, and regulatory frameworks.

The development of institutional theories is justifiable within contemporary labor economics given that growing government intervention in labor markets called for an explanation of the actual processes; thus, institutional theories proliferated. There was a dramatic transformation of labor economics during and right after the Second World War. The dominance of a group of scholars knowledgeable about neoclassical theory working mainly based on institutionalist economic precepts dominated labor economics at the end of the Second World War. Nevertheless, a paradigm dominated labor economics based on neoclassical economic doctrine during the next three decades. At the same time, however, there was declining academic interest in institutionalist perspectives about labor economics within the economics departments.

The global labor market outlook for 2022 has deteriorated significantly, fueled by a cocktail of factors ranging from surging geopolitical tensions and crisis in Ukraine to uneven recovery from the pandemic and lingering supply chain constraints. Within such an environment is stagflation—the first continued high inflation and weak growth since the 1970s. Now, there are two daunting tasks that policymakers have to do: containing higher inflation and the sluggish recovery in employment. Even before the outbreak of COVID-19, most countries had barely recovered to the late 2019 levels of employment and working time. Then, first in the food markets and later in commodity markets more broadly, supply shocks boosted producer and consumer prices and made it necessary for main central banks to adopt stricter measures. The rising cost of living is a direct threat to household livelihoods; it risks undercutting aggregate demand if not matched by labor

income rises. Many countries have run up large amounts of debt in reaction to the devastating effect of the pandemic, raising the risk of a global debt crisis that will undercut the fragile recovery in many frontier economies. It is particularly compromised by the fact that there is immense global inequality in the provision of decent work. Many millions of persons are in search of well-paid employment, with quite a big proportion of that number having no social protection and fundamental labor rights.

The informal nature of work is prevalent among the vast majority of workers, limiting their ability to express their opinions publicly. The unequal distribution of income further exacerbates the plight of many workers and keeps them trapped in poverty. Inequalities in employment opportunities exist both within countries and globally, with barriers faced by young people and gender gaps prevalent in different areas of work. In 2022, the global unemployment rate stands at 12.3%, and 473 million people worldwide are out of work. These statistics underscore the urgent need for comprehensive strategies to address the multiple challenges facing the labor market in the current economic landscape. Efforts must be directed toward promoting inclusive growth, enhancing social protection, and promoting equitable opportunities for all segments of the labor force to ensure a sustainable and resilient recovery from the ongoing crisis.

This characterizes most workers who cannot express their opinions in public. The unequal distribution of income has worsened the situation of many workers. Consequently, they remain trapped in poverty. Employment opportunities have inequalities both in the country and internationally. Young people face barriers like other gender gaps in different areas of work. The global unemployment rate, as seen in 2022, rests at 12.3%, while 473 million are out of work around the world. This makes the case for broad-ranging strategies to address a myriad of challenges to the labor market in the contemporary economic scenario. Such policies should hence be aimed at ensuring broad-based and sustainable recovery from the current crisis, entailing inclusive growth, improved social protection, and equal opportunities between different segments of the labor force. The unmet demand for labor worldwide is estimated against the global employment gap, including 268 million people wanting a job but not considered unemployed alongside 205 million officially unemployed people at an unemployment rate of 5.8%. This inequality in employment opportunities for women is even more marked, particularly in developing countries. While the global unemployment rate remains constant between the sexes, the employment gap for women is 15.0 percent, compared with 10.5 percent for men. Personal and family

commitments, discouragement due to limited career prospects, lack of opportunities for retraining, or lack of availability for short-term work—all these factors prevent many people from entering the workforce. While this gap in employment stands at 11–20 percent in both high and middle-income countries, in high-income countries, it is 8 percent. In comparison, the trend goes much worse in low- and middle-income countries, going up to as high as 13% to 20%. The huge challenges women and the youth face in the job market reflect more extensive and deeper inequalities in many countries. In 2022, labor force participation rates worldwide were 47.4 percent for women and 72.3 percent for men—a gap of 24.9 percentage points—meaning two economically inactive women for each economically inactive man. Young people aged 15 to 24 will find it hard to get good jobs in 2023([ILO, 2023](#)).

There have been a number of elaborate research studies on the impact of the COVID-19 pandemic on the labor market, more so in developed countries. Such studies vary in some focusing on specific and others on general shocks to the labor markets. The severe labor market downturn that began in 2008, combined with the subsequent slow recovery, has generated a great deal of research related to labor force dynamics and the central role of the labor force in the slow recovery. Much research has been done concerning the dynamics of recession—specifically, the Great Recession—by Elsby et al. (2009) and Elsby et al. (2010), through in-flow and outflow rates of unemployment. They found that in a recession, in-migration makes important contributions to unemployment fluctuations first and then declines as the out-migration rate becomes significant over the course of the recession. In the Great Recession, the rate of out-migration from unemployment declined quite a lot, leading to the 'longer' spell of labor market contraction and an increase in the rate of long-term underemployment not seen since the post-war period ([Elsby et al., 2010](#)).

This attaches the data on unemployment in China and the household survey, where the latter is carried out in subsequent years, but originates from among the people who were registered with the unemployment benefit offices prior to 2018. Indeed, for China, it is a big challenge to provide accurate measurement of the instance of unemployment because for a large number of the population, does not register as a household under the survey purview for their data to be included in the unemployment surveys. ([Feng et al., 2017](#)) argue that the credibility of China's official national unemployment rate, which has remained steady between 3.1% and 4.3% for the last twenty years, has taken a hit from the

dramatic and unparalleled social and economic disorder of the pandemic. Contrary to some reports, the effect of the COVID-19 epidemic will be different from that of previous recessions, for there appears to be no evidence that more men become unemployed than women in rich countries. Indeed, the pattern observed through the first half of 2020 was one in which employment opportunities showed a relatively less substantial decline than during previous recessions. By contrast, the COVID-19 recession is not prone to being quite as job-disdainful toward men in the rich world, and the decline in job openings in 2020 was miles away from normal recessions at the recession's peak, yet open jobs were at comparable abundance to 2015, a year of a hot labor market. The Beveridge curve—a negative vacancy-unemployment relation—acted funny during the first stage of the COVID-19 recession, as the increases in the unemployment rate were more than would be expected from the relative decrease in the vacancy rate. It is now clear that a defining characteristic of the COVID-19 recession is that it is highly unusual, which makes it a huge stumbling block for predicting the future trajectory of the labor market.

The current data suggests that the mechanisms that caused the decline during the COVID-19 crisis may be different. The number of job vacancies remains remarkably high, placement rates are slightly declining, and both placement and return rates of people who have been permanently or temporarily laid off remain relatively high, as [Gallant et al. \(2020\)](#) point out. Although this oversimplifies the scenario, as Friedman noted that the contraction in the early 1990s had similarities with previous contractions; there are exceptional recessions such as the COVID-19 downturn, which is proving to be one of the most striking in recent history. The COVID-19 recession differs from previous recessions, which were primarily triggered by financial or economic shocks, by the nature of the initial shock, which was caused by a severe virus that led to a significant temporary increase in unemployment in the second quarter of 2020. According to [Elsby et al. \(2010\)](#), the extraordinary increase in temporary unemployment during the COVID-19 crisis represents a significant deviation from previous economic downturns, which usually begin with an increase in permanent layoffs.

Forsythe et al. (2020b) showed that, unlike the long-term unemployed, the temporarily unemployed are more likely to find re-employment in the sector where people previously worked. It is thus consistent with an argument that the temporarily unemployed are more likely to go back to their previous jobs compared to those who have been out of work for

a longer period of time. Temporary job loss in the current economic slump has been debated time and time again; more importantly, this has been undertaken in the academic work forwarded by [Chodorow-Reich and Coglianesi \(2020\)](#). The distinction between temporary and permanent unemployment is crucial for understanding the intricate mechanism of the COVID-19-induced economic collapse for two reasons: temporarily laid-off people demonstrate a much more considerable rate of getting re-employed in comparison with those experiencing permanent unemployment. Second, it is argued that the temporarily laid-off who are waiting for their old jobs do not contribute as much to the deficiency in labor markets as those persons who have become permanently separated and are actively looking for employment.

According to [Kroft et al. \(2020\)](#), since active job seekers actively search for work, the chances of other applicants getting a job are lowered because they apply for the same vacancies. Existing literature also incorporates macroeconomic clustering methods. For example, in 2019, [D'Urso and Massari](#) proposed a fuzzy clustering model with various attributes and performed two applications in the real world, aiming to prove the efficiency of the clustering algorithm to be proposed. In their next empirical investigation, they try to classify subjects by some variables, including news consumption patterns and socio-demographic features. The views of each of the identified clusters have thereafter been analyzed on a wide variety of issues, including those on immigration trends, economic circumstances, and dynamics of European Union integration. This research has used data from the sixth wave of the survey in the year 2012, wherein variables are categorized into numerical, interval-weighted, or categorical classifications. [Wasi et al. \(2020\)](#) applied the K-Means clustering method and showed that a large proportion, over 50 percent of officially registered workers in Thailand, leave the formal labor market either permanently or seasonally before retirement age. The Thai Social Security Database extracted employment records contain several million histories of employment, duration of employment, exit, and re-entries to the formal sector, and time spent in the informal economy. Since the nature of this dataset is numerical, K-Means clustering would best fit the study.

2.1.6.1 The impact of the COVID-19 pandemic on the Turkish labor market

Since 2005, the economy of Turkey has experienced five consecutive cycles of economic growth and labor market dynamics. All these phases are strongly interlinked with each other, reflecting a very complex relationship among variables. The first phase, which

spans from 2005 to 2007, has three main features: a low rate of job creation, a low unemployment rate, and high GDP growth. After that, the shock of the Great Recession during 2008-2009 changed the course of the labor force and employment with a surge in unemployment. Thereafter, a robust recovery during 2010-2012 established new records in terms of global GDP growth, accompanied by a steep rise in employment numbers and an equally steep fall in the rate of unemployment. Despite the declining ability to generate new job opportunities or at least raise labor productivity, the economy was still strong up until 2016, and at the same time, the labor force increased significantly from 2013 up until 2015. This was also a period of rising unemployment rates according to [Uysal et al. \(2020\)](#). Between 2016 and 2017, although unemployment rates remained constant at 10.9% overall and 13.0% for non-farm unemployment, this stability masks a significant fluctuation in unemployment rates triggered by different economic developments. Initially under the shock of the military coup attempt in July 2016, followed by extensive economic stimulus measures to ensure success in the constitutional referendum in April 2017.

In a decisive phase from 2005 to 2007, the Turkish government introduced a stabilization program and a new macroeconomic framework, which brought commendable results with a cumulative increase in real GDP of 12.5. Nevertheless, employment growth was modest, despite the rapid economic growth, which was primarily due to advances in labor productivity, as [Atiyas and Bakis \(2014\)](#) note. Total employment increased by 2.9% during this period, with only 576 thousand net jobs created. The unemployment rate fell slightly from 9.5% in 2005 to 9.2% in 2007, while overall GDP increased by 12.4%, showing an elasticity coefficient of 0.23 between growth and employment. As expected, the services sector had the highest elasticity coefficient of 0.8. In the second quarter of 2008, in the midst of the Great Recession (2008-2009), there was a slowdown in GDP growth and a jump in unemployment figures, which was due to a slowdown in domestic demand after a period of rapid expansion. 2008. At the same time, non-farm unemployment rose from 11.2% to 16% and overall unemployment from 9.2% to 13.1%.

The unemployment rates, however, have been high not only because of the anticipated negative effects of the economic crisis on employment. Other associated variables have contributed to these complex changes in the Turkish labor market over these distressing years. Amid the chaos, it is important to note that during the years 2007 and 2009, there

was an increase in employed persons by 1,000,000 and 457,000 persons, while employment increased by 406,000 persons. One interesting observation is that even when the recession is in the middle, such growth in non-farm employment is not common, and it was only 200 thousand due to the increase in the number of farmers in the agricultural sector. Such growth in non-agricultural employment, in such constraining circumstances, should have been a surprise. This rise in inequality can be put down to the "additional labor effect," which is contemplated to be associated with a prevalent occurrence in emerging economic crises ([Demirel-Derebaşıoğlu & Okten, 2022](#)).

Thus, the unprecedented expansion of the labor force explained the acute and very steep increase of unemployment during the crisis, while employment grew slowly. By contrast, a drop of unemployment took place from 2010 to 2012. A surge in GDP was manifested in 2010 and 2011 with 8.5% and 11.1%, respectively. In turn, this massive accumulated GDP growth of 26.3% contributed to 16.1% growth in total employment and 17.5% in non-farm employment. In just three years, about 2 million 770 thousand new jobs had been added in the non-agricultural sector alone. This sterling performance in job creation cannot be attributed to exceptional performance in economic growth, for indeed the growth trajectory in this period started creating more employment opportunities, well captured by the 0.67 elasticity growth-employment elasticity. It has also seen a rising labor force participation, mainly due to demand for labor. Within that period, the non-agricultural workforce grew by one million nine hundred thousand persons, with the labor force participation rate rising significantly within the period from 45.7 percent to 47.6 percent. Increases which had mirrored the growth in the working-age population, particularly the rising propensity of women to seek paid work. Between 2005 and 2017, the volume of employed people increased by about 10 million, from 21.7 to 31.6 million, which means an average annual increase of 833 thousand. The two most important factors behind this impressive expansion were the rise in the working-age population by 11.5 million, now aged 15 years and above, alongside a rapid surge in the labor force participation rate from 44.9 percent to 52.8 percent ([Gürsel et al., 2019](#)).

Because the virus spreads so quickly and can kill people so easily, the impact of COVID-19 goes beyond personal health. The outbreak of the virus has had a similarly devastating impact on the economy. Massive job and hour losses resulted from the global GDP decline of 3.5% in 2020 ([International Monetary Fund, 2021](#)). With women, young people, and medium- and low-skilled workers hit the hardest in 2021, the global employment-to-

population ratio fell from 57.9 in 2019 to 54.6 in 2020 (ILO, 2021a). Between the fourth quarter of 2019 and 2020, the number of hours worked worldwide fell by 8.8. During the global financial crisis of 2009 (ILO, 2021b), four times as many as around 255 million full-time employees were lost. Furman (2020) claims that the world has never experienced a more significant, rapid and widespread decline in economic activity than the orchestrated shutdown that took place in the first half of 2020. It affected supply and demand and was most costly for low-income households, whose members were most likely to be laid off or lose their jobs.

Thanks to the administration of nearly 63.1 million vaccine doses and almost 5 percent vaccination coverage rate, entering the summer of 2021, the COVID-19 pandemic in Turkey has regained confidence. On the other hand, 2021 was not a very fortunate year for the economy or the population. New waves of the pandemic and mutations of the alpha, beta, gamma, and delta viruses caused new efforts to encourage social distancing to prevent further spreading of the virus. According to the Business for Goals Platform, 2020, the COVID-19 pandemic has hit hard the Turkish labor market, although at different extents. In particular, individuals with precarious work, primarily in the sectors likely to be hardest hit by the pandemic, are at risk of losing their jobs and livelihoods during a period of social distancing and/or business closures; this has become particularly difficult for workers not in a position to perform effectively from home. According to the "COVID-19 Business Impact and Needs Survey", the COVID-19 crisis hit hard on four out of five SMEs (small and medium-sized enterprises". Only eight percent of all companies stated that they are maintaining their business in Turkey. According to the survey, 64% of companies said they lost employees in other cities, while 54% of companies said they lost employees in the three largest cities. When it comes to the employment of women, who make up almost half of all workers, 63% of companies reported job losses (KÜÇÜKEFE and KANLI, 2023).

Özdemir and Demir (2019) performed an analysis of Latent Class, K-mode Clustering, and Random Forest Analysis using data from Turkey to extract the socio-economic profiles of people. The study was based on data from the 2015 Survey on Income and Living Conditions. In the case of this study, cross-sectional data of 36,036 people was analyzed and variables affecting the income of a person were identified. Ten groups were formed based on the cluster analysis. It, therefore, implies that in this study, variables on age, employment, and education were more critical than other variables considered in random

forest analysis. Even before the crisis, serious issues had already arisen in the labor market of Turkey. This crisis disrupted the already precarious labor market due to the COVID-19 lockdown. It is in this context that growth was driven by foreign currency borrowing and an increase in private sector debt during the global financial crisis in 2008–2009, contrary to the solid performance of the economy by Turkey since 2001. The unemployment problem persisted even after the crisis in 2001, although the growth rates for the IMF-supported program were quite robust (Demir-Şeker et al., 2020). They also estimated how Turkish employment vulnerability would be in a lot of industries due to COVID-19 and created the "Employment Vulnerability Index," which also takes account of home working. They concluded that the occurrence of COVID-19 and a possible recession could put in danger almost 7 million workers to lose their jobs. The unemployment problem was not solved after the 2001 crisis, even though the program supported by the IMF obtained good growth rates. Given that the program had to be executed within two consecutive administrations, the political cost of the measures made them very unpopular. In 2000, the unemployment rate was 6.5%; in 2004, it became 10.84%. It was also the global financial crisis that started in the USA and spread all over that explains the record-high unemployment rate of 12.55% in 2009; which has decreased since 8.15 in 2012. However, from 2013 to 2019, the unemployment rate grew from 8.73% to 13.67%, though economic growth has fluctuated between 8.48% and 0.89%. It is no surprise that galloping towards infinity, a lot of academic authors remarked that Turkey was incubating jobless growth and was scarce in the well-known middle-income trap (Ministry of Development, Özel İhtisas Komisyonu Raporu, 2018; Baştav, (2021); Uğurlukol and Tükenmez, 2019, World Bank, 2021).

The labor force participation and employment rates have traditionally been low in Turkey but are rising. Indeed, the unemployment rate has risen over time due to the surge of entrants into the labor market and into the population of working even as a record number of new jobs were created. Indeed, when the crisis hit, there was very little to do in the way of policy responses in the Turkish labor market. While the employment rate dropped in 2020 and the increasing trend of the labor force participation rate was reversed, the unemployment rate rose. Although the unemployment rate is the same as before the pandemic, the rates of employment and participation have fallen sharply. The inactivity of women is the main factor behind the low rates of employment and labor force participation in Turkey. According to Aldan, 2020, the participation rate of the female labor force

in Turkey is still relatively low, notwithstanding rising enrollment rates, societal attitudes against working women, and a declining birth rate. At the beginning of the pandemic, female participation in the labor force stood at around 34%. The high degree of spontaneity is another feature of the Turkish labor market. Before the epidemic, the percentage of informality was about 34%, though there has been a significant fall in the last decade. The case of informality was higher among women and the youth. Agricultural workers, in particular, within the sector, were informal and spontaneous in their manner of communication. In 2019, the rate of informality was at 34.5% in general and 86.6% in agriculture, industry, construction, and services sectors respectively. It was in the last weeks of March 2020 that, after detecting the first case of COVID-19, the government started to introduce several social distancing indicators. Closure of universities and other educational institutions was ordered, with online and distance learning introduced. It then began in both public and private sectors with remote work, while leisure activities were closed. Closures for seniors were ordered, along with intermodal transport bans or restrictions ([Aldan et al., 2021](#)).

Numerous relief initiatives have been developed to mitigate the impact of the restrictions on the labor market. Firstly, in March 2020, the conditions for the granting of a short-time working allowance and its application were relaxed due to COVID-19 factors. In addition, the benefit period was extended from three months to 15 months. Second, workers had the option of taking extended leaves of absence and receiving salary supplements from the unemployment compensation program in lieu of layoff, but this was only allowed in certain situations. Since informal workers are not subject to job security regulations, none of these programs were intended for them, only for the formal sector. For this reason, job losses among informal workers were more frequent during the pandemic, followed by a sharp decline in informality. The economic impact of the COVID-19 pandemic is analyzed in two main groups of recent papers. The epidemiological model Markov-switching SIR (i.e. individuals are either susceptible to the disease, have it, or recover from it) is applied to the first category ([Atkeson, 2020](#)). [Alvarez et al. \(2020\)](#), for example, investigate the best lockdown procedures that minimize financial expenditure and at the same time reduce the number of fatalities. [Berger et al. \(2020\)](#) also examine case-based quarantines and disease testing strategy in a similar model. When [Eichenbaum et al. \(2020\)](#) extend the model to include the effects of the shock on supply and demand, they

find that the economic losses are six to seven times greater. [Jones et al. \(2020\)](#) and [Piguillem and Shi \(2020\)](#), on the other hand, believe that capacity constraints and congestion in the healthcare system are important factors to consider when determining the best course of action.

[Kantur and Özcan \(2021\)](#) Kantur and Özcan (2021) conducted an in-depth analysis of credit and debit card use during the COVID-19 pandemic in Turkey, using data from March 2014 to December 2020 at both the aggregate and sectoral levels weekly. They demonstrate precisely how aggregate demand drops very steeply at the very outset of COVID-19 and subsequently levels off before the pandemic. Recovery in demand is not as strong as considered with respect to all the previous problems of Turkey, including the currency crisis in 2018. Indeed, they estimate the model in a way that sheds light on the structural shift underlying aggregate demand, using an unemployment-related search index and a stringency index. According to the estimated model, some of the important factors that explain the overall impact of COVID-19 on aggregate demand include containment measures and restrictions, as well as fear of losing either one's job or income. Looking at the calculated model, it becomes clear that containment measures and limits, along with fears of losing one's job or income, turn out to be the leading factors explaining the overall effect of COVID-19 on aggregate demand([Kantur & Özcan, 2021](#)).

[Duman \(2020\)](#) discusses the research in developing a possible work index based on closures at the workplace and remote work. The current study focuses on investigating the individual-level elements contributing to the PWI in a dataset of the Turkish Labor Force Surveys. The results reveal that large differences exist between the PWI and the potential to work from home; hence, functions that are either decommissioned or indispensable do not always lie at the lower end of the income spectrum. Accordingly, from a policy angle, this PWI may turn out to be a multifaceted risk indicator for the government while designing its social programs with better targeting. Results also suggested that lockdown measures that disrupt supplies further increase wage inequality. That said, over time, the negative distributional effects of lockdown and inequalities between workers in various sectors of the economy will become more pronounced. [Aygun et al. \(2022\)](#) use a unique dataset, gathered in September and October 2020 through face-to-face interviews, thereby monitoring the impacts of the pandemic on the Turkish labor market. From this retrospective nature of their dataset, the authors look at some outcome variables and find out the groups in the labor market most affected by the first wave of COVID-19. Their scientific

contribution is data from a developing country suffering from deep-seated structural problems to its labor market, with very high rates of informal employment and large gender gaps in paid work. The results suggest that during the pandemic, factors such as having dependent children at home, being female, and lower levels of education have significantly increased risks to labor market outcomes. In particular, women who have not completed school and who care for children prove to be the most vulnerable group of all, given the higher probability of becoming jobless, reducing income, and cutting down the number of paid working hours. Other risk factors increasing vulnerability in the labor market include self-employment and employment in the informal economy.

[Çakmaklı et al. \(2020\)](#) examine the relation of COVID-19 with emerging markets, focusing on Turkey. With characteristics like low foreign exchange reserves, high foreign currency debt, and a dubious record concerning credibility to its monetary policy characteristics, which it shares with other EMs, Turkey provides an appropriate setting for the study. These researchers build a relatively lean framework that juxtaposes a condensed form of an economic model with a SIR model. They provide a metric that creates a linkage between the closure measures, proximity to the workplace, and infection rate to model the supply shock, while on the other hand, keeping track of the demand shocks through credit card transactions. The research also accounted for the relatively open economy of Turkey and the exposures to global trade. The results of this study indicate that the lockdown, when implemented immediately and completely, is more likely to save many lives while the economic impact is minimized. The current approach of partial lockdowns tends to elongate the time of its economic impacts by delaying the time of resumption back to normal. It should be underlined that during the period of lockdowns, there is a need to provide financial support to the economic entities. However, the scope of policy options in Turkey is increasingly constrained by low fiscal space and extensive dependence on capital inflows that require both domestic and foreign funding. Foreign capital to alleviate the problem could be provided by international financial institutions. In any case, a central bank in Turkey can deliver money to the local economy via a visible and well-oriented asset purchase program known as quantitative easing (QE).

2.1.6.2 The impact of the COVID-19 pandemic on the labor market in Afghanistan

According to the International Organization for Migration, as a consequence of COVID-19, some 243,000 people so far left Iran, returning to Afghanistan. In particular, the effect

of coronavirus is entailing a veritable sledgehammer blow to the already weak Iranian economy. On the other hand, such an influx of returnees has also brought in serious problems for Afghanistan. As the country is passing through a political crisis and has ongoing negotiations taking place with the Taliban, so the present government seems helpless and incapable of solving all these issues until a concrete decision is made regarding the coronavirus situation. In recent days, the Ministry of Foreign Affairs in Afghanistan has played a pivotal role in the repatriation of about 91,486 Afghan nationals incarcerated outside the country. Among them, 13,600 people returned from the United Arab Emirates, 5,400 from India, 2,000 from Turkey, 300 from Qatar, and 186 from Kazakhstan besides 70,000 more Pakistani returnees. Another example is the release and reintegration in Afghanistan of 634 persons of different nationalities who had served their sentences in other countries. Hence, as highlighted by ILO in 2023, the pandemic forced the unemployment rate to rise beyond the pre-COVID-19 scenario ([ILO, 2023](#)).

The COVID-19 pandemic is sure to strike at the very core of businesses, particularly small and medium-scale enterprises, which comprise about 80 percent of the business landscape in Afghanistan. The coronavirus outbreak hit the dynamics of supply and demand in the labour market. As business activities dwindle, it will further retard economic progress and reduce public and private sector revenues. A recent forecast by the Biruni Institute suggested that in a moderate scenario, the Afghan economy could shrink by 3.3%, spiking to 9.9% if circumstances turn out to be severe with respect to the outbreak of coronavirus. Coupled with this, the United States' decision to withhold \$1 billion of financial aid will surely dent the already fragile Afghan economy. According to the National Union of Afghan Workers and Employees, almost two million workers lost their jobs in a situation when the coronavirus was spiraling out, and cities were put under lockdown to contain the pandemic ([International Finance Corporation & World Bank, 2020](#)). The Ministry of Economy has issued a conservative statement that states the combination of unemployment and the outbreak of the coronavirus is going to increase unemployment by 40% and poverty by 70% across Afghanistan. In addition, quarantines that will be implemented in cities are going to worsen the financial squeeze, as about 80% of economic activity in this country is motivated by informal businesses. According to the estimate of the National Union of Afghan Workers and Employees, nearly two million people who had jobs in various sectors have become jobless. On its part, the Ministry of Economy has underlined that a mixture of unemployment and coronavirus will overshoot the

situation in the labor market of Afghanistan. Unemployment is expected to increase by 40 percent while poverty by 70 percent. In addition, the lockdowns across the cities are likely to worsen this economic crisis since about 80% of all economic activities in this country take place informally. The Afghan Ministry of Labor, citing job losses nationwide due to the COVID-19 crisis, pegs that figure at two million, underpinning the need for the government to intervene to avert a possible humanitarian crisis in the nation ([United Nations Development Programme, 2020](#)).

The government reported that there are 15 million people nationwide who could be employed. Of this, 8 million are unemployed, with the rest working seasonally, according to the United Nations in 2022. The lawmakers said that the level of poverty and the economic slump are closely related to corrupt dealings by people in that administration. Probably, the most important factors that will influence the stability of the labor market and the capacity for recovery of the economy are forthcoming policy decisions by the government and uncertain support from the global community. It is expected that more than 500,000 jobs will be lost in the third quarter of 2021. This represents a decline of 8% of the labor force compared to a no-change-in-government situation and underlines the challenges men and women face in finding a job. This stems from the limited participation of the female labor force and the outflow of workers after recent political instability and associated economic problems ([World Bank, 2021](#)). Participation by women in economic activity decreased significantly during the COVID-19 crisis, unlike that of men, while the working-age population reduced gradually due to emigration. The estimate, at the worst case, would be over 700,000 by the second quarter of 2022—around 10 percent. In the worst-case scenario, characterized by further deterioration in the labor market situation for women and rising emigration, employment could decline by more than 900,000—14 percent by the middle of next year. Afghanistan, before the August 15 events, had the lowest participation rates for the female labor force in the world; it was 10 percent in urban areas and nationwide at 17 percent in 2020, according to the International Labor Organization([ILO, 2020](#)).

Thus, female workers have borne the brunt of COVID-19. Even before August 15, as a global standard, female participation in Afghanistan's labor force was visibly low. It stood at 17 percent overall in 2020 and only 10 percent in urban regions. In 2020, the biggest industries that involved a bulk of women were agriculture, the textile and garment industry, public administration, and social services—all of which have remarkable reversals at

this moment. Further, newly imposed restrictions on women's economic engagement in some sectors are highly undercutting their economic prospects. That means women's employment will drop by 16 percent in Q3 2021 versus a counterfactual scenario of no regime change. Evidence denotes that woman, who accounted for 19% of the workforce in 2020, are increasingly shut out of specific industries. In contrast to this, the employment of men is estimated to drop by 6% ([World Bank, 2020](#)). On the other hand, the participation of women in labor markets has declined tremendously after August 15; it may further drop by 21 percent into the second quarter of 2022. Moreover, as done in many countries, a curfew has been enforced by the government owing to the COVID-19 situation. Women are more affected by the lockdown than men, and so many of them are scared to go to work, which means it could amount to about 28% of them losing their jobs. The minor improvement that may be witnessed in women's jobs in 2022 hangs on assumptions: firstly, that their rights will be respected; secondly, they are very active in the economy. Drawing from ILO, if things go well, the decline in female employment could be reduced to 28% by mid-2022, remarkably very low compared to global benchmarks. An earlier ILO forecast for Q3 of 2021 had female employment down by 16 percent ([ILO, 2021](#)). The limited access to cash and restrictions to withdraw cash from banks have put tremendous financial pressure on households, businesses, and workers. Women's fundamental human rights, in particular their right to work, have been reportedly ignored, which is a deep concern. The economy has already suffered a heavy blow due to the pandemic, and GDP is projected to decline by 2.4% by the close of 2020. Agricultural production has been somewhat resilient, but disruptions in trade and restrictions imposed on free movement have affected the urban services and industries sectors, raising the rate of unemployment in urban areas ([ILO, 2022](#)).

2.1.6.3 The impact of the COVID-19 pandemic on China's labor market

China's economy, as it had developed over four decades of central planning, was a textbook example of a dualistic labor-surplus economy until market-oriented policy adjustments began in the late 1970s. There was a surplus of labor in both rural areas (hidden as underemployment in local governments) and metropolitan areas (mostly as underemployment in state-owned enterprises and local governments) ([Nolan, 1980](#); [Putterman, 1992](#)). The government introduced a household registration system (*hukou*) in 1958 that restricted individuals to the town of their birth to ensure that enough labor came from rural

areas to produce enough grain to supply the urban industrial sector ([Banister, 1991](#); [Cheng and Selden, 1994](#); [Chan, 2009](#)). There was also a government-led migration from urban to rural areas, which exacerbated the labor surplus in the rural sector.

During the Cultural Revolution in the late 1960s and early 1970s, more than 17 million middle school graduates from urban areas— - the so-called "downwardly mobile youth" — were sent to the countryside ([Banister 1989](#)). Communist Party members also moved to where the government wanted to maintain tight control, while educated people with technical skills moved to the economic and social boom of the border regions and sparsely populated areas. In the urban economy, workers were collectively governed by multiple levels of government, with state-owned enterprises at the top and collective labor units de facto under their direction. Restrictions on worker mobility were eased considerably after China acceded to the World Trade Organization in 2001. The labor market is highly fragmented and there are various barriers to labor mobility between formal and informal enterprises and between urban and rural areas. China's rural Hukou population still accounts for about 72% of the country's total population ([Meng, 2012](#)). The only workers who move from villages or small towns to big cities are the wealthy and/or highly educated ([Wu and Treiman, 2004](#); [Liang and Ma, 2004](#); [World Bank, 2005](#)).

In the pre-reform Chinese economy, there was no large unorganized (subsistence) sector with a large reserve army of unskilled labor. Conversely, public enterprises were often characterized by significant overstaffing ([Brandt et al., 2014](#)). When millions of children who had been sent abroad returned to their cities in the early 1980s, an informal labor market emerged in the cities ([Banister, 1989](#); [Meng, 2012](#)). According to [Cooke \(2011\)](#), and [Yao and Zhong \(2013\)](#), the government began reforming state-owned enterprises (SOEs) in 1997, eliminating the 'iron rice bowl' of guaranteed employment for urban workers. The number of SOEs declined from 300,000 in 1995 (employing 113 million workers or 20% of the total labor force) to 150 thousand in 2005. Massive layoffs in the sector SOE have led to a significant 'in formalization' of the urban labor market, with many laid-off workers finding temporary, seasonal, or hourly employment in the urban private sector ([Athukorala and Wei, 2017](#)).

Since the economic reforms began in 1978, the Chinese labor market has undergone remarkable changes. There has been a massive shift of labor between the state and non-state sectors and a strong migration of workers from rural areas to the cities. Between 1990 and 2012, around 8 million farmers moved to the metropolitan areas every year.

From about 25 million in 1990 to 159 million in 2012, the number of rural migrant workers in metropolitan areas increased, representing the largest human migration in history in such a short period of time. According to the Rural Household Survey of China's National Bureau of Statistics, the proportion of migrant workers in the metropolitan labor force increased from 7% in 1995 to 27% in 2009. In addition, the number of workers in the private sector increased by nearly 50 million between 1995 and 2005 due to the SOE reforms.

Moreover, Chinese labor immigration into Hong Kong has come to an end because the country of origin, mainland China, is now equipped with export-oriented industrial manufacturing plants and has been able to open its coastal areas for foreign direct investment (Luck and Vogel, 2013). Within the last three decades, China has witnessed spectacular economic development and startling growth in the global economy; this is based on structural shifts in how labor is used today (Bosworth and Collins, 2008). In the framework of the world economy, major shifts can be explained only by fundamental changes in using labor resources. If the surplus labor force has been completely embedded in the economic system of today, then that would be a central question of the impending economic change in China. This debate, often referred to as "Has China reached the tipping point?", bears important implications for thinking about China's development strategies. Over the past two decades, the question has been addressed in a great number of academic papers. While most studies tend to focus on wage structure analysis, some explicitly examine labor supply dynamics. These studies deal with the peculiarities of the rural labor market and the constraints on labor mobility from rural to urban areas. It is based on these fundamental ideas that the literature review has been developed hereafter (Lewis, 1954).

The last section of the report focuses on the behavior of labor share in national income during the process of economic transition. Although of enormous importance from the point of view of structural adjustments in an economy beset by labor surpluses, this is not an aspect that has invited much attention in the discourses on the turning points of China. The remarkable economic growth that China has witnessed now for almost four decades has been sustained by the ability of the country to absorb a huge pool of surplus labor that accumulated during the pre-reform period. Official government statistics show a remarkable increase in the influx of China's rural population moving from the countryside to urban centers—commonly referred to as the "floating population.". Figures show an in-

crease from about 53.5 million persons in 1975 to over 268.9 million in 2013. The restructuring of SOE has also seen nearly 40 million people migrate from the public sector into the rising private sector. Recently, some Chinese policymakers have been frightened into believing that this stage of economic transformation, fueled by the pool of excess labor, is nearing its end. Alarm bells sounded in 2004 after a raft of media stories about rising wages and patchy evidence of labor shortages in the booming coastal cities, notably in Guangdong province. These concerns brought with them a plethora of research into the subject, based on theoretical support for the well-known Lewis model of economic growth (Lewis, 1954).

We are sure according to most of these studies that China is close to or has already passed its turning point in economic transformation; labor is now a scarce factor valued according to neoclassical principles [wages are equal to the marginal product of labor (MPL)], much as in a typical mature economy. This view has received enormous and widespread press. COVID-19 is one of the worst pandemics in human history. The pandemic relates to almost every country, with a nearing recorded figure of over four million deaths worldwide and more than 400 million confirmed cases at the close of 2021. The pandemic has also dealt a serious blow to the economy. In the first quarter, with the spread of the coronavirus around the nation, China's GDP contracted to a large degree, by 6.8%. Consequently, this year, China's GDP showed a slight growth of 2.3%. The Chinese government has taken a string of measures against the pandemic to prevent the spreading of the disease. For example, there have been lockdown measures imposed in several Chinese cities during the epidemic that forbid hosting private parties for residents, who are not allowed to participate in unnecessary commercial activities, using public or private transport regardless of the aim (He and Tanaka, 2020).

This directly influences labor supply. Even in areas that are not put under lockdown, people are prone to the infection. Because of this uncertainty, household expenditure and social activities have significantly fallen (Baker et al., 2020). Aggregate spending has tumbled greatly. They also had a reason to reduce investments or production because of the political and economic uncertainty that arose with the pandemic spread of the virus (Altig et al., 2020). In such a scenario, businesses would logically reduce demand for labor. Overall, COVID-19 had a severe negative impact on the labor market. Some studies focused on the impact of population flows on the spread of COVID-19 (Fang et al., 2020; Jia et al., 2020) and the ban's effect on socio-economic variables more generally (Zhang,

2021; Fang et al., 2020; Qi et al., 2021). This paper investigates how COVID-19 has changed the labor market in China. In a bid to curb the spread of the virus, China has so far enacted very strict laws concerning the restriction of social activities, such as lockdowns and social distancing. The COVID-19 pandemic was under control within three months since its outbreak, and newly confirmed cases in China have been very low since April 2020 been very low at "dynamic zero".

Zou and Han (2022) have conducted a study on the influence of the number of confirmed cases of COVID-19 in a city on employment. The result showed that the more confirmed cases in a city when the epidemic spreads, the greater the possibility of job loss among citizens. The likelihood of the respondents losing their jobs increases by 1.48% for every 100% increase in the number of confirmed cases. They also examine its impact on their decision to accept a salary decrease. Accordingly, individuals in cities where there are more proven cases are more willing to accept pay cuts. Finally, for each fully 100% increase in the number of confirmed cases within the city, the probability of acceptance among the respondents increased by 1.29%. Though this is a good effect, it was not significant (Zou and Han, 2022). On the other hand, we could not find any statistically significant COVID-19 effect on home office use. They also investigated the different effects of COVID-19 on job loss. There are no significant differences in the effects between male and female workers and between those with and without a college degree. For every 100 percent increase in the number of confirmed cases in the city, there will be a 1.48 percent and 1.58 percent increase in job loss probability for male and female workers, respectively. Similarly, workers with and without a college degree face a 1.33 percent and 1.45 percent higher risk of losing their jobs, respectively (Zou and Han, 2022).

Fang et al. (2020) examine the impact of COVID-19 on Chinese labor demand, highlighting the importance of the global supply chain. Zhang (2021) examines the impact of lockdown measures on the Chinese labor market. China is also feeling the economic impact of the pandemic. With cities closed in early February 2020, millions of migrant workers who had traveled to their home regions for Chinese New Year may be unable to return to the city to continue their work. In addition, consumption has declined due to the nationwide loss of interpersonal contact. Production has been disrupted by the labor shortage and the decline in demand for labor. Many companies have been forced to close and wait for the epidemic to pass. Studies have shown that the rate of return to work in February was unusually low and that the self-employed suffered major losses (Wang et al., 2020).

The national unemployment rate reached 6.2 in February, its highest level since January 2018, according to the Office for National Statistics. These job shocks during pandemics have been highlighted in previous studies in China. However, no one has yet calculated when the Chinese economy will fully recover and when the labor market will stabilize. The COVID-19 pandemic has had a notable impact on women's employment, as a large number of them are employed in the hardest-hit industries. 55% of those employed in the hotel industry are women, as are 49% of those employed in wholesale and retail, 41% of those employed in manufacturing, etc. Almost all jobs in the domestic services sector, which employed 30 million domestic workers— 96% of whom were women—— were eliminated by the end of February.⁷ Two other reasons contributing to the rise in the unemployment rate among women are maternity and caring for dependents. Many pregnant women quit their jobs because they fear that they might get COVID-19. With students staying at home and the elderly remaining mostly indoors, the ban increased the burden of caring for the elderly and children, meaning more care services were needed (Zheng, Qian, & Li, 2022). In May 2020, two online institutes for women, Jianzhi, a large e-learning platform, and Ms. Xing's, the largest psychological counselling platform for women in China, investigated the impact of the COVID-19 crisis on female workers. Of the 7,209 respondents, 67% kept their jobs in May, while 9.9% were unemployed. One of the reasons for unemployment was employment in the hardest-hit industry. For example, 17.5% of respondents were unemployed, 32.5% were on leave, 30.6% were unpaid (full-time mothers and freelancers) and 30.5% worked for less money in the female-dominated life services sector. According to the survey, over 29% of participants lost their jobs during the lockdown because they were pregnant, and another 30% lost their jobs because they had to care for family members, which included keeping their children out of school (ILO, 2020).

Zou et al. (2022) discuss the impact of COVID-19 on the Chinese labor market. In this paper, the authors have focused on the short-term effect of the COVID-19 epidemic on employment, wages, and work-from-home opportunities for workers in China. They have done this by incorporating, to a certain extent, the endogeneity of the number of confirmed cases in each city by the instrumental variable approach. They have also applied the difference-in-difference method for assessing the causal effect of COVID-19 on the average salary and employment of the company. Results from this study obtained a de-

liverance that COVID-19 reduced the income of individual worker and increased the unemployment rate. If there were to be an increase in confirmed cases in a city, then it would raise the chance of losing a job for a worker and lower their average salary. COVID-19, however, did not have a very significant effect on the introduction of working from home. Estimation results also show that COVID-19 drastically cut the employment of workers and their average wage and that the labor markets gradually recovered once the virus spread was under control in China during the early stages of 2020(Zou et al., 2022).

Zhang et al. (2020) estimate a computable general equilibrium model of China at a very detailed sectoral level, along with a microsimulation approach, in attempting to assess the "uneven impact of the COVID-19 pandemic on the Chinese labor market and income inequality". Results indicate that different categories of workers will be unequally impacted by the pandemic in terms of income and employment (Zhang et al., 2022). More employment and income would be lost among female workers, city residents, and relatively less educated workers. The pandemic would cut rural per capita household income by 8.75% and urban per capita household income by 6.13%. Therefore, although the pandemic would more seriously affect the employment and income of workers in urban areas, it would also have a greater influence on the per capita income of rural households. Additionally, the pandemic is going to hit per capita income harder among low-income households, and an upward surge in the poverty rate would be seen in the population. The wealth gap in China would widen due to the epidemic and put people at the low end of the income spectrum in a precarious situation. This work may be helpful for researchers studying how the COVID-19 epidemic affects distribution in developing countries (Zhang et al., 2022).

2.1.6.4 The impact of the COVID-19 pandemic on the labor market in Mexico

The COVID-19 shock showed an especially fast and deep impact on the Mexican labor market, driven by strict confinement measures. In Mexico, the first case was detected in late February. Its government postponed major public events and suspended other non-essential activities on March 14, 2020. A voluntary lockdown was announced by the authorities on the 23rd of March. Immediately, these measures hit the labor sector, and formally, massive employment reduction resulted in the last two weeks of March, affecting a population of more than 346800 people. Things escalated further in April, with more than 550,000 formal workers losing their jobs. Personal services and construction were

the most strongly affected; nearly 80 percent of those affected fell into the lowest income category, which is earnings of less than twice the minimum wage ([OECD, 2024](#)).

Campos-Vazquez et al. (2021) examined the pandemic's labor demand effect in Mexico by web scraping a job posting website. It was established that, like what was reported in the United States, the percentage of available jobs in Mexico dropped tremendously during the pandemic to 38%. It was reported that in April, there had been increased shifting in labor demand composition that resulted in an overall reduction in earnings. However, in May, there was a return to the pre-pandemic distribution of salaries and job openings across occupations. Generally, in the labor market, there was an increase in the short-run labor demand for low-skilled workers; no changes in experience demanded by employers; and a slight drop in gender- and age-related labor demand. It will come as no surprise that fewer workers were able to work from home during the outbreak. Using a simple Oaxaca-Blinder decomposition, this found that a greater share of low-paid jobs – rather than lower wages for specific occupations, best explained the differences in average advertised wages in April. In summary, very little evidence exists to suggest some permanent effect of the epidemic on labor demand in Mexico ([Arceo-Gomez et al., 2021](#)).

Hoehn-Velasco et al. (2021) conducted research that evaluated the impact of the Great Lockdown on jobs using administrative data on the formal labor sector of Mexico. The study results indicated that the formal sector in Mexico reduced by 5% in November 2020 after the outbreak of COVID-19 and the measures put in place during that lockdown. Whereas men had already started to recover in employment in August, this was not so in the case when talking about employed women. The analysis also shows varying effects according to age, income category, and company size of the respective economic sectors. It was decided that the youngest workers—15–29 years old—and the oldest workers—over 60 years old—had been most influenced by the pandemic, so were people with lower incomes, employees of small companies which ranged in size from 6 to 50 employees, and those of medium-sized companies, with 51-250 employees; further, construction and industry workers and service sectors with a concentration in hospitality were affected workers. Moreover, it gets down to three state-level variables: infection risk, stimulus payments, and the frequency of state-level reopenings and lockdowns, to explain possible causes of these disparities across different regions of Mexico. Job losses might have been more significant in states with many lockdowns, compared to others ([Hoehn-Velasco et al., 2021](#)).

[Moreno and Cuellar \(2021\)](#) deal with the consequences of COVID-19 on the formal and informal labor sector in Mexico, with a differential emphasis on gender. The authors create reliable time series data for the period 1987: Q1 to 2019: Q4 from data obtained in urban employment surveys in Mexico and estimate a VAR model linking total production to each market sector. Their findings show the devastating blow the COVID-19 pandemic has dealt to formal employment, in which male and female workers have taken so long to recover from the economic shock. On the other side, while the informal sector reacted less strongly at first to the economic shock, there were indeed significant job losses, maybe due to changes in market structure. The informal economy is proving inadequate to make up for official job losses due to the pandemic. The strategies, given the complexity of the matter, should be such that they facilitate recovery in formal employment while including gender equality. Probably the main contribution of this study on urban employment patterns is estimating the different degrees of job losses across various segments and noticing a significant structural shift in labor market dynamics induced by the COVID-19 crisis ([Moreno and Cuellar, 2021](#)).

Maldonado and Ruiz (2020) analyze the influence of COVID-19, unemployment, and poverty in a country like Mexico with the bias of inequalities existing among its different population groups for quite a long time. Mexico has been wrestling with these inequalities through the decades, which makes this country an interesting subject for such an investigation. The authors further leverage theoretical insights from scholars who have confronted similar issues and include data published by official Mexican agencies from 2018 to the present, including the National Institute of Statistics, Geography, and Informatics, and the Mexican Social Security Institute. It is important to note that the findings of these agencies suggest working poverty increased by nearly 16 percentage points between the second quarter of 2020 and the same quarter in 2018. On another front, formal jobs decreased by approximately 1 percentage point during the period between the second quarters of 2019 and 2020, which easily captures the dire economic situation in the country during that time ([Maldonado and Ruiz, 2020](#)).

In another recent research, Hoehn-Velasco et al. (2022) explore the consequences of COVID-19 on the Mexican labor market, income levels, and time allocation among its population. At the same time, the authors, using an event-study method, do manage to describe the negative consequences the recession caused by COVID-19 has had on Mexican households. Within the first month of the outbreak alone, employment saw a drop of

17 percentage points, hence huge disruption to the workforce. Though male employment showed a sharper course in recovery compared with female employment—with male employment returning to pre-crisis levels in the second quarter of 2021—women, on the other hand, continued to face job losses during this period. Furthermore, male participation in the household increased, although the increased burden of care for either sex was not uniform. An impressive fact related to children: homework time had been reduced by 25%. This is how the pandemic is imposing itself on many aspects of everyday life and obligations in Mexican households ([Hoehn-Velasco et al., 2022](#)).

According to Garcia-Lazaro et al. (2022), even though the pandemic had been an equally unpleasant shock to all workers, the non-graduated and the informal workers are less favored in the labor market, and that inequality is manifested through the shortening of their period of employment or by the high rate of transitions from employment to non-employment. The authors provide new evidence in support of this claim by illustrating how the experience of the Mexican pandemic can be explained through a dynamic stochastic general equilibrium model that generates identical shocks for all workers. In terms of innovations, one is the development of a clear model that differentiates between formal and informal workers and college graduates. One of the salient features of their model is that individuals who are nongraduates and those working informally have a lower job surplus, which makes them more susceptible to being negatively shocked ([Garcia-Lazaro et al., 2022](#)).

Lustig et al. (2023) run simulations for the assessment of the short- and long-term distributional effects of COVID-19 in the key Latin American economies of Argentina, Brazil, Colombia, and Mexico. Their results indicate that while in the short term there might be a significant effect on poverty and income inequality, this is offset in the case of Brazil by increased social spending. In Argentina and Colombia, such extensions are associated with very substantial equalizing effects; this is not the case in Mexico, where these expansions are missing. The researchers conclude that while the introduction of a basic income program may have been somewhat more costly, it would have provided marginal support to both poor and non-poor which would have contributed to a similar reduction in the poverty gap as the current initiatives. Fourth, they also quantify the impact of the pandemic on educational attainment and the persistent consequences across generations to forecast long-term consequences. It, therefore, undertakes an analysis of the school closures, mitigation strategies in education, and educational setbacks from health crises

and parental job loss to bring out an asymmetrical effect within these four countries that badly affects high school completion rates of children born poor (Lustig et al., 2023).

Gómez et al. (2020) contribute an estimate of the job losses for the formal sector of Mexico in 2020 with an analysis. In the present study, the authors apply the method whereby the relationship between labor demand, production, and real wages is estimated via the cointegration approach. The main result of the study suggests that for every percentage point drop in Mexico's GDP in 2020, due to quarantine measures this country has taken to avoid the pandemic diffusion of COVID-19, there will be a permanent loss of approximately 205,863 jobs among workers insured by the Mexican Social Security Institute. That is to say, should Mexico's GDP drop by 8.2% in 2020, around 1.69 million jobs of such nature would be lost due to the economic impact of the pandemic (Sánchez Gómez et al., 2020).

The study "The labor market situation in Mexico before and during COVID-19" was conducted by Jiménez-Bandala et al. in 2020. According to the data, there was a notable improvement in 2018 and 2019. In particular, the number of people in employment without benefits reached its lowest level in 15 years, indicating a decline in precarious employment. In March, both unemployment and informality fell to 3.3% and 55.8% respectively. Reaching the purchasing power equivalent of 1991, the real minimum wage recorded its strongest increase since 1976. According to the above statistics, the labor market was performing well before the economic stagnation caused by the health emergency. The reduction of mobility in the workplace during the pandemic seems to have had a positive effect on lowering the infection rate. On the other hand, there is more informal work in the companies that have reduced mobility to a lower level. Based on several models, it can be assumed that the precariousness of work is a structural factor contributing to the COVID-19 pandemic. It is predicted that 725,000 workers will be lost between April and May if no control measures are taken (Jiménez-Bandala et al., 2020).

2.1.6.5 The impact of the COVID-19 pandemic on the labor market in South Korea

Since its appearance in Wuhan, China, back in December 2019, COVID-19 swept its malaise across the globe. On the 11th of March 2020, the World Health Organization declared COVID-19 a global pandemic. It has been to the credit of Korea that it reacted in time to flatten the infection curve, unlike other countries that have been reeling under coronavirus attacks. Against this backdrop, COVID-19 has unfolded doomsday scenarios

in the form of lockdowns, social distancing, and incessant mass admissions to hospitals with mechanical ventilators. In addition to this, the coronavirus has shaken the neoliberal economic order and simultaneously affected the living standards of the commoners for the establishment of a global capitalist system. It foreshadows the end of the market's capacity to protect people and the return of government to govern both the market economy and public health ([Organisation for Economic Co-operation and Development, 2024](#)). Early in 2020, COVID-19 brought national economies and the global economy to their knees within a very short period, paralyzing the national market system and global value chains. Within three months of the first outbreak of the coronavirus in Wuhan, China, it had spread with amazing speed across the planet. Right from the start, several countries disagreed about the right policy to cope with the virus. While some European countries introduced lockdowns, the South Korean government did not. As a matter of fact, COVID-19 caused less damage to the economy in Korea compared to other nations. However, the COVID-19 epidemic has overstretched its disruptions to the labor market in almost all countries in the past, characterized by high levels of unemployment and reduction in working hours in the manufacturing and service industries. The COVID-19 extended epidemic has variedly affected workers, increasing labor market vulnerability. Both local market disruptions and global production network disruptions are extremely harmful to jobs and work([Organisation for Economic Co-operation and Development, 2024](#)).

In the study, Ham 2021 tries to explain what may be causing the gender gap in South Korea's labor market because of the COVID-19 epidemic. The data shows that more than twice as many women at 5.5 percent are exempt from work compared to men at 2.5 percent. Women were also more likely to be without jobs compared to men. This, therefore, explains a fifth of the gender gap in time off work from women's concentration in the care and hospitality sectors that have been disproportionately affected by the pandemic. Furthermore, part-time employment, in which women are disproportionately represented, contributed to 16.8 percent of the gender gap. Whereas previous explanations, which included precarious employment situations for women and gender segregation by occupation and industry, only accounted for 60.8% of the gap in leaves between the sexes. This thesis looks into how the gendered caregiving role of women may be a reason for this unexplained inequality ([Ham, 2021](#)).

Lee and Yang (2022) examine how the Korean labor market has developed during the first ten months of the global COVID-19 epidemic, using two methods. First, we apply the synthetic control technique to find that, as a result of the COVID-19 pandemic, an additional 1.1 million jobs were lost nationwide in April 2020. In sharp contrast, only 9% of this national shock can be attributed to the "regional" impact of the pandemic, as reflected in local differences in COVID-19 intensity. The regional influence share stays modest until December. The main reason is that such policies as social distancing measures and the pervasive fear they create also exert "common" effects on local economies. It, therefore, follows that in the presence of a non-fully neutralized infection risk, the COVID-19 shock may endure for quite an extended period inside the labor market itself (Lee and Yang, 2022).

Shin 2022 inspects changes in employment and work within South Korea in light of COVID-19. The COVID-19 epidemic has proved an incapable market to sustain crises such as neoliberal globalization and public health, therefore needing massive intervention by the government to hold together the integrity of social order. COVID-19 entailed great levels of unemployment and economic instability through the disruption of global supply chains and production networks. Among these many factors, inadequate social protection, gender, occupational status, and size of the company were major ones exposing segmentation in the labor market. Although the COVID-19 pandemic has exposed problems deeply entrenched in the Korean economy, it has also provided a forum to discuss alternatives to the neoliberal system. Basic income and universal unemployment insurance have been discussed frequently since COVID-19 increased the hardship in making ends meet by tending to promote precarious work and increasing the number of persons not covered by social security and labor regulations (Shin, 2022).

Unlike other countries, Korea effectively relied on testing and contact tracing to combat COVID-19 instead of imposing a lockdown. A religious group was linked to a significant number of cases in Daegu-Gyeongbuk until the summer of 2020. This allows us to use difference-in-differences to quantify the causal impact of the epidemic on the labor market. They find that there was a 2–3% decline in local employment per 1,000 illnesses in early spring. Moreover, they find that even after adjusting for industry effects, the employment losses caused by local outbreaks without closures were (i) primarily the result of small firms hiring fewer workers; (ii) concentrated in the real estate, education, food and accommodation, and transportation sectors; and (iii) worst for workers who were

young, less educated, in low-wage jobs, and on temporary contracts. These trends are consistent with what we have seen in the US and the UK: Lockdowns did not affect the disparate impact of COVID-19. Our findings support the theory that lifting lockdowns in the US and the UK led to only a small recovery in employment in the absence of a greater decline in infection rates ([Aum et al., 2021](#)).

Nam and Lee (2021) examine the causal effect of COVID-19 on employment in South Korea as of June 2020. The estimation techniques are taken from two complementary approaches: first, controlling for the person-level factors using individual-level data without residence information; second, using the geographic variance of COVID-19 intensity to quantify its impact using aggregate data without personal characteristics. We find that the COVID-19 pandemic increased the unemployment rate by 0.29%p and decreased the employment rate by 0.82%p. Compared to the 2008 financial crisis, these effects are supposed to be 90%–140% larger ([Nam and Lee, 2021](#)). Shin, 2022 examines the impact of the COVID-19 pandemic crisis on the employment opportunities of the migrant worker population in South Korea. It, in particular, focuses on the measurement of the extent of causal influence. This paper exploits the fact that, due to some unusual circumstances, only one particular location in South Korea had a significant number of COVID-19 infections during the early phase of the pandemic for Difference-in-Differences estimation. According to DD estimates, COVID-19 lowered the overall employment probability for migrants by 2.5–3.2 percentage points. Nevertheless, there is clear gender heterogeneity: while male migrants are doing quite well during the epidemic, female migrants are suffering significant employment losses. Moreover, female migrants appear to be more affected than the female host population. As the heterogeneity studies have rightly shown, there exist two factors protecting migrants from the COVID-related job shock: first, a stay of over five years, and second, language proficiency in Korean, which is the regional language ([Shin, 2022](#)).

Park and Cho (2022) discuss the impact of the COVID-19 epidemic on the Korean labor market in January 2020. Using the rich data from the Economically Active Population Survey, January to June 2018 and 2020, the present research checked the effect of COVID-19 in different age groups on unemployment and the proportion of inactive people within them. The empirical study investigated whether age varied in relationship with the impact of the COVID-19 outbreak on the labor market. We examined the extent to which the outbreak affected the economic inactivity of young people and explored the

reasons behind these differential effects by assessing the interaction terms between the status of the young person and the period of the COVID-19 epidemic. As shown, young people were more likely to be inactive compared with middle-aged or older people. The empirical results estimated from the multinomial logistic regression model capture part of the factors: childcare, household management, job search discouragement, and childcare. Thus, RR for youth in other age groups in were economically inactive or giving up looking for a job was extraordinarily large compared to that before COVID-19. Also, young people responded less positively to the possibility of a job in the future after COVID-19 compared to middle-aged people in a study about employment opportunities (Park and Cho, 2022).

Using unconditional quantile regression and decomposing the vulnerable sectors—like face-to-face industries, Ha (2023) calculates who was more affected and how much they struggled with economic problems in Korea. As it turns out, it is among the self-employed in the vulnerable sectors with their income at the lowest percentiles that they are most affected. Second, low-income households, temporary workers in the most vulnerable industries, and self-employed in other sectors were all hard hit. Third, the regulatory mismatch between strict closure policies for schools and lax restrictions in workplaces hit female employees—most of whom are responsible for childcare—particularly hard. The financial support should not be indiscriminate but biased toward the disadvantaged groups in this respect. Moreover, the extension of childcare facilities is important for the reduction of gender inequality (Ha, 2023).

Choi (2023) contributes an exploration of the initial experience of labor markets in the United States and South Korea at the beginning of the epidemic and again in November 2020. In our study, it was found that among all the labour market indicators of the two countries during this epidemic, the unemployment rate and proportion of unemployed were the most affected. It constructs concentration indices that use education as a socio-economic ranking indicator, which measures inequality in labor markets. After running an RIF regression, the output shows that among South Korean workers, the less educated had a high concentration of unemployment. In contrast, among the unemployed, highly educated people represented a larger proportion. Although the option to telework accounted for much of these differences, very few of these differences remained in the Korean labor market in November 2020. Generally, the unemployment rate for US workers with lower levels of education has usually been higher and remains so for longer. Remote

work opportunities have reduced inequality significantly during April but not in November (Choi, 2023).

Lee (2022) focuses on the gender-specific COVID-19 epidemic in South Korea caused by occupational segregation. She discusses in detail how different genders are put under various risks at work, particularly within those vital industries dominated by women, such as the healthcare industry. Results from the multinomial logit model point out that women are much more exposed at work, compared to men, in particular within the care industry, and also in the low-income industry (Lee, 2022).

2.1.6.6 The effect of COVID-19 on the labor market in Costa Rica

Following the identification of the initial case of COVID-19 in Costa Rica on March 6, the government swiftly took action to curb the transmission of the virus. The implemented strategies included measures like enforcing social distancing, enabling 80% of public servants to work from home (and extending this option to private contractors where feasible), shutting down borders, imposing travel restrictions, closing schools, prohibiting large gatherings, and shuttering hotels, restaurants, national parks, theatres, and churches. These stringent regulations led to a noticeable reduction in the movement of individuals in public areas such as parks, workplaces, and retail establishments, with a corresponding increase in time spent within homes. As a result of the government's timely interventions, the final week of May saw a decrease in positive cases to less than a thousand (Farber, Glaeser, & Kerr, 2024). Travel restrictions and social distancing measures were relaxed, and the economy began a gradual recovery. However, by mid-June, there was a sharp increase in the number of cases across the nation, culminating in 3,459 positive cases by the end of June. At this point, the Central Region government declared the presence of community transmission. The government opted to cease the relaxation of restrictions and instead implemented varying constraints for each canton. This stratagem aimed to manage the outbreak in regions with high contagion rates while permitting some economic activity in areas with lower case counts. The tally of cases reached 17,820 by the conclusion of July, with 150 recorded deaths, illustrating the progression of COVID-19 cases in Costa Rica throughout the year (Sánchez Gómez, 2021).

Keizer 2023 provides a set-up of how the crisis influences female workforce participation in the Costa Rican tourism sector. In the survey, interviews, and other qualitative and

quantitative methods, he used to find out the plight. The findings indicated that the traveling restrictions had a negative impact on various sections within the tourism industry, increasing unemployment rates, which in turn changed the financial security status of the women drastically. It also had mental health impacts on women, mainly at the early stages of the health crisis. Despite the massive blows to women's employment, studies prove that many of them were still able to support their families by finding alternative sources of income. Added to that, findings confirm an increase in unpaid labor following school closures, mainly affecting mothers with children of school-going age, as other studies have confirmed. In 2021, tourism resumed with an increase in paid employment opportunities for women. Moreover, the level of unpaid labor reverted to pre-pandemic levels, and the mental health of women improved ([Keizer, 2023](#)).

Using labor force survey data from seven middle and high-income countries, Soares and Berg (2022) provide an analysis of labor market transitions for the first two quarters of 2020 relative to transitions in the previous year. Their results indicate that those countries that strongly focused on wage subsidies as a source of income support did indeed dampen labor market churning. However, according to an analysis of seven countries, the crisis made inequalities in the labor market grow further ([Soares and Berg, 2022](#)).

In the research by Sánchez Gómez (2021), data were drawn from the online job posting platform Buscoempleocr to analyze the responses of companies in terms of posting job vacancies and the search behavior of job seekers due to the COVID-19 pandemic and the consequent lockdown measures undertaken in Costa Rica. From the differences in differences analysis, it was seen that firms reduced the number of job postings by a considerable 67.2% both before and after the enforcement of the restrictions compared to one year before. Indeed, firms within specific industries like the lodging and food service industry reduced job postings. Still on individual professions, primary school teaching, service, and sales professions were considerably affected. To this effect, the geographical regions that seemed to be most affected were those popular in tourism and urban centers hosting a lot of businesses. Although the number of job seekers rose, relative to the labor supply, there is the likelihood that the intensity at which they were seeking jobs reduced during the pandemic ([Sánchez-Gómez, 2021](#)).

A study by Garita et al. (2024) discusses the consequences of job displacement for workers. In this study, an administrative data set from Costa Rica was used, and a clustering

methodology classified workers by their effectiveness in searching for a job and subsequently finding stable employment. In summary, it adds to the evidence base that worker facing job loss suffer persistent income losses, particularly during times of economic crisis like the COVID-19 pandemic. Those workers who held secure jobs with better earning opportunities are now, post-pandemic, moving to more profitable and productive businesses. Equally, such workers are also entering low-wage jobs. What the research essentially points out is that for explaining how labor reallocation and income reduction have happened during the pandemic, it is the changes in job characteristics and not employer characteristics, that become very important ([Garita et al., 2024](#)).

2.1.6.7 The impact of the COVID-19 epidemic on the Colombian labor market

The COVID-19 pandemic is one of the most powerful events to ever hit the world in recent history. As of June 2020, almost 500,000 deaths and over 10 million infections had been recorded across the world, with the number still growing. In a bid to help reduce the speed at which the virus was spreading and improve health systems, a lot of countries enforced total lockdowns and restricted movements. These hygiene and transport restrictions then caused an economic crisis worldwide, unparalleled in its scope, not to mention the critical situation regarding employment prospects. COVID-19 has had enormous impacts on labor markets worldwide, not least regarding mandatory lockdowns, changes in movement restrictions, and consumer behavior. For example, nearly 25% of all jobs were lost during the peak of forced closures in spring 2020 in Colombia. The country was plunged into its worst recession in history. The current research addresses the extent, composition, and impact of the COVID-19 shock on the Colombian labor market, exploring the causes, the role of social security regulations, and the informality of the subsequent recovery, using microdata from a national household survey ([Alvarez and Pizzinelli, 2021](#)).

The first COVID-19 case in Colombia was detected on March 6, 2020, and towards the end of April, a sharp increase in the number of patients was observed. By the end of June, an estimated 95,000 cases had been confirmed, accompanied by the reporting of 3,200 deaths from across Colombia. These relatively low figures compared with most countries of the Latin American region are indicative, among other things, that Colombia swiftly established lockdown measures from the onset of the pandemic. The number of cases was

possibly inflated by the availability of tests in the early stages of the outbreak. The mobility restrictions were decreed on March 20, 2020, and their enforcement followed on March 25, 2020, under Decree 457 of 2020, at a moment when only 378 positive cases and three deaths had been registered ([Morales-Zurita et al., 2020](#)). The government imposed a general, nationwide lockdown, barring everybody's mobility except those involved in selected key industries. Critical sectors such as public administration, finance, agriculture, public utilities, and supply chains in these sectors could continue working with high-stringency protocols. Except for grocery shopping and visiting the doctor or hospital, everyone needed to be inside, while other measures were carried out by local authorities according to the particular case of a city or region. Common measures include curfews on weekends and evenings, as well as movement restrictions tied to the last numbers of national identity cards or by gender.

The pandemic and the movement restrictions put in place to curb the transmission of the infection did take a heavy toll on the economy of Colombia, causing one of the largest drops in GDP of 6.8% in 2020, which signifies the most abrupt fall that the economy has taken since times in memorial. There have also been very severe impacts on the labor market. The country had its highest-ever urban unemployment rate in the second quarter of 2020, at 23%, demonstrating a differential effect across sectors ([Morales-Zurita et al., 2020](#)). Relating their contribution to this discourse, Cárdenas and Alianza relate changing global metrics concerning the case of working from home and proximity in order to obtain information about the percentage that the case of a developing country like Colombia represents with regard to workers within these categories. Their results imply that almost a quarter of jobs (approximately 25%) can be potentially telecommuted in Colombia, in contrast to the 10% of workers with high interpersonal contacts ([Cárdenas and Alianza, 2020](#)). Bonet-Morón et al. (2020) describe the economic impact of the measures introduced by the lockdown that the Colombian government implemented to reduce COVID-19's transmission in the region. The authors have estimated the economic impact of the exclusion of formal and informal workers in different sectors of the economy employing an input-output model. These calculated economic losses are expressed in monetary values ranging from 0.5% to 6.1% of the country's GDP. Trade, real estate activities, administrative services, accommodation and food services, and construction have been identified as the most affected sectors ([Bonet-Morón et al., 2020](#)).

Cardenas et al. (2021) grasped the matter of working from home in Colombia and how COVID-19 affected the country by varying the effects on formal employment versus informal employment. Their study estimates that only about 13% of all informal workers were able to work from home; for formal employment, that is about 20%. They enhanced quality and improved comparability for the occupational information, taking the Colombian Household Survey and harmonizing estimates from various sources to reach the estimates of work from home. The study also examined the effect of teleworking on certain personal/family characteristics. It turns out that a more significant effect is felt in the informal sector, particularly on the less privileged people less educated and receiving low incomes as well as have poor internet accessibility and working environment. Such groups of people in developing countries that majorly depend on the informal economy for their income, therefore will be less prone to the direct implications of the typical employment structure (Cardenas et al., 2021).

Alvarez and Pizzinelli 2021 examine how the COVID-19 pandemic and subsequent lockdown measures have been affecting the Colombian labor market using microdata of households. During the peak of the initial lockdown, in 2020, nearly a quarter of employment became subject to temporary disorganization. In that, the demographic groups more significantly affected were women, young people, and lower-educated individuals. This was followed by the remarkable recovery, mainly due to the rebound in informal employment. Given that the informal sector was playing a very critical role in absorbing rapid adjustments in employment levels and working hours—particularly in the most affected industries during the initial lockdown—it really was an absolute shock absorber. Moreover, the informal sector contributed to making total employment in 2021 less responsive to subsequent lockdowns, suggesting the economy is learning to live with pandemic-related restrictions. There is, however, a considerable risk that some of the informality may become long-lasting, which could impact productivity in the medium and longer term (Alvarez and Pizzinelli, 2021).

Morales-Zurita et al. (2020) assess the impact of the COVID-19 pandemic, in particular the sector-specific mobility restrictions, on the Colombian labor market. They used the variation of the set of restrictive measures both across time and sectors as a means of identification for their effects on employment. Results indicated that, although the mobility restriction policies showed quite an impressive effect on job decline, they explained only about one-quarter of all job losses from February to April 2020. Three-quarters of

the decline thus came from regional patterns of disease and other epidemiological and general economic factors affecting the country at large, indicating the occurrence of a significant decline in employment even without restrictions. It also estimated the impact of the restrictions on labor intensity and found that, although negative, these were smaller in terms of hours worked and wages. The effects of employment reduction fell more onto salaried employees, while the self-employed responded more to disease spread. Furthermore, it has been found that women alone bore disproportionate impacts, with mobility constraints accounting for one-third of the recent widening gender gap in white-collar employment (Morales-Zurita et al., 2020).

Junguito et al. (2023) investigated whether completing public or private high school makes any difference in the case of labor market outcomes for individuals in Colombia amidst the turmoil of COVID-19. With this view, a quantitative field experiment was conducted to check labor market outcome disparities through a correspondence test method. For that, CEOs and managers of leading companies have participated to portray a close-to-reality picture of the Colombian scenario of employment. The results underscored differential treatment in labor opportunities favoring those who graduated from private schools. What was important, however, is that graduating institutions did not have as significant effect as the level of education attained by the candidates. The gap could be bridged by graduates from public schools acquiring demonstrable skills, which any employer would value, hence affording some educational training programs a very important role in the inequality gap that characterizes Colombia today (Junguito et al., 2023).

2.1.6.8 The impact of the COVID-19 pandemic on Iranian labor market

Although the economic problems in the Iranian labor market have been present for a long time, the strict sanctions have had an added effect, worsened the situation, and made the problems all the more complicated in the country. At first glance, the tough sanctions imposed on Iran from 2012 to 2019 do not seem to have affected the labor market that much, as the number of employed persons has risen and the rate of unemployment decreased, while the economy experienced stagnation, a decline in investment, and mounting inflation (Dang et al., 2024). According to Moughari, 2022, a good percentage of workers transited from high-value jobs to lower-productivity jobs due to the sanctions. A majority of those who lost their jobs in the private sector were compelled to participate in low-value-added services. The increase in low-paid jobs and temp workers intensified

the problem of pervasive poverty and other social problems after the sanctions. Although production has been in decline, major state-owned and semi-state-owned industrial companies have not reduced the number of employees. Hence, on the net, this means that employment could rise at the expense of productivity between 2012 and 2019. Only once sanctions are lifted can a dynamic labor market arise. However, it will be expecting complementary measures from the government in the form of sensible fiscal, monetary, and trade policies to bring about productive investment and an adequate number of new long-term jobs. Unwarranted rules and regulations—impeding productive investment while opening doors to rent-seeking and corruption—must be rolled back—most of those who lost their jobs in the private sector ([Moughari, 2022](#)).

However, the biggest challenge of all was that of COVID-19. Iran was under strict international sanctions. In 2020, due to the lockdowns, supply and demand decreased, and most small businesses with less than 10 employees laid off some of their staff, mainly in the travel and hotel industries and the sports and entertainment sectors. Approximately 1.5 million people lost their jobs, the majority being the unemployed ([Borimnejad & Dehyouri, 2022](#)). The Ministry of Cooperatives, Labor, and Social Affairs temporarily relaxed the stringent prerequisites that the unemployed were required to meet before being entitled to unemployment benefits. In the three months from March to May 2020, 730,000 unemployed persons received unemployment benefits, but over half of the laid-off workers, particularly female workers who were not under the social safety umbrella, were not entitled ([Masaeli et al., 2022](#)). Compared to men, female employment has fallen more rapidly. Even though over 710,000 persons rejoined the labor force in 2021, the number of employment remained lower compared to 2018. Men started working sooner than women. In case the higher percentage of women working informally ended in 2020, similar to the jobless rate seen among those women who, at the beginning of the year, were working, the number of employed persons will drastically reduce ([Iran Statistics Center, 2021](#)). To the Iranian policymakers, however, a high unemployment rate is critical only to the effects it has on the country's economy, as well as the social, political, and cultural consequences that might affect the stability of the regime.

Cherian et al. (2021) used the quarterly data from 2001Q2 to 2020Q1 in an attempt to analyze the dynamics of the unemployment rate at several levels of disaggregation: by age groups, specifically 19–24, 25–30, and 30 years and older; by gender categories; and by geographical location, namely, urban and rural. The results obtained from this research

confirm, in any case, the unemployment hysteresis, insinuating that shocks exert long-lasting effects on various sub-groups among the unemployed ([Cheratian et al., 2021](#)). Taherpour and Banasaz (2023) applied the VAR model to assess "the impact of the COVID-19 pandemic on Iranian female unemployment compared to male unemployment" The results of the study suggest that women are more affected by COVID-19. This means women began losing their jobs earlier than men, and also the period of unemployment was longer. Also, it can be understood that the COVID-19 pandemic affected female workers in Iran more as compared to males from the results of the study. This labor market shock can be cushioned by way of bank loans, unemployment insurance, tax exemption to women with no work, and introducing of technology to promote home-based work among female workers ([Taherpour and Banasaz, 2023](#)).

Taherpour et al. (2021) investigate the impact of the coronavirus epidemic on the Iranian labor market. They analyzed the changes in some major labor market indicators during the first four months of the presence of the pandemic. Besides, they estimated a vector autoregression model to examine the dynamic effect of COVID-19. Results indicate that more workers are being discouraged due to the spread of the pandemic. In comparison with the same time period last year, the rate of employment decreased by 3.7 percent ([Taherpour et al., 2021](#)). The economy of Iran is expected to grow at -7.6 percent in 2019 compared to -5.4 percent in 2018. It, therefore, shows that the economic mess in Iran has escalated since the outbreak of COVID-19. A real GDP growth rate of -6 is estimated to be expected in 2020. In addition, due to COVID-19 pandemic and lockdown of the industry coupled with sanctions resulted in the rate of unemployment increasing from 18.3 percent to 16.7 percent in 2018 2020, and 2021, respectively. Many jobs in manufacturing and service industries, mainly in SMEs, could be lost due to the COVID-19 epidemic and current economic difficulties that have reduced people's purchasing power. This would increase unemployment. Further, the outbreak of the COVID-19 pandemic led to some of these countries closing their borders; this included Afghanistan, Pakistan, Turkey, Iraq, and Turkmenistan, which worsened the crisis for Iran in carrying out business or even exporting products to them ([Zamani, 2020](#)).

According to a World Bank study in 2023, despite the awful damages of COVID-19, serious deterioration in labor market outcomes had occurred. Nearly one million jobs were lost, with participation falling by three percentage points in the first year of the pandemic, 2021-2022. Iranian women were disproportionately affected: between 2019

and 2020, two out of three jobs lost were those of women. Things were made worse by the fact that the crisis had gender-specific effects, which further worsened the Iranian women's labor market disadvantage. Specifically, the gains in female labor force participation, which since 2011 had been improving, were reversed by the crisis ([World Bank, 2023](#)).

2.1.6.9 The impact of the COVID-19 pandemic on Chilean labor market

Chile shone along with a minority of countries that applied strict and chronic lockdown measures at the level of individual municipalities, centrally ordered by the ministries of the federal government itself. That move necessitated some liquidity to support the ability of households to offer employees temporary leaves of absence, facilitated through the use of unemployment insurance funds. This served to protect families from being hard hit during the lockdown. They did help firms retain their employees, reducing the cost of labor market churn and new hiring as the prospects of the local economy began to reopen. The amount of time children and families were given out from underfoot—in grocery stores or parks, or even on a walk with the dog through the neighborhood—differed greatly. COVID-19 has traumatized the global employment market; millions of jobs have been lost in recent months from the clutches put by way of the widespread pandemic across the globe. The pandemic resulted in close to three million jobs being lost between January and June 2020, close to a third of the working population in Chile ([Organisation for Economic Co-operation and Development, 2022](#)). From a regional perspective, the Chilean case outlines an interesting scenario in which to evaluate the impact of COVID-19 on employment. The country is divided into 16 regions, 56 provinces, and 346 municipalities (comunas). The regions go from north to south. This paper will focus on the 15 regions that will exist by the end of 2018, with a marked concentration of the population of Chile in the metropolitan region of Santiago, the most important city of Chile in which approximately 40% of the population resides, and which serves as the economic and political center of the country. Despite the overall domination of retail and basic service jobs across Chile, regional labor markets show immense diversity that is very closely aligned with the country's physical geography. Whereas in the sparsely populated northern regions, large numbers of the labor force are taken up by mining and associated services, in the more densely populated central and southern regions, agriculture, as well as the agri-food sector more generally, makes up a very significant component of employment.

The complexity of the regional labor market dynamics in Chile is further compounded by the Santiago metropolitan region, characterized by an urban economy focused on the service sector and a more diversified industrial landscape. In light of this diversity, analysis of the impact of COVID-19 on unemployment follows a regional approach ([Organisation for Economic Co-operation and Development, 2022](#)).

The study by Egana-delSol et al. (2021) is focused on the impact that the COVID-19 crisis has had on the labor market in Chile. In the last two quarters, the pandemic has destroyed two million jobs—nearly a third of the entire working population. Finally, for the formulation of appropriate economic policy measures, reasons are needed for the disproportionate hit taken by certain sectors, occupations, or demographic segments. That said, the COVID-19 crisis has not stopped the acceleration of work automation in emerging markets, according to this research. According to this research, sectors with a high proportion of jobs at risk of automation exhibit the sharpest decline in employment. Compared to other sectors, the second quarter of 2020 saw a much bigger contraction in employment by an average of 12 to 8 percentage points in those sectors with high content of automatable occupations. Another key result of the analysis is that variables strictly connected with the pandemic are of paramount importance. Workers who, however, work in close physical proximity to others have been hit the hardest by the crisis, while workers in occupations that allow working remotely are afflicted less. Recovery in employment within such occupations is said to be accelerated compared to others once the pandemic has passed ([Egana-delSol et al., 2021](#)).

Mordrego et al. (2020) estimate a joint translog cost function for the period 2013–2018 and use alternative scenarios of product losses stemming from expert forecasts to perform an initial assessment of the local impact on employment in several regions of Chile due to the COVID-19 pandemic. In the average scenario, the estimated number of jobs lost was approximately 705,000; in the optimistic case, it was around 577,000; and in the pessimistic case, it was 870,000. The impact differed very much among regions, thus representing spatial heterogeneity. The percentage of jobs affected in relation to the total number of regional jobs ranged from 0.6% in the case of the Antofagasta region to 13.6% in the case of Los Lagos in an average scenario. Such estimates could inform the design of regional-specific social protection and economic incentive measures at a time when the virus is still building up and the regional employment effects have not yet materialized. Whether by region or scenario, estimated losses have been in trillions of dollars,

underscoring the imperative of hastening and broadening measures to protect employment and production, some of which only recently have taken the form of law, and others are still before legislatures ([Mordrego et al., 2020](#)).

Idrovo-Aguirre et al. (2021) provide empirical evidence for the rise in the probability that a laid-off construction worker will turn down formal jobs since pension fund withdrawals and emergency family income increase this likelihood. This supports the argument that pension fund withdrawals, as well as transfers associated with the health emergency, have at least to some extent caused the dearth of formal labor in the construction industry. Using the logit model, this study demonstrates that the probability of rejecting formal employment increases with years of work experience proxied by the worker's age. For example, a highly experienced worker who had withdrawn funds from their mandatory private pension fund manager and received EFI increased the probability of rejecting a formal contract by 28. This value corresponds to a figure of about 2.5 times more in comparison with the probability of rejection for a worker of similar experience who does not have additional income support ([Idrovo-Aguirre et al., 2021](#)).

Trujillo and Atienza (2021) analyzed the degree to which the initial economic context of a country acts as a decisive element in the process of development regarding the SARS-CoV-2 pandemic. For this purpose, the first wave of the pandemic in Chile was deeply analyzed. For Chile, an emerging nation, the situation experienced was unprecedented in social upheaval, popularly referred to as the "social outbreak," which, only months before the outbreak of the pandemic, had begun pointing toward a fall in economic activity and an increase in unemployment. The paper empirically tests the view that the previous deterioration in the labor market—acting as a forerunner to the economic decline at the beginning of the pandemic—has had an impact on the infection rate. The result is a positive, statistically significant correlation between unemployment before the pandemic at the provincial level and the number of people infected with SARS-CoV-2. Therefore, the initial social and socioeconomic conditions of each region should have to be factored in when the set of measures against the impact of the pandemic is being designed ([Trujillo and Atienza, 2021](#)).

The study of Rivera and Castro (2021) focuses on how the employment trajectories of workers unfolded within the context of the current pandemic in Chile. This was an important case because Chile is not only a neoliberal country but also a country dominated

by the culture of the male breadwinner with huge disparities in income distribution. Longitudinal non-probabilistic data on the Chilean labor market showed men to have less probability of losing jobs and greater ease of entry into the workforce compared to women. Among workers with families—defined as having a partner and young children—males were more likely to remain in employment, while females with families moved from employment to caring. It has already been noted in the literature that economic crises have been especially damning for gender equality struggles, and the current economic crisis only further cements this trend. From the very start of COVID-19, the outbreak in Chile became intertwined with low-skilled jobs and high levels of informal work; therefore, firmly entrenching its relevance in a country like Chile, where nearly one-third of the workforce is employed in such jobs. In the conclusion to the article, the authors put forward a demand for a gender-sensitive approach in dealing with the present crisis and further economic recovery ([Rivera and Castro, 2021](#)).

Heggeness and León (2023) also note that having universal childcare facilities in educational institutions like schools has increased maternal labor force participation by between 2.6 and 21.0 percentage points since schools reopened. But as mothers re-entered the workforce, unforeseen disruptions that could have been predictable prevented them from being able to keep working and led to increased use of leaves of absence, mainly because of disruptions due to unexpected incidents like children getting sick and quarantine measures against COVID-19, with a strong impact on mothers who were secondary earners in their household. Teenagers' presence in the workforce provided a cushioning effect against work disturbances to both women and men; this can generally be taken to mean that parents would already be considered relatively engaged in their work roles and less likely to be absent from work. These empirical findings support the hypothesis that parental labor force participation responds to childcare interruptions, but also depends on the composition of the household and the specific roles that each parent takes on beyond their gender. For children, policies that promote consistent systemic care and structural education certainly bring benefits, but they also strengthen the ability of second earners to integrate into the labor market and get ahead in their careers. This realization is important in synergic understanding ([Heggeness and León, 2023](#)).

Fosco and Zurita (2021) offer a novel methodology that has been developed to directly assess the impact of lockdown measures on economic activity. In this new approach, data from the labor market will be combined with simulations resulting from an agent-based

model. The application of the proposed method is exemplified by being implemented in the metropolitan region of Santiago, Chile. The researchers created counterfactuals by fitting model parameters to the observed data and iteratively changing policies, a feature that characterized this period. According to their analysis, the implemented measures dropped economic output by an estimated 8% during the first 5 months of the pandemic and reduced 56% of the total infections. Had the loss in production been contained at 10.5 percent of gross domestic product, then the rate of infection would have fallen by 92 percent, which, if adopted, would substantially slow down the spread of COVID-19 and check the surge in infections. Testing this approach on real sources of data produced results that would be valuable recommendations to formulate other strategies in similar settings of lockdowns in periods of crisis, pandemics, or social unrest ([Fosco and Zurita, 2021](#)).

Viollaz et al. (2023) Viollaz et al. (2023) test whether there are differences in the changes to labor market dynamics observed pre-pandemic versus during COVID-19 for four Latin American and Caribbean countries: Brazil, Chile, the Dominican Republic, and Mexico. The study focuses on differences in labor market status and transitions of individuals under different labor market conditions. Comparative analysis is carried out to determine the effect of the pandemic by contrasting labor market data and flows for different cohorts of workers during the pandemic and pre-pandemic periods. The results show that the period of the pandemic has probably been bad for employment rates and labor force participation of men and women. However, these effects are much more pronounced for women, only going to widen the gender-specific differences already observed in most Latin American and Caribbean countries. The chief mechanism through which this greater effect is caused is an increased responsibility of women with school-going-aged children, which further inhibits them from being able to participate in the labor market ([Viollaz et al., 2023](#)).

Nettuno (2024) shows preliminary results pointing to the existence of differential labor market and socioeconomic outcomes for non-gendered people in Latin America, using nationally representative data. In reality, an extreme scarcity of information on gendered populations characterizes most developing regions; therefore, the present study has special value. Using newly available population-based data from the 2017 National Socioeconomic Characterization Survey in Chile, the authors can identify more than 1800 non-gendered adults—that is, people whose gender identity is not aligned with their sex as

assigned at birth. Net of relevant individual and household characteristics, this paper describes labor market outcomes and socioeconomic position to gender identity. It shows that the probability of employment is lower for non-same-sex individuals assigned male at birth, while comparable same-sex males are less likely to live in a household suffering from multidimensional poverty. Furthermore, non-gender women categorized as females at birth are likely to be less employed, work fewer hours, have reduced labor income, and probably work in the informal sector than same-sex men (Nettuno, 2024).

Concerning the above-mentioned research focusing on the impact of COVID-19 on the labor market dynamics in developed countries, it is evident that we address the gaps in the current literature in the following ways:

First, our study uses the standard search-and-match model to examine labor market dynamics before and during the COVID-19 crisis in developed countries. Second, the scope of this study covers the period from 2010 to 2021 and focuses on working-age individuals aged 15 to 64. In addition, we analyze the distributions of unemployment durations to calculate job-finding rates. To do so, we use statistics from the OECD data portal "Incidence of Unemployment Duration" for the period from 2010 to 2020. Third, we assess the quantities of each labor market condition/, including employment, unemployment, and non-participation (persons outside the labor force).

Fourth, to learn how the COVID-19 recession was experienced, it is important to understand the difference between temporarily unemployed actively looking for jobs (T^A) and those waiting for reemployment (T^W), where $T = T^A + T^W$, apart from the permanently unemployed. Fifth, we are also interested in measuring the job vacancy rate, detailing the unemployment job rate and its duration, and finally estimating the matching function to measure how many job vacancies correspond to the number of hires.

Moreover, to study the labor market dynamics before and during the COVID-19 recession in developing countries, we utilize this data in several ways. First, we examine the labor market dynamics, including employment and unemployment before, during, and after the COVID-19 crisis. Second, we examine the impact of unemployment and job vacancies on job matches. Our quantitative analysis is based on the nonlinear model. This is the first investigation into labor market dynamics before, during, and after the COVID-19 recession across developed and developing nations. Therefore, this study provides a new contribution to existing literature.

Consequently, this study contributes to filling the literature gap by deriving the first empirical study based on labor market adjustments before, after, and during the COVID-19 recession for both developed and developing countries. It offers valuable policy advice for policymakers, researchers, governments, international bodies, development organizations, and labor economists by elucidating some common trends and some country-specific labor market behavior in response to an unexpected global shock.



3 DATA AND RESEARCH METHODOLOGY

3.1 Data

In this research, we used a large data set from developed and developing countries. Our main data sources are OECD country's employment and labor market statistics, Eurostat labor statistics, statistics from the Japanese Statistical Office, data from the Turkish Labor Force Survey and the Turkish Statistical Institute, data from the National Bureau of Statistics of China, data from the International Labor Organization and the World Bank Development Indicator, data from the National Statistics and Information Agency of Afghanistan (NISA), and recent data from the Statistical Center of Iran (SCI), etc. The study spans 2010 to 2021, and the sample is from 15 to 64 and 25 to 75 work-age population. Why did we select the year 2021? Because we emphasize the investigation of the labor market dynamics before, during, and shortly after the COVID-19 recession. Since 2021 indicated the period when a lot of countries started to recover the labor market from the COVID-19 recession. Furthermore, 2021 is the most recent year for which reliable labor market data were accessible across all selected countries at the time of the research.

In addition, we take the distributions of unemployment durations that we use to estimate the job-finding rates from the OECD Data Portal's "Incidence of Unemployment Duration" statistics for the period 2010 and 2020. These data are presented in five time periods (duration bins): < 1 month, >1 month and <3 months, >3 months and <6 months, >6 months and <1 year, 1 year and over for all target developed countries, and include all unemployed persons (women and men).

For developed countries, we have used these data sets in different ways. First, we use the data to measure the stocks of various labor market states, including employment, unemployment (temporary unemployment and permanent unemployment), and non-participation before, during, and after the COVID-19 pandemic. Second, to understand the impact of the COVID-19 recession, we distinguish between temporary unemployment (short-term contract) and permanent unemployment (long-term contract). Third, our study is also concerned with estimating the job vacancy rate, examining the relationship between the job finding rate and the duration of unemployment, and finally estimating the matching function to examine the relationship between matches (hires), unemployment rate, and the job vacancy rate.

Furthermore, for developing countries, we have used these data sets in the following ways. First, we used the data to examine labor market dynamics such as employment and unemployment rates, and finally, we estimated the matching function to examine the relationship between matches (hires) and the job vacancy and unemployment.

3.2 Research Methodology

In this section, we develop the search-and-matching model with temporary unemployment.

3.2.1 The general overview of the search-and-matching model

The basic principles of the model emerged after the Phillips curve and natural rate theory received criticism from Phelps (1967) and Friedman (1968). The search framework first appeared in publications written by Phelps (1970) and Mortensen (1970) which appeared in the renowned 1970 "Phelps volume". Search costs alongside the flow model of the job markets and the intertemporal investment decision with adjustment costs formed the essential elements of the described research.

Peter Diamond jointly with Dale Mortensen and Christopher Pissarides developed the "search and matching model. They received the Sveriges Riksbank Prize in Economic Sciences in 2010 to honor their model of search and matching theory. Peter Diamond received the Nobel Prize in Economics for his research of markets with search-induced frictions alongside Dale Mortensen and Christopher Pissarides who received the award for their search and friction analysis of economic markets. Yashiv, 2007 indicates that the search and matching model provided deep insights into the dynamics of unemployment and job market functioning and exactly how frictions affect economic results" ([Yashiv, 2007](#)).

The search and matching model represents an entire economic system that studies labor and employer connections in the economy. This model is needed to explain how matching problems create job vacancies and unemployed people. This model studies market outcomes through searching and matching activities because firms and employees spend time and resources to find right matches. The baseline concept of the labor market shows how workers seek jobs and companies announce vacancies through math-based equations. This system includes matching services and discussions. Relational expressions display how both companies and workers operate jointly and distinctly throughout the

system. Researchers build different versions of the search and matching model in economic work but this displays its foundation; its composition depends on investigators' aims and the scale they choose. Research studies show these basic search and matching model equations in two types: The mathematical representations of the search and matching model are as follows:

1. Workers:

Unemployed workers (U_t):

- The following equation provides the number of unemployed at time t :

$$U_t = U_{t-1} + \text{job Separations} - \text{New Matches}.$$

$$U_t = U_{t-1} + s \cdot U_{t-1} - M(U_{t-1}, V_{t-1}) \dots \dots \dots (3.1).$$

- s is the search rate, and $M(U_{t-1}, V_{t-1})$ is the number of successful matches based on the current number of unemployed workers and job vacancies (opening jobs).

$\text{job Separations} = s \cdot U_t$ (Workers search for jobs at a rate s per period, and the probability of finding a job is given by θ).

2. Firms:

Job Vacancies (V_t):

- The number of job vacancies at time t is given by the equation:

$$V_t = V_{t-1} + \text{New matches} - \text{job destruction}.$$

$$V_t = V_{t-1} + v \cdot V_{t-1} - M(U_{t-1}, V_{t-1}) \dots \dots \dots (3.2).$$

- v is the vacancy posting rate. In other words, Firms post vacancies at a rate v per period, and the probability of finding a worker is given by $1-\theta$.

$$\text{Job destruction} = v \cdot V_t \dots \dots \dots (3.3).$$

3. Matching Function:

Matching Function $M(U_t, V_t)$:

- The matching function describes the rate at which matches occur based on the number of unemployed workers and job vacancies:

- It is a mathematical representation of how the number of matches depends on the number of unemployed workers and job vacancies.

$$M(U_t, V_t) = \theta \cdot U_t \cdot V_t \dots \dots \dots (3.4).$$

- θ is the matching efficiency, representing the probability of a successful match?

4. Wage Bargaining:

- After a match is made, there is a wage bargaining process to determine the terms of employment.
- The outcome of wage bargaining affects the decisions of both workers and firms.
- The resulting wage, w_t , depends on the bargaining power of workers (β) and firms ($1-\beta$).

$$w_t = \beta \cdot \text{worker productivity} + (1 - \beta) \cdot \text{firm productivity} \dots \dots \dots (3.5).$$

5. Equilibrium Condition:

- Equilibrium in the search and matching model occurs when the number of job vacancies matches the number of unemployed workers.
- Equilibrium conditions depend on various parameters, including the efficiency of the matching process and the costs associated with search and matching.

$$U_t = V_t \dots \dots \dots (3.6).$$

3.2.1.1 Search-and-matching model

Now we set out our search and matching model à la transitory unemployment, starting at the basic framework, the "driving/forcing variables", which we take exogenous to the model, to ultimately describe the endogenous variables of the matching model, the job finding rates ([Gallant et al., 2020](#)).

3.2.1.1.1 Model setup

In this part, we will use four employee statuses. Employment (E), nonparticipation (not in the labor force) (N), and permanent unemployment (P) refer to permanently laid-off workers who are actively looking for work, while (T) refers to temporarily laid-off workers. The persistent statuses are E, N, P, and T. For all unemployed workers (P and T), we

quantify the duration of their unemployment, which we index with d . In addition to these four main work states, we distinguish among the temporarily unemployed those who are "actively searching for job " (T^A) and those who are waiting to be reemployed (T^W), such that $T = T^A + T^W$. The states T^A and T^W are temporary in the sense that we assume that individuals who are temporarily unemployed are assigned to either T^A or T^W at the beginning of a period with probability $p_t = P_r(T^A|T)$.

Since this proportion p_t varies over time, it reflects how many individuals who are temporarily unemployed contribute to the overload of the matching process. The temporary identification of the unemployed (T^A or T^W) only influences the job-finding rates. Both categories of temporarily unemployed have the same transition to (N, P) and from (E, P, N). A key advantage of this approach is that we can estimate transition rates using a larger population of all temporarily unemployed workers before the COVID-19 recession, which allows for more accurate and consistent results.

According to this configuration, we index periods of unemployment by d to illustrate the possibility that transition rates may differ by duration. With this configuration, we need to monitor the transitions between the four main states (E, T(d), P(d), and N). To represent the transition rate from state X to state Y in time t, we use $\gamma_t^{X \rightarrow Y}$. We separately estimate the job-finding rates for individuals who are temporarily unemployed $\gamma_t^{T^W(d) \rightarrow E}$ and for those who are waiting and actively looking $\gamma_t^{T^A(d) \rightarrow E}$.

3.2.1.1.2 Forcing variables

Our contributing factors are the job vacancy rate, the job-finding rates (symbolized as $\gamma_t^{T^W \rightarrow E}$) for workers for workers who are temporarily unemployed and not actively looking (and waiting to be rehired), and any transition rates that do not lead to a transition into work. The latter includes the rates of job separation ($\gamma_t^{E \rightarrow Y}$, for $Y \in (T(d), P(d), N)$) and the transition rates between the different categories of non-employment ($\gamma_t^{X \rightarrow Y}$, for $X \in (T(d), P(d), N)$ and $Y \in (T(d), P(d), N)$). In contrast to the permanently unemployed and the temporarily unemployed who are actively looking for work, we do not consider a dependence on duration for the job-finding rates of the temporarily unemployed who are not actively looking for work (i.e., the job-finding rate is allowed to vary over time, but does not vary with d). The transition rates for the temporarily unemployed (except for the job-finding rates) are assumed to be the same for those waiting and

those actively searching, i.e., $\gamma_t^{E \rightarrow T^W(d)} = \gamma_t^{E \rightarrow T^A(d)} = \gamma_t^{E \rightarrow T(d)} \dots \dots \dots (3.7).$

We will evaluate and measure these external (exogenous) driving or forcing factors directly from our dataset. When we explore alternative models or simulations, we will assume different time paths for these motivating and forcing determinants and examine what they entail for job finding rates and internal/endogenous labor market patterns.

3.2.1.1.3 Job-finding rates

The external or exogenous driving variables correspond to the components that can be calculated directly from the data. To assess some other forms of simulation models and to look at what assuming different time paths for these driving elements entails in terms of job-finding rates and endogenous labor market distributions, we proceeded as follows. Market tightness and the efforts of different groups of unemployed are the most important endogenous or external variables where job search rates have a correlation. Market tightness is described as vacancy per job/total search intensity of the non-employed. The aggregate search effort of N, P(d), and T(d) workers is represented by S_t . The function $M(S_t, V_t)$ below determines and calculates the total number of matches in time t :

$$M(S_t, V_t) = m_0(S_t^\alpha, V_t^{(1-\alpha)}) \dots \dots \dots (3.8).$$

The match rate per unit of search effort is determined as follows:

$$\frac{M(S_t, V_t)}{S_t} = m_0 x_t^{1-\alpha},$$

In the above equation, $x_t = \frac{v_t}{s_t}$ represents the market tightness/slack (the ratio of vacancies to total search attempts). The match rate times the group-specific search effort equals the job-finding rate for each category.

- a. Job-search percentages for the long-term jobless and those who are not in the working population (labor force)

The search efforts of the long-term unemployed (permanently unemployed) with duration $d = 0$ are set to one, while the search efforts of all other groups are evaluated relative to this group. Search between the long-term jobless with duration d is given by the decreasing, typically positive function $A(d)$, where $A(0) = 1$. As a result, the job-finding rate for the long-term unemployed with duration d in period t is:

$$\gamma_t^{P(d) \rightarrow E} = \text{Prob}(E_t | P_{t-1}(d)) = A(d)m_0 x_t^{1-\alpha} \dots \dots \dots (3.9).$$

Workers who did not participate in the labor force (N) search with an effort $s|0,1|$, which is predicted in the model and remains unchanged over time. As a result, their job-finding rate is:

$$\gamma_t^{N \rightarrow E} = Prob(E_t | N_{t-1}(d)) = Sm_0 x_t^{1-\alpha} \dots \dots \dots (3.10).$$

These two equations are exactly as used by Kroft and others (2016).

b. Temporary jobless employees' job-finding rates

The waiting temporarily unemployed ($T^W(d)$) does not enter the labor market in our model, and their job-finding rate is determined by the external (exogenous) forcing variable $\lambda_t T^{W \rightarrow E}$. The job-finding rates among the temporarily unemployed who are actively looking for work are partly endogenous. In particular, the persistently and actively searching temporarily unemployed are either directly re-employed in each period, re-employed as a result of their search, or remain unemployed. In addition, we take into account that among the temporarily unemployed workers, those actively looking for a job are less likely to return to their old job or are simply less likely to be called back by the previous employer. Therefore, the return rate of workers to their previous job or simply the recall rate for $T_t^A(d)$ is $\pi \gamma_t T^W \rightarrow E$, where $0 < \pi < 1$.

Here, π is the parameter that represents the number or group of people who actively look closely because they are aware that they are less likely to be recalled in this time frame. It should be noted that π does not change with time or length/duration. Conditional on not being recalled, the temporarily unemployed actively search at a similar rate as the permanently unemployed of the same duration $P_t(d)$, and so they obtain new work at the same rate, conditional on not being recalled. Moreover, there is an adverse duration dependence between the actively seeking temporarily unemployed and the permanently unemployed, which supports this assumption. Accordingly, the job-finding rate of T^A can be expressed as follows:

$$\gamma_t T^{A(d) \rightarrow E} = \pi \gamma_t T^{W \rightarrow E} + (1 - \pi \gamma_t T^{W \rightarrow E}) \gamma_t^{P(d) \rightarrow E} \dots \dots \dots (3.11).$$

From the equation above, we can derive an estimate of π . Thus,

$$\hat{\pi} = \frac{1}{T} \sum \frac{\tilde{\gamma}_t T^{A \rightarrow E} - \tilde{\gamma}_t P \rightarrow E}{\tilde{\gamma}_t T^{W \rightarrow E} (1 - \tilde{\gamma}_t P \rightarrow E)} \dots \dots \dots (3.12).$$

In the above equation, the symbol $\tilde{\gamma}$ represents that we estimate and account for each transition rate using only a standard period or duration distribution, which we accomplish

by reweighting each transition rate. Given the rapidly changing duration structure of temporary unemployment in 2020, we consider this method more robust and calculate our projection of p using this approach, as p could also fluctuate during unemployment.

c. Labor Market Tightness

Price is one of the most accurate indicators familiar to economists to describe shifts in supply and demand in many markets. This is because, based on the logic of supply and demand curves, which have always been expected to intersect, the prices increase when supply is scarcer than demand. However, labor markets are not always suitable for this strategy since the markets are huge and it is challenging to match the applicants to the job offers. However, economists attempt to measure so-called “tightness” or the ratio of offers or labor demand to demand or supply. While the so-called supply and demand shocks in the aftermath of the pandemic, it is crucial to pay attention to its ‘tightness’. We are witnessing a different picture regarding the supply of labor since this factor is relatively difficult to quantify. Because most of the jobs are held by employed or non-employed individuals, the unemployment rate, recorded per se, may not reflect the number of seekers even when they are actively seeking employment. It would not necessarily be a problem if the pool of those seeking jobs outside the unemployment pool were equal to the unemployment pool, however, it seems that this is not the case. Thus, assessing the density of vacancies compared to job seekers, which can be defined as the unemployed acts as the first step in identifying tightness appropriately. This ratio is V/S . It is not a perfect measure, nonetheless. Conversely, indirect measures of tightness examine the rate at which vacancies are filled and the rate at which job seekers find new jobs. In a tight market, jobs should be filled more slowly and applicants should find employment quickly. Economists use a matching function to express this consideration. The number of new matches is a function of vacancies V and job seekers S , $M(V,S)$. Then the probability that a vacancy is filled by a new employee is $\frac{M(V,S)}{V}$, and the probability that a jobseeker finds a new job is $\frac{M(V,S)}{S}$. These ratios can be expressed as functions of scarcity, V/S , with some mathematical restrictions on the function M . The hiring rate per vacancy, M/V , or the placement rate per job seeker, M/S , can then be measured, and the functional link between these measurements and tightness, V/S , can be inverted.

In this model, three groups contribute to the tightening of the labor market: P , T^A , and N . The first two categories are made up of people who have been unemployed for different

lengths of time. Similar to Krueger, Cramer, and Cho (2014), unemployed individuals with different lengths (durations) of unemployment contribute to the overall search in proportion to their job-finding rates. P_t can be defined as the weighted average of the permanently unemployed in period t as follows:

$$\bar{P}_t = \sum_{d=1}^D A(d) P_t(d) \dots \dots \dots (3.13).$$

We now have our expression for the aggregate search S_t .

$$S_t = \bar{P}_t + (1 - \pi \gamma_t T^W \rightarrow E) \bar{T}_t^A + S N_t \dots \dots \dots (3.14).$$

Together with equation (1) and the vacancies V_t , we can calculate the time-varying market tightness and matching rates needed to determine the endogenous job-finding rates. The new term in equation (6) is the independent/separate contribution of the temporarily unemployed to the market tightness, scaled by the probability that they are not recalled/recalled and end up actively seeking a job.

3.2.1.2 Estimation and calibration of the model

A variety of statistical models can estimate job-finding rates and labor market dynamics. The models include survival analysis, hazard models, duration models, probit and logit models, and panel data models. A special form for time until the event, finding a job, takes place due to duration models; for example, Weibull or exponential models. In this paper, we estimate duration models, in particular, the exponential model, which can turn out to help explain the length of temporary unemployment. We mainly use the process described in Kroft et al. (2016) to calibrate the model but modify it for transitory or temporary unemployment in our model. As explained in the section above on how the model was constructed, we first estimate stocks and transition rates for labor market states. We then use the pre-2020 average distribution of unemployment duration into which non-participants transit to split the non-participant inflows into unemployment. Following is the procedure for calibrating the model:

1. We used the data to calculate the transition rates $\{\theta_t, \{\gamma_t^{UN}, \gamma_t^{UE}(d), \gamma_t^{EN}, \gamma_t^{EU}, \gamma_t^{NE}, \gamma_t^{NU}\}, V_t, U_t, N_t\}$.

Here,

- a. θ_t (Duration distribution): For each unemployed adult aged 25-60, we estimate the distribution of the duration of unemployment every month.

- b. Flows into unemployment: γ_t^{EU} (employment $\rightarrow$ unemployment), γ_t^{NU} (non – participation $\rightarrow$ unemployment). In the years 2010–2020, these two transition rates are forcing variables.
 - c. Flows into employment: γ_t^{UE} (unemployment $\rightarrow$ employment), γ_t^{NE} (non – participation $\rightarrow$ employment). During the period 2010 - 2020, these job-finding rates are allowed to endogenously change.
 - d. Flows to non-participants: γ_t^{EN} (employment $\rightarrow$ non – participation), γ_t^{UN} (unemployment $\rightarrow$ non – participation). In the period 2010 to 2020, these two transition rates will act as forcing variables.
 - e. V_t = the total number of available jobs (vacancies). Between 2010 and 2020, the number of job vacancies act as an exogenous driving or forcing variable.
 - f. U_t = the number of unemployed people.
 - g. P_t = the size of the population (t is the calendar month), including the number of employed and the number of unemployed. (E_t, U_t) with associated rates ($u_t = \frac{U_t}{P_t}, e_t = \frac{E_t}{P_t}$).
 - h. N_t = the number of non-participations. $N_t = P_t - E_t - U_t$.
2. Normalize the population so that $N_t + U_t + E_t = 1$ in each period.
 3. Determine the level of $\{N_t, U_t, E_t\}$ and the net flows $\{\Delta N_t, \Delta U_t, \Delta E_t\}$ from the data. Note that $\Delta N_t + \Delta U_t + \Delta E_t = 0$ so, we will work with ΔN_t and ΔE_t without loss of generality
 4. determine $U_{t+1}(d = 0)$, the (normalized) number of new unemployed, if we have $\theta_t(d) = 0$, from the data.
 5. We now assume that the transition rates $\{\gamma_t^{UN}, \gamma_t^{UE}, \gamma_t^{EN}, \gamma_t^{EU}, \gamma_t^{NE}, \gamma_t^{NU}\}$ are unknown parameters.
 6. By definition we have:
$$\Delta N_t = \gamma_t^{UN}U_t + \gamma_t^{NE}E_t - (\gamma_t^{NU} + \gamma_t^{NE})N_t$$

$$\Delta E_t = \gamma_t^{UE}U_t + \gamma_t^{NE}N_t - (\gamma_t^{EU} + \gamma_t^{EN})E_t$$

$$U_{t+1}(d = 0) = \gamma_t^{EU}\theta^{EU}(d = 0)E_t + \gamma_t^{NU}\theta_t(d = 0)N_t$$
 7. This gives us 6 unknown parameters in three equations.

To determine the parameters, we apply three more constraints that require the relative transition rates between states to be determined from the panel data. In time period t , let β_t^X be the measured and observed relative transition rate for state X .

$$\beta_t^N = \frac{\gamma_t^{NU}}{\gamma_t^{NE}}$$

$$\beta_t^E = \frac{\gamma_t^{EN}}{\gamma_t^{EU}}$$

$$\beta_t^U = \frac{\gamma_t^{UN}}{\gamma_t^{UE}}$$

This gives us the following system of equations:

$$\begin{bmatrix} E_t & 0 & U_t & 0 & -N_t & -N_t \\ -E_t & -E_t & 0 & U_t & 0 & N_t \\ 0 & \theta^{EU}(d=0)E_t & 0 & 0 & \theta_t(d=0)N_t & 0 \\ 0 & 0 & 0 & 0 & 1 & -\beta_t^N \\ 0 & 0 & 1 & -\beta_t^U & 0 & 0 \\ 1 & -\beta_t^E & 0 & 0 & 0 & 0 \end{bmatrix} \times \begin{bmatrix} \beta_t^{EN} \\ \beta_t^{EU} \\ \beta_t^{UN} \\ \beta_t^{UE} \\ \beta_t^{NU} \\ \beta_t^{NE} \end{bmatrix} = \begin{bmatrix} \Delta N_t \\ \Delta E_t \\ U_{t+1}(d=0) \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

8. To evaluate the relative job-finding rates at different durations ($\lambda_t^{UE}(d)$), we now estimate a duration-dependent function $A(d)$ using panel data models. The $A(d)$ function describes how the job-finding rate varies with the duration of unemployment. Moreover, we normalize $A(0) = 1$ and assume that $A(d)$ has a single exponential decay function because it includes only one exponential term.

$$A(d) = a_1 e^{-\beta \cdot d} \dots \dots \dots (3.15).$$

More precisely, equation 3.15 describes the relationship between the duration of unemployment and the job-finding rate ($A(d)$). As the duration of unemployment d increases, the job-finding rate ($A(d)$) tends to decrease. We have used the job-finding rate (by duration of unemployment in months) for the unemployed.

For simplicity, we linearized equation 3.15:

$$\ln(A(d)) = \ln(a_1 \cdot e^{-\beta \cdot d}) \dots \dots \dots (3.16).$$

$$\ln(A(d)) = \ln(a_1) + \ln(e^{-\beta \cdot d}) \dots \dots \dots (3.17).$$

$$\ln(A(d)) = \ln a_1 - \beta d \dots \dots \dots (3.18).$$

Now we define $\alpha = \ln(a_1)$ and our linearized model will become:

$$\ln(A(d)) = \alpha_1 - \beta d \dots \dots \dots (3.19).$$

Equation 3.19 is our base log-linear model with $\beta > 0$.

Now we add individual-specific effects u_i , and the error term ε_{it} :

$$\ln(A(d)_{it}) = \alpha - \beta d_{it} + u_i + \varepsilon_{it} \dots \dots \dots (3.20).$$

Our final model that will be estimated is:

$$\begin{aligned} \ln(\text{job finding rate}_{it}) \\ = \alpha - \beta \cdot \text{duration of unemployment}_{it} + u_i + \varepsilon_{it} \dots \dots \dots (3.21). \end{aligned}$$

In equation 3.21,

$A(d)_{it}$ is job finding rate for country i at time t . It is the probability that an event (such as finding a job) will occur at the time d . It's simply the probability of finding a job

d_{it} is the unemployment duration for country i at time t ,

α is the initial or base level of job finding rate at a duration ($d=0$), before accounting for individual or country effects.

$\beta > 0$ is the slope parameter or coefficient (how quickly the job finding rate decreases as duration increases)?

u_i is the unobserved individual (or country) specific effect (fixed or random effect).

ε_{it} is the error term that varies across both units and time.

9. For both developed and developing countries, a search-and-matching model was also applied to examine labor market dynamics. Our contribution components are the job vacancy, which employers actively search to fill, unemployment, which workers are temporarily unemployed but actively looking for work (and waiting to be rehired), and matches (new hires). The process by which job seekers or unemployed people and job vacancies are matched is called a matching function in the labor market context.

Essentially, it simulates how people move from unemployment to employment by matching them with job vacancies. The number of matches (new hires) in a typical matching function, $M(U, V)$, is related to the number of vacancies V , and the number of unemployed U . The matching function can be written in its general form as follows:

$$M=f(U,V)\dots\dots\dots(3.22).$$

where U is the number of unemployed, V is the number of vacancies, and M is the number of matches (new hires) within a given period. For the empirical analysis, we use the following function.

$$M = \alpha U^\beta V^\gamma \dots \dots \dots (3.23).$$

where the elasticities of matches with vacancies and unemployment are represented by γ and α , respectively, and α is a scaling parameter. It is usually assumed that $\beta+\gamma$ is equal

to or less than 1, which means constant or decreasing returns to scale. To linearize the matching function, we take the natural logarithms of both sides of the equation:

$$\ln(M) = \ln(\alpha) + \beta \ln(U) + \gamma \ln(V) \dots \dots \dots (3.24).$$

we can also write the above equation in the context of panel data models as follows:

$$\ln(matches_{it}) = \beta_1(job\ vacancy\ rate_{it}) + \beta_2(unemployment\ rate_{it}) + \alpha_i + \varepsilon_{it} \dots \dots (3.25).$$

Where:

- $\ln(matches_{it})$ or hiring rate in country i at time t,
- α_i captures all unobserved, time-invariant characteristics of unit i (each country).
- ε_{it} is, the idiosyncratic error term.

Annual data (2010 to 2020) were used to estimate the 3.25 matching function for both developed and developing countries, by employing different estimation techniques. For developed countries, we used panel data models (fixed effect and random effect models). In contrast, for developing countries, time series data were used, and the Ordinary Least Squares (OLS) method was employed.

4 EMPIRICAL ANALYSIS OF LABOR MARKET DYNAMICS IN DEVELOPED COUNTRIES

This study includes both descriptive and econometric analysis.

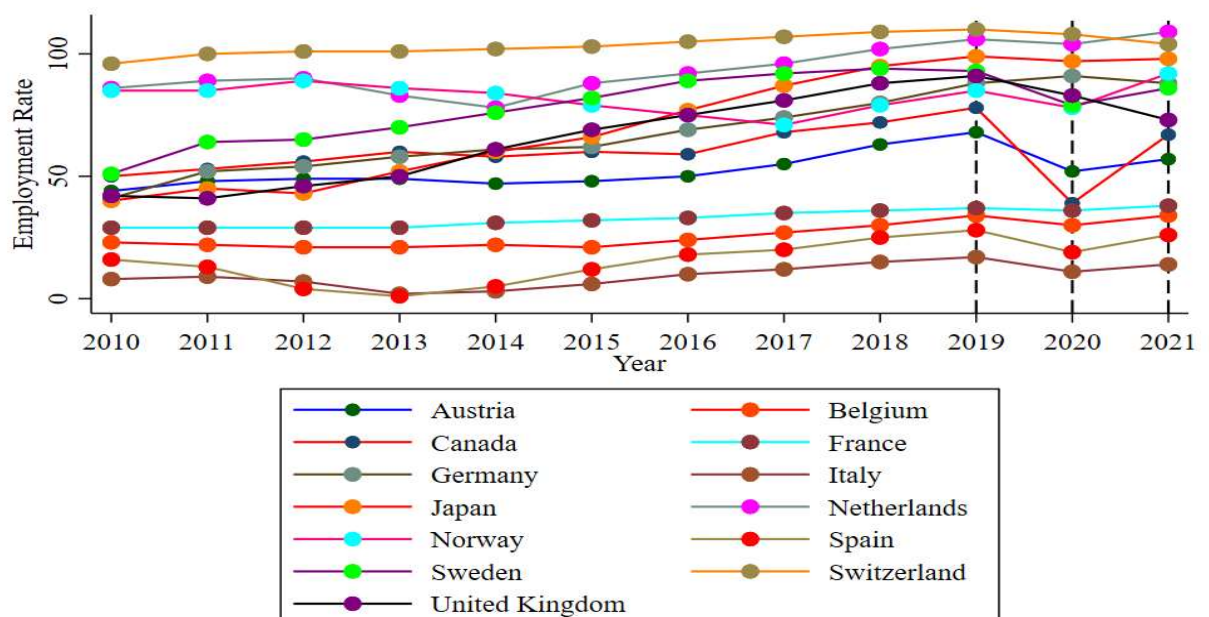
4.1 Labor Market Developments in Developed Countries

In this section, we will use some visual aids, including box and whisker plots, histograms, stock charts, bar charts, and line charts, to examine the dynamics of the labor market, in particular, the annual employment and unemployment rates before, during, and following the COVID-19 crisis from 2010 to 2021. We then forecast employment and unemployment rates using quarterly data for the period 2010-2021. Furthermore, the results concerning the specific patterns of job vacancy rates, and the transitions (flows) in the labor market before, during, and after the occurrence of the COVID-19 recession are explained in detail.

4.1.1 Employment rate

Figure 4. 1

Total (Women and Men) employment rate: Working age population from 15 to 64 years, Calendar and seasonally adjusted



Source: Author calculation from OECD employment data

Figure 4.1 represents the employment rate for Austria, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom between 2010 and 2021.

In Austria, the employment rate increased gradually from 70.7 % in 2010 to 71.4% in 2012. From then onwards until 2014, there was a slight decline in the employment rate to 71.07%. In 2014, however, employment growth began to increase drastically and went up to 73.52 percent at the end of the period. On the other hand, in 2020, the employment rate decreased to 71.7%, meaning that there were negative effects of the COVID-19 epidemic on the labor market. The employment rate is 72.4 % in 2021, against 71.7 % a year before, meaning a marginal increase that thus indicates continuous labor market improvement. The incremental increase implies that plans to revive the economy are finally reaping some benefits and might hold up employment.

Throughout 2010, the employment rate in Belgium dropped sharply from 62.02 percent to 61.8 percent in 2013. After slightly improving in 2014, the rate dropped again in 2015 to 61.8 percent before increasing to 65.3 percent in 2019. Moreover, it was going through times of much difficulty with its somewhat low employment rate of 64.4% in 2020, which could have been precipitated by stringent lockdown measures or economic storms that beset the country. At the same time, the employment rate increased from 64.4% in 2020 to 65.3% in 2021. This indicates that after the COVID-19 crisis, the labor market recovered.

In Canada, the employment rate increased from 71.5 percent in 2010 to 72.7 percent in 2013. The employment rate dropped slightly in 2014, falling to 72.5 percent before increasing again in 2015 to 72.74 percent, and again dropping somewhat in 2016 to 72.6 percent. Thereafter, it kept rising from 2016 through 2019, peaking at 74.6 percent. Meanwhile, Canada's labor market stays quite resilient, with an employment rate of 70.1%, which would have been helped out by support and stimulus programs from the government. In addition, the employment rate moved up from 70.1 percent in 2020 to 73.4 percent in 2021—a strong rebound likely because policies put in place by the government worked magic on the job market.

In the case of France, the employment rate was 64.3% from 2010 to 2013. We immediately see an upward shift to 66.3% from 2014 to 2019; meanwhile, it remained at 66.1% in France. Italy has been among the countries that have experienced some of the highest unemployment rates during the latest economic shocks, and the employment rate of

57.4% may indicate a potential problem with recovery. Moreover, it reached 67.2%—up from the previously noted figure of 66.1% in 2020, which suggests a return to a recovering labor market, although it highlights further difficulties that are yet to be overcome. The employment rate has gradually risen from 70.3 percent in 2010 to 75.6 percent in 2019 in Germany. The Employment rate reached 76.1% in 2020, reflecting both the state of the economy and the effects of the labor market reforms. Moreover, it slightly fell from 76.1 percent in 2020 to 75.6 percent in 2021, probably indicating that this labor market also adjusts continuously to economic changes and shifts.

However, Italy has not undergone an increase in fairness, increasing from 56.2% in 2010 to 56.3 percent in 2011 and 53.9 percent in 2013. It rose steadily from 2013 to 2019 to 59 percent. Italy has been among the countries that have this time experienced some of the highest rates of unemployment in the recent economic shocks, and the figure for the employment rate registered at 57.4% in 2020 may indicate a potential problem with recovery. Moreover, it was 58.2% in 2021, slightly higher than that of the previous year, which was 57.4%, thus showing a slow recovery of the labor market despite major challenges that show up.

The employment rate in Japan has been largely flat over recent years: In 2010 it was 70.2 percent, inched up to 70.8 percent in 2011, and retreated a bit to 70.6% in 2012. It went up sharply from just 78.1% in 2012 up to 2019. The employment rate was 77.7% in 2020 indicating strong labor market dynamics, while affected by COVID-19 compared to the previous year. In addition, the employment rate reached 77.9%, a slight increase from 77.7% in 2020 to 77.9% in 2021, indicating a stable labor market environment with constant conditions.

The employment rate increased from 75.4% in 2010 to 75.9% in 2012 and then fell back to 74.6% in 2014, in the Netherlands. It rose slowly, but steadily, from 2014 until 2019 to 79.7%. By having an employment rate of 79.3% in 2020, the Netherlands has thus proven to have a strong and resilient labor market, coupled with efficient strategies that can be awarded even during such times. The Netherlands' employment rate stands at 80.1 percent in 2021, compared to 79.3 percent in 2020, and emphasizes a labor market recovery since the crisis. In 2010 and 2011, the employment rate in Norway was stable at 75.3%, but rose slightly to 75.7% in 2012. From then on, it fell steadily to 74.3% in 2017 and then rose significantly to 75.3% in 2019. With an employment rate of 74.6% in 2020,

Norway is a country with economic stability and good results from labor market initiatives. After 74.6 in 2020, the employment rate in Norway rose again significantly to 76.3 in 2021.

The employment rate in Spain between 2010 and 2013 dropped slightly from 58.8 percent to 54.8 percent. Between 2013 and 2019, the employment rate had an incremental increase from 54.8 % to 63.3 %. Spain, on the other hand, struggled with a relatively low employment rate of 60.9% in 2020, indicating significant economic disruption, exacerbated by the country's heavy reliance on tourism. Moreover, the employment rate rose from 60.9% in 2020 to 62.7 in 2021, indicating a gradual recovery in the labor market.

The employment rate increased significantly in Sweden from 71.6 percent in 2010 to 76.8 percent in 2018. In 2019, it further dropped from 76.5 percent to 74.8 percent. Despite having dealt with the pandemic very differently, Sweden nevertheless managed to keep the employment rate as high as 74.8 percent in 2020, thereby emphasizing just how resilient the labor market had been in that country. Sweden recorded a slight increase in its employment rate from 74.8% in 2020 to 75.4% in 2021, indicating relatively stable but slightly adjusted labor market conditions.

In contrast, the employment rate in Switzerland was increasing—from 77.3 percent in 2010 to 78.3 percent in 2011. The trend intensified in the following year, 2012, with a small increase of 78.3 percent and 78.4 percent, before the employment rate leveled off in the period between 2012 and 2013 at 78.4 percent. From here, the employment rate drastically rose to 80.4 percent from 78.4 percent between the years 2013 and 2019. Moreover, Switzerland recorded an impressive employment rate of 79.9% in 2020, underlining its remarkable resilience in the labor market. the employment rate it was also reported an employment rate of 79.3% in 2021, a slight increase from 79.9% in 2020, indicating a consistently high level of employment overall.

On the other hand, the UK showed a small decrease in employment rate (from 70.4 percent to 70.3 percent after 2010). By contrast, the employment rate had increased drastically to 76.1 percent between 2011 and 2019 from 70.3 percent during that time. The UK still maintained a high rate of employment at 75.4 %, probably due to government intervention and furlough schemes. In that respect, employment rates in 2020 were very country-specific, reflecting the different economic impacts of the COVID-19 crisis and how well response strategies had been adopted in each country. In addition, the UK employment rate is reported at 75.1% in 2021, a slight decrease from 75.4% in 2020, indicating

a stable but slightly adjusted labor market scenario that warrants continued monitoring and observation. As a result, before the COVID-19 crisis the employment rate of these countries shows a difference, and that's why the dynamics of each labor market and all the factors impacting participation in the labor force are different. The signs of these fluctuations are not just changes in economic conditions but also policy interventions, and demographic and worldwide trends in the labor force. What they present is in essence a clear picture of what is to come concerning employment pattern trends and all the intricacies that arise related to balancing a workforce that is both productive and harmonious in a changing environment that is overwhelming.

During the COVID-19 recession Switzerland, the Netherlands, Japan, and Germany did best with their employment rates among the listed countries. These countries may have had more solid labor market policies, better remote working infrastructure, or less stringent lockdown measures that would enable more of their population to be able to continue working. Other countries that indicate relatively high employment rates, slightly lower than those of the leading countries, are the United Kingdom, Sweden, Norway, and Austria, which would reflect a very resistant labor market in the face of the pandemic. In France, Belgium, and Spain, there were moderate-to-low employment rates, probably attesting to more severe economic disruptions or hard-hit sectors. The lowest employment rate in the countries listed was in Italy, which pays testament to how tough a time was experienced within the labor market during the pandemic.

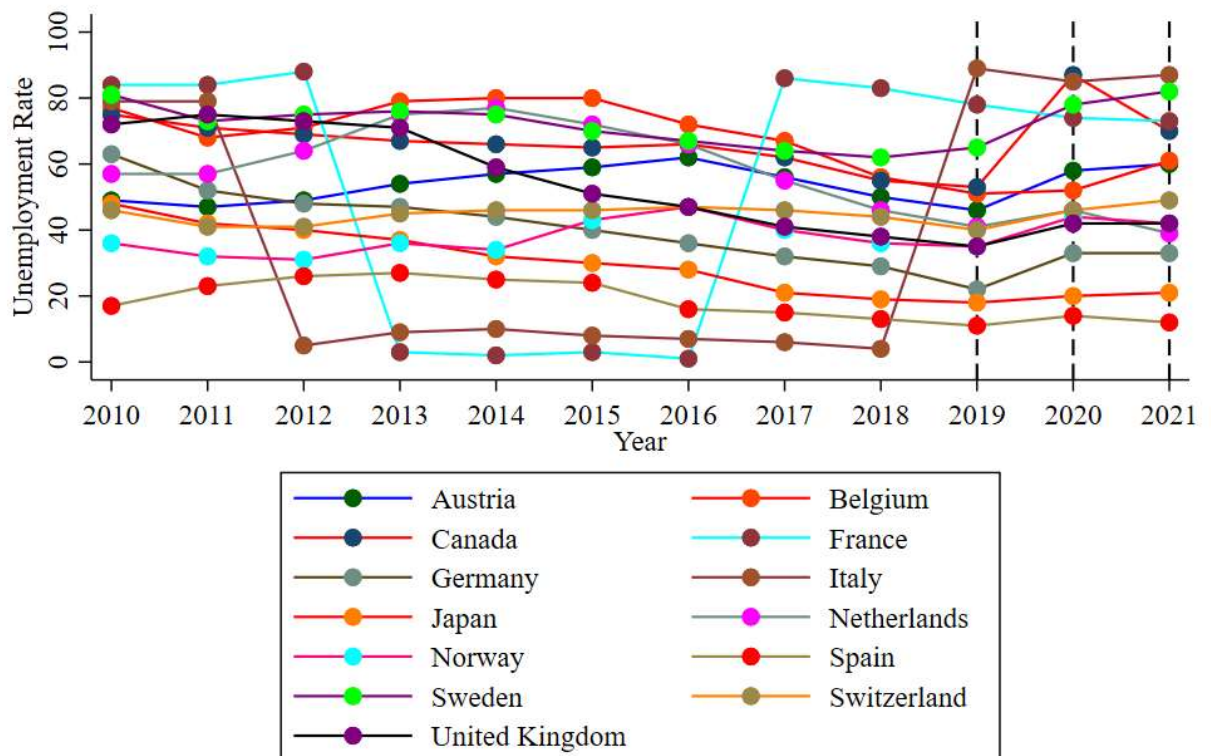
After the COVID-19 crisis, countries such as Canada, Norway, and the Netherlands have significantly improved their employment rates, indicating effective stimulus measures and economic resilience. Japan, Switzerland, and the Netherlands have maintained their high employment rates, indicating robust labor market conditions. Countries such as Belgium, France and Spain show positive trends but still face challenges. Italy, despite a slight improvement, continues to have one of the lowest employment rates, indicating ongoing economic difficulties.

4.1.2 Unemployment rate

Before COVID-19
During COVID-19
After COVID-19

Figure 4. 2

Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted



Source: Author calculation from OECD employment data

Figure 4.2 shows the unemployment rate in Austria, Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom from 2010 to 2021.

In Austria, the unemployment rate was 5.19% in 2010 and fell to 4.9% in 2011. After that, the unemployment rate rose steadily to 6.45% in 2016. In 2019, the unemployment rate began to fall to 4.84% and then rose immediately to 6.0% in 2020, indicating the economic disruption caused by the pandemic, a significant increase from the rate of 4.8% in 2019. Austria saw moderate job losses, likely due to the lockdown measures and reduced economic activity. Moreover, the unemployment rate increased slightly from 6.0% in 2020 to 6.2% in 2021, indicating a slight increase in unemployment, possibly due to a

slow recovery or ongoing challenges in certain sectors despite the diminishing effects of the pandemic.

In 2010, the unemployment rate in Belgium was 8.37% and then fell drastically to 7.21% in 2011, after which it gradually increased to 8.65% in 2015 and then began to fall to 5.36% in 2019. But in 2020 it was raised slightly to 5.54%. the country was able to maintain the slight increase in unemployment, which indicates effective government intervention to support the labor market. Moreover, Belgium recorded an increase in unemployment from 5.5% in 2020 to 6.3% in 2021, indicating ongoing economic difficulties or a sluggish recovery after COVID-19.

Between 2010 and 2015, the unemployment rate in Canada fell from 8.17% to 6.94% and rose slightly to 7.02% in 2016. It then fell to 5.69% in 2019. On the other hand, the unemployment rate rose from 5.7% in 2019 to 9.7% in 2020. COVID-19 caused significant disruption to the labor market, leading to a sharp rise in unemployment and highlighting the severe impact of the pandemic-related restrictions on the economy. Furthermore, the unemployment rate fell from 9.7% in 2020 to 7.5% in 2021, reflecting a significant recovery characterized by a decline in unemployment and evidence of economic recovery and effective policy measures to restore jobs.

In France, the unemployment rate was 9.27% in 2010 and then fell slightly to 9.21% in 2011. Between 2011 and 2015, the unemployment rate gradually rose from 9.21% to 10.3%. The unemployment rate also fell slightly from 8.4% in 2019 to 8.0% in 2020. Despite the pandemic, France has managed to reduce its unemployment rate, possibly due to the strong resilience of the labor market or effective policy measures that have helped to prevent job losses. In addition, the unemployment rate fell slightly from 8.0% in 2020 to 7.9% in 2021, indicating a slight improvement and pointing to a gradual recovery in the labor market.

In Germany, the unemployment rate was 6.57% in 2010 and then fell steadily to 2.97% in 2019. The unemployment rate increased slightly to 3.6% in 2020 from 3.0% in 2019. Germany maintained one of the lowest unemployment rates and saw only a small increase during the pandemic, indicating robust economic stability and effective government support measures. Moreover, the unemployment rate remained unchanged from 2020 at 3.6%, underlining a very low unemployment rate that points to strong economic stability and efficient labor market policies.

In 2010, the unemployment rate in Italy was 8.54% and then fell slightly to 8.51% in 2011. After this period, there was an immediate increase to 12.82% in 2014 and then a continuous decline to 9.9% in 2019. Furthermore, the unemployment rate fell from 9.9% in 2019 to 9.3% in 2020. Italy recorded a steady decline in unemployment, which is surprising given the severe impact of COVID-19 on its economy. In Italy, the unemployment rate rose from 9.3% in 2020 to 9.6% in 2021, indicating a slight increase and reflecting the ongoing economic challenges and a sluggish recovery of the labor market.

In Japan, the rate fell continuously between 2010 and 2019 from 5.05% to 2.35%. The unemployment rate rose from 2.4% in 2019 to 2.8% in 2020. Japan's labor market remained very stable with minimal impact from the pandemic, reflecting strong labor market policies and economic resilience. Moreover, the unemployment rate remained unchanged at 2.8% in 2021, indicating a very stable labor market and demonstrating resilience and effective management of the economic impact of the pandemic.

In the Netherlands, the unemployment rate was 6.06% in 2010 and then fell slightly to 6.05%. Between 2011 and 2014, it rose continuously from 6.05% to 8.35%. It then fell steadily to 4.43% in 2019. The unemployment rate rose from 4.4% in 2019 to 4.9% in 2020. The Netherlands recorded a moderate increase in unemployment due to COVID-19 but was able to keep rates relatively low overall. In the Netherlands, the unemployment rate fell from 4.9% in 2020 to 4.2% in 2021, reflecting a positive recovery with a significant drop in unemployment and pointing to a robust economic recovery.

In Norway, the unemployment rate was 3.95% in 2010 then began to fall to 3.48% in 2012, and then rose to 3.93% in 2013. In 2014, however, it fell again slightly to 3.77%. It then rose to 4.91% in 2016. After that, it initially fell to 3.87% in 2019. The unemployment rate in Norway rose from 3.9% in 2019 to 4.8% in 2020. The Norwegian unemployment rate increased due to the pandemic and particularly affected sectors such as oil and tourism. Despite the increase, the rate remained relatively moderate. In addition, the unemployment rate fell from 4.8% in 2020 to 4.5% in 2021, which represents a slight improvement and reflects a gradual recovery and stabilization of the labor market.

In Spain, between 2010 and 2013, the unemployment rate rose continuously from 19.8% to 26.12%. It then fell immediately to 14.11% in 2019. In Spain, the unemployment rate rose from 14.1% in 2019 to 15.5% in 2020. The Spanish labor market faced considerable challenges due to COVID-19, which led to a significant increase in unemployment. This underlines the difficulties Spain's economy has faced during the pandemic. Moreover, the

unemployment rate fell from 15.5% in 2020 to 14.9% in 2021, which represents a slight improvement, although the unemployment rate remains considerably high, indicating the ongoing economic challenges.

In Sweden, the unemployment rate was 8.7% in 2010 and then fell to 7.95% in 2011. It then rose to 8.2% in 2013 and then fell steadily to 6.4% in 2018 and then slightly increased to 6.9% in 2019. Furthermore, the unemployment rate rose to 8.5% in 2020 from 6.9% in 2019. Sweden experienced a notable increase in unemployment due to the pandemic, which illustrates the impact on the labor market. The unemployment rate rose from 8.5% in 2020 to 8.9% in 2021, indicating ongoing difficulties in the recovery of the labor market.

In 2010, the unemployment rate in Switzerland was 4.8% and then fell to 4.4% in 2011, after which it rose steadily to 4.82% in 2014. In 2015, the unemployment rate fell slightly to 4.8% and then rose to 4.91% in 2016. It was then immediately reduced to 4.39% in 2019. The unemployment rate in Switzerland rose from 4.4% in 2019 to 4.8% in 2020. In addition, the unemployment rate remained stable and increased only slightly during the pandemic, due to strong economic fundamentals and effective government measures. Furthermore, the unemployment rate rose from 4.8% in 2020 to 5.1% in 2021, representing a slight increase and indicating some challenges in the labor market, despite a generally stable economy.

In the UK, the unemployment rate was 7.87% in 2010 and then rose to 8.12% in 2011. It then fell steadily to 3.82% in 2019. In the UK, the unemployment rate rose from 3.8% in 2019 to 4.6% in 2020. The UK experienced a pandemic-related increase in unemployment but was able to keep the rate relatively low, indicating the resilience of the labor market. The UK's unemployment rate remained unchanged from 2020 at 4.5% in 2021, indicating a stable labor market and effective economic policy.

During the COVID-19 crisis, Canada, Spain, and Sweden experienced a significant rise in unemployment due to severe economic disruption. Countries such as Germany, Japan, and Switzerland proved to be very resilient and recorded only a small increase in the unemployment rate. The relatively small increases in countries like Belgium and France indicate effective government intervention to support the labor market during the pandemic.

After COVID-19, Canada, the Netherlands, and Spain recorded a notable decline in unemployment rates, indicating significant recovery efforts and an economic upturn. In Belgium, Italy, and Sweden, on the other hand, unemployment rates rose, indicating ongoing economic problems and a slower recovery. In Germany and Japan, unemployment rates remained very low and stable, demonstrating their economic resilience and effective management during the recovery phase. Spain and Italy continued to struggle with high unemployment, indicating notable economic hurdles and highlighting the need for precise labor market interventions.

4.1.3 Job vacancy rates

The vacancy rate defines the proportion of job vacancies, that is, the vacant positions of jobs (unfilled opening jobs) within an economy at a certain time. This is calculated mathematically as the number of vacancies to the total number of occupied vacancies hence giving a percentage. The vacancy rate can be calculated mathematically as follows:

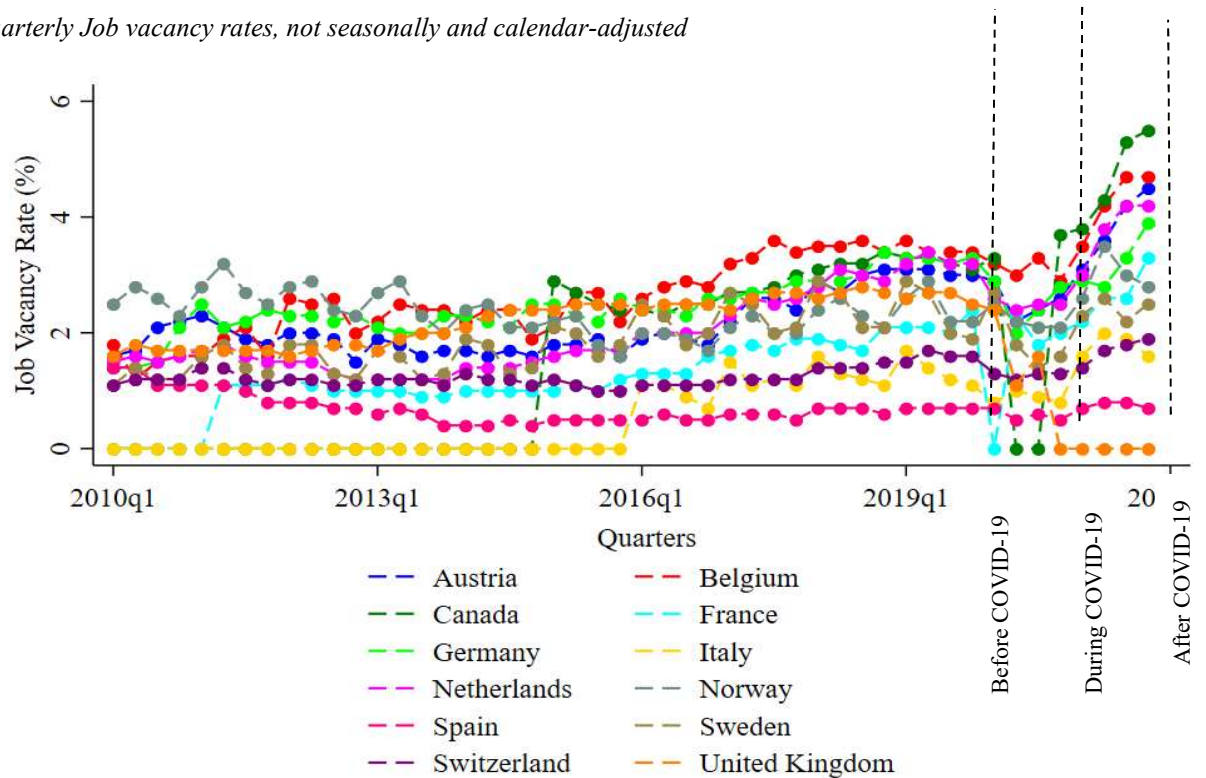
Job Vacancy Rate

$$= \left(\frac{\text{Number of Job Vacancies}}{\text{Number of Job Vacancies} + \text{Number of Filled Postions}} \right) \times 100$$

It gives information on the labor market by considering labor demand, hiring rate as well as vacancies available. Most of the time, a high proportion of job openings can indicate a situation wherein the demand for employees is much higher than the supply, thus, a key factor to wage inflation and competition among companies for good talent. On the other hand, low job vacancies are interpreted as a position that represents a very weak labor market with fewer job openings and unemployed persons.

Figure 4. 3

Quarterly Job vacancy rates, not seasonally and calendar-adjusted



Source: Author calculation from OECD and Eurostat data

Figure 4.3 displays the quarterly vacancy rates in Austria, Belgium, Canada, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom for the first quarter of 2010 and the fourth quarter of 2021 before, during, and after the COVID-19 recession.

In Austria, the job vacancy rate rose from 1.6% to 2.3% between the first quarter of 2010 and the first quarter of 2011 and then fell to 1.8% in the fourth quarter of 2011. It was stable in the first and second quarters of 2012 (2%), but fell to 1.5% in the fourth quarter. It rose slightly to 1.9 in the first quarter of 2013 and fell to 1.6% in the third quarter. It then rose again to 1.9% in the third quarter of 2015 and fell to 1.6% in the fourth quarter, before rising to 2% in the second quarter of 2016 and falling to 1.8% in the fourth quarter. In the first quarter of 2018, the vacancy rate rose to 2.9 and fell to 2.7% in the second quarter. after that, it rose continuously to 3.1% in the second quarter of 2019. Furthermore, the vacancy rate fell from 2.9% to 2.2% between the first and second quarters of 2020 and then rose steadily to 2.6% in the fourth quarter. It has seen a steady increase in job vacancies, rising from 3.1% in the first quarter to 4.5% in the final quarter of 2021,

indicating a steady increase in demand for labor over the year and pointing to economic recovery and growth.

In Belgium, the job vacancy rate rose continuously from 1.2% to 2.1% between the first quarter of 2010 and the third quarter of 2011. It fell to 1.6% in the fourth quarter, then rose to 2.6% in the third quarter of 2012, and then fell to 2% in the fourth quarter. However, it rose to 2.5% in the second quarter of 2013 and then fell to 1.9% in the fourth quarter of 2014. Between the first and third quarters of 2015, the job vacancy rate rose to 2.7% and then fell to 2.2% in the fourth quarter. It then rose immediately to 3.6% in the third quarter of 2017 and then fell slightly to 3.4% in the fourth quarter. The vacancy rate rose steadily to 3.6% in the first quarter of 2019 and then fell to 3.4% in the fourth quarter. In addition, the job vacancy rate fell from 3.2% to 3% between the first and second quarters of 2020 but then rose to 3.3% in the third quarter. In the fourth quarter, the job vacancy rate fell to 2.6%. Belgium recorded an increase in job vacancies, which stabilized from 3.5% in the first quarter to 4.2% in the second quarter and remained at 4.7% in the third and fourth quarters of 2021, indicating a significant increase in demand for labor, particularly in the first three quarters, and continued high demand in the fourth quarter.

There is no information on the job vacancy rate for the period between the first quarter of 2010 and the fourth quarter of 2014, as the data is not available in Canada. In the first quarter of 2015, the vacancy rate was 2.9% and then fell slightly to 2.3% in the second quarter of 2016. Thereafter, there was a steady and immediate increase in the vacancy rate to 3.4% in the fourth quarter of 2018. Between the first and fourth quarters of 2019, it decreased from 3.3% to 3.1%. The job vacancy rate in Canada was 3.3% in the first quarter of 2020, but between the second and third quarters, it was zero due to the unavailability of data and then rose to 3.7% in the fourth quarter. The Canadian labor market saw a notable increase in job openings from 3.8% in the first quarter to 5.5% in the fourth quarter of 2021, reflecting robust and consistent growth in demand for labor and a sign of a strong economic recovery.

There was no vacancy rate in the second and third quarters, but it amounted to 3.7% in the fourth quarter. Between the first quarters of 2010 and 2011, the job vacancy rate in France rose from 0.2% to 0.6%. It then fell to 0.5% in the second quarter of 2012. In the third quarter, it fell slightly to 0.4%. Between the fourth quarter of 2012 and the first quarter of 2013, the vacancy rate remained stable (0.5). It remained stable between the fourth quarter of 2013 and the third quarter of 2015 (0.5%) and then gradually increased

to 1.1% in the second quarter of 2018, falling to 1 in the third quarter. Between the fourth quarter of 2018 and the fourth quarter of 2019, the vacancy rate rose again to 1.1%. The job vacancy rate was zero in the first quarter of 2020 due to the invalidity of the data; it remained stable in the second and third quarters (0.9%), but rose to 1.1% in the fourth quarter. In addition, the number of job vacancies rose from 2.2% in the first quarter to 3.3% in the fourth quarter of 2021, indicating a positive trend in demand for labor, with a clear upturn in the last quarter.

In Germany, the job vacancy rate rose from 1.4% to 2.5% between the first quarter of 2010 and the first quarter of 2011 and fell to 2.1 in the second quarter. In the fourth quarter, it rose to 2.4% and then fell steadily to 2% in the third quarter of 2013. Between the fourth quarter of 2013 and the first quarter of 2014, it was stable (2.3%). It fell to 2.1 in the third quarter. However, it remained stable at 2.5% between the fourth quarter of 2014 and the first quarter of 2015 and then fell to 2.2% in the third quarter. In the fourth quarter, the job vacancy rate rose to 2.6% and then fell to 2.3%. Thereafter, the job vacancy rate rose steadily to 3.4% in the fourth quarter of 2018. Between the first and third quarters of 2019, it fell slightly to 3.2% but rose to 3.3% in the fourth quarter. The vacancy rate was also 2.9% in the first quarter of 2020 and then fell slightly to 2% in the second quarter. It then rose to 2.8% in the fourth quarter. Moreover, there were fluctuations followed by a significant increase in job vacancies, which rose from 2.9% in the first quarter to 3.9% in the fourth quarter of 2021. Despite a slight decline in the second quarter, the number of job vacancies increased overall, indicating a growing demand for labor.

Between the first quarter of 2010 and the third quarter of 2011, the job vacancy rate in Italy rose continuously from 0.3% to 0.7% and then fell to 0.3% in the first quarter of 2014. In the third quarter, it rose again to 0.63%. It then fell to 0.4% in the second quarter of 2015. In the first quarter of 2016, the job vacancy rate rose to 1.1% and then fell to 0.7% in the fourth quarter. In the first quarter of 2017, it rose to 1.5% but fell to 1% in the fourth quarter. In the second quarter of 2018, it rose to 1.6% and fell to 1.1% in the fourth quarter, but in the first quarter of 2019, the job vacancy rate rose to 10.7%. The vacancy rate was also 0.8% in the first quarter of 2020 and then rose to 1% in the second quarter. Italy, on the other hand, experienced fluctuations, with the total number of job vacancies falling from 1.6% in the first quarter to 1.6% in the fourth quarter of 2021 and peaking at 2.0% in the second quarter, indicating that demand for labor has fluctuated with no clear upward trend, suggesting a somewhat uncertain recovery path.

The vacancy rate in the Netherlands rose from 1.5% to 1.8% between the first quarter of 2010 and the second quarter of 2011 and then fell steadily to 1.2% in the fourth quarter of 2013. It then gradually rose to 3.1% in the second quarter of 2018 but fell to 2.9% in the fourth quarter. The job vacancy rate rose to 3.4% in the second quarter of 2019 and then fell to 2.4% in the second quarter of 2020. Between the third and fourth quarters, the job vacancy rate was stable (2.5%). The Netherlands saw a steady increase in job vacancies from 3.0% in the first quarter to 4.2% in the fourth quarter, indicating steady growth in demand for labor over the year.

In Norway, the vacancy rate rose to 2.8 between the first and second quarters of 2010 and then fell to 2.3% in the fourth quarter. It then rose to 3.2% in the second quarter of 2011. Between the third and fourth quarters, the vacancy rate fell by 2.5%, then rose to 2.9% in the second quarter of 2012, and fell again to 2.3% in the fourth quarter. between the first and second quarter of 2013, it increased to 2.9%. In the fifth quarter of 2015, the job vacancy rate fell to 1.6% and rose to 2.3% in the second quarter of 2017. It was stable in the third and fourth quarters (2%). It then rose to 2.9% in the second quarter of 2019. The vacancy rate was 2.5% in the first quarter of 2020 and then fell steadily to 2.1% in the fourth quarter. on the other hand, the number of job vacancies fluctuated, falling slightly from 2.6% in the first quarter to 2.8% in the fourth quarter of 2021 and peaking at 3.5% in the second quarter. Despite the fluctuations, the vacancy rate at the end of the year was slightly below the peak in the middle of the year.

In Spain, the vacancy rate was 1.4 in the first and second quarters of 2010 and then fell steadily to 0.6% in the first quarter of 2013. In the second quarter, it rose slightly to 0.7% and then fell to 0.4% in the second quarter of 2014. In the third quarter, it rose to 0.5% in the first quarter of 2016, but then increased to 0.6% in the third quarter of 2017 and fell to 0.5 in the third quarter. after that, it was raised to 0.7% in the fourth quarter of 2019. The vacancy rate in Spain fell to 0.5% between the first and second quarters of 2020. In the third quarter, it rose slightly to 0.6% and then fell to 0.5% in the fourth quarter. Moreover, job vacancies remained stable and fluctuated between 0.7% and 0.8% throughout the quarters of 2021, indicating a relatively stagnant labor market with low and steady demand for labor.

In Sweden, the job vacancy rate rose from 1.1% to 1.4% between the first and second quarters of 2010. It was stable in the third and fourth quarters (1.2%) and then rose to 1.8% in the second quarter of 2011, but fell to 1.3% in the fourth quarter. It was stable in

the first and second quarters of 2012 (1.8%) and then fell to 1.2% in the fourth quarter. It then rose to 1.7% in the first quarter of 2013. It fell to 1.3% in the fourth quarter. In the first quarter of 2015, it stood at 2.1% and then fell to 1.6% in the third quarter. However, it rose to 2.7% in the first quarter of 2017 and fell to 2 in the third quarter. In the first quarter of 2018, it rose to 2.9%. The job vacancy rate fell to 2.1% in the fourth quarter and then rose to 2.9% in the first quarter of 2019. It then fell to 1.9% in the fourth quarter. In addition, the job vacancy rate fell from 2.7% to 1.4% between the first and third quarters of 2020 and then rose slightly to 1.6% in the fourth quarter. The number of job vacancies fluctuated with a slight overall increase, rising from 2.3% in the first quarter to 2.5% in the fourth quarter of 2021 and peaking at 2.6% in the second quarter. This pattern indicates some fluctuations, but ultimately the year ends with a slight upturn in demand for labor.

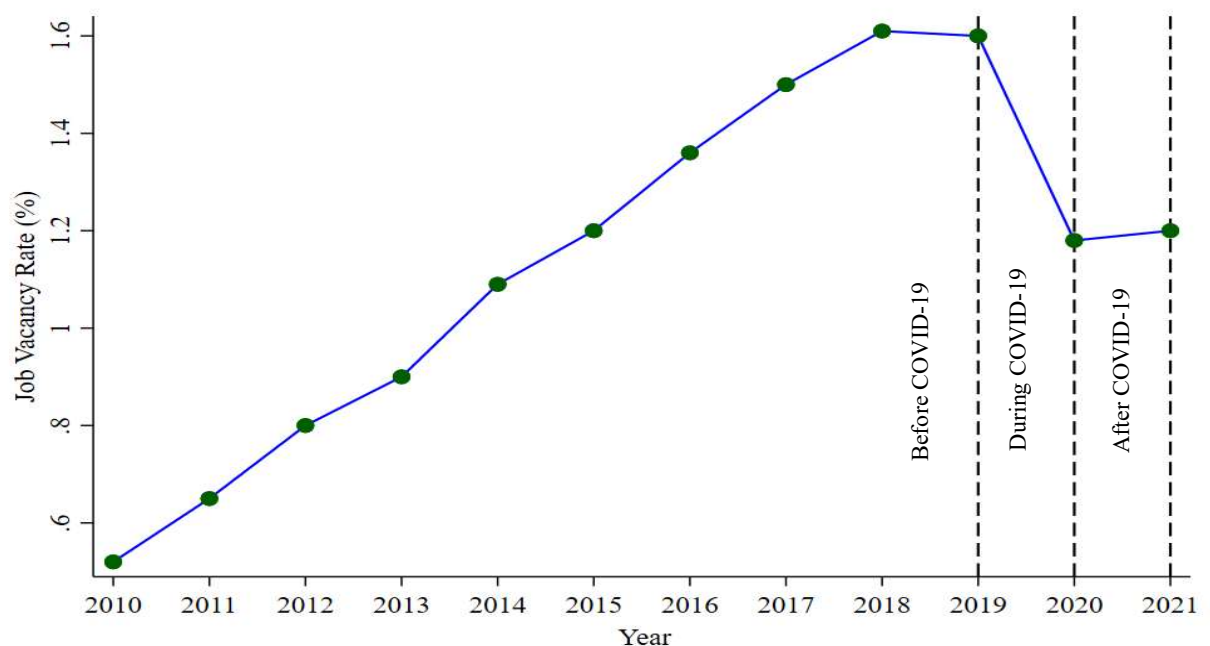
The vacancy rate in Switzerland rose from 1.1% to 1.4% between the first quarter of 2010 and the second quarter of 2011 and then fell to 1.1% in the fourth quarter of 2012. It was stable in the first and third quarters of 2013 (1.2%), but fell slightly to 1.1% in the fourth quarter. In the first quarter of 2014, the vacancy rate rose slightly to 1.3%. It then fell abruptly to 1% in the fourth quarter of 2015. Between the first and fourth quarters of 2016, the job vacancy rate was stable (1.1%) and then rose slightly to 1.2% in the fourth quarter of 2017, before rising steadily to 1.7% in the second quarter of 2019 and then falling to 1.6% in the fourth quarter. The job vacancy rate fell slightly from 1.3% to 1.4% between the first and second quarters of 2020 and then rose again to 1.3% in the fourth quarter. Moreover, there was a notable and steady increase in job vacancies, rising from 1.4% in the first quarter to 1.9% in the final quarter of 2021. This increase is a clear indicator of a gradual rise in labor demand in the country and reflects a positive trend towards economic recovery. Furthermore, this upward trend in job vacancies points to a strengthening labor market and promising prospects for employment opportunities.

In the UK, the vacancy rate rose from 1.6% to 1.78% and then fell to 1.7% in the fourth quarter of 2011. In the first quarter of 2012, it fell slightly to 1.6%. It then rose to 1.8% in the fourth quarter and fell to 1.7 in the first quarter of 2013. In the fourth quarter of 2016, the vacancy rate rose steadily to 2.5%. In the first quarter of 2017, it fell again by 2.4% and then rose abruptly to 2.8% in the third quarter of 2018. But in the first quarter of 2019, it fell to 2.6%. Between the first and fourth quarters of 2016, the job vacancy rate was stable (1.1%) and then rose slightly to 1.2% in the fourth quarter of 2017, before

rising steadily to 1.7% in the second quarter of 2019 and then falling to 1.6% in the third quarter. . In the UK, the job vacancy rate fell from 2.4% to 1.1% between the first and second quarters of 2020 and then rose to 1.6% in the third quarter. In the fourth quarter, the job vacancy rate was zero due to the invalidity of the data. The situation is very different in the UK, where there is a lack of available data for a thorough analysis and assessment of job vacancy trends in 2021. In contrast, countries such as Austria, Belgium, Canada, the Netherlands and Switzerland recorded a significant increase in job vacancies, indicating a robust economic recovery and increased demand for labor. France, Germany, and Sweden, on the other hand, recorded a moderate increase in job vacancies, indicating a steady upturn and an increasing demand for qualified workers. In contrast, Italy, Norway, and Spain showed either stable or fluctuating rates of job vacancies, with less pronounced recovery patterns, indicating a more diverse economic landscape. Of particular note is the consistently low number of job vacancies in Spain, highlighting the ongoing challenges facing the Spanish labor market.

Figure 4. 4

Annual average of active job openings-to-applicants ratio in Japan



Source: Author calculation based on the Statistics Bureau of Japan

Figure 4.4 offers an appropriate combined view of the annual average ratio that defines the dynamics of the match between active job vacancies and the number of applicants in Japan from 2010–2021. With employment estimates for this decade-long period continually rising, shows a relationship between available job positions for application against

the individuals in employment hunger ratio improved from a comparatively poor figure of 0.52 % in 2010 to a better level of 1.61% in 2019 though stumbled at 2020 to a ratio of 1.18 % which may point to changing employment market. But in 2021 the job vacancy rate was slightly increased to 2%.

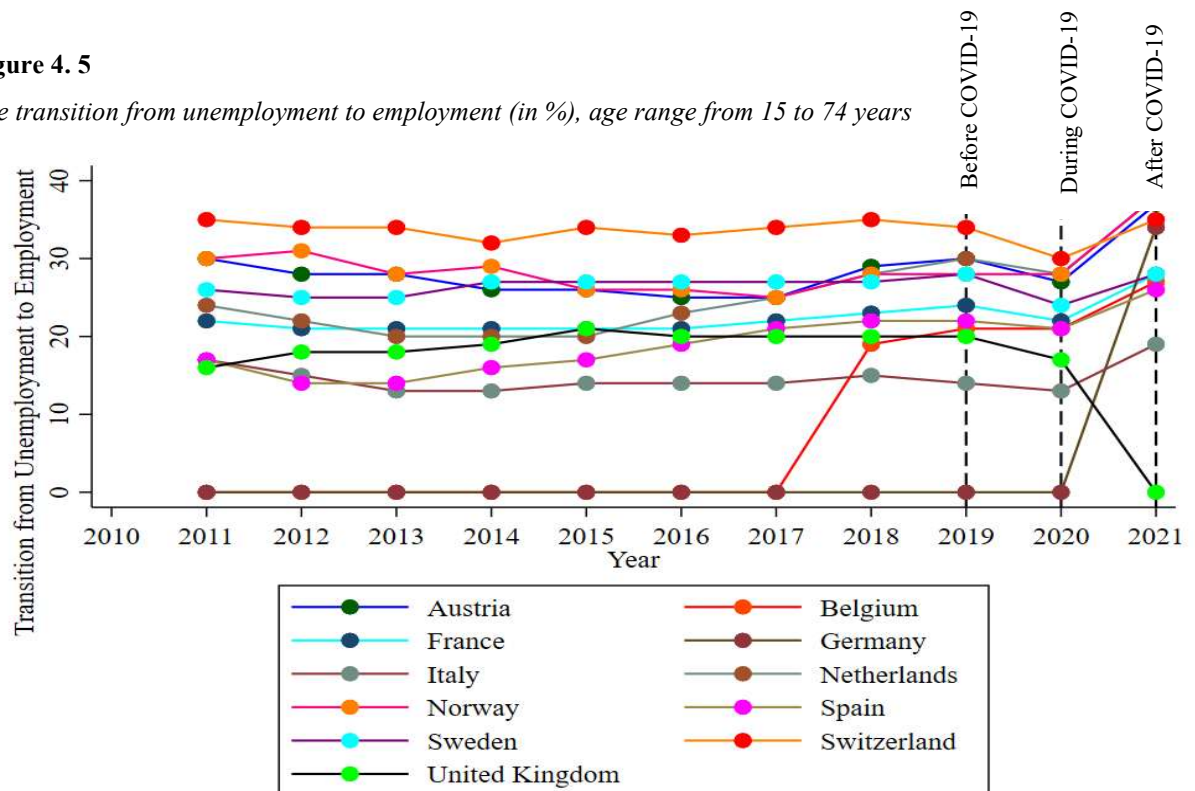
4.1.4 Labor market transition inflows

Labor transition or mobility is defined in terms of states or changes in the labor market whereby persons transition from one state to another. These are often changes from one employment state to another such as moving from unemployment to employment; non-employment to employment; or from employment to unemployment. Namely, the analysis of labor market transition helps to grasp the specifics of the dynamics of the labor market in terms of the rate of job generation, the effectiveness of the formation of labor market policies, and the state of the economy in general. On this premise, therefore, policymakers and analysts can track such transitions to determine the regularities and complexities of labor market outcomes for people who have mental disorders. Some common types of labor market transitions (inflows) include:

- ***Inflows into employment:*** Individuals who move from unemployment or nonparticipation in the labor market into employment.
- ***Unemployment Inflows:*** Individuals moving from employment to unemployment due to job loss or layoffs.
- ***Non-participation inflows:*** Individuals who enter the labor force and become employed or unemployed after a period of nonparticipation (e.g., students entering the labor force, individuals re-entering after an interruption).
- ***Job-to-job transitions:*** people moving from one job to another without becoming unemployed.

Figure 4. 5

The transition from unemployment to employment (in %), age range from 15 to 74 years



Source: Author calculation from Eurostat data

Figure 4.5 presents the transition from unemployment into employment between the age range of 15 and 74 in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom from 2011 to 2021. Due to the lack of data for the whole period, Japan was excluded from this analysis. Unfortunately, no data is available for Belgium for most years. However, in 2018 and 2019, there were 19% and 21% transitions from unemployment to employment, respectively. From the limited data available, it appears that Belgium recorded a moderate number of transitions from unemployment to employment in 2018 and 2019. Moreover, the transition rate from unemployment to employment was 21% in 2020, indicating a relatively moderate transition rate where about one-fifth of people who were previously unemployed were able to find a job during the year. The transition rate from unemployment to employment in 2021 is 27%, which is an improvement on the previous year (21%). This increase indicates a remarkable recovery in the labor market, as the number of unemployed people successfully finding a job has increased significantly. Data is not available for Germany from 2010 to 2020. Furthermore, the transition rate in Germany was 34% in 2021, indicating a robust recovery in the labor market. After the pandemic, there appear to be many new job opportunities, which are helping a large proportion of the unemployed population to find work again.

For Spain, data on transitions is available from 2011 to 2019. The number of transitions from unemployment to employment was between 14% and 22% during this period. Spain had a similar transition rate of 21% in 2020, similar to Belgium, showing a moderate transition amidst the challenges caused by the pandemic. In addition, the transition rate was 26%, an increase from 21% in 2020 to 26% in 2021, signaling a positive trend in the recovery of the labor market, although challenges remain. In France, similar to Spain, the data represents the percentage of transitions from unemployment to employment for each year from 2011 to 2019. In 2012, for example, 21% of the unemployed population in France transitioned into employment. France, on the other hand, had a transition rate of 22% in 2020, slightly outperforming Belgium and Spain, indicating a slightly better transition rate in the labor market. Furthermore, France recorded a transition rate of 28%, a slight increase from 22% in the previous year to 28% in 2021, indicating a steady recovery in the employment situation.

In 2011, 17% of the unemployed population in Italy found employment, which has fluctuated between 13% and 17% over the years. In contrast, Italy faced a lower transition rate of 13% in 2020, indicating a challenging labor market scenario where a smaller proportion of the unemployed population could secure jobs, highlighting significant barriers in the labor market. Additionally, Italy recorded a transition rate of 19%, an increase from 13% in 2020 to 19% in 2021. While this increase remains comparatively lower than in other countries, it reflects some progress in the Italian labor market.

Similar to Italy, the data for each year shows the percentage of unemployed people moving into employment. In 2011, for example, 24% of the Netherlands' unemployed population found employment, which fluctuated between 20% and 30% in subsequent years. On the other hand, had a high transition rate of 28% in 2020, indicating a more robust labor market environment in which more than a quarter of the unemployed population found a job. In addition, the Netherlands recorded a transition rate of 38%, a significant increase from 28% in 2020 to 38% in 2021, indicating a robust recovery in the labor market as a significant number of unemployed find employment.

In Norway, the transition rate from unemployment to employment was 30%, slightly increasing to 31% in 2012 before continuously decreasing to 28% in 2019. Furthermore, in 2020, Norway, like the Netherlands, maintained a high transition rate of 28%, indicating strong resilience in the labor market. Norway recorded a transition rate of 38% in 2021,

a notable increase from 28% in the previous year, demonstrating a robust recovery in the labor market.

In 2011, 30% of the unemployed population in Austria found employment (unemployed people moving into employment), and this percentage fluctuated between 25% and 30% in the following years. The transition rate was 27% in 2020, which also indicates a high transition rate and a relatively smooth transition from unemployment to employment. Austria reported a transition rate of 37%, a significant increase from 27% in 2020 to 37% in 2021, indicating a healthy recovery in the labor market. In Sweden, as in the other countries, the data for each year shows the percentage of unemployed people moving into employment. In 2011, for example, 26% of the unemployed found employment, which fluctuated between 24% and 28% in subsequent years. Furthermore, Sweden had a transition rate of 24% in 2020, which was above average, indicating a dynamic labor market with a commendable re-employment rate. The transition rate was also 28%, a slight improvement from 24% in 2020 to 28% in 2021, indicating a positive trend in the recovery of the labor market.

In Switzerland, the transition rate from unemployment to employment was 35% in 2011. Between 2012 and 2013 it was 34%. After that it slightly decreased to 32% in 2015. There were a slight fluctuation in the transition rate from unemployment to employment around 33% and 34% between 2016 and 2019. In addition, there was a transition rate of 30% in 2020, the highest among the countries listed, indicating an extremely robust labor market where a significant proportion of the unemployed successfully transition into employment. Switzerland recorded a transition rate of 35%, an increase from 30% in 2020 to 35% in 2021, indicating a robust recovery in the labor market.

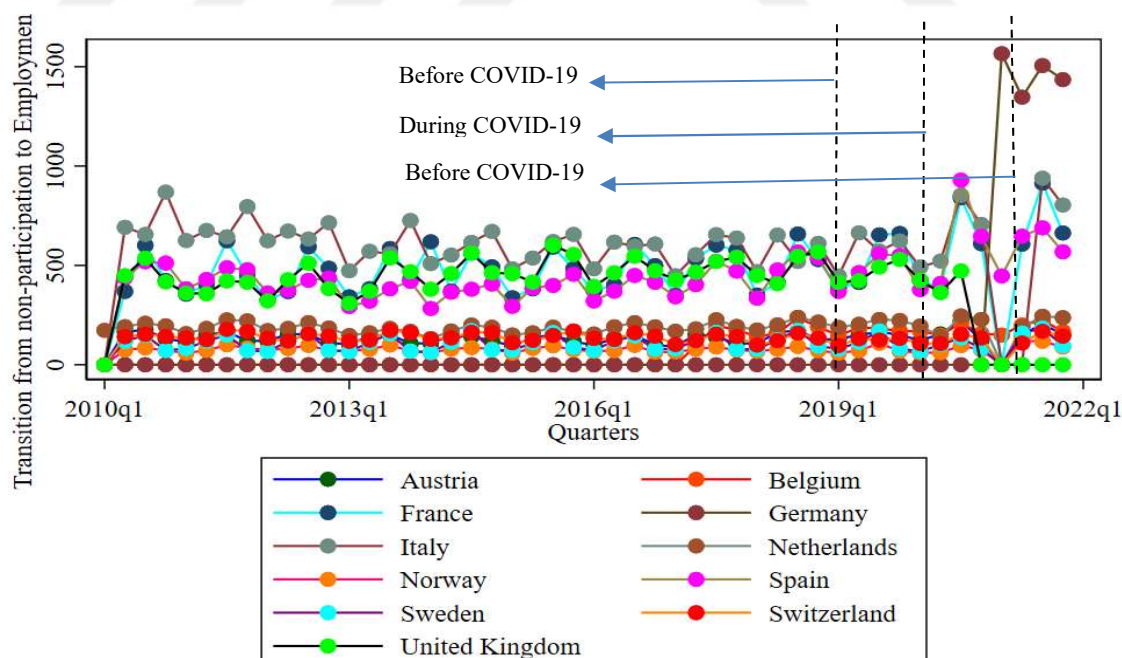
In the United Kingdom, there was a gradual increase transition rate from unemployed people to employment from 16% to 21% between the period of 2010 to 2015. Between 2016 and 2019 this rate was stable around 20%. The United Kingdom, on the other hand, is below average with a transition rate of 17% in 2020, indicating problems in the transition from unemployment to employment, although not as severe as in Italy. Unfortunately, the transition rate from unemployment to employment in the UK is not available due to data unavailability in 2021.

Consequently, During COVID-19, Switzerland, Norway, the Netherlands, and Austria had the highest transition rates, indicating that labor markets are holding up well despite the disruptive effects of the pandemic. These countries with high transition rates likely

benefited from stronger economic support measures or more flexible labor markets that allowed for a faster reemployment process for the unemployed. Sweden, France, Belgium, and Spain, on the other hand, had moderate transition rates, suggesting a stable but not very dynamic labor market in 2020. In contrast, the United Kingdom and Italy faced lower transition rates, reflecting more substantial labor market challenges and a slower transition from unemployment to employment. Countries with lower transition rates had greater hurdles to overcome, possibly due to stricter lockdown measures, structural labor market problems, or less effective economic support systems during the pandemic. Moreover, the Netherlands, Norway, and Austria have the highest transition rates, indicating a very strong recovery of the labor market after the pandemic. These countries also show a robust recovery as a significant part of the unemployed population has found a job. Belgium, France, Spain, and Sweden show moderate improvements, indicating steady progress in their labor markets. While Italy has improved from 2020, it still lags behind the other countries in terms of transition rates, indicating ongoing challenges in the labor market.

Figure 4. 6

Transition from non-participation to employment (neither seasonally nor calendar-adjusted data) in (thousands of persons)



Source: Author calculation from Eurostat data

Figure 4.6 shows the transition from outside the labor force(non-participation) to employment in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom in the different quarters from the first quarter of 2010 to the fourth quarter 2021. The interpretation of the transition from outside the labor force into employment is based on the quarterly data provided: Unfortunately, the data was unavailable for most quarters of Belgium. However, data is available from the second quarter of 2017 onwards. For example, there were 94 transitions from outside the labor force into employment in the second quarter of 2017. This number rose to 198 in the third quarter of 2017 and then fell to 154 in the second quarter of 2018 but in the third quarter, it again increased to 237 and then fell to 147 in the first quarter of 2019. After that, the transition rate decreased from 187 to 169 between the second and fourth quarters. Furthermore, there was a significant drop in the transition rate from 169 to 149 in the first and second quarters of 2020, reflecting the initial impact of the pandemic on labor market transitions in this country. A significant increase to 209 in the third quarter, indicating a possible recovery and adjustment phase. However, a further decline to 157 was observed in the fourth quarter, which could indicate possible fluctuations or effects of the second wave on the labor market dynamics. The transition from non-participation to employment also increased from 149 to 200 in the first and subsequent quarters, indicating a noticeable recovery or adjustment phase. In the second and third quarters, this figure rose further to 224, indicating a sustained improvement in the labor market. However, there was a drop to 167 in the transition from the third to the fourth quarter, which could be due to seasonal fluctuations or renewed pandemic-related restrictions.

Data is not available for Germany for any of the quarters, so no interpretation is possible for this country for the period from 2010 to 2020. In the first quarter of 2021 the transition from non-participation to employment was 1566, but in the second quarter, it gradually decreased to 1347 and then increased again to 1506 in the third quarter. in the fourth quarter, it was again decreased to 1435.

Huge volatility characterizes Spain in the transition from outside the labor force into employment from the second quarter of 2010 to the fourth quarter of 2013, with changes marked most significantly in 2010, early decline, and recovery leading to a peak in 2012. This could be read as considered very high levels of transitions reflected in this period, probably indicating recovery from the financial crisis of 2008, given that it shows a strong

re-engagement with the labor market. Over the mid-decennial years—from the first quarter of 2014 to the fourth quarter of 2016—a more stable trend established a moderate swing and an increasing trend after the troughs of 2013 and 2014. In this case, transition figures show that recovery is still underway with paramount peaks in the third quarter of 2011 and the fourth quarter of 2012. As the late 2010s approached—the first quarter of 2017 to the fourth quarter of 2019—a large increase in transitions could be observed, especially during the current two last years. This reflected a very strong performance of the labor market just before the hit of the pandemic. High rates of transitions in the period of the second and third quarters, observed in several years, may refer to seasonal employment trends related to tourism and some other seasonal industries in Spain. These ups and downs correspond to wider economic cycles, including the post-recession recovery between 2010 and 2012 and the pre-pandemic growth from 2017 to 2019. Long story short, this data manifests periods of strong post-crisis recovery from 2010 to 2012 and high growth until 2019, with clear peaks in transitions that became a hallmark of the economy's resilience and the efficacy of policy measures. Such declines, in 2013 and early 2014, can be viewed as mere adjustments to the economic or structural environment, whereas in the subsequent years, a successful reintegration into the labor market now is evident.

On the other hand, the transition rate rose from 378 to 409 in the first and second quarters of 2020, indicating a certain resilience or delayed impact compared to other countries. In the second and third quarters, there was a significant increase to 929, probably due to the easing of restrictions and the extensive economic recovery measures in the country. Despite a drop to 646 in the fourth quarter, the numbers remained significantly higher than in the first half of the year, indicating a continued recovery trend in the Spanish labor market. Furthermore, In the first quarter of 2021, the transition from outside the labor force into employment was 447 and then there continuously increased to 689 in the third quarter but in the fourth quarter, it decreased again to 568.

In France, like in Spain, it provides the number of transitions from outside the labor force to employment every quarter from the second quarter of 2010 to the fourth quarter of 2020. There were continuous increases from 369 transitions in the second quarter of 2010 to the final quarter of 2019 to 661. The figures also fluctuate between quarters, indicating fluctuations in the number of people moving from outside the labor force to employment. Furthermore, the transition rate fell slightly from 425 to 385 in the first and second quarters of 2020, indicating the initial impact of the pandemic on labor market transitions in

this country. In the following quarters, however, there was a sharp increase to 840, similar to the trend observed in Spain, indicating a robust recovery phase. In the third and fourth quarters, however, a decline to 609 was recorded, although the figures were higher than in the first half of the year, which indicates ongoing recovery efforts in the French labor market. Although no data was available for the first quarter of 2021, the second quarter began with 607, showing some level of transition. The second and third quarters then saw a significant increase to 914, indicating a robust recovery or a resumption of employment. However, the transition from the third to the fourth quarter saw a decline to 663, possibly indicating seasonal or temporary adjustments.

In Italy, In the second quarter of 2010, there were 692 transitions from outside the labor force to employment. This number fluctuated over the quarters between 869 and 623 in the fourth quarter of 2010 and 2019. The transition rate rose from 492 to 522 in the first and second quarters, indicating a degree of resilience to the pandemic. Subsequently, a significant increase to 853 was observed in the second and third quarters, indicating strong recovery efforts in the country. Despite a drop to 706 in the third and fourth quarters of 2020, the transition rate remained higher than in the first quarters, underlining the overall positive trend in Italy's labor market. On the other hand, no data was initially available for the first quarter, but the second quarter of 2021 started with 1021, indicating a significant transition. The second and third quarters then saw a decline to 939, indicating some stabilization. The further decline to 804 in the third and fourth quarters indicates continued stabilization or seasonal influences.

In the first quarter of 2010, for example, there were 173 transitions from outside the labor force to employment in the Netherlands. The figures also fluctuate between quarters, indicating fluctuations in the number of people transitioning from outside the labor force to employment. The transition rate from outside the labor force to employment increased from 195 in the first quarter to 142 in the second quarter of 2020, indicating the initial impact of the pandemic on labor market transitions in this country. But in the third quarter, it rose to 246 and then dropped to 228 in the fourth quarter

In Austria, in the second quarter of 2010, 167 persons moved from outside the labor force into employment; the figures differ quarter by quarter due to changing economic conditions and labor market dynamics. The transition rate also rose from 121 to 155 in the first and second quarters of 2020, indicating a degree of resilience in the face of the pandemic. Subsequently, an increase to 222 was observed in the third quarter, indicating a recovery

phase in this country. However, a decline to 123 in the fourth quarter indicated fluctuations in labor market dynamics. For Austria, similar to France and Italy, no data was available for the first quarter of 2021, but the second quarter started at 150. As the second and third quarters progressed, there was an increase to 206, indicating a recovery trend. However, in the transition to the third and fourth quarters, the rate fell to 151, possibly due to seasonal factors or pandemic-related effects. Conversely, a notable drop to 96 is observed in the third and fourth quarters, indicating the possibility of renewed restrictions or seasonal fluctuations in employment patterns.

Transitions from outside the labor force into employment in Sweden are 118 in the second quarter of 2010. Figures change from one quarter to another and have the participation rate in the labor force and economic conditions as determinants. Furthermore, the number of transitions from inactivity(non-participation) to employment rose from 67 to 101 in the first and second quarters of 2020, indicating a certain resilience of the labor market. This upward trend continued in the second and third quarters with an increase to 135, indicating a period of recovery. In the third and fourth quarters, however, the transition rate fell to 81, indicating fluctuations in the employment landscape. In the first and subsequent quarters, the data for the first quarter is not available; however, the figures for the second quarter of 2021 in Sweden start at 159, indicating a possible economic recovery. In the third quarter, the transition then escalates to 184, indicating a clear recovery.

In Norway, the number of transitions from outside the labor force into employment in the second quarter of 2010 is 74. Like most countries, these numbers change every quarter, indicative of labor market dynamics. On the other hand, the number of transitions increased slightly from 60 to 61 in the first and second quarters of 2020, showing a similar level of resilience. This upward trend continued in the second and third quarters, reaching 96, indicating a period of recovery. However, in the fourth quarter, the number of transitions fell to 75, indicating fluctuations in employment momentum. Moreover, data for the first quarter is not available, but the second quarter of 2021 starts at 120, with a slight decline to 118 in the transition from the second to the third quarter, indicating a period of stability. There is then a further decline to 89 in the fourth quarter, possibly influenced by seasonal factors or external dynamics.

In Switzerland, there were 141 transitions from outside the labor force to employment in the second quarter of 2010. The numbers also vary from one quarter to the other in a clear pointer of fluctuations in the number of persons moving from outside the labor force to

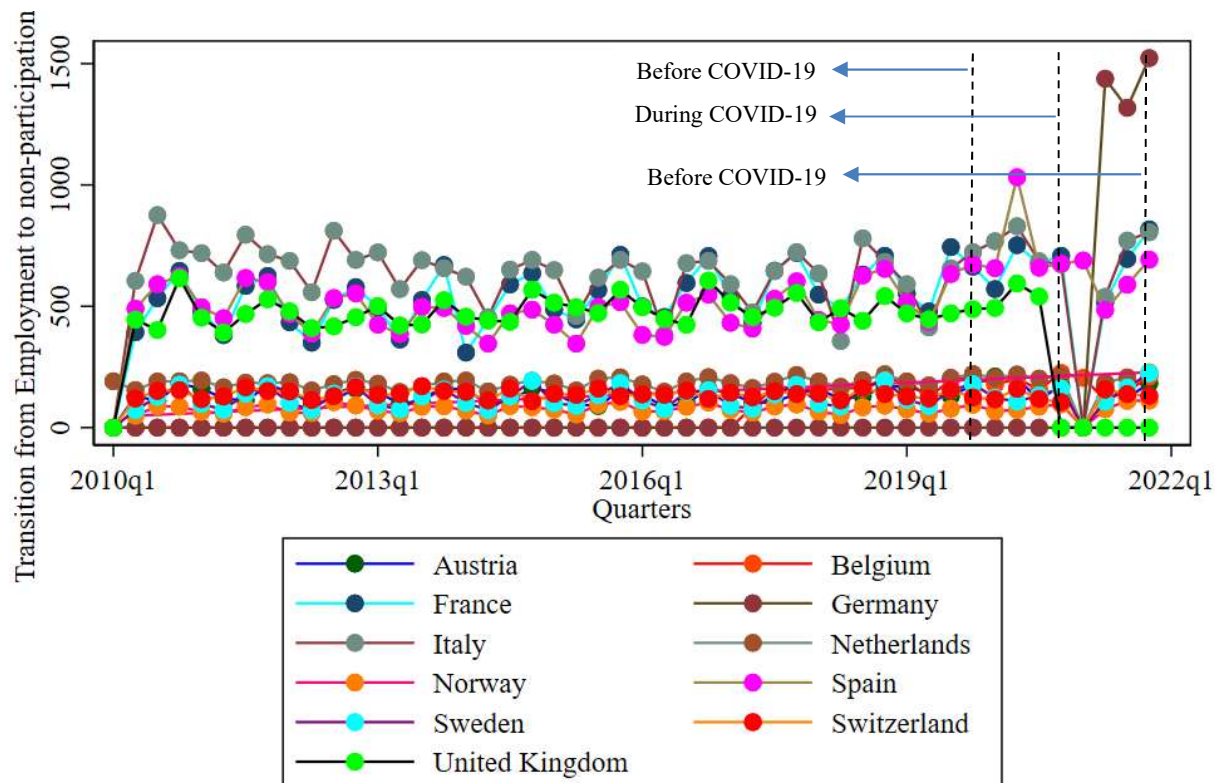
employment. In addition, the transition rate remained stable at 107 in the first and second quarters of 2020, indicating a consistently high level of resilience in the labor market. This stability was followed by an increase to 153 in the third quarter, indicating a period of recovery. In the fourth quarter, however, there was a decline to 135, indicating fluctuations in the employment structure. In the first quarter of 2021, there was no transition from transitions from outside the labor force to employment. Between the second and third quarters, the transition rate increased from 109 to 168 and then dropped to 144 in the fourth quarter.

in the second quarter of 2010, there were 448 transitions from outside the labor force to employment in the UK. Similarly, in the second quarter of 2011 there were 536 transitions, and so on for each quarter. Overall, analysis of these transitions provides insights into the trends and patterns of people entering employment in the UK in the specified quarters after being outside the labor force. In addition, In the UK, the number of employees fell from 424 to 363 in the first and second quarters of 2020, indicating the initial impact of the COVID-19 lockdowns. This decline was followed by an increase to 472 in the second and third quarters, indicating a recovery phase. Data for the third and fourth quarters were not available, but the information available for the third quarter showed a strong recovery trend. As for the United Kingdom, data is unavailable for all quarters of 2021.

Overall, there was a decrease or slight increase in transitions from the first to the second quarter in most countries, which can be seen as a direct result of the immediate impact of COVID-19 lockdown measures on the employment landscape. With the transition from the second to the third quarter, a significant increase in transitions was observed in various countries, indicating a concerted push towards recovery initiatives and a gradual easing of restrictions. Nevertheless, it is important to note that the results in the third and fourth quarters were quite varied. In some countries, the number of transitions decreased, which is a possible sign of the effects of the second wave or adjustments in the economic sphere. This intricate interplay of transition patterns underscores the complex dynamics at play during the ongoing global crisis and highlights the need for tailored measures to address the evolving challenges.

Figure 4. 7

Transition from employment to non-participation (neither seasonally nor calendar-adjusted data) in (thousands of persons)



Source: Author calculation from Eurostat data

Figure 4.7 shows the transition from employment to outside the labor force in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom in the different quarters from the first quarter of 2010 to the fourth quarter of 2021.

The data provided show the transition from employment to non-employment in Belgium in the various quarters. For some quarters, no data is available, indicating that no information is available for these periods. Using the available data, we can see fluctuations in the number of transitions over time. For example, in the second quarter of 2017 there were 85 transitions, while in the third quarter of 2017, this number increased to 169, indicating a possible increase in people leaving the labor force during this period. Similarly, in the second and fourth quarters of 2019, there was an increase in transition from 127 to 210. Moreover, the number of transitions fluctuated throughout the year. There was a clear escalation from 177 transitions in the first quarter to 202 in the second quarter, followed by a decrease to 157 in the third quarter and a sharp increase to 225 in the fourth quarter. The initial increase in the second quarter could be attributed to the immediate

impact of the pandemic, which led to plant closures and staff reductions. The decline in the third quarter indicates a temporary recovery or adjustment to the pandemic-related circumstances, followed by a renewed increase in the fourth quarter, possibly due to re-imposed restrictions or uncertainty in the economy. In Belgium, the data shows a peak in the first quarter of 2021 (205), a significant decline in the second quarter (116), a slight increase in the third quarter (149) and a further increase in the fourth quarter (210). The significant decline in the second quarter indicates a recovery phase after the initial shock of COVID-19, while the increase in the fourth quarter points to continued economic adjustments and possible uncertainties in the labor market.

Data is missing for Germany in all quarters from 2010 to 2020, indicating that information is unavailable for these periods. Conversely, data from Germany shows a slight decline from the second quarter, from 1,438 in the second quarter to 1,318 in the third quarter, followed by an increase to 1,523 in the fourth quarter. These fluctuations indicate instability in the German labor market, with cyclical or seasonal factors possibly having an impact on transitions out of employment.

In Spain, the lack of data for the first quarter of 2010 means that no information is available for this period. From the second quarter of 2010 to the third quarter of 2011, the number of transitions from employment to inactivity increases continuously from 490 to 617. This indicates a clear shift in labor force dynamics during this period. Subsequently, the number of transitions fluctuated in the following quarters and reached 673 in the fourth quarter of 2019, indicating possible changes in labor market conditions or other influencing factors. In addition, there was a significant increase in transitions in the second quarter of 2020 with 1032 cases compared to 657 in the first quarter of 2020. This was followed by a decline to 659 in the third quarter and a further slight decrease to 676 in the fourth quarter. In Spain, there was a significant increase in transitions to inactivity in the second quarter, which is likely due to the strict lockdown measures and economic disruption. There was some stabilization in the following quarters, although the figures in the first quarter were still higher than before the pandemic. When looking at Spain, fluctuations can be seen: 689 in the first quarter of 2021, a decline to 485 in the second quarter, followed by an increase to 589 in the third quarter and 692 in the fourth quarter. These trends point to an initial recovery in Spain in the second quarter, but the subsequent rise indicates ongoing problems in maintaining employment stability.

In France, the number of transitions from employment to being outside the labor force in the first quarter of 2010 was 393, and in the fourth quarter of 2019, was 663. These numbers have fluctuated in the following quarters for the entire period. Furthermore, there was an increase from 571 transitions in the first quarter of 2020 to 752 in the second quarter, followed by a slight decrease to 676 in the third quarter and a modest increase to 708 in the fourth quarter. Similar to Spain, France also saw a significant increase in transitions in the second quarter, indicating the impact of the pandemic. The numbers slightly decreased in the third quarter as the situation ameliorated, but the consistently high figures in the fourth quarter indicate persistent economic challenges. In France, there is a steady increase from 516 in the second quarter to 695 in the third quarter and further to 817 in the fourth quarter. This increase indicates that France is experiencing increasing difficulties in retaining its workforce after the pandemic, possibly due to economic restructuring or the ongoing impact of the pandemic on certain sectors.

The figures represent the number of transitions from employment to being outside the labor force for each quarter from 2010 to 2019 in Italy. For example, there were 605 transitions in the first quarter of 2010 and 723 transitions in the fourth quarter of 2019. Italy recorded an increase from 768 transitions in the first quarter of 2020 to 830 in the second quarter, followed by a decrease to 686 in the third quarter and further to 673 in the fourth quarter. The trend in Italy shows a peak in the second quarter, which is in line with other countries and is due to the strong impact of COVID-19. The gradual decline in the following quarters indicates a certain recovery, even if the numbers remained elevated compared to the first quarter. An upward trend has also been observed in Italy since the second quarter of 2021. The number of employees rose from 539 to 771 in the third quarter and further to 805 in the fourth quarter. The Italian labor market appears to be significantly impacted, with a continuous increase in transitions, suggesting that it is difficult to maintain workforce stability post-COVID-19.

In the Netherlands, there were 191 transitions from employment to being outside the labor force in the first quarter of 2010, and in the fourth quarter of 2019, there were 221 transitions. Furthermore, there was a slight increase from 205 transitions in the first quarter of 2020 to 219 in the second quarter, followed by a decrease to 202 in the third quarter and a slight increase to 214 in the fourth quarter. There was relatively little fluctuation in the Netherlands, indicating a more stable labor market compared to some other countries. The slight increase in the second quarter reflects the impact of the pandemic, but the

following quarters indicate some stability. In addition, there has been a gradual increase from 186 in the second quarter of 2021 to 207 in the third quarter and 228 in the fourth quarter. This indicates that maintaining employment after the pandemic is an ongoing challenge in the Netherlands.

In Austria, there were 130 transitions from employment to being outside the labor force, and in the second quarter of 2010 and 177 transitions in the fourth quarter of 2019. Furthermore, Austria recorded a slight decrease from 210 transitions in the first quarter of 2020 to 203 in the second quarter, followed by a significant decrease to 114 in the third quarter and an increase to 174 in the fourth quarter. Austria recorded an initial impact in the second quarter, a clear recovery in the third quarter and a partial reversal in the fourth quarter. This indicates that although the initial shock was overcome, there were still after-effects towards the end of the year. The data presented in Austria shows a notable increase from 168 in the second quarter of 2021 to a decrease in the third quarter, 121, followed by a further increase in the fourth quarter to 183. The Austrian labor market was subject to fluctuations, with a temporary upturn in the third quarter; however, the upward trend observed in the fourth quarter shows the continuous adjustments being made to meet the economic challenges.

The numbers in the table represent the number of transitions from employment to being outside the labor force for each quarter from 2010 to 2019 in Sweden. For example, in the second quarter of 2010, there were 72 transitions from employment into being outside the labor force(non-employment), and in the fourth quarter of 2019 there were 179 transitions. Furthermore, the number of transitions fell from 123 in the first quarter 2020 to 107 in the following quarter, followed by an increase to 133 in the third quarter and a further increase to 161 in the final quarter. The country adopted a special strategy in dealing with the pandemic by imposing fewer restrictions, which may explain the decrease observed in the second quarter. The successive increases in the third and fourth quarters indicate economic adjustments and potentially delayed effects. Moreover, there is a steady increase from 107 in the second quarter of 2021 to 165 in the third quarter and a notable increase to 224 in the fourth quarter. The escalating transitions in Sweden indicate increasing difficulties in maintaining employment, particularly towards the end of the year, suggesting economic or sector-specific issues.

The situation is similar in other countries: In Norway, there were 49 transitions from employment to non-employment in the second quarter of 2010 and 94 transitions in the

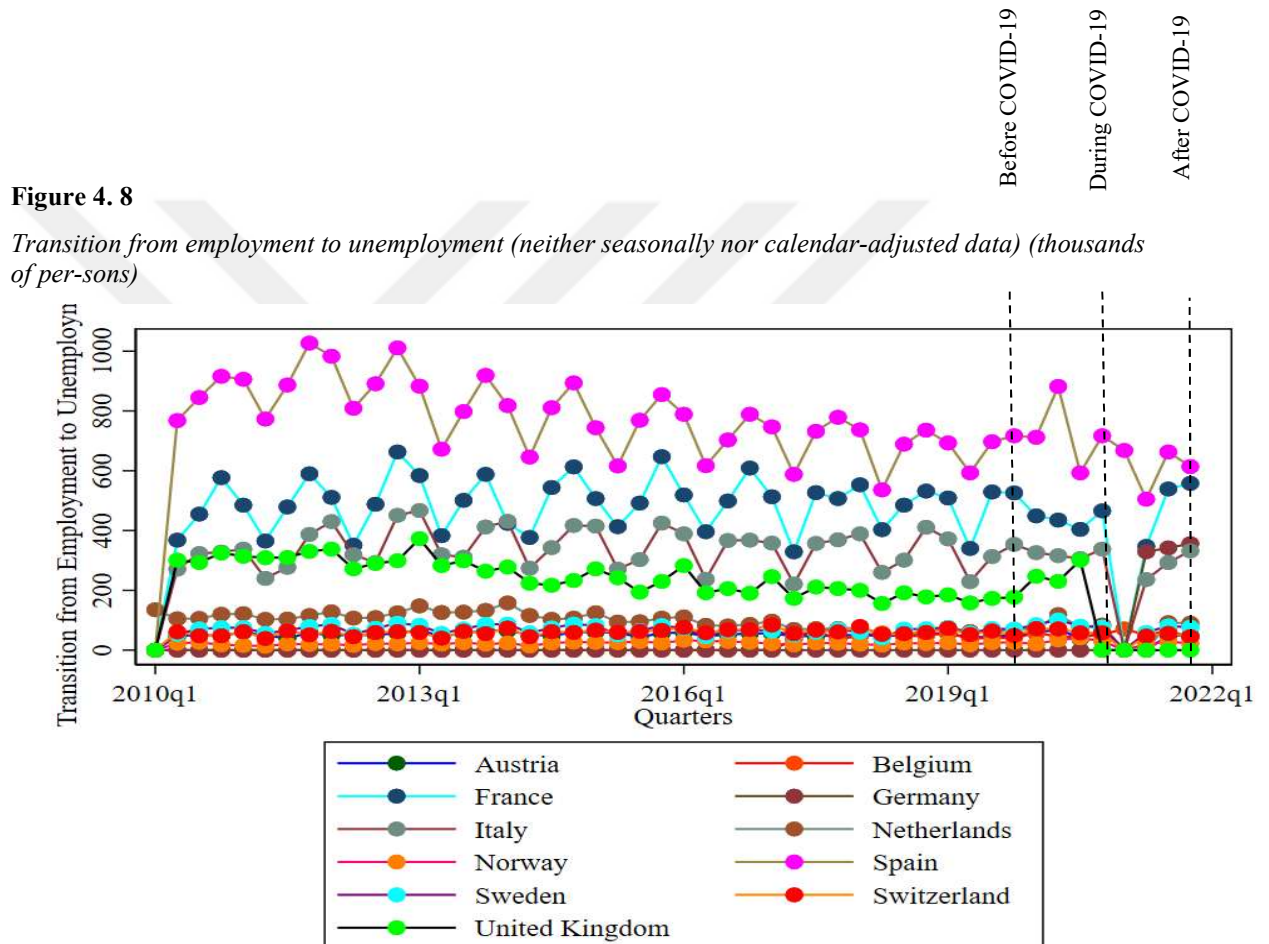
fourth quarter of 2019. Moreover, there was a gradual increase from 68 transitions in the first quarter of 2020 to 73 in the second, 86 in the third, and finally 96 in the fourth quarter. This gradual increase over the course of the year in Norway is a sign of the ongoing impact of the pandemic on the labor market. In addition, there has been a gradual increase from 76 in the second quarter of 2021 to 110 in the third quarter, with a slight increase to 111 in the fourth quarter. The Norwegian data shows relatively stable, albeit slightly increasing, transitions characterized by minor fluctuations, which suggests a degree of stability compared to other countries.

In Switzerland, there were 120 transitions from employment into being outside the labor force, in the second quarter of 2010, and in the fourth quarter of 2019, there were 124 transitions from employment into being outside the labor force. Conversely, the number of transitions rose from 116 in the first quarter of 2020 to 160 in the second quarter, before falling to 118 in the third quarter and 105 in the fourth quarter. The country saw an initial increase in transitions in the second quarter, followed by a decline in subsequent periods, indicating an effective management of the impact on the labor market. Furthermore, there is a decrease from 157 of 2021 in the second quarter to 138 in the third quarter, followed by a further decrease to 131 in the fourth quarter. The trend in Switzerland indicates a decline, suggesting greater stability in employment and the implementation of effective strategies to retain the workforce post-pandemic.

In the United Kingdom, for example, there were 445 transitions from employment to non-employment in the second quarter of 2010 and 488 in the fourth quarter of 2019. This transition fluctuated throughout the period. Moreover, In the UK, the number of transitions rose from 493 in the first quarter of 2020 to 594 in the second quarter and then fell to 540 in the third quarter. Unfortunately, the data for the fourth quarter is not available. However, there was no data available for the whole quarter of 2021. In the UK, there was a jump in the second quarter due to the impact of the pandemic, which recovered slightly in the third quarter. The lack of data for the fourth quarter makes a comprehensive analysis of the year-end trend difficult.

Overall, the data underlines the significant impact of the COVID-19 pandemic on the labor markets in these countries. Most countries experienced a peak in transitions from employment to non-employment in the second quarter of 2020, which coincides with the peak of lockdown measures and economic disruption. In the following quarters, a recovery of varying degrees can be observed, with some countries stabilizing better than others.

The overall analysis of the data shows different trends in the various countries after the COVID-19 crisis, each reflecting different economic conditions and responses to the pandemic crisis. While certain countries such as Belgium and Spain show significant fluctuations and struggle to maintain employment stability, Switzerland and Norway show a higher degree of stability. The patterns of transition highlight the continuous economic adjustments being made and the varying degrees of recovery or persistent obstacles each country is facing in the post-COVID-19 period.



Source: Author calculation from Eurostat data

Figure 4.8 shows the transition from employment to unemployment in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom in the various quarters from the first quarter of 2010 to the fourth quarter of 2021 to examine the trend before, during, after the COVID-19 pandemic.

In Belgium, the number of transitions from employment into unemployment was 36 in the first quarter of 2010, and in the fourth quarter of 2019, there were 39 transitions. Furthermore, there was initially a decline from 59 in the first quarter of 2020 to 44 in the

second quarter, followed by a slight increase to 46 in the third quarter and 52 in the fourth quarter. This data points to a modest recovery in Belgium after the initial shock of the pandemic; however, the increase in the fourth quarter indicates ongoing problems in maintaining employment stability in the country. In addition, there was a decrease observed from 71 transitions in the labor market during the first quarter of 2021 to 50 transitions in the second quarter, followed by a slight increase to 66 transitions in the third quarter, and subsequently a decrease to 42 transitions in the fourth quarter. This pattern in Belgium demonstrates an overall decreasing trend, which signifies an improvement in job stability in the aftermath of the COVID-19 pandemic, albeit with some fluctuations noticeable in the third quarter.

Unfortunately, Germany has no data from the first quarter of 2010 to the fourth quarter of 2020. Conversely, the data reveals a starting point of 329 transitions in the second quarter of 2021, which then increased to 342 in the third quarter and further to 356 transitions in the fourth quarter. The trend in Germany indicates a rising pattern in transitions towards unemployment, pointing towards challenges in the labor market as the year progresses.

In the first quarter of 2010, there were 768 transitions from employment to unemployment in Spain, and in the fourth quarter of 2019, there were 717 transitions. The situation in Spain showed a notable increase from 712 in the first quarter of 2020 to 882 in the second quarter, then fell to 593 in the third quarter and finally rose to 717 in the fourth quarter. Moreover, there was a notable decrease from 668 transitions in the first quarter of 2021 to 505 transitions in the second quarter, followed by an increase to 663 transitions in the third quarter and a slight decrease to 614 transitions in the fourth quarter. These fluctuations in transitions in Spain indicate ongoing instability and challenges persisting in the labor market. The significant increase in the second quarter in Spain can be attributed to the lockdown measures and economic disruption, with some signs of recovery in the third quarter, but the increased figures in the fourth quarter highlight the country's ongoing economic difficulties.

In the first quarter of 2010, there were 368 transitions from employment to unemployment in France. The data shows fluctuations over time, indicating fluctuations in the labor market and changes in unemployment rates. Higher numbers indicate increased layoffs or job losses in these quarters, while lower numbers indicate periods of relative stability or improvement in employment conditions. France saw a slight decrease from 449 in the first

quarter of 2020 to 435 in the second quarter, a further decrease to 404 in the third quarter and then a slight increase to 466 in the fourth quarter. This pattern in France indicates a relatively steady transition rate with a small dip in the middle of the year, suggesting continued recovery efforts; however, the increase in the fourth quarter indicates continued economic uncertainty. Turning our attention to France, data commences from the second quarter with 347 transitions of 2021 which then escalate to 539 transitions in the third quarter and slightly to 558 transitions in the fourth quarter. The trend observed in France suggests a rising pattern, hinting at increasing difficulties in maintaining employment stability post-pandemic.

In Italy, there were 271 transitions from employment to unemployment in the first quarter of 2010. On the other hand, the transition was different in the following quarters from 2011 to 2019. For example, in the first quarter of 2011 the transition from employment to unemployment was 338 but in the fourth quarter of 2019 was 354. There was a gradual decline from 326 in the first quarter of 2020 to 316 in the second quarter and 306 in the third quarter, followed by an increase to 338 in the fourth quarter. In Italy, the data initiates from the second quarter of 2021 with 236 transitions, showing an increase to 293 transitions in the third quarter and further to 332 transitions in the fourth quarter. Italy's trend displays an increasing trajectory, indicating growing challenges of unemployment towards the latter part of the year.

In the Netherlands, there were 135 transitions from employment to unemployment in the first quarter of 2010. The number of transitions from employment to unemployment increased over the entire period. In addition, the Netherlands recorded an increase from 72 in the first quarter of 2020 to 119 in the second quarter, then a decrease to 76 in the third quarter and 84 in the fourth quarter. The initial increase in the second quarter in the Netherlands is likely due to the effects of the lockdown, with some stabilization observed in the following quarters. The data originating from the Netherlands starts from the second quarter of 2021 with 92 transitions, showing a slight decrease to 90 transitions in the third quarter and then decreased to 90 in the fourth quarter. The Netherlands' trend reflects a slight improvement, signifying some stabilization in the labor market post-COVID-19. Each figure in the data set corresponds to the number of transitions from employment to unemployment for the respective quarter and year in Austria. For example, there were 47 transitions from employment to unemployment in the first quarter of 2010. The numbers

fluctuate over time, indicating changes in labor market conditions and shifts in unemployment rates. Moreover, there was an increase from 57 in the first quarter to 71 in the second quarter, a decrease to 38 in the third quarter, and then an increase to 61 in the fourth quarter. The data from Austria reflects fluctuations characterized by an initial rise, a sharp fall, and a subsequent rise, indicating an unstable labor market in this country. The data begins from the second quarter with 49 transitions, remaining steady in the third quarter of 2021. Austria's trend indicates stability, with no significant fluctuations observed in transitions toward unemployment.

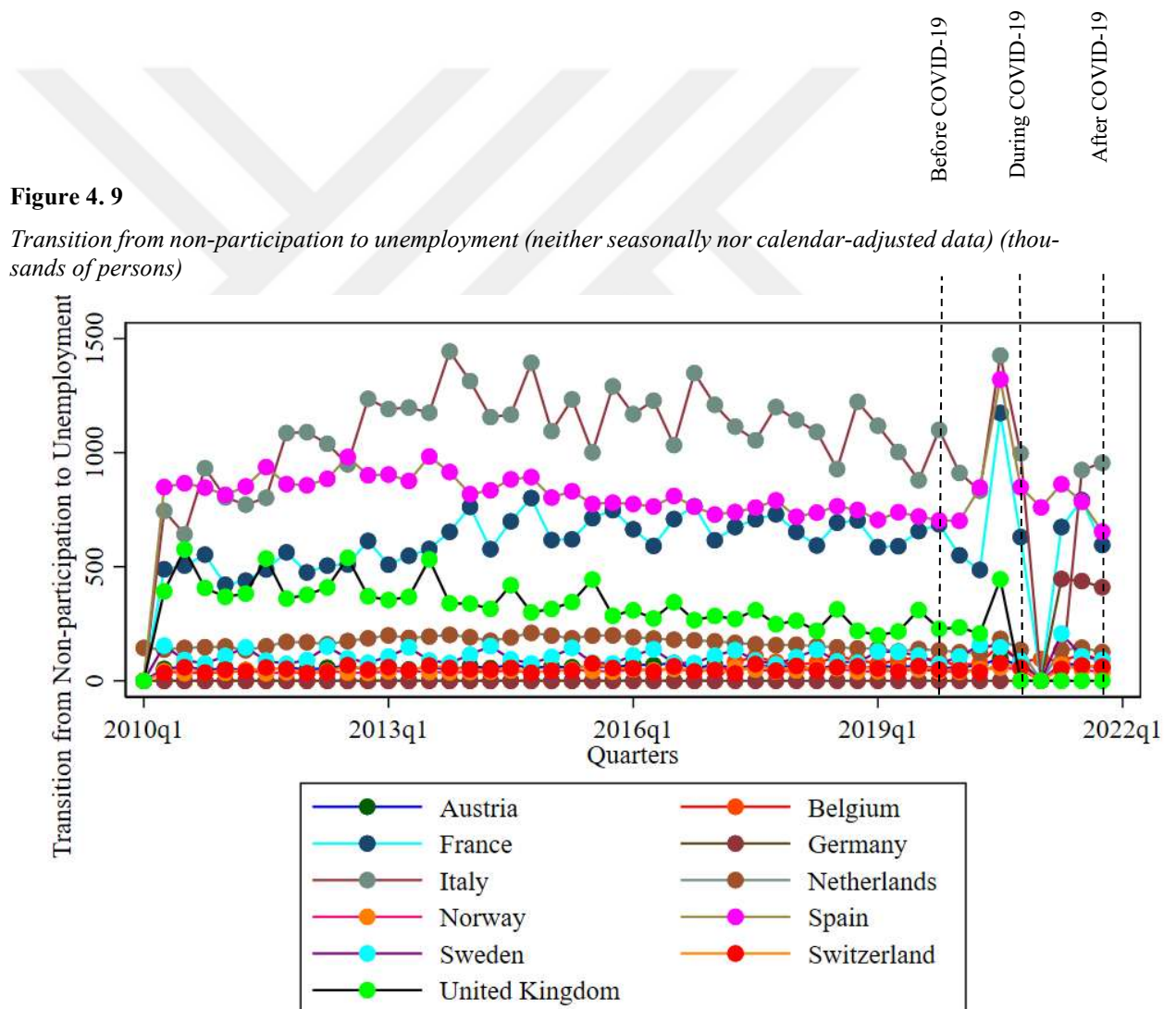
In Sweden, there were 54 transitions from employment to unemployment in the first quarter of 2010. In general, higher numbers indicate increased layoffs or job losses in these quarters, while lower numbers indicate periods of relative stability or improvement in employment conditions. There is some variability in the data, but overall, it shows a relatively stable trend with fluctuations in certain periods. In addition, there was an increase from 85 in the first quarter of 2020 to 101 in the second quarter, followed by a decline to 80 in the third quarter and 77 in the fourth quarter. The Swedish pattern shows a peak in the second quarter followed by a gradual stabilization, indicating the initial impact of the pandemic and subsequent recovery efforts. The data starts from the second quarter of 2021 with 59 transitions, increasing to 81 transitions in the third quarter and slightly decreasing to 76 transitions in the fourth quarter. Sweden's trend displays some fluctuations with an overall increasing pattern, signaling persistent challenges in the labor market.

In Norway, there were 23 transitions from employment to unemployment in the first quarter of 2010. Similar to Sweden, the number fluctuates over time and reflects changes in labor market conditions and shifts in unemployment rates in Norway. The data for Norway also show fluctuations but generally indicate a less pronounced fluctuation compared to Sweden. Norway recorded an increase from 21 in the first quarter to 34 in the second quarter, a further increase to 41 in the third quarter, and a decrease to 30 in the fourth quarter. The rising trend in Norway towards the middle of the year indicates the effects of the pandemic, which had stabilized to a certain extent by the end of the year. Moreover, the data starts from the second quarter of 2021 with 20 transitions, which then increase to 29 transitions in the third quarter, followed by a decrease to 22 transitions in the fourth quarter. Norway's trend showcases minor fluctuations, with a slight increase mid-year followed by a decline, indicating some recovery efforts being made.

For Switzerland, there were 61 transitions from employment to unemployment in the first quarter of 2010. The data shows some variability but overall indicates a relatively stable trend with fluctuations in certain periods. Moreover, a slight increase of 72 labor market transitions was observed in the first quarter of 2020, which then decreased to 71 in the second quarter, followed by a further decrease to 58 in the third quarter and a stabilization in the fourth quarter. Data from Switzerland shows a steady transition rate with little fluctuation, suggesting that the country has managed its labor market effectively amid the challenges of the pandemic. Concerning Switzerland, the data begins from the second quarter of 2021 at 47 transitions, rising to 56 transitions in the third quarter, and then decreasing to 45 transitions in the fourth quarter. Switzerland's trend exhibits fluctuations with an overall slight decreasing trajectory, suggesting some enhancement in job stability.

The transition rate from employment to unemployment varies across the quarters. For instance, the transition count was 301 in the first quarter of 2019, then fluctuated down to 177 in the fourth quarter of that year. In the UK, however, the number of transitions in the labor market decreased from 247 in the first quarter of 2020 to 230 in the second quarter, before rising to 301 in the third quarter. This pattern in the UK indicates a decline during the initial phase of the pandemic's impact, followed by a notable increase in the third quarter, highlighting ongoing challenges in the labor market. Additionally, there was little to no transition from employment to unemployment throughout the quarters of 2021. During the COVID-19 epidemic, Overall, the data shows different responses to the impact of the pandemic on employment in different countries, suggesting complex labor market dynamics. Many countries saw a surge in unemployment at the start of the pandemic, reflecting the immediate impact of lockdowns and economic disruption. As the pandemic progressed, efforts to stabilize were evident in the following quarters; however, the data suggests that challenges and volatility remain in the labor market. For example, countries such as Spain and Italy showed significant volatility, indicating ongoing economic difficulties, while Switzerland and Sweden showed more resilience and stability. These trends underscore the varying economic conditions and recovery endeavors undertaken by different nations throughout the pandemic period. The nuanced patterns observed in labor market transitions shed light on the multifaceted impact of the pandemic on employment dynamics and the diverse strategies employed by countries to navigate these challenges.

After the COVID-19 outbreak, Belgium's overall decreasing trend implies that recovery efforts are proving to be effective. On the other hand, Germany, France, and Italy are displaying increasing trends, which indicate rising challenges in their respective labor markets. Spain, Sweden, and Switzerland are experiencing fluctuations, signaling instability and ongoing adjustments in their labor markets. The Netherlands and Austria are demonstrating stability, hinting at effective management and recovery efforts. Norway's minor fluctuations suggest some level of stabilization but with persistent challenges. These trends underscore the diverse impacts and recovery trajectories of different European countries in the post-COVID-19 period.



Source: Author calculation from Eurostat data

Figure 4.9 shows the transition from outside the labor force to unemployment in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom in the various quarters from the first quarter of 2010 to the fourth quarter of 2021.

For Belgium, the data show that there were no reported transitions from outside the labor force to unemployment until the second quarter of 2017, when there were 83 such transitions. From the third quarter of 2017 onwards, the number of transitions fluctuates from quarter to quarter, indicating fluctuations in labor force participation and unemployment dynamics. The rate for those moving from non-participation into unemployment in the third quarter of 2017 was 105, showing a further increase in the quarter that had the highest quarterly figure of the year. It is guessed that this high figure reflects a post-crisis adjustment in the labor market or seasonal variables. However, this transition was 83 in the fourth quarter. Besides, this peak of the third quarter may be one-time or seasonal because the return to the level of the second quarter shows up. The year 2018 experienced constant change. The level of changes remained high in the current year, peaking at 106 in the third quarter. An increase from 72 in the first quarter to 106 in the third quarter suggests the labor market is becoming more dynamic, with more individuals becoming unemployed after previously not participating. The peaks for the third quarter of 2018 recorded the largest transitions once again, similar to 2017, which may indicate seasonal trends in the labor market, such as summer job losses, the expiration of temporary contracts, or students entering the workforce. The number of transitions stayed stable between 74 and 103 in every quarter of 2019, with the third quarter achieving a peak of 103 transitions that year. This peak in the third quarter indicates a trend that continues to prevail and reflects normal seasonal dynamics in the labor market. The second and fourth quarters of 2019 also maintained high figures, signaling sustained growth in the transition rate from non-participating to unemployment.

Moreover, there was an escalation from 68 transitions observed in the initial quarter of 2020 to 77 transitions in the subsequent quarter, reaching its peak at 159 transitions in the third quarter, and subsequently declining to 84 transitions in the final quarter. The significant surge in transition numbers during the third quarter in Belgium can be attributed to the probable mid-year repercussions of the COVID-19 pandemic, with the subsequent decrease indicating a gradual recovery process taking place. There were also, fluctuations observed in the labor market dynamics, with a peak recorded in the third quarter at 117

of 2021, followed by a reduction to 91 in the fourth quarter. These numbers indicate that Belgium witnessed a transition surge leading to unemployment during the third quarter, highlighting a certain degree of instability in the labor market, followed by a decline in the subsequent quarter.

Conversely, no data was accessible for the entire duration from the first quarter of 2010 to the fourth quarter of 2020 in Germany, rendering any trend analysis about the transition from being outside the labor force to unemployment amidst the COVID-19 crisis impracticable. Moreover, in the first quarter of 2021, there was no data available for analysis. But in the second quarter, the transition was 446, and then gradually decreased to 410 in the fourth quarter.

Transitions across Spain have shown an amazing increase between the first and fourth quarters of 2010. Transition rates started at 0 in the first quarter and moved to 849 in the second quarter. It continued upward for most of the year, hitting 866 in the third quarter and 847 in the fourth quarter. At this time, during the later quarters, this period was an after-effect of the global financial crisis of 2008, with the associated debt crisis in the eurozone that seriously hit Spain. For that, thousands of people moved from non-participation-mainly discouraged workers or returning to the labor market, to unemployment, where the consequence was a sharp slump in the Spanish economy and high unemployment rates. The persistence of this high level shows that, in the market, there is labor scarcity for those people. The transitions between the 1st and 4th quarter of 2011 are high throughout the year, standing between 815 and 937; the highest number of transitions is for the quarter ended within the third quarter of 2011, recorded at 937. This is an indication that the Spanish labor market has worsened even more. The sovereign debt crisis shook much if not all of southern Europe, while high unemployment rates with economic stagnation that austerity measures brought on made it hard even for those who might want to re-enter work to find it.

Transitions also followed this trend during the first and fourth quarters in 2012 was fell between 857 to 981. In 2012 it peaked in the third quarter at 981. This suggests more labor market difficulties remain. The world crisis, together with structural defects in the Spanish economy, such as a huge informal labor market, have kept unemployment rates chronically high. These figures show the acuteness of unemployment in Spain during these years, in which the great majority of people have not taken part in the transition to unemployment.

A peak of 983 transitions in the third quarter keeps transitions from the first and fourth quarters of 2013 above 900 for three out of four quarters. The consequences of austerity measures and low demand for labor continued to plod along in Spain, and the extended delay in economic recovery kept unemployment at a high level. Although more workers entered the labor market, many moved from not participating to unemployment, so the effect was to increase unemployment. As a first sign of moderation, between the first and fourth quarters of 2014, the percentage of unemployed is starting to fall, with the range of figures going from 818 to 893, even though the transition in the third quarter is a little higher: 883. The tendency is still downwards. The changes in the economy began to take effect, especially those having to do with the deregulation of the labor market. Despite the high rate of unemployment, the fact that transitions were constantly falling suggests that the entries from non-participation into unemployment have decreased, presumably due to an increase in the number of people employed or those out of the labor market and unemployed.

Transitions declined to between 775 and 831 in the first and fourth quarters of 2015. It experienced the lowest level in the third quarter of 2015 with 775 cases. This decline falls in with the incipient recovery of the Spanish economy as boosted by better GDP growth and a falling unemployment rate. However, the shifts show that not all recovered evenly and that most are struggling to find work even as they get back into the labor market. Transitions in 2016 have been steady, ranging from 763 to 810 in the third and fourth quarters. That is a period of stability as the labor market improves further. Continued decreases in transitions reflect fewer labor market reentrants who subsequently become unemployed. After that period there was a continuous decrease in transition to 703 in the fourth quarter of 2019.

Meanwhile, Spain encountered an upsurge from 701 transitions in the first quarter of 2020 to 847 transitions in the second quarter, peaking at 1321 transitions in the third quarter, and then declining to 849 transitions in the last quarter. The marked spike in transitions during the third quarter in Spain vividly illustrates the severe impact of the pandemic on its labor force, with a partial rebound manifesting in the subsequent quarter. A peak in transitions was evident in Spain during the second quarter, with 862 transitions recorded, which then gradually decreased to 654 by the fourth quarter. Spain experienced an initial upsurge in transitions during the second quarter, followed by a sustained decline, indicating a gradual recuperation in the labor market.

In France, there were no transitions in the first quarter of 2010. Transition rates increased from 489 to 553 between the second and fourth quarters. Since this period was a time of recovery from the financial crisis, therefore, most people likely joined the labor market but faced difficulties finding a job, which increased the number of unemployed. These transitions reflect labor markets being much more seasonal and a slow economic recovery, as the slight decline in transitions during the first and second quarters of 2011 fell to 421 and 439, respectively, but rose to 563 in the fourth quarter. Overall, the pattern remains the same: an average of 613 transitions in the fourth quarter of the year, after an uptick throughout the year. The number of transitions stands rather high, increasing from 509 in the first quarter of 2013 to 653 in the fourth quarter. Only this modest increase in transitions could be interpreted as suggesting the persistence of the structural difficulties in the labor market as a result of the eurozone crisis. It is also a reflection of increasing labor force participation, whereby individuals previously outside the labor force join it and fail to secure a job. This has also been reflected in the fact that the overall transitions have risen to a record high this year, amounting to 801,000 in the fourth quarter of 2014. The same fact is evident in the statistics for the first and third quarters, where it is above average, which is 762 and 699, respectively.

Whereas the figures show a slight fall compared to the peak reached in 2014, the number of transitions remained high in 2015. The trend increased with each quarter, from 617 transitions in the first quarter to 713 transitions in the third quarter and 748 transitions in the fourth quarter. That it stayed this high without decrement is indicative of the lingering problems within the labor market. The transitions vary from 591 in the second quarter of 2016 to 765 in the fourth quarter. This continues the trend from 2015. This suggests that even with a supposedly stabilized economy, people are still moving from non-participation into the labor force, likely due to laws determining labor force participation or exogenous economic variables. The data for the first quarter of 2017 shows 616 changes, with maximums in the second quarter - 674 and the fourth quarter - 730. Overall, the data shows some fairly consistent transitions. As there are more transitions in the second part of the year, the fluctuations show a seasonal trend.

Smoothing out the trend, the transitions range from 593 in the second quarter of 2018 to 703 in the fourth quarter. As in previous years, the fourth quarter is the quarter in which more transitions took place. This therefore indicates an extended but persistent labor market where there is a smooth transition from unemployment to non-participation. In the

2019 data, transitions fluctuate between 586 in the first quarter and 686 in the fourth quarter, similar patterns to 2018. Although the numbers are high, they are slightly lower than in previous years and reflect an improvement in the labor market situation or a decrease in transitions from non-participation. Transitions from non-participation to unemployment in 2019 range from 586 in the first quarter to 686 in the fourth quarter, following a similar trend as was observed in 2018. Numbers remain high but relatively lower when compared to previous years, thus indicating partial improvement in the labor market status or decline of discontinuities from participation.

Additionally, In France, a decline was observed from 550 transitions in the first quarter of 2020 to 486 transitions in the second quarter, followed by a sharp rise to 1174 transitions in the third quarter, and subsequently dropping to 630 transitions in the fourth quarter. The substantial volatility witnessed in France, especially with a notable surge in the third quarter, implies a significant mid-year influence of the pandemic followed by a gradual recovery phase. Shifting focus to France, the data initiates from the second quarter, with fluctuations peaking in the third quarter at 792 and decreasing to 595 by the fourth quarter of 2021. This trend in France indicates volatility, with a rise in transitions during the third quarter, succeeded by a decline, implying a certain level of stabilization. In Italy, Transitions in unemployment have shown quite a wide range of fluctuation from the first quarter of 2010 to the fourth quarter of 2019. There were no shifts from non-participation to unemployment in the first quarter of 2010 since no statistics were available. From the second to the fourth quarter of 2010, the number of those transiting from non-participation to unemployment increased slightly from 745 to 932. It is possible that more non-participants were attracted to the labor market but could not find employment due to the still-lingering effects of the 2008–2009 financial crisis, as shown by its remarkable increase towards the end of the year. The number of transitions remains high - 772 - despite a slight decrease in the second quarter of 2011, before sharply increasing to 1,086 in the fourth quarter. This means there are still structural problems within the labor market, whereby more non-participants entered the labor market but faced joblessness. In this period, the transitions increased very much to a high of 1,236 in the fourth quarter of 2012. Throughout the year, transitions are consistently high between 949 and 1,090. Probably partly due to the Eurozone crisis, most non-participants became job seekers, entering the labor market with a whole lot of hopes yet scant opportunities, especially judging

from the high rate of unemployed youngsters in Italy and the general uncertainty characterizing the economy.

The transitions reached a high of 1,444 in the fourth quarter of 2013 and remain remarkably high. This spike may be so dramatic because the nature of the labor market has altered, or because austerity policies or economic challenges have had a disproportionate impact on younger workers or those returning to work after a hiatus. The peak in the first quarter of 2014—that is, 1,314—is somewhat lower than at the end of 2013, even though transitions remain high. Figures follow the line from 1,156 in the second quarter to 1,394 in the fourth quarter, while the number of transitions has, to some extent, stabilized with the continued difficult situation in the labor market. By the same token, the changes in 2015 are wide-ranging, despite certain signs of stabilization.

There are 1,094 transitions in the first quarter of the year, peaking at 1,234 in the second quarter, then slightly falling to 1,001 in the third quarter, and rising further to 1,291 in the fourth quarter. Such a trend may indicate that unemployment flow into non-participation can still be absorbed by the labor market; there might be seasonality in the volatility of this trend within the dynamics of the labor force. The 2016 transitions continued in the same vein as 2015, with the number of transitions ranging from 1,169 in the first quarter to 1,349 in the fourth quarter. While the fluctuation suggests there is some seasonal or cyclical effect, the larger transitions in the second half of the year indicate that labor market conditions continued to be problematic. The data shows that transitions were slowly stabilizing in the year 2017, starting from 1,210 in the first quarter of the year, then lowering by 96 to 1,114 in the second quarter and another 60 in the third quarter to 1,054, before rising again to 1,200 in the fourth quarter. This is hard, but apparently a slowly stabilizing labor market, because there are fewer fluctuations and lesser heights compared to previous years.

Compared to the other years, transitions in 2018 significantly decreased, with 928 in the third quarter being the lowest since 2010. From 928 in the third quarter to 1,223 in the fourth quarter, transitions over the year show fewer non-participants are entering the labor force and becoming unemployed. It is either because of the structural changes in the economy that reduce the transition from non-participation into unemployment, or it could be because of an improvement in the labor market. Correspondingly, the figures are 1,118 for the first quarter and 1,100 for the fourth quarter, which indicates a further stabilization. The transitions became less frequent because fewer non-participants were registering as

unemployed, so this would be assumed to reflect a more favorable Italian labor market also. Conversely, Italy experienced a decrease in transitions from 911 in the first quarter of 2020 to 833 in the second quarter, a notable increase to 1426 in the third quarter, and then a decrease to 997 in the fourth quarter. Italy's transition pattern mirrored that of Spain and France, characterized by substantial mid-year spikes in transitions due to the impact of COVID-19, followed by a downturn in the final quarter. Moreover, the data starts from the second quarter, showcasing a peak in transitions during the second quarter of 2021 at 1073, followed by a slight decrease to 924 in the third quarter, and ultimately stabilizing at 955 in the fourth quarter. Italy encountered a significant peak in transitions during the second quarter, with a minor reduction and eventual stabilization, showcasing the persistent challenges in the recovery process.

Transitions of non-participants into unemployment in the Netherlands followed a largely stable labor market with a small fluctuation, slowly declining over the ten years from the first quarter of 2010 to the fourth quarter of 2019. For example, the period from the first quarter of 2010 to the fourth quarter of 2010 was relatively smooth: 144 transitions were in the first quarter and 147 in the fourth quarter. This is quite a narrow range, 137–147, which also signifies that the rate of flow from non-participation—that is, from not being in the labor force or actively seeking employment—to unemployment is rather stable. For instance, in 2011, a similar pattern of steadily rising is seen, with a minor blip of decline in the second and third quarter of the year, 134 and 151 respectively, before rising to 170 transitions in the fourth quarter of this year. This increase during the fourth quarter might be due to seasonal factors like the end of temporary work and an unstable economic situation. In the second half of the year, an increase in unemployed transitions proves a slight deterioration of the labor market situation. Transitions have grown significantly from the first quarter of 2012 into the fourth quarter of 2013, going as high as 169 in the first quarter to 201 in the second quarter. This increase is indicative of people moving to inactivity from unemployment due to redundancies or aggravated economic conditions. the number of transitions in 2013 is very high. During the year, it varied from 188 to 201, reaching a peak of 199 during the first quarter of the year. It is most likely connected with the last stage of the eurozone crisis, marked by continuing economic uncertainty and growing unemployment in the Netherlands as well as Europe. The ups and downs of the transition figures started in 2014: from 175 in the second quarter to 210 in the fourth quarter.

This increase is indicative of people moving to inactivity from unemployment due to redundancies or aggravated economic conditions. the number of transitions in 2013 is very high. During the year, it varied from 188 to 201, reaching a peak of 199 during the first quarter of the year. It is most likely connected with the last stage of the eurozone crisis, marked by continuing economic uncertainty and growing unemployment in the Netherlands as well as Europe. The ups and downs of the transition figures started in 2014: from 175 in the second quarter to 210 in the fourth quarter. These transition figures are constant over these two years, averaging 198 in the first quarter of 2015 and 191 in the first quarter of 2016. The continuity here means that even during economic expansion, people were not actively contributing to society. The specific value of the fourth quarter is high-199 transitions-which might reflect the seasonal unemployment or layoffs common at the end of the year. The overall declining trend of transitions during this period represents the most important trend in transitions. Transitions have fallen from 173 in the first quarter of 2017 to 133 in the fourth quarter of 2019. This most likely reflects the recovery of the labor market in the Netherlands, since jobs have become available due to the improved state of the economy, hence fewer people flow into the category of unemployed. It also gradually decreased from 173 in the first quarter to 156 in the fourth quarter of the year 2017, which shows increased economic stability fewer job losses, and possibly more re-integration of earlier unemployed people. The total number of transitions in the fourth quarter of 2018 was 142 compared with 158 transitions in the first quarter. This continues to show a drop in the number of transitions. It might mean that there is a greater need for labor and that people who are not participating either find jobs right away or aren't falling into unemployment as often. This is probably the effect of the general improvement in the labor market situation because of the expansion of the economy in the Netherlands. The figures for 2019 continue this downward trend. The number of transitions decreases to 129, the lowest observed value in the second quarter, while in the fourth quarter, it slightly increases to 133 transitions.

Moreover, there were 125 transitions in the first quarter of 2020 and 121 in the second quarter but it was again increased to 184 transitions in the third quarter and then back down to 135 transitions in the last quarter. In the third quarter in the Netherlands, the moderate increase in the number of transitions may mirror some degree of instability in this labor market. The Netherlands observed a slight increase in transitions from 135 in the second quarter of 2021 to 145 in the third quarter, which then decreased to 126 in the

fourth quarter. The Dutch data displays mild fluctuations, with a minor peak in the third quarter, indicating a relatively stable recovery trajectory.

In Austria, in the first quarter of 2010, there were zero transitions in the first quarter due to the unavailability of data. But followed by numbers 52, 62, and 48 transitions from non-participation to unemployment between the second and fourth quarters of 2010. This shows a conceivable recovery in transitions after a prior slump. In the second quarter of 2011 and the third quarter of 2012, the transition range remained relatively narrow, changing between 47 and 65 in each quarter. This stable condition may indicate a normalization of labor market dynamics and there would be a continued to be significant fluctuation between non-participation and unemployment. In the fourth quarter, the number of transitions from non-participation to unemployment increased to 48. The number of transitions fluctuated between 48 and 61 each quarter in 2013, it was slightly increased than the previous years, indicating the number of individuals entering the labor market and it would be difficult to find immediately a job. In the years 2012 and 2013, an increase in transitions can be seen, which peaked in the third quarter of 2014 with 70 transitions from non-participation into unemployment. This high number indicates that during this period, an economic recession or structural change forced more people than usual to become unemployed. In the year 2015, the shifts from non-participation to unemployment ranged from 59 to 64, potentially indicating underlying structural elements, such as an increasing population of non-participants, which includes individuals transitioning from educational or caregiving professions into the labor market.

The year 2016 reflects the most dynamic period, as transitions for the four quarters of the year reached 70, 69, 78, and 56, respectively. The peak is 78 in the third quarter of the year, presumably because of seasonal changes in the labor market. Improvement in the transition rate might reflect changes in economic conditions which, for one reason or another, forced more non-participants to enter the labor force and then immediately face unemployment. In 2017, the number of transitions stabilized and ranged from 56 to 69 per quarter. The slight decrease compared to 2016 may be a sign of improved labor market prospects or fewer people moving directly from non-participation into unemployment. Whereas transitions were by and large stable during the year 2018, the third quarter was very different, with 71 transitions, arguably because of seasonal dismissals or school-to-work transitions. The second quarter had one of the smallest values of the series at 49 transitions, hence representative of a labor market with rather small changes. In the third

and fourth quarters of 2019, the number of transitions hovered between 54 and 65, showing minimal variation. This stabilization perhaps indicates a more predictable labor market for the rest of the decade. Remarkably, there have been several years 2012, 2014, 2016, 2017, 2018, and 2019-in which the third quarter has consistently reported higher transition values. It could well be a reflection of seasonal influences in the labor market that people become out of temporary or seasonal employment and from inactivity into unemployment. Whereas values are always considerably lower in the second quarter-for example, 47 in 2011 and 49 in 2018-perhaps as job opportunities are more stable in spring and early summer, or fewer new entrants are available during that time of year.

Austria, on the other hand, witnessed an increase in transitions from 60 in the first quarter of 2020 to 68 in the second quarter, peaking at 98 transitions in the third quarter, and then dropping to 64 transitions in the fourth quarter. The peak in transitions during the third quarter in Austria reflects a similar trend of mid-year impact followed by a recovery phase observed in other countries. Lastly, in Austria, there was a gradual decrease in transitions from 76 in the second quarter of 2021 to 57 in the fourth quarter. Austria underwent a consistent decline in transitions, signaling an amelioration in the labor market scenario.

In Norway, transition rates from non-participation to unemployment could not be observed in the first quarter of 2010 due to the unavailability of data; however, there were 42 transitions from unemployment into non-participation by the second quarter of 2010. Transitions from unemployment into non-participation ranged from 33 to 42 between the second and third quarters of 2010 and, thus, reflected a modest and stable rate of change from unemployment to non-participation. Norway, due to its solid social safety nets and robust economy, perhaps has experienced less strain from the 2008 global financial crisis compared to most other European countries. The figures stand at low, and economic pressures impelling people into unemployment are not great. From the first to the fourth quarter of 2011, the transition trend was relatively stable, with transitions falling between 33 and 47 in each quarter. The stability noted herein suggests that the Norwegian labor market was effective, with few instances of unemployment. This could be due to effective labor laws in place or sustained economic growth fueled by the country's oil industry.

There are slight changes between the first quarter of 2012 and the fourth quarter of 2011. Transitions are generally not dramatic. The number ranges between 34 and 42. Because of the strong welfare state, the transition in Norway can be considered low. Also, since many people have either directly joined the labor market or not joined at all, the number

of people being pushed to unemployment might have been lower. There was a small increase from the first to the fourth quarter of 2013, with 43 changes in the second quarter. Nevertheless, the range remains constant between 37 and 43 throughout the year. Global economic conditions fluctuated slightly during this period, but the robust Norwegian economy seems to have offset any notable increase in unemployment. There is some fluctuation in the transitions in 2014. The data shows a range of 37 to 45 transitions, with the third quarter of 2014 showing the largest number of 45 transitions. As the third quarter coincides with the end of temporary work during the summer, there may be some seasonal unemployment during this period. In addition, the recovery of the European economy as a whole was not yet complete, but the Norwegian labor market proved resilient. The number of transfers fluctuated between 40 and 48 from the first to the fourth quarter of 2015, with 48 transfers being the peak in the second quarter.

This trend of an increase furthered; 50 transitions, according to the dataset, occurred in the first quarter of 2016, while the most, 52, occurred during the third quarter. Thus, it could be inferred that during this time, the Norwegian economy was even more depressed, possibly caused by the sustained drop in the prices of oil, which would have created a ripple effect on the jobs provided in main industries. However, since Norway has a sound social support system, the variation in difference was still pretty minimal. Between the first and fourth quarters of 2017, there were 41 to 57 transitions; the second quarter showed the highest frequency of the year at 57 transitions. Overall, transitions that happened in 2017 were nevertheless higher than in previous years.

On the contrary, if anything, from these data it would appear that Norway has coped quite well with changes in the labor market, even in the face of these changes. Changes in the range of between 40 and 54 were generally recorded in the first and fourth quarters of 2018. The third quarter had the most transfers, while the fourth quarter had the least for the year, having recorded 40. This could imply a gradual but definite improvement in the labor market, probably as a result of improvement in the national and international economic status and adjustments in pivotal industries like petroleum. It has constantly ranged between 42 to 49 transitions between the first quarter of 2019 and the fourth quarter of 2019, reaching even 49 transitions in the third quarter. The transitions fall back to 42 at the end of the year, in the fourth quarter, thus remaining on a relatively low level. This tends to indicate that, through 2019, the Norwegian labor market has largely stabilized,

probably as a result of the rebound of oil prices and continued strength in other sectors of the economy.

Conversely, in Norway, there was a rise from 39 first quarter of 2020 to 49 second, an increase again to 58 third but then a fall to 50 in the fourth quarter. The overall stable pattern of these transitions with their small ups and downs serves as evidence of the resiliency of the Norwegian labor market. Furthermore, Norway had a gradual reduction in transitions from 70 in the second quarter of 2021 to 36 in the fourth quarter, clearly indicating a downward trend and thus a positive labor market trajectory.

In the case of Sweden, there were 0 transitions in the first quarter of 2010. In the second quarter, however, the number of transitions rose to 154, indicating that a significant number of people have returned to work, perhaps as a result of the cyclical or seasonal economic recovery following the global financial crisis. In the third quarter, this number drops dramatically to 91, and by the end of the year, it drops even further to 75. From the first to the fourth quarter of 2011, the number of transitions climbed to 109, possibly due to re-entry into the labor market after a period of non-participation or economic activity related to the turn of the year. The number rises to 146 by the second quarter but then begins to fall in the second half of the year, reaching 88 in the third quarter and 74 in the fourth quarter.

In the second quarter, however, only 91 made the transition between the first and fourth quarters, but up to 150. This is in line with the first quarter pattern seen in 2011. It may have something to do with the pattern that economic activity hits its peak in the spring and summer. Overall, in the second half of the year it went further down with 98 in the third quarter and 79 in the fourth quarter, as is characteristic of the seasonal nature of the Swedish labour market. Transition figures based on 2013 first and fourth quarter data are normally close to those of previous years. Transition went from 106 in the first quarter (change) to 146 in the second quarter (change), to 89 in the third quarter, and finally to 78 in the fourth quarter. Alternatively, there may have been seasonal peaks and troughs in the number of people who were unemployed in the year, but these transitions from not to be in unemployment did not vary that much in Sweden.

The transitions in first and fourth quarters of 2014 increased to 114 in the first quarter and thereafter to 152 in the second quarter – reflecting Sweden's improving performance of its economy during this period. The number of transitions stabilizes in the second half of the year: In the third quarter that was 94 and in the fourth that was 76. This stability

showed that the Swedish labor market was now more immune with less people jumping from inactivity into unemployment. From the first quarter to the fourth quarter of 2015, the tendency for 2015 is the same: In the first quarter the count was down to 104, in the second to 144, and then back to 79 and 76 in the third and fourth quarters, respectively. From the first quarter to the fourth quarter in 2016, the quarterly number became stable again: Proof was provided by the fact that the Swedish labor market continued to be stable with 111 transitions in first quarter and 138 in second quarter, but only 78 within the third and fourth quarters.

There were 110 transitions in the first quarter, as opposed to 134 transitions in the second quarter of 2017. In 2017, the number fell to 89 in the third quarter and to 72 in the fourth quarter. Unchecked current very low unemployment rates indicate that recovery is not close in Sweden. In 2018 almost the same pattern repeated from the first to the fourth quarters. In the first quarter, there were 103 recorded migrations, in the second quarter 136, in the third quarter 85 and in the fourth quarter 79. The number of transitions started in the beginning of the first quarter of 2019 was 129 in the first and fourth quarters of the year and is sharply declining to 126 at the end of the quarter. The number of transitions fell back from 110 in the third quarter of 2019 to 74 in the fourth quarter of 2019, the lowest figure for many years. Since the Swedish labor market was calmer in 2019, but still given the relatively low rate of unemployment and lower number of transitions from inactivity to unemployment, this fall is not surprising. Moreover, there was a reduction in transitions from 106 in the first quarter of 2020 to 157 in the second quarter, followed by a slight decrease to 146 in the third quarter, and eventually a significant decline to 86 in the fourth quarter. The early peak experienced by Sweden in the second quarter, coupled with gradual decreases subsequently, suggests a faster stabilization process compared to its counterparts. There was also a notable decrease in transition rates, dropping from 207 in the second quarter of 2021 to 91 in the fourth quarter, signifying a swift decline in transitions and pointing towards a robust recovery phase.

In Switzerland, there were zero transitions in the first quarter of 2010, which indicates incomplete data or a non-significant break in the series at the beginning of the period. The second quarter already saw the number of transitions increase to 34, implying that re-entry into the labor force followed what could be a slow recovery after the global financial crisis. There were 59 transitions in the third quarter, again coming back to 36 in the fourth quarter. Employment momentum was continuously brought back by uncertainties and

sluggish recovery after the crisis. These fluctuations are indicative of this. Transitions were relatively stable between the first and fourth quarters of 2011. The number was 48 transitions in the first quarter and hovered between 41 and 58 for the remainder of the year. Overall, the stability may indicate that Switzerland did stabilize during the initial post-crisis period; however, the third quarter peak of 58 transitions suggests that larger transitions were influenced by either economic activity or labor market characteristics.

At 33 in the first quarter and 38 in the second quarter, transitions during 2012 were low in comparison to the first half of the year. However, transitions peaked in the data set during the third quarter at 68, before falling to 48 in the fourth quarter. That means even after the Swiss labor market began its recovery, there were still irregular periods when people re-entered the market only to become unemployed. This is a trend that cycles in a similar trend to transitions from non-employment to unemployment, in quarters one and four of 2013. The number increased to 59 in quarter one, falling slightly to 45 in the second quarter. There was another rise to 67 in the third quarter, declining to 56 in the fourth quarter.

The transitions into and out of 2014 were relatively balanced; they started at 50 in the first quarter and remained in the range of 48 to 56 in successive quarters. Based on the above consistency of transitions, it would appear that the Swiss labor market at present is attaining a certain stability.

Transition rates in the first and fourth quarters of 2015 were relatively higher compared to the same period of the previous year, reaching a value of 76 in the third quarter, which is the highest ever in this series. This could be indicative of changes in labor market legislation or economic adversity around that time. The fact that transitions fell to 56 in the fourth quarter underlines that the labour market was able to calm down despite sporadic upturns at the end of the year.

First-quarter transitions in 2016 numbered 54, while second-quarter transitions totaled a mere 39. Third-quarter transitions increased to 63 before falling to 41 in the fourth quarter. Although fluctuating, the labor market generally shows cyclical tendencies and can be considered stable. The third rise might reflect seasonal variations in hiring or changes in the economy that produced more labor market re-entries into unemployment. In 2017 this same cyclical pattern persisted through the first and fourth quarters: Transitions were 47 in the first quarter, 32 in the second, 73 in the third, and fell again to 44 in the fourth quarter. This transition rate into unemployment from non-participation may be increased

due to temporary shocks in labor market policy or economic slumps, as reflected in the steep jump of this series in the third quarter of 2017. Transitions, meanwhile, were relatively high between the first and fourth quarters of 2018, with 65 transitions in the first quarter highest first-quarter number throughout any year in the dataset. Characterized by transitions of 46 in the second quarter, 59 in the third quarter, and 63 transitions in the fourth quarter, the whole process was regular throughout the year.

In other terms, it means that there is less fluctuation and a modest number of changes in the labor market throughout the year; hence, the Swiss labor market has turned out to be more stable as compared to previous years. The figure for the first quarter is somewhat higher presumably because of more people coming back into the labor market after the winter break. Cumulatively, between the first and fourth quarters of 2019, there were 54 changes in the first quarter and only 41 in the second quarter. However, there was a slight increase to 64 in the third quarter and then a stabilization in the fourth quarter with 49 transfers.

Moreover, during the COVID-19 pandemic in 2020, large falls in transitions from being outside the labor force to unemployment were recorded: It dropped from 46 in the first quarter to 38 in the next quarter. In the third quarter, it followed with a strong increase to 77 after which it fell back to 58 in the final quarter. On the other hand, Switzerland experienced fluctuations in transition rates, reaching a peak of 67 in the third quarter of 2021 and slightly decreasing to 62 in the fourth quarter, showcasing mild variability but an overall improvement in the economic landscape. Regrettably, there was insufficient data accessible to ascertain transition trends in the United Kingdom, leading to ambiguity in understanding the labor market dynamics in that region.

Although in the UK, between the first and the fourth quarters within the first quarter of 2010, there wasn't a transition, due to the unavailability of the data incomplete. The transitions rise to 392 in the second quarter, reach its peak at 576 in the third quarter, and then go down to 407 in the last quarter. This implies that in the early phase of post-crisis recovery, those who had previously dropped out due to discouragement and other factors rejoined the labor force. These numbers were relatively constant between the first and second quarters of 2011, although they did fluctuate some during the year. Transitions peaked in the third quarter at 536, fell to 360 in the fourth quarter, and started at 368 in the first quarter.

The trend for the first and fourth quarters of 2012 is not different from previous years, resulting in lower transitions in the first quarter at 377 and 370 for the fourth quarter, and peaking in the third quarter with 539 for the highest level of the year. This would indicate that the UK labor market still has to catch up with the implications of the crisis because there is a cyclical rise in labor market participation alongside high unemployment. Labor markets remained volatile at the end of 2012, which indicated an unfinished recovery. Where the first and third quarters of 2013, at 354 and 532, respectively, and the fourth quarter at 339, were in line with the previous trend.

This number of transitions decreased considerably in the first and the fourth quarters of 2014, with 338 transitions in the first quarter and a low of 300 in the fourth quarter. The peak in the third quarter reaches only 419, which is somewhat lower compared to previous third quarter peaks. It is the same in the first and the fourth quarters of 2015, while a spike in the third quarter stands a bit higher at 444 transitions. Overall numbers remain short of their levels in 2010-2013, implying continued economic recovery. Transitions went down to 285 in the fourth quarter, with unemployment falling and labor markets becoming more resilient. Further contraction in the number of people who moved from nonparticipating into unemployment was seen in both the first and fourth quarters of 2016 by 273 in the second quarter and 266 in the fourth quarter. In the third quarter, the transition was below 344 when compared to the previous two quarters. This indicated that the UK economy was still growing but at a slower pace. Transition grew steadily from the first to the fourth quarters of the year 2017. The number of transitions that occurred in the third quarter was 309 while those of the first and fourth quarters were 284 and 248, respectively, showing a labor market that is growing steadily.

In addition, in the first quarter of 2018, the transition from non-participation to unemployment was 263 and then decreased to 219 in the second quarter. But in the third quarter, it increased again to 313 and in the fourth quarter it decreased to 219 again. Between the first and third quarters of 2019, there was a gradual increase in transitions from 199 to 310 and then decreased to 227. In contrast, the United Kingdom experienced a decline in transitions, starting at 234 in the first quarter of 2020, decreasing to 207 in the subsequent quarter, then surging to 445 in the third quarter, with data missing for the final quarter. The UK's notable increase in Q3 suggests a severe mid-year impact of the COVID-19 crisis on transitions to unemployment. Unfortunately, an insufficient amount

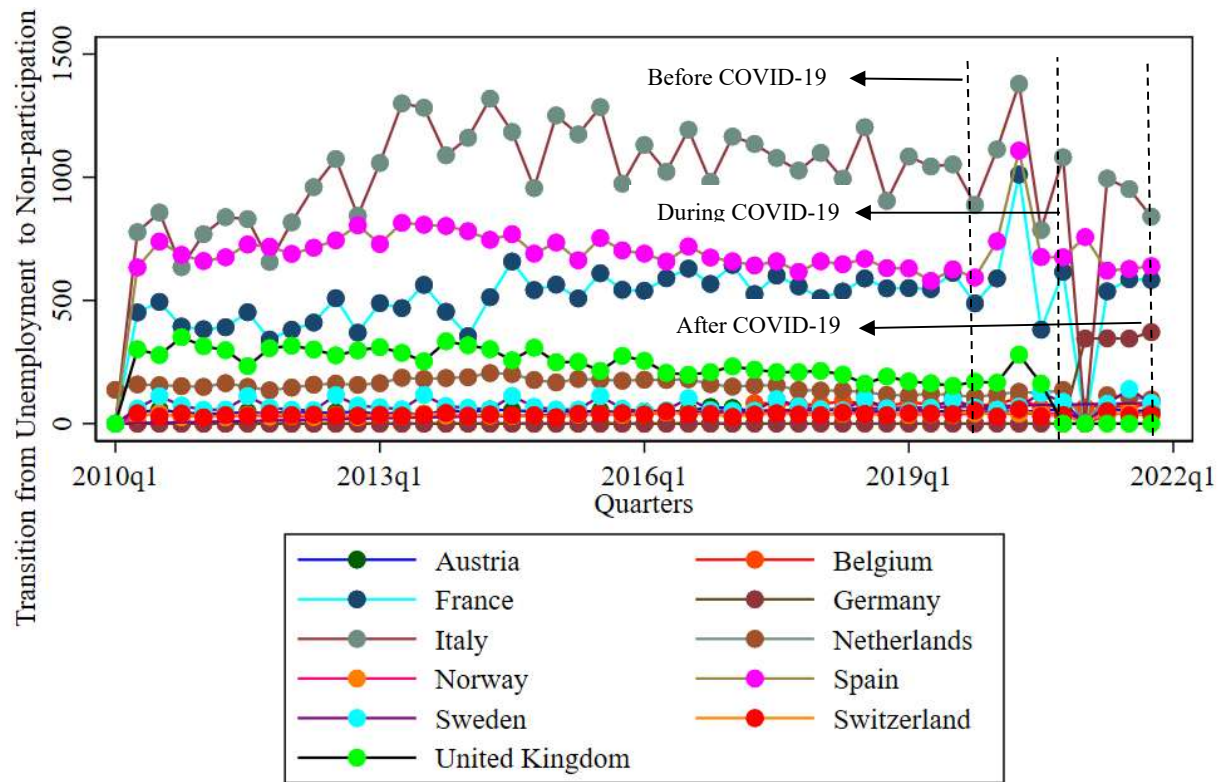
of data existed to determine whether there were trends in transitions for the United Kingdom from the first to the fourth quarters of 2021, hence relative uncertainty in deciphering labor market dynamics there.

In general, during 2020, the COVID-19 crisis tough time saw the most significant increases in flows from being outside the labor force into unemployment for the majority of countries; in the third quarter is a relatively high watermark for this inflow. Such a pattern broadly reflects the impact of the pandemic in the middle of the year on the labor market, which in the fourth quarter seems to be followed by the process of more or less recovery in most of the countries. Of particular note, the dramatic rises in the flows are registered in Spain, France, Italy, and the UK in the third quarter. The others—Belgium, the Netherlands, Austria, and Switzerland—show peaks in the third quarter to different extents and some recovery in the fourth quarter. In this regard, Sweden and Norway show earlier and more consistent peaks, which are indicative of a faster adjustment to the pressure created by the pandemic.

After the COVID-19 crisis, if one considers the wider European scenario, countries like Germany, Austria, Norway, and Sweden continuously showed a decreasing trend in transition, thus their recovery is positive. On the other hand, Belgium, France, Italy, and Switzerland had ups and downs in transition numbers that hit their peak either in the second or third quarter and were reduced in the fourth, which reflects a more unstable recovery process. Whereas the Netherlands shows a more stable pattern, with minor fluctuations, these therefore are indicative of a more consistent line of approach towards economic revival. Spain and Italy witnessed big peaks during the second quarter, succeeded by gradual declines, thereby suggesting that while a significant initial impact of the crisis was indeed there, it would be succeeded by a phase of slow but steady recovery. The diversified recovery trajectories thus make out the different degrees of improvement and volatility that countries have experienced in their labor markets during the post-COVID-19 era in 2021.

Figure 4. 10

Transition from unemployment to non-participation (neither seasonally nor calendar-adjusted data) (thousands of persons)



Source: Author calculation from Eurostat data

Figure 4.10 illustrates the transition (movement) from unemployment to non-participation in Belgium, Germany, Spain, France, Italy, the Netherlands, Austria, Sweden, Norway, Switzerland, and the United Kingdom from the first quarter of 2010 to the fourth quarter of 2021 to look at the trend in the labor market before, during, and after the COVID-19 recession.

In Belgium, from the first quarter of 2010 to the first quarter of 2017 there was no data regarding the transition from unemployment to non-participation. Between the second and fourth quarters of 2017, the transition decreased from 83 to 75. However, it increased from 79 to 90 in the second quarter of 2018. There was a gradual decrease in transition from 83 to 72 between the third quarter of 2018 and the fourth quarter of 2019. Moreover, the transition from unemployment to non-participation was 80 in the first quarter of 2020 and made an uptick in the second quarter to 103, went down in the third quarter to 63, and rose again to 84 in the fourth quarter. These fluctuations around the transitions from

unemployment to inactivity underline this instability of labor market participation in Belgium.

This is coupled in Belgium with an upward trend from the first quarter of 2021, 66, to the second, 75, and a slight decline in the third, 65, with a further increase in the fourth, 82. Such fluctuating transitions in Belgium depict an overall increase until the end of the year, therefore calling for possible increased exits from the labor force.

In Germany, there was no data regarding the transition from unemployment to non-participation from the first quarter of 2010 to the first quarter of 2020. While in Germany, the general movement from unemployment to inactivity remained relatively stable, moving up only slightly from the first quarter of 2021 at 345 to the last at 371, these observations suggest a steady holding pattern of transitions in Germany with a slight increase towards the end of the year, indicating a steady exodus of people from the labor force.

In Spain, there was no data on the transition from unemployment to non-participation in the first quarter of 2010. Between the second and third quarters of 2010, the number of transitions rose from 63 to 739 and then fell to 660 in the first quarter of 2011. After that, it rose continuously to 805 transitions. There was also an immediate drop to 663 in the second quarter of 2015 and then an increase to 753 in the third quarter. Between the fourth quarter of 2015 and the fourth quarter of 2019, the number of transitions from unemployment to non-employment fell steadily and gradually from 703 to 593. Moreover, a peak was reached at 740 in the first quarter of 2020 and then increased in the second quarter to 1108. But in the third and fourth quarters, it slightly decreased from 676 to 675 stability for the fourth quarter at 675. The reason for this peak in the second quarter, in Spain, is only due to the severity of the pandemic there. The next quarter saw a noted recovery and a subsequent, relatively stable period. There was a decrease from the first to the second quarter of 2021 (from 757 to 621), with slight increases in the third and fourth quarters, at 628 and 639 respectively, observed. The ups and downs of Spain represent a sort of stabilization, although many have withdrawn from actively searching for work.

In France, no data on the transition from unemployment to non-employment was available in the first quarter of 2010. In the second quarter, the number of transitions from unemployment to non-participation was 451 and rose slightly to 494 in the third quarter. Between the fourth quarter of 2010 and the second quarter of 2011, the transition fell from 394 to 391 and then rose to 509 in the third quarter of 2012. It then fell steadily to 469 transitions in the second quarter of 2013. In the third quarter, it rose to 563. The

number of transitions fluctuated between the quarters. In France, the transition from unemployment to non-participation peaked in the third quarter of 2014 (658) and then fell to 644 in the first quarter of 2017. In the third quarter of 2019, it fell further to 612. The transitions from unemployment to non-participation went up from 589 to 1011 in the first and second quarters of 2020 and then decreased in the third quarter to 381. After that, it rose significantly again in the fourth quarter to 616. Moreover, there was no data available for the first quarter of 2021, and from there, a slight increase could be noted between the second and third quarters respectively, (537 and 586) only to drop slightly again in the fourth quarter to 583. This may show small ups and downs in France while transition figures are more or less stable.

In the case of Italy, as in other countries, no data on the transition from unemployment to non-participation was available in the first quarter of 2010. In the second quarter, the number of transitions was 777. In the third quarter, there was an immediate increase to 857 transitions, but in the fourth quarter, it fell to 635 and then rose to 838 transitions. In the fourth quarter of 2011, it fell to 656. In the second quarter of 2013, the number of transitions gradually increased to 1300. Between the third quarter of 2013 and the third quarter of 2018, the number of transitions from unemployment to non-participation fell from 1282 to 1203. In the fourth quarter of 2019, the transition fell further to 888. Furthermore, in the first quarter of 2020, the transition from unemployment to non-participation was 1113. The highest number of transitions was recorded in the second quarter equaling 1379; thereafter, a decline in the transition number was observed in the third quarter to 786 in number, whereas else the number of transitions was so high in the fourth quarter, amounting to 1081. It is during this second quarter that the country looked too much in trouble. Despite the partial recovery in the next quarter, the persistently high transition rates indicate continuing difficulties in the labor market. There is no available data for the first quarter in Italy. They peak in the second quarter of 2021 with 995, then gradually decline in the third with 952, and in the fourth with 840. These significant transitions in the second quarter for Italy suggest that it's having a slow recovery or a process of stabilization. There was no data for the first quarter in the Netherlands. They decline over time from the second quarter, 115 to the fourth quarter, 98.

From unemployment to non-participation there were 137 transitions in the first quarter of 2010, followed by 159 in the second quarter in the Netherlands. Transitions were steady in the first quarter of 2011 settling at 149. In the second quarter, there was a peak of 154

transitions falling gradually to 135 transitions in the third quarter. Between the first quarter of 2012 through the second quarter of 2013, those transitioning out of unemployment to not being in the labor force rose from 146 to 186, further falling slightly to 188 by the first quarter of 2014. Transitions beginning in the second quarter of the year reached a high of 205, slipping to 144 transitions in the fourth quarter. The transitions increased from 167 in the second quarter of 2015 to 181 in the second quarter of 2015, then went down steadily to 177 in the second quarter of 2016. During the third quarter, it rose by 4 points to 180 transitions. From the fourth quarter of 2014 to 2019, transitions went down from 160 to 136. It had fallen from 134 to 114 during the first quarters of 2018 and 2019 but then increased slightly to 122 in the second quarter of 2019. The rate of transition from unemployment to nonparticipation eventually decreased to 108 after this period. In addition, the transition increased somewhat from the first to the second quarters of 2020 (118 to 129), declined in the third quarter to 123, and increased even further in the fourth quarter 137. The transition rates from the Dutch data thus only slightly hint at the effects of the crisis. This decline in the Netherlands suggests that those exiting the workforce are at a decline over time. There was no data for the first quarter in the Netherlands. They decline over time from the second quarter, 115 to the fourth quarter, 98. This decline in the Netherlands suggests that those exiting the workforce are at a decline over time.

In Austria, the transition from unemployment to non-participation is not represented in the data for the first quarter of 2010. The rate has dropped from 46 to 56 between the second and third quarters. The transition has continued with a small, consistent decline in the first quarter of 2011, at 39, leading to a slight increase again in the third quarter at 47. It fell again to 40 transitions from the first quarter to non-participation, but after the peak in the first quarter of 2012 at 51 it had decreased again to 48 in the fourth quarter. The distribution of transitions in the first quarter of 2013 was 38, even though they returned to 45 in the fourth quarter. Between the fourth quarter of 2013 and the second quarter of 2014, the transition increased to 57. Between the third quarter of 2014 and the fourth quarter of 2015, the transition fell continuously from 53 to 45. The transition from unemployment to non-participation rose steadily from 49 to 67 between the first and fourth quarters of 2016 and then fell to 50 in the second quarter of 2017. From the third quarter of 2017 to the second quarter of 2018, the transition was increased to 57. It was then lowered again in the third quarter. In the fourth quarter, it was increased again to 53. Between the first and second quarters of 2019, the transition from unemployment to non-

participation fell from 55 to 48 and then rose to 51 in the third quarter. In the fourth quarter, there was a slight decrease in the transition to 50. Additionally, In Austria, the transitions were increased from the first quarter of 2020, 47, to the fourth quarter, 61. Such a steady increase indicates that the impact on the dynamics of the labor market in Austria was quite steady, though small. Austria had data missing for the first quarter of 2021; they gradually dropped from the second quarter, 60, to the fourth quarter with 51. The trend in Austria indicates that, over time, the number of people exiting the labor force is on the decline.

In the case of Sweden, the transition in the first quarter of 2010 was zero due to a lack of data. From the second to the third quarter, the transition rose from 61 to 111 and then fell to 56 in the first quarter of 2011. Between the second and third quarters, however, the transition rose abruptly from 57 to 112. It then fell back to 54 in the second quarter of 2012. It rose to 115 in the third quarter and fell to 72 in the fourth quarter. Between the first and third quarters of 2013, the transition rose from 66 to 116 and then gradually fell to 57 in the second quarter of 2014. However, it rose again to 112 in the third quarter. Between the fourth quarter of 2014 and the second quarter of 2015, the transition from unemployment to non-participation fell from 68 to 54 and then rose to 112 in the third quarter. It then fell to 60 in the fourth quarter of 2015. In the first and third quarters of 2016, the transition from unemployment to non-participation rose from 49 to 103 and then fell to 52 in the second quarter. In the third quarter of 2017, the transition reached a high of 99, indicating a significant increase in the transition from unemployment to non-participation. Between the fourth quarter of 2017 and the second quarter of 2018, it fell to 53 and then rose to 100. It then fell to 51 in the first quarter of 2019 and initially rose to 98. However, it fell to 65 in the fourth quarter. For Sweden, the number of transitions increased from the first quarter of 2020, 57, to the third quarter, 123, and then declined in the fourth quarter to 88. The third-quarter peak, with a partial recovery in the fourth quarter, suggests that non-participation in Sweden was temporarily higher. Moreover, the lack of data in the first quarter of 2021 shows an increase from the second quarter at 80 to the third quarter with 140 before the decrease in the fourth quarter with 84 persons. In the third quarter, the country's rate reached an all-time high before falling back to previous levels in the fourth quarter.

In the case of Norway, as in other countries, there was no transition in the first quarter of 2010, but it was 30 in the second quarter and then rose to 42. It then gradually fell to 34

in the first quarter of 2011 and then rose slightly to 36 in the third quarter. Between the fourth quarter of 2011 and the second quarter of 2012, it fell by 27 transitions. It was then increased to 35 in the third quarter of 2012. In the fourth quarter of 2014, there was an increase and a decrease in the transition to 26. Between the first and third quarters of 2013, the transition from unemployment to non-participation increased from 35 to 41 and then politely decreased to 31 in the third quarter of 2014. In the fourth quarter, the transition peaked at 36. It fell to 30 in the first quarter of 2015. It then gradually rose to 48 in the fourth quarter of 2016. Between the first and third quarters of 2017, the transition from unemployment to non-participation rose to 43 to 55 and then fell to 37 in the first quarter of 2018. It then rose slightly to 41 in the third quarter but fell to 35 in the first quarter of 2019 and then gradually rose to 42 in the fourth quarter of 2019. Moreover, all quarters of 2020 were characterized by stable transitions, at about 40 to 41. That would signal that Norwegian labor force dynamics are subject to very small changes and would therefore set conditions as stable throughout the reporting period. In the first quarter of 2021, there was no transition data available. In the second quarter, the transition was 34, increased in the third quarter to 46, and went down to 32 in the fourth quarter. No big changes are observed in the country of Norway, hence for this, it's considered as an economically stable country.

There was no data on the transition in Switzerland in the first quarter of 2010. Between the second and third quarters, it fell from 42 to 29 and then rose to 41 in the fourth quarter. In the first quarter of 2011, the transition from unemployment to non-participation fell to 25. It then rose steadily to 41 in the fourth quarter. After this period, there was an immediate rise to 43 in the fourth quarter of 2013 and then a fall to 34 in the fourth quarter of 2014. Between the first and second quarters of 2015, there was a rise from 26 to 40 and then a fall to 37 in the first quarter of 2016. In the second quarter, it rose to 49. But after this period, the transition from unemployment to non-participation felt comatose to 27. Between the second and third quarters of 2017, the transition rose to 42 and then fell to 37 in the fourth quarter. Between the first and second quarters of 2018, the transition from unemployment to non-participation rose from 34 to 44 and then gradually declined to 34 in the fourth quarter. But in the first quarter of 2019, it rose again to 42. In the third quarter, there was an immediate drop in the transition to 38 and then rose to 53 in the fourth quarter. In addition, in the first quarter of 2020, there were 29 transitions from unemployment to non-participation recorded. in the second quarter, an increase of 58 was

recorded; in the third, a fall of 30; and in the fourth, a slight increase of 35. Switzerland experienced a peak in the second quarter, then the stabilization, clearly showing these temporary effects of the crisis. The data for Switzerland in the first quarter of 2021 shows a drop from the second quarter at 51 to the third quarter at 33, and then a slight upsurge in the fourth quarter at 38. The trend in Switzerland would be on a decreasing scale over this period, with small fluctuations, hence showing a stabilization. The general analysis shows that, while some countries can stabilize or reduce the flows from unemployment to non-participation, others remain entangled in ups and downs and uncertainty, so their strides along the recovery path from the COVID-19 pandemic look different.

In the United Kingdom, as in other countries, there was no data regarding the transition from unemployment to non-participation in the first quarter of 2010. In the second and third quarters, the transition decreased from 302 to 278 and instantaneously increased to 351. Between the first quarter and third quarters of 2011 the transition from unemployment to non-participation gradually decreased from 314 to 233. After that, it increased to 316 in the first quarter of 2012 and then decreased to 277 in the third quarter of 2012. Between the first and fourth quarters of 2013, the transition rose from 310 to 334. It then fell to 257 in the third quarter of 2014 and then rose to 308 in the fourth quarter of 2014. Between the first and third quarters of 2015, the transition from unemployment to non-participation fell from 249 to 214 and then rose to 275 in the fourth quarter. Between the first and third quarters of 2016, the transition fell from 255 to 198. Between the fourth quarter of 2016 and the first quarter of 2017, there was an increase in the transition from 209 to 232, after which there was a steady decline to 209 transitions in the fourth quarter. Between the first and third quarters of 2018, there was a steady decline in transitions from 214 to 162. The transition from unemployment to non-participation peaked at 191 in the fourth quarter and then gradually declined to 153 in the third quarter of 2019. In the fourth quarter, it had risen again to 170. Finally, the UK increased from the first to the second quarter of 2020, 280, decreasing in the third quarter to 162, with no data available for the fourth quarter. In the United Kingdom, there was no transition regarding the lack of data for the entire period of 2021.

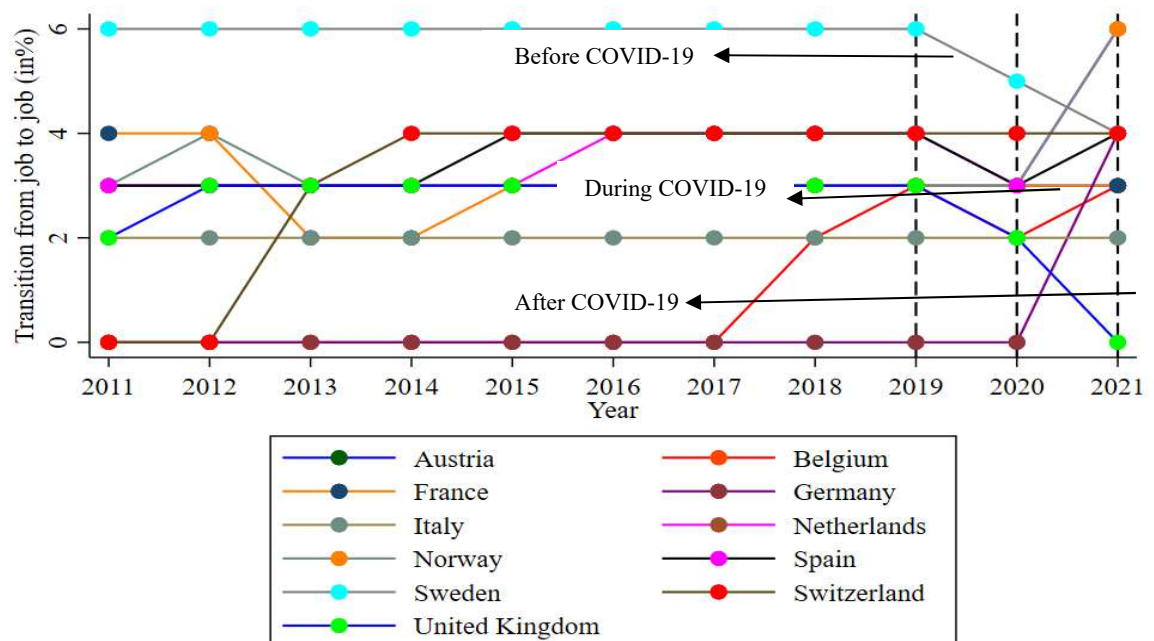
During the COVID-19 recession, the case of the UK was very volatile, peaking in the second quarter and then declining in the third quarter, which shows the instability that occurred within the labor force participation during a pandemic crisis. Similar events happened in countries like Spain, France, and Italy: a great increase in the second quarter was

succeeded by a decline in the third, with some instability in the fourth, thus reflecting substantial initial disruption but gradual recovery. Belgium and Sweden both had ups and downs, clearly reflecting the reflection of still prevailing uncertainty in labor force participation. Norway had very minor fluctuations, and that was an indication of a strong labor market. The Netherlands and Austria recorded small increases; relatively milder impacts as compared to others.

After the COVID-19 recession, the overall analysis suggests that some countries have managed to stabilize or reduce the transition from unemployment to non-participation, while others continue to face fluctuations and uncertainties and show different recovery paths after the COVID-19 pandemic. Belgium and Sweden exhibit oscillations, signalling persistent instability in labor force engagement, whereas Germany, France, Spain, and Italy demonstrate more consistent transitions with minor fluctuations, indicating a degree of stabilization post the COVID-19 crisis. The Netherlands, Austria, and Switzerland display a declining pattern in transitions, pointing towards a decrease in individuals exiting the labor force. Norway shows minimal deviations, highlighting a relatively steady labor market with limited fluctuations.

Figure 4. 11

Transition from job to job (in%), working age group of 15 to 74 years



Source: Author calculation from Eurostat data

Figure 4.11 presents the Job-to-job transition rate in Belgium, Germany, Spain, France, Italy, Netherlands, Austria, Sweden, Norway, Switzerland, United Kingdom during the years 2011-2021. In the case of Belgium, there was a lack of data in the years 2011 and 2019. From the years 2018 and 19, there was a gradual rise in people's mobility from one job to another from 2% to 3%. Moreover, the transition rate from job to job was 2% in 2020, indicating low mobility between jobs and that workers could barely switch to other jobs during the COVID-19 crisis in the country. This scenario could mean no possibility of employment or reluctance on the part of workers to switch jobs in times of uncertainty. With a 2 (2020) to 3 (2021) transition rate increase, Belgium indicates a growing work mobility and a catching-up labor market with more chances to change jobs after the pandemic. Unfortunately, the data for Germany is missing for the whole period of 2011-2020. In Germany, it was 4 in 2021, showing an occupational high mobility and strong labor market.

Spain reported 3% of Job-to-Job transition per year for the period between 2011-2014. This number was already at 4% per year from 2015 through 2019. All in all, the transitions between jobs in Spain remained stable while there was a very slight rise in the flows starting from 2015. Additionally, this transition equaled 3, pointing out that it had a medium intensity of mobility. This could be interpreted to mean that, while there was some kind of occupational mobility, it was not very high, and thus the status provided some kind of stability in the labor market, with limited opportunities for job changes. The transition rate rose from 3 in 2020 to 4 in 2021, pointing to better occupational mobility in a recovering economy with more available jobs.

In the case of France, there were 4% of job changes per year in 2011 and 2012. From 2013 to 2014, the number of transitions fell to 2% per year. 3% of transitions per year occurred in 2015 and 2019. France also indicated a transition rate of 3% in 2020, the same as Belgium, which is low, hence limited occupational mobility, likely due to uncertainties in the economy and probably a lack of vacancies. the transition rate was also 3% in 2021, thus drawing a portrait of a more dynamic labor market with more job changes compared to the previous year. Italy has had 2% job-to-job transitions per year throughout the period from 2011 to 2019. Italy returned a rate of transition of 2% in 2020, conforming to the trend of low rates of job-to-job transitions in a stagnant labor market in which changes of jobs were minimal during the pandemic. The transition rate in Italy was stable (2%) in

2020 and 2021, thus showing an improvement in terms of the mobility of jobs and the labor market recovery.

The Netherlands had a 3% transition per year from 2011 to 2015 and a 4% transition per year from 2016 to 2019. Furthermore, the transition rate was 3%, which stands for the middle degree of transition and means that the labor market in the Netherlands is slightly more dynamic compared to countries like, for example, Belgium or France, where they change jobs more often. The transition rate increased from 3% in 2020 to 6% in 2021, quite an enormous surge, mentioning a very high degree of labor market dynamism and high job mobility.

In Austria, there were stable (3%) job-to-job transitions per year throughout the whole period from 2011 to 2019. In addition, it was 3% in 2020, which, in contrast to that of the Netherlands and Spain, denotes a country with a moderate job-to-job transition rate, evidencing that there is at least some flow in the labor market. For Austria, it stays at 3% for 2020 and 2021. This stability in occupational mobility supposes constant labor market conditions. In Sweden, there were 6% of job transitions per year from 2011 to 2019. In addition, Sweden had the highest rate of transition in 5 of the available data, signifying that this country has a relatively high degree of job mobility. That is, despite all the problems and impacts provoked by the pandemic, it is a very dynamic Swedish labor market, which created more space for job change. There was no change in the transition rate to 4% in Sweden between 2020 and 2021, which denotes continuous occupational mobility and a stable and dynamic labor market.

Through the period 2011 to 2019, there were 3% of job-to-job transitions per year in Norway. The rate of transition was also 3%, meaning that there is a medium transitional level, meaning the labor market is quite fluent with quite a lot of job changes. However, in Norway, with an increase from 3% in 2020 to 6% in 2021, the latter standing at high growth, means a dynamic labor market with increasing job mobility and recovery. In Switzerland, data was not available for years 2011 and 2012. For the rest of the years covering 2013, it involved 3% of job-to-job transitions per year. By 2014 and 2019, that number had risen to 4% per year. Switzerland, at a transition rate of 4%, has a high transition rate like Sweden, recounting dynamism in its labor market with high mobility against the pandemic. The resulting transition rate in Switzerland remained unchanged from 2020 to 2021; it still stands at 4%, meaning that job mobility was stable and the labor market did not change. In the UK, in 2011 there were 2% of job-to-job transitions.

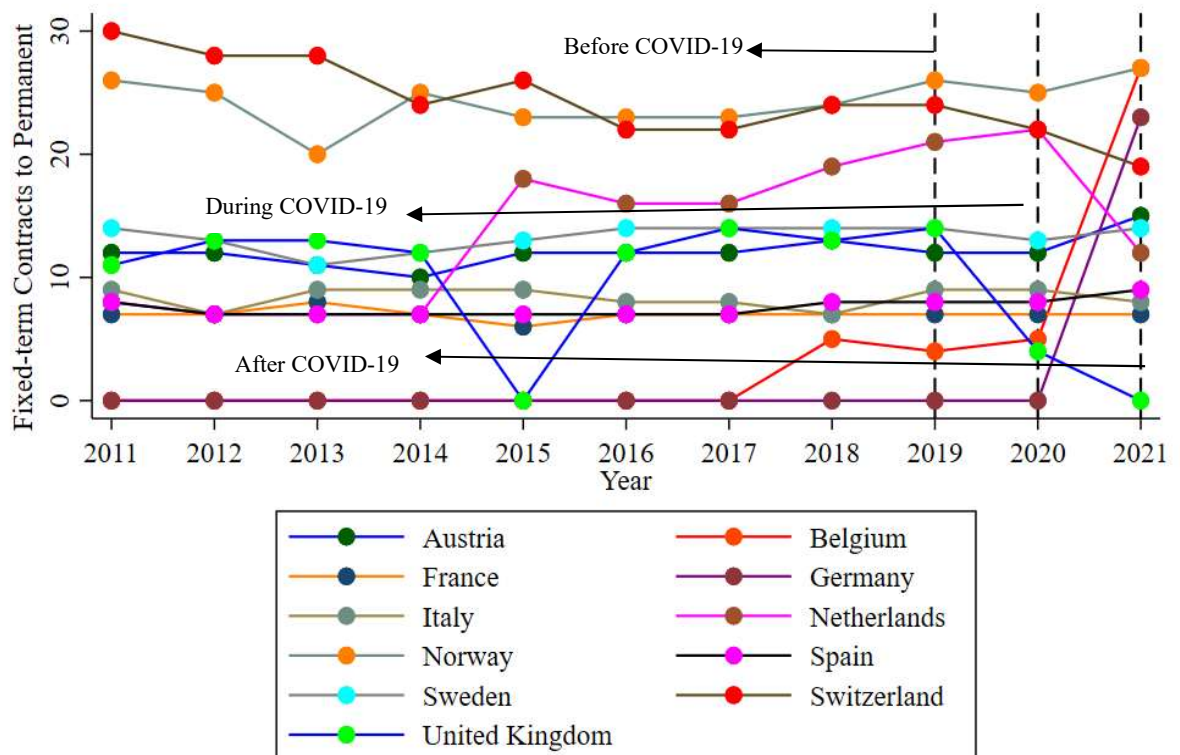
from 2012 through 2019, there were 3% of transitions per year. The UK, at 2%, had low mobility in the labor market, most probably hit by the uncertainty and economic downturn caused by the pandemic. Regrettably, in the UK, it is not possible to provide a trend analysis for 2021 due to the unavailability of data concerning the years of the crisis.

In summary, the job-to-job transition rates in 2020 captured very different degrees of labor market dynamism across countries during the COVID-19 crisis. Notable observations include low labor mobility in Belgium, France, Italy, and the UK, with a relatively stagnant labor market characterized by limited opportunities and workers' reluctance to switch jobs amid the pandemic. By way of contrast, Spain, the Netherlands, Austria, and Norway had middle-of-the-road rates of job-to-job transitions, suggesting that there was some reasonable level of labor market fluidity even in adversarial conditions. The highest transition rates were found in Sweden and Switzerland, which indicated a more powerfully vibrant labor market with considerable job mobility even in the challenging conditions of the crisis.

Comparing the data between 2020 and 2021, major trends in job mobility could be noted right after the COVID-19 era. The number of job changes jumped in countries such as Belgium, Spain, France, Italy, the Netherlands, and Norway, showing that the labor market was recovering, and accordingly, there were more opportunities to change jobs. The Netherlands and Norway had remarkable peaks, evidence of a very dynamic labor market right after the pandemic period. In Austria, Sweden, and Switzerland, for example, job mobility rates were still at a standstill, thus giving out a good signal of stability within the labor market. As such, the general trend has been that because of this, the labor market in most countries is getting back on its feet, thus explaining the rise in job mobility as a pointer to economic recovery and new jobs created after the COVID-19 pandemic.

Figure 4. 12

Transition rate from fixed-term contracts to permanent contracts by age group 25-64



Source: Author calculation from Eurostat data

Figure 4.12 shows the transition rate from fixed-term contracts to permanent contracts for Austria, Belgium, France, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom for 2011 and 2021.

In Austria, the transition rate started at 12% in 2011, fell slightly to 10 in 2014, then rose again to 12% in 2015, and reached a brief peak of 13% in 2018 before stabilizing again at 12% in 2019. The transition rate for Austria remains relatively high and stable over the years. Austria has the highest and most stable transition rates, indicating strong support for moving from fixed-term to permanent contracts. In Austria, 12% in 2020 was the transition rate from fixed-term contracts to permanent contracts. That is an acceptable job security and position of employees, to get a permanent job under the adversity of the COVID-19 crisis. Moreover, one could notice a certain increase in the transition rate from 12% in 2020 to 15% in 2021. This growth reflects improved stability in jobs and more favorability in the labor market environment after the COVID-19 pandemic.

In the case of Belgium, the transition rate from 2011 to 2017 offers a 0% starting value, which means there is no flow from fixed-term contracts to permanent ones. There was a

marked change in 2018 to 5%, a slight decrease in the year 2019 to 4%. Initially, there were no transitions; the opportunities never presented themselves or employment practices were different, so there was a change in 2017 when things improved markedly. In contrast, the transition rate in Belgium was 5% in 2020. This means the transition rate was somehow low. Meaning few employees could transition from temporary to permanent contracts. This may be due to the more careful attitude of employers during the pandemic period. One such remarkable surge was that of Belgium, which boosted the transition rate from 5% in 2020 up to an outsized 27% in 2021. This sort of increase would imply a serious amelioration of the labor market and would be understood to mean that so many fixed-term contract employees would be moving into permanent employment positions.

Due to the invalidity of the data, there was no transition from fixed to permanent contracts in Germany from 2010 to 2020. The transition rate in Germany lies at 23% in 2021, which implies that opportunities for fixed-term contract workers to transition into permanent roles are good. This constitutes an upbeat signal to labor market recovery.

The transition rate in France started off at 7% in the year 2011, went up in 2013 to 8%, dropped in 2014 to 7%, further decreased in 2015 to 6%, and remained constant at 7% up to 2017. From 2018, it reduced slightly to 5% and remained constant up to 2019. France maintains medium and relatively stable transition rates, moving little, showing the fairness of the move into permanent contracts. Moreover, there was a 7% transition in 2020. In contrast, France's transition rate remained constant at 7% in both 2020 and 2021, which still implies that no main changes in job stability for fixed-term contract workers have been induced.

The transition rate from fixed to permanent contracts in Italy is between 9% and 7% in 2011 and 2012, relatively stable. There were stable transition rates (9%) in 2013 and 2015, indicating that, there was a consistency that would show a stable market for transitions. After that period, it gradually fell to 7% in 2018 and then slightly increased to 9% again in 2019. In Italy, the transition rate was also stable (9%) in 2020 in both periods before and post of COVID-19. Moreover, we find a slight fall from 9 percent in 2020 to 8 percent in 2021, which sets a slightly less favorable milieu for transitioning into permanent contracts compared to the previous year.

The Netherlands has held a marked increase in transition rates, starting at 7-8% in 2011 and 2012 and rising, dramatically, to 18% in 2015. The transition from fixed to permanent contracts was stable (16%) between 2016 and 2017 and then sharply increased to 19% in 2019. That is to say, there is a very good market for switching from fixed-term to permanent contracts, and there are significant improvements from 2015. It shows a high rate of transition since 2015 which means sufficient progress in labor legislation or market conditions. Furthermore, the transition rate from fixed to permanent contracts was 21% in 2019 but in 2020 it was 22%. Indicating that there was a 1% increase in the transition from fixed to permanent contracts during the COVID-19 recession. Whereas in the Netherlands, it falls significantly from 22% in 2020 to just 12% in 2021, portraying a less dynamic labor market characterized by reduced possibilities for workers to hold permanent contracts in the post-COVID-19 world.

The rates of transition observed in Norway were, between 26% and 20% in 2011 and 2013, indicating that there was a continuous decrease in transition from fixed to permanent contracts. In 2015 it rose to 25%. Between 2015 and 2017 it decreased and stabilized (23%) and then gradually increased to 26% in 2019. In addition, the transition rate went as high as 25%, the highest rate of transition amongst all countries considered in this study. This extremely high rate denotes a very dynamic labor market and abundant opportunities for workers to transition to permanent positions during the crisis. There was a small increase from 25% in 2020 to 27% in the year 2021, indicating a strong and increasingly better labor market on the conditions of fixed-term workers moving into permanent positions.

In Spain, transition rates have been fairly consistent over time, at the level of 7-8%. There is a slight bulging in 2018, to then level off at 8% in 2020, which would further justify something of support in the market for the transitions rate being supportive. The transition rate in Spain stood at 8%—a rather low figure. It means that the conversion possibilities to permanent contracts were low, probably due to economic uncertainties and fears among employers in the presence of the pandemic. While in Spain the share of fixed-term workers had a slight increase from 8 percent in 2020 to 9 percent in 2021, implying a slight improvement in job stability following the COVID-19 outbreak.

Transition rates in Sweden are between 11% and 14% in 2011 and 2013. The rates are rather constant, with stable small fluctuations; there is a stable atmosphere for transition into long-term contracts. Moreover, this transition rate was 13 % in 2020, pointing toward

a medium level. This reflects the fact that the labor market has been relatively stable, with decent opportunities for people to find permanent work despite the adversities of the pandemic. Sweden saw a marginal rise from 13 percent in 2020 to 14 percent in 2021, indicating a relatively more congenial labor market condition for fixed-term workers.

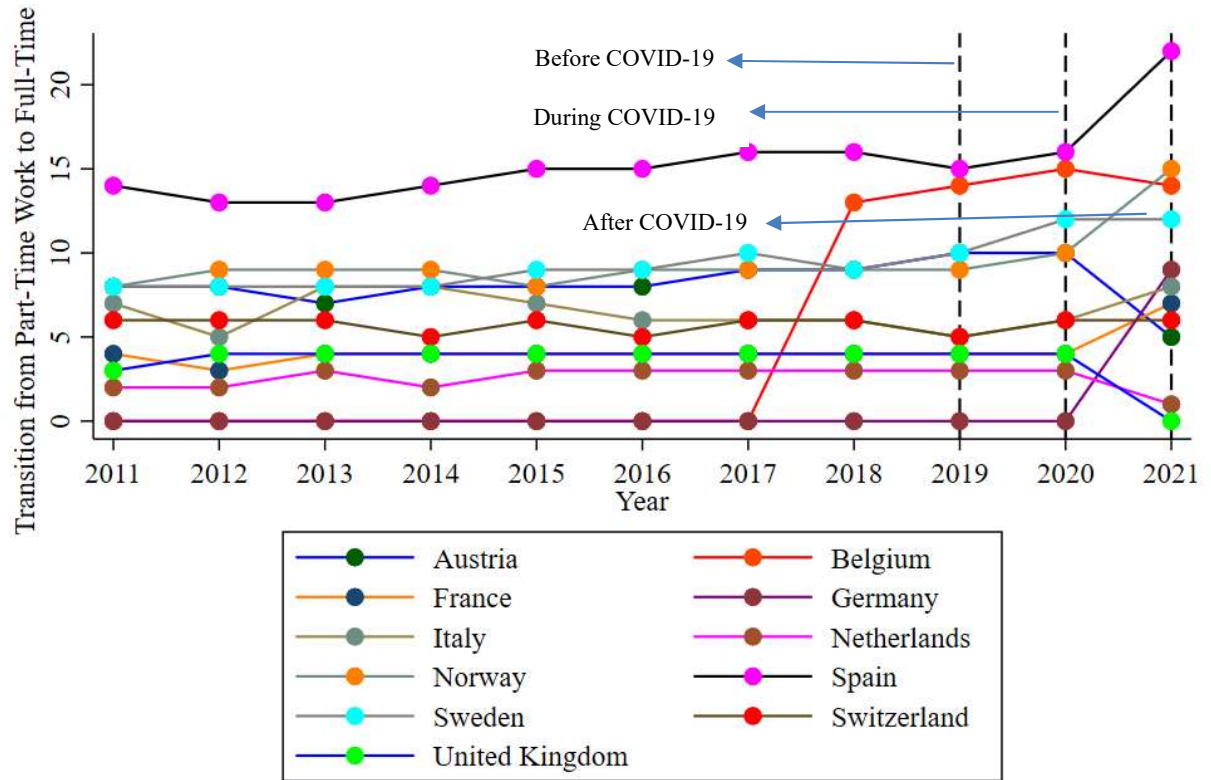
Transition rates are very high in Switzerland when compared with other countries. There was a continuous increase in the transition rate from fixed to permanent contracts between 2014 and 2019. The data points to a market situation that is strongly positive for transition products. This suggests the general market supports transitions, probably due to economic uncertainties and fears among employers in the presence of the pandemic. Now, focusing on Switzerland, the transition rate was 22%, indicating a very high rate when compared to Norway. This goes on to prove that there was a quite strong level of resistance to the labor market and job stability, which facilitated appointments to permanent positions despite the crisis. Conversely, the case of Switzerland shows a decline from 22 percent in 2020 to 19 percent in 2021, indicating rather a low position in the labor market compared to the previous year, where fewer fixed-term workers could clinch permanent contracts. In the United Kingdom, there was a gradual increase in the transition rate from 11% to 12% in 2014 but it was 0 in 2015. After that period, it increased to 14% in 2019. Contrasted with this, the United Kingdom indicated a transition rate of only 4% in 2020, the lowest of all observed countries. This low rate is evidence of important challenges in the labor market, whereby the potential for workers to move from temporary to permanent contracts remains low due to likely severe pandemic impacts on employment stability. This meant that Norway, Switzerland, and the Netherlands consequently emerged with the highest transition rates, an indication of their robust labor market that helped sustain employment stability despite the pandemic. Austria, Sweden, and Italy had fair transition rates, which induced a relatively stable situation with space for people to secure permanent contracts. On the other side, the lowest transition rates in this case were noted in the United Kingdom, Belgium, France, and Spain, thus hinting at greater difficulties and insecurities for labor markets in these countries amidst the crisis.

Unfortunately, with the data for 2021 not available, it cannot be stated how the trend has been for the United Kingdom. Consequently, while for some countries the progress in the shift from fixed-term to permanent contracts was high after COVID-19, in other countries the probability of workers being able to change to permanent positions was lower. On one

hand, Belgium and Norway are leading the way in the most positive trends, while countries like the Netherlands and Switzerland recorded sharp declines in the transition rate.

Figure 4. 13

The transition from part-time work to full-time work by age group 25-64



Source: Author calculation from Eurostat data

Figure 4.13 shows the Transition rate from part-time to full-time, in Austria, Belgium, France, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom from 2011 to 2021.

In Austria, this transition rate rose constantly and gradually from 8% in 2011 to 10% in 2019, thereby pointing out that the climate for temporary workers moving into full-time positions improves over time. A moderate rate of transition from part-time work to full-time work was calculated for Austria in 2020, showing that approximately 10% of part-time workers in Austria moved to full-time work. This data does indicate some mobility and opportunities within the Austrian labor market. Conversely, the transition rate drops from 10 percent in 2020 to 5 percent in 2021.

The transition rate was 0% from 2011-2017 in Belgium, meaning there were no part-time to full-time shifts during that period. The sudden rise to 13% in 2018 and further to 14% in 2019 was, however, quite remarkable. There has been a noticeable shift from 2018,

which signals that there are considerable changes in labor laws or market conditions that sustain the transition of part-time workers into full-time workers. Compared with the others, it stood at 15% in Belgium, a relatively high rate. That means part-time workers are more likely to change to full-time employment in Belgium. The phenomenon may be caused by a more dynamic labor market or induced by policies that facilitate such changes. Moreover, the percentage of workers transitioning from part-time to full-time work was 14%. This percentage slightly decreased from 15% in 2020 to 14% in 2021, which reflects a small decline in mobility by part-timers towards full-time due to the economic impact of the COVID-19 pandemic.

In Germany, there was no transition from part-time work to full-time work due to the lack of data for the period of 2011 to 2020. In the case of Germany, this rate stood at 9% in 2021, which represents medium possible ways for part-timers to switch to full-time employment, although no comparative year-based data are given.

In France, transition rates are pretty constant and stay within the range of 3 to 4% throughout. No increased evidence gives stability; however, it does indicate that this is a somewhat stable but limited environment for transitioning from part-time to full-time. Compared with an equivalent figure in France of 4% in 2020, this suggests that part-time workers had a scant chance of moving to full-time positions. In other words, it points to some kind of structural problem with the French labor market or people's strong preference for part-time employment. Furthermore, the transition rate in France peaked to be 7% in 2021, so it showed an increase but remained quite low by comparison to the one in other countries, which itself indicates serious challenges in labor market mobility for part-time workers.

The transition rates for Italy range between 5% and 8%, which then become more variable. The rate, after hitting a peak of 8% in both years 2013 and 2014, generally falls to 5% in 2019. The similarly low transition rate of 6 in 2020% gives credence to this idea that it is hard to move from a part-time job to a full-time job. In addition, the rate reached 8% and it was relatively stable because the estimation increased slightly from 6% in 2020 to 8% in 2021, meaning that many persistent hurdles are still in front of the part-time workers who want to shift full-time.

The lowest ones are those of the Netherlands with its rates of transition of between 2% and 3%. There are no significant increases or decreases in these rates during the whole term. Low stability rates indicate there are limited opportunities or poor conditions for

the promotion of part-time workers to full-time employment. In sharp contrast, the Netherlands had the lowest rate among these countries, with only 3%. This indicates that there are considerable barriers to moving to full-time work for part-time workers in the Netherlands. Such a low transition rate might be rooted in a labor market that is extremely biased toward part-time employment. The lowest was in the Netherlands, from 3% in 2020 to 1% in 2021. This suggests that strong barriers exist for part-time workers to switch to full-time jobs, either because part-time work is deeply embedded in the culture or because of structural issues in labor markets.

Transition rates in Norway are stable, between 8% and 9%, and reflect a gradually improving environment that is continually encouraging movers from part-time to full-time employment. A similar scenario to Austria was noted in Norway, with a rate of 10% in 2020, indicating moderate opportunities for part-time workers to move into full-time positions. Moreover, Norway increased from 10 in 2020 to 15 in 2021 percent, an indication of a growing labor market

The transition rates in Spain are comparatively high and constant, between 13% and 16% throughout the period. The fact that these higher rates are more stable demonstrates a welcoming environment for part-time workers to become full-time workers. At 16%, Spain had the highest rate among the countries, which gives evidence of a relatively more fluid labor market with better opportunities for part-time workers to find full-time employment. Among those mentioned, by far the highest transition rate was in Spain at 22%, an increase from 16% in 2020 to 22% in 2021, therefore signaling a strengthening of the labor market conditions and better prospects for part-time workers to find their way into a full day than last year.

Transition rates for Sweden are forecasted first to remain stable at 8% between 2011 and 2014. This reflects a positive trend and an enhancement of conditions for the transition from part-time to full-time work. After that, it was slightly increased to a 9% transition in 2015 and 2016. Between 2017 and 2019 it slightly increased to 10%. Moreover, it was comparatively higher, at 12 percent in 2020, thus showing good mobility of part-time workers in the labor market. whereas in Sweden the transition rate stays roughly flat at 12 percent again in 2021; which is very stable for part-time workers to become full-time. In Switzerland, transition rates are stable and vary only slightly between 5% and 6% throughout the whole period. This consistency tells that the climate for part-time workers to move to full-time employment will be stable but not stringent. In addition, it was 6

percent, very much like in Italy, which means that part-time workers do face moderate difficulties in moving into full-time jobs. while for Switzerland, it stayed at 6 percent in 2020 and 6.5 percent in 2021, a slight increase that points to less opportunity for workers going from part-time to full-time.

The transition rates in the UK are steady and stay between 3-4% during the whole period. These low rates are consistent and hence prove that very few opportunities exist for part-time workers to progress to full-time employment. Furthermore, the UK had a transition rate of 4 percent, similarly low to that of France, thus implying limited opportunities for moving from a part-time to a full-time job. For the UK, data was not available for the trend analysis post-COVID-19 crisis.

As a result, During the COVID-19, Spain, and Belgium had the highest transition rates, that is, quite a dynamic labor market, yet with better prospects for part-timers transitioning to full-timers. For Austria, Norway, and Sweden, the transition rates were deemed moderate, a telling sign that relays a certain level of market fluidity in labor, though still a work in progress. Certainly, the countries with low rates of transition were France, Italy, Switzerland, and the UK. On the other hand, it is estimated that low rates of transition substantiate few opportunities for part-time workers to access full-time work. It could suggest structural weakness in the labor market or a strong preference for working part-time. The low rate of transitions in the Netherlands reflects relatively high barriers or marked preferences for part-time work in this labor market.

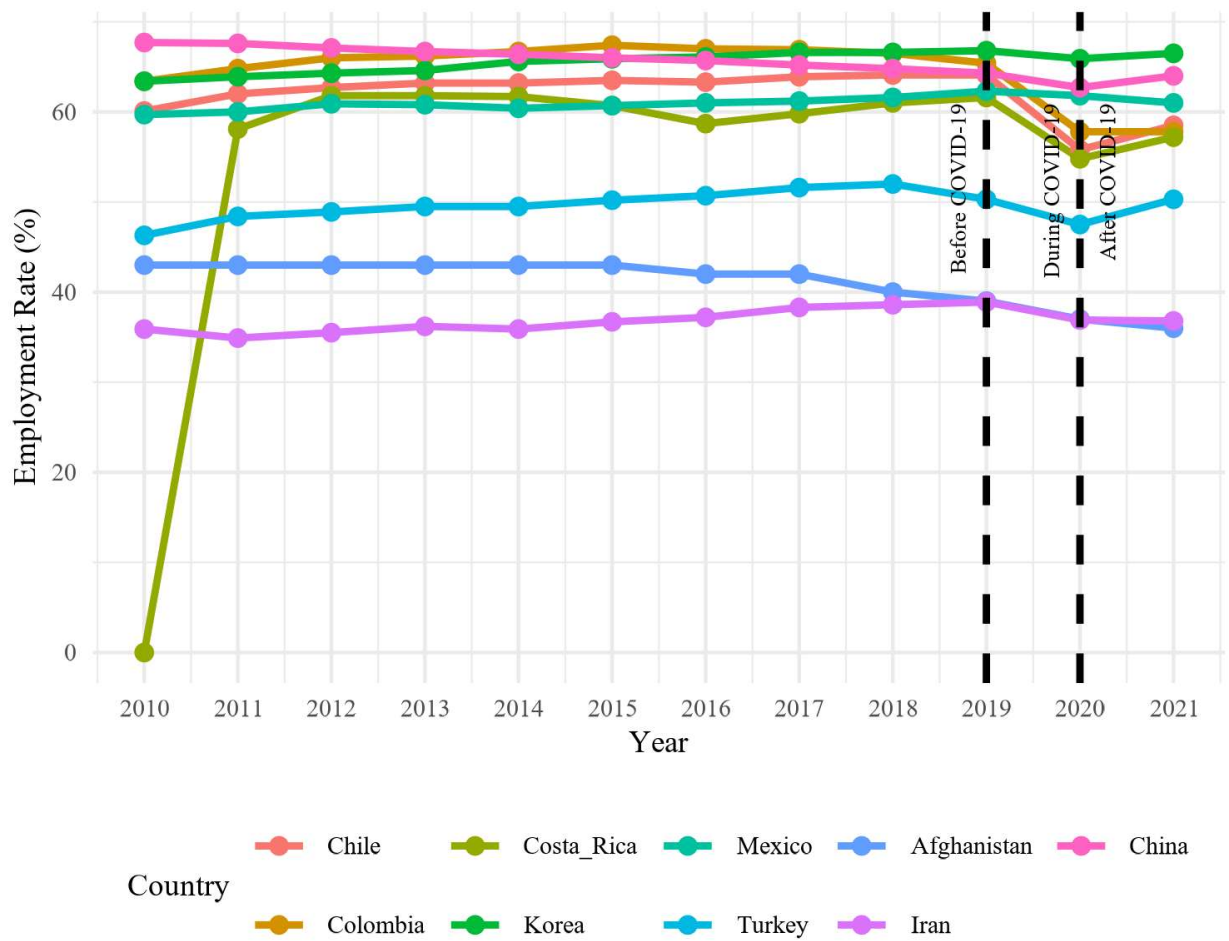
4.2 Descriptive analysis for developing countries

This section examines the dynamics of the labor market before, during, and following the COVID-19 crisis by use of plots such as line graphs. To examine the trends before, during, and after the COVID-19 recession in employment and unemployment rates, we used both annual and quarterly data from 2010 to 2021.

4.2.1 Employment rate

Figure 4. 14

Total (Women and Men) employment rate: Working age population from 15 to 64 years, calendar and seasonally adjusted



Source: Author calculation based on OECD countries data, the World Bank data, and data from the Turkish Labor Force Survey and the Turkish Statistical Institute

Figure 4.14 shows the trend in employment rates in Chile, Colombia, Costa Rica, Korea, Mexico, Afghanistan, Iran, China, and Turkey from 2010 to 2021, at the trend in the labor market before, during, and after COVID-19. The employment rate in Chile gradually increased from 60.1% in 2010 to 64.1% in 2019, signifying a positive fluctuation in employment and economic stability over the whole period. Moreover, the employment rate was 55.8 %, and a substantial decline from 64.1 % to 55.8 % between 2019 and 2020 was documented, representing a weighty adverse effect on employment as a result of the COVID-19 recession. The employment rate statistics for 2021 shed important light on the several recovery routes that have been identified since the COVID-19 crisis peaked. The employment rates in the pre-crisis year 2019 and the crisis year 2020 are compared in this research through data examination. In the instance of Chile, the employment rate in 2021 was 58.5%, up 3.3% from the year before. Employment levels have not yet entirely rebounded to pre-crisis levels, although the pandemic-caused decrease has partially recovered.

The employment rate, In Colombia, rose from 63.4% to 67.4% between the period 2010 to 2015, tracked by a steady decline to 65.4% in 2019. While the following decrease suggests that there may be difficulties in sustaining this upward trend, the highest point around the middle of the decade represents a time of significant job growth. In Colombia, an employment rate of 57.8 was documented, a reduction from 65.4 % in the previous year to 57.8 % in 2020, representing a significant decline that reflects the severe impact of the pandemic on the labor market. Colombia's employment rate remains at 57.8% in 2021, the same as in 2020. This lack of change? It's a warning sign that the labor market is still struggling after the crisis.

Between 2011 and 2012, Costa Rica's employment rate rose from 58.1% to 61.8% in 2013, and it thereafter exhibited fluctuations until reaching 61.6% in 2019 this volatility indicates times of growth and contraction and captures the potential for changes in the economy. In Costa Rica, the employment rate was 54.8%, decreased from 61.6% in 2019 to 54.8% in 2020, a momentous decline representing substantial job losses due to the epidemic. Costa Rica recorded a small upturn. The employment rate climbed from 54.8% to 57.2% between 2020 and 2021. That's better, but we shouldn't pop the champagne corks just yet - we're still not back to pre-crisis levels.

Conversely, Korea's employment rate increased steadily, rising from 63.4% in 2010 to 66.8% in 2019. This suggests that the country's economy remained robust and created

jobs. The employment rate in Korea shrinks slightly from 66.8% in 2019 to 65.9% in 2020. This tiny drop of 0.9% indicates that the labor market in Korea is stable in the midst of the crisis. Various factors that likely influence the existence of this stagnation include the efficiency measures to contain the pandemic, a robust digital architecture that facilitates telecommuting, government-sponsored measures that benefit both businesses and workers and a multifaceted trade structure that has less dependence on directly affected sectors such as travel-oriented industries. Things are looking pretty good in Korea. The employment rate rose from 65.9% in 2020 to 66.5% in 2021. That puts them almost back to where they were before the whole mess started.

The employment rate in Mexico increased gradually between 2010 and 2019, from 59.7% to 62.3%, indicating consistent economic growth and a stronger ability to provide employment opportunities. The Mexican employment rate fell slightly from 62.3% in 2019 to 61.8% in 2020 - a decrease of 0.5%. This is not much, but it shows that the pandemic has had an impact. Nevertheless, the Mexican labor market has held up better than you might think. And why is that? Well, there are a few reasons: The country has a solid manufacturing sector tied to the U.S. economy, the government has stepped in with programs to ensure employment, and the underground economy has served as a buffer for some workers. But let's not get ahead of ourselves. Mexico still has some work to do. They need to tackle income inequality, improve informal jobs, and promote skills development for workers. the employment rate dropped from 61.8% to 61.0% between 2020 and 2021. It's like they're regressing instead of recovering and it was not good news for their labor market.

The employment rate in Turkey increased to 52.0% in 2018 from 46.3% in 2010, then slightly decreased to 50.3% in 2019. While the little dip in the previous year can point to fresh difficulties, the general improvement over the past ten years indicates economic success. In Turkey, the employment rate has fallen even more: from 50.3% in 2019 to 47.5% in 2020 - that's a drop of 2.8%. Ouch! The pandemic has hit the Turkish labor market hard. Turkey is heavily dependent on tourism and the hospitality industry, had some economic weaknesses even before the pandemic and its currency is on a roller-coaster ride, which is unsettling companies. the employment rate stood at 50.3% in 2021

showing an increase, from 47.5% in 2020. This uptick reflects the labor market's resilience in overcoming challenges.

From 2010 to 2015, Afghanistan's employment rate was consistently 43%; however, from 2016 to 2019, it gradually decreased to 39%. This period of stability, which was followed by a fall, suggests that the labor market circumstances have gotten worse, perhaps as a result of the continuous conflict and unstable economy. The number of jobs in Afghanistan has fallen from 39% in 2019 to 37% in 2020. That's not a huge drop, but it shows how the pandemic has exacerbated the situation. Conversely, Afghanistan experienced a drop in its employment rate from 37% in 2020 to 36% in 2021 exacerbating post-crisis labor market difficulties.

Overall employment in Iran grew from 35.9% in 2010 to 38.9% in 2019, suggesting a slow but consistent growth in the country's economy and work market. Things aren't looking too rosy over in Iran either. The employment rate has fallen from 38.9% in 2019 to 36.9% in 2020 - a clear sign that COVID-19 has left its mark on the labor market. . Iran saw a decrease in its employment rate to 36.8% in 2021 compared to 36.9% in the year indicating persistent labor market obstacles with no clear signs of improvement.

In China, the rate of employment decreased a little from 67.7% in 2010 to 64.3% in 2019. China however witnessed an increase in its employment rate from 62.7% in 2020 to 64% in 2021 signaling a recovery, towards crisis levels. This shows a downward trend, suggesting that fundamental economic shifts may be the cause of future challenges in sustaining employment growth concerning the working-age population.

China and Afghanistan, on the other hand, had a fall in employment rates over the decade, especially in the second half, suggesting potential structural or economic issues. Many countries have been noted to have peaked in employment rates around the middle of the decade, after which there was either a little downturn or stabilization. This observation highlights the disparities in the economic dynamics of the various nations. This pattern of volatility and stability shows the deep relationships between market dynamics, societal factors, and economic policy that influence employment patterns internationally. In addition, the modifications in employment rates among nations acme the requirement for personalized strategies and tasks to cope with specific issues and capture possibilities for long-term economic growth and employment opportunities.

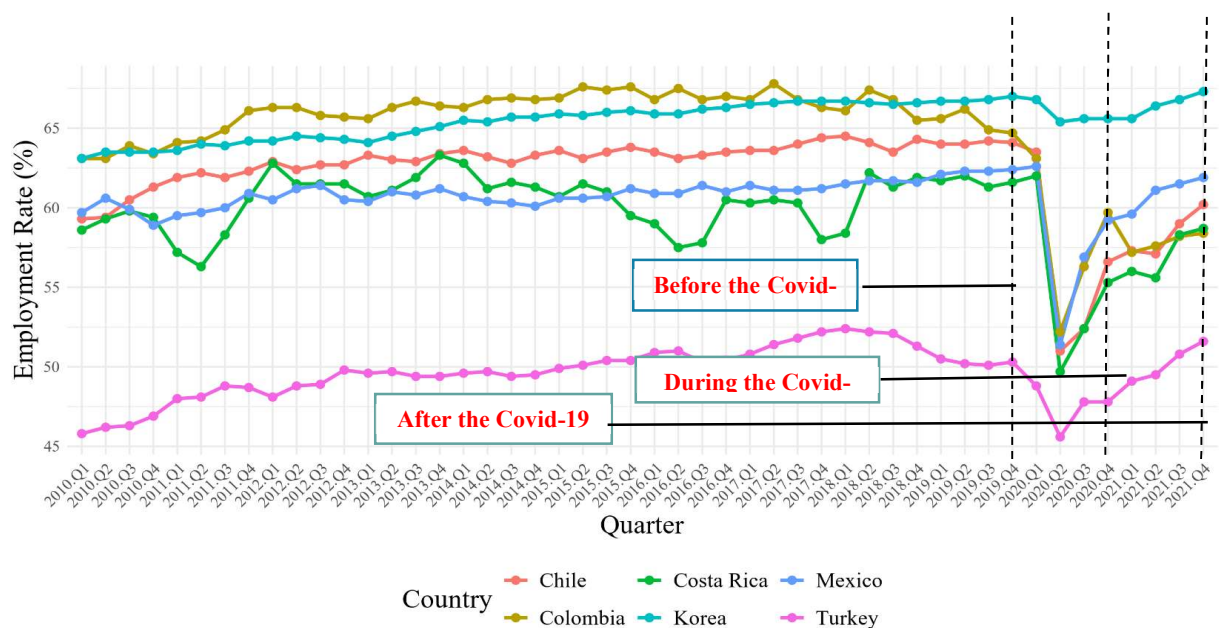
Employment rates have plummeted in several countries, and the impact has not been uniform. Chile, Colombia and Costa Rica? They have been hit hard. We're talking about

major job losses and a labor market that was thrown off-kilter. Well, Afghanistan, Turkey, Iran, and China? They didn't escape unscathed either, but it wasn't as bad. The decline was there, but not as dramatic. You could say they weathered the storm a little better. Korea & Mexico? They are the lucky ones (if you can call them that). Their employment rates have fallen, but not by much. Their labor markets have shown real courage during this mess. If you look at the big picture for 2020, it's as clear as day: COVID-19 has left its mark on employment rates across the board. But here's the kicker: some countries have been hit harder than others. The ones with bigger declines? They are the ones facing the real economic consequences and job losses. It's going to be a long road to recovery for them. (Not sugarcoating it - 2020 was tough on the jobs front. But hey, that's what happens when a global pandemic decides to crash the party).

When we look at the situations, in Chile, Costa Rica, and China it's evident that these countries experienced an uptick in their employment rates from 2020 to 2021 suggesting some progress even though they haven't fully returned to crisis levels. On the side, South Korea and Turkey showed recovery trends with their employment rates nearly back to where they were, before the crisis. On the other hand, Colombia, Mexico, Afghanistan, and Iran didn't show any signs of improvement; their employment rates either stayed the same or dropped further from 2020. This information shows the recovery patterns seen in countries that reflect varying levels of economic resilience and post-COVID-19 recovery efforts.

Figure 4. 15

Total (Women and Men) employment rate: Working age population from 15 to 64 years, Calendar and seasonally



Source: Author calculation based on OECD countries

Figure 4.15 shows the quarterly employment rates from 2010 to 2021 in Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey to examine the trends in the labor market before, during, and after the COVID-19 crisis. Afghanistan, Iran, and China were excluded from the analysis due to the lack of data. The employment rate in Chile was continuously increased from rose 59.3% in the first quarter of 2010 to 63.4% in the fourth quarter of 2013. Afterward, the employment rate fluctuated somewhat between the first quarter of 2014 and the third quarter of 2017, usually ranging between 63.6% and 64%. In the first quarter of 2018, this trend increased gradually and peaked at 64.5%. By the end of 2019, it had slightly decreased and stabilized at 64.1%.

In Chile, the employment rate recorded a remarkable decline from 63.5% in the first quarter of 2020 to 51.0% in the next quarter. A gradual recovery was only observed in the third quarter: to 52.4% and in the fourth quarter of the same year to 56.6. There was a sharp decline in the second quarter due to the immediate effects of the COVID-19 lockdowns and the associated restrictions. A subordinate upturn indicates a positive development, as restrictions were eased and economic activity picked up again, albeit at a slower pace. Whereas it was 57.3% in the first quarter, it reached 60.2% in the fourth quarter of 2021, reflecting that the rate of employment improved stably during the year and indicating a steady recovery amidst pandemic challenges in the country.

In the first quarter of 2010, Colombia's employment rate was 63.1%; by the fourth quarter of 2012, it was around 65.7%. From the first quarter of 2013 to the fourth quarter of 2015, there was an increase that persisted, reaching a peak of 67.6%. Variations with peaks and troughs that leveled off at 66% and 67% were noted between 2017 and 2019. The percentage in question peaked at 67.8% in the second quarter of 2017, then gradually decreased to 64.7% by the end of 2019. Moreover, it was 23.1% in the first quarter of 2020 and then decreased to 52.2% in the second quarter of 2020. After that, it was continuously increased to 59.7% in the fourth quarter of 2020. there was a gradual increase in the employment rate from 57.3 percent in the first quarter of 2021 to 58.4 percent in the fourth, which shows that there has been a slow but continuous recovery of jobs, thus underpinning the rebuilding effort underway in the labor market.

In the case of Costa Rica, the employment rates increased from 58.6 percent in the first quarter of 2010 to 63.3 percent in the fourth quarter of 2013. There was a slightly decrease in 2015 and subsequently recovered in 2016. The changes continued from 2017 to 2019,

peaking during the second quarter of 2018 at 62.2 percent and slowly dropping to 61.6 percent at the end of 2019. Moreover, there was a steep fall in the employment rate, which went down from 62.0% in the first quarter of 2020 to a low 49.7% in the second quarter. Subsequently, the rate again increased to 52.4% in the third quarter and to 55.3% in the fourth quarter. The steep drop in the second quarter reflects the pandemic's bad blow and the next quarters' recovery points to joint efforts to reconstitute employment levels amidst ongoing difficulties. After COVID-19 the employment rate grew from 56.0 percent in the first quarter of 2021 to 58.7 percent in the fourth, thus completing the recovery process, much like Chile and Colombia, with visible improvements in the second half of the year. In the case of Korea, steady growth in employment rates can be viewed from 63.1 percent in the first quarter of 2010, which steadily increases to about 66.7 percent in the fourth quarter of 2019. This steady increase could be viewed as an indication of a very strong and stable labor market wherein job creation has occurred unabated over this decade. During COVID-19 crisis the employment rate has fallen from 66.8 percent in the first aquater of 2020 to 65.4 percent in the following quarter and remained almost the same in the third and fourth quarters at 65.6 percent. This slight decrease, compared with other countries, may indicate that Korea has managed to avoid the impact of the pandemic on employment by implementing health measures and following sound economic policies. The employment rate in Korea grew from 65.6 percent in the first quarter of 2021 to 67.3 percent in the last quarter of the same year. This epitomizes the resilience of the country because it is not only recovering its employment rates but also showing a steady growth path, therefore proving the efficiency in management against the economic shock of the pandemic. The Mexican employment rate has been on a slow move. It was 59.7% in the first quarter of 2010, and it grew steadily to about 62.3% by the second quarter of 2019. The minor drop off in this gradual increase does prove stable economic growth and a corresponding stable labor market, possibly influenced by periodic adjustments made in response to economic cycles.

Mexico was hard hit, with an employment rate falling from 62.6 percent during the first quarter of 2020 down to 51.4 percent during the second. The rate, however, improved thereafter to 56.9 percent in the third quarter and 59.2 percent in the fourth quarter. In that sense, therefore, the steep fall in the second quarter and the partial recovery in the ensuing periods reflect the disruptive effects of the pandemic and how the economy gradually recovered. The employment rate in Mexico expanded to 61.9 percent in the fourth quarter

from 59.6 percent in the first quarter of 2021. It was a strong recovery, as lost ground in the labor market was continuously regained throughout the year.

Turkey has considerably improved its employment rate from 45.8% in Q1 of 2010 to the highest rate at 52.4% in the third quarter of 2018, and then slightly declined towards the end of 2019. This means that there has been a prominent increase, so the labor market must have improved a lot, probably due to certain economic reforms or some growth initiative. There could be some combined pressures from probable economic setbacks or changes in the market that could have dragged it down towards the end of 2019. Turkey reported a declining employment rate from 48.8% in the first quarter of 2020 down to 45.6% in the subsequent quarter before slight recoveries to 47.8% in both the third and fourth. Here, in all cases, the low employment rate was quite consistent, a factor which may underscore lingering effects from the pandemic and perhaps tighter or more permanent restrictions compared with the other countries. On its part, the employment rate went up from 49.1 percent in the first quarter to 51.6 percent in the fourth quarter of 2021 in Turkey. This spells a gradual but sure improvement in the employment rates, coupled with a slow but optimistic recovery path. Compared with Chile, Colombia, Costa Rica, and Mexico, the recovery trend was not bad, with gradual increases in employment rates quarter by quarter.

In summary, before the COVID-19 recession, Korea, Colombia, and Turkey have increased the most and been steepest in their respective employment rates, likely off the back of strong economic performance and more accommodating labor markets. In contrast, Costa Rica and Mexico have been much more volatile, signaling either economic uncertainty or external factors influencing the labor markets. On the other hand, Chile presents a very stable growth path with slight ups and downs towards the end of the period, suggesting a labor market that is relatively stable and characterized by continual improvements. These results mean very different dynamics in the labor markets of different countries and their interaction with the general economic stability and growth of those countries.

During the COVID-19 crisis, comparing data from several countries, including Chile, Colombia, Costa Rica, and Mexico, a steep decline in employment rates during the second quarter was found. The third and fourth quarters each saw gradual improvements. On the other hand, this trend specifically suggests the direct effects of the pandemic on such

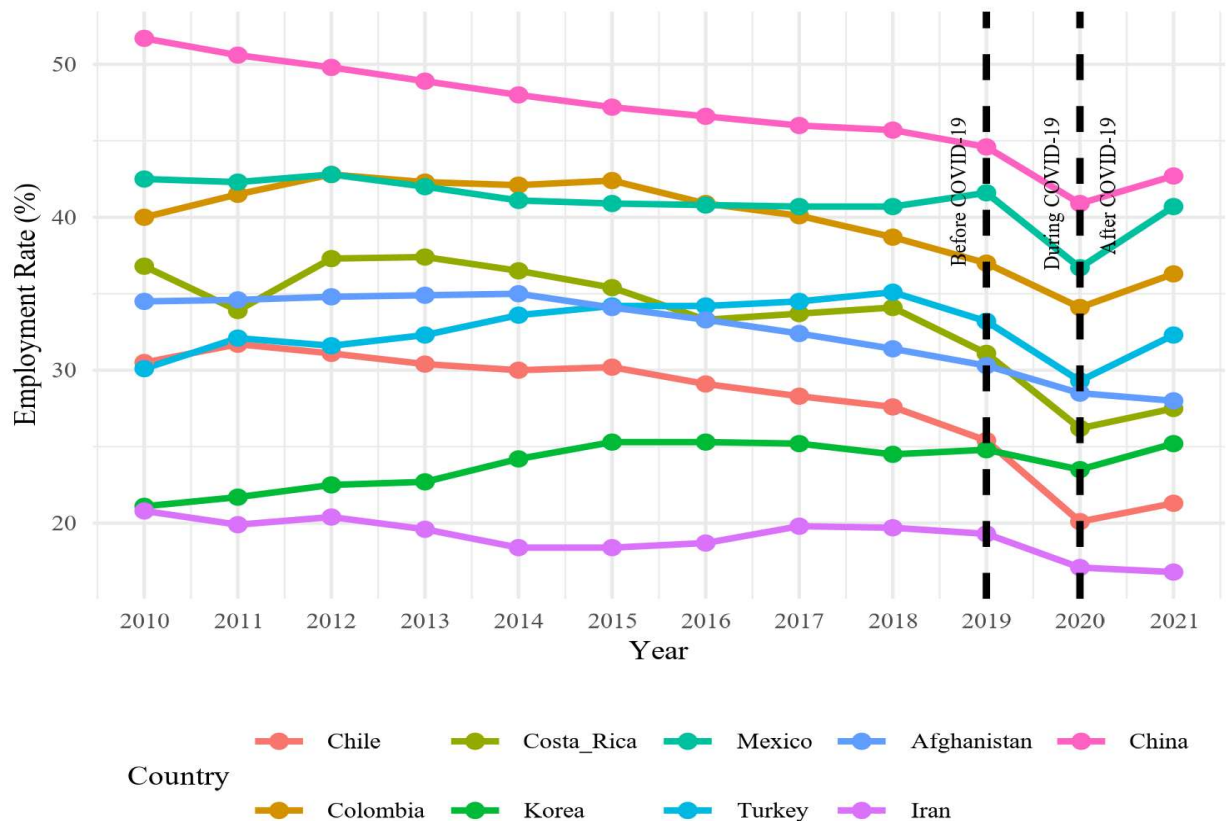
economies and further actions taken to get employment back to pre-pandemic levels. Additionally, Korea was completely different from the other countries that were studied in terms of extremely great stability, which marked only a marginal decline in the employment rate, and thus an indicator of the high degree of effectiveness in the crisis management strategies. Meanwhile, on the other hand, while Turkey had the smallest decline in employment rates compared to the other nations, the bounce-back effects were less stark in this country, perhaps indicating continued economic challenges or slower adjustments to the new normal after the pandemic. This means, therefore, that the COVID-19 crisis had a far-reaching impact on the employment rates of all countries under study. In most cases, there was a sharp drop in the second quarter of 2020, followed by only a partial rebound in subsequent quarters. This sharp drop in the majority of cases, with only a partial rebound in the following quarters, underlines the exceptional stability of Korean employment levels and, more broadly, the effectiveness of Korea's crisis management approaches. In contrast, Turkey faced more persistent challenges and a slower recovery process. Aggregated data shows the tremendous economic disruption by the pandemic and the differential degrees of recovery each nation has taken toward reconstruction, a function of unique conditions and responses for each country.

After the COVID-19 crisis, Korea has had higher employment rates and a constant upward track. Not least among them is Turkey, at a relatively lower starting base, which also exhibited a stable recovery but at a speed relatively slow compared to some of its peers. The general trend derived from the quarterly employment data of 2021 of all countries under this survey is one of recovery. Amidst the challenges posed by the continued pandemic, most of those countries have shown a steady increase in their employment rate, with Korea remarkable for its resiliency and growth. These include Chile, Colombia, Costa Rica, Mexico, and finally Turkey, which attained gradual recovery. It shows the

different extent of recovery and positive labor market development in these countries, which were agile towards changing circumstances during the COVID-19 crisis.

Figure 4. 16

Total (Women and Men) employment rate: working age population from 15 to 24 years, Calendar and seasonally adjusted



Source: Author calculation based on World Bank indicator, International Labor Organization (ILO), Turkish Labor Force Survey, and the Turkish Statistical Institute

Figure 4.16 shows the evolution of the employment rates from 2010 to 2021 in Afghanistan, China, Iran, Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey for the working age group 15 to 24. The evolution allows for the identification of trends that occurred before, during, and after the outbreak of the COVID-19 crisis.

In the case of Afghanistan, there was a continuous drop in the employment rate from 34.5% in 2010 to 30.3% in 2019, thus showing an important deterioration of the conditions in employment for the decade. Moreover, the employment rate was 28.5 percent in 2020, down from 30.3 percent in 2019. This decline reflects the negative impact of the COVID-19 crisis on the already struggling Afghan labor market and exacerbates existing challenges. in 2020 the employment rate was 28.5%, in 2021 it slightly decreased to 28%.

This modest decline must be regarded as an indication of the survival of challenges to the Afghan labor market and mirrors continuous economic hardships and instability within this country.

Within a structural change in the economy, the declining Chinese employment rate from 51.7 percent in 2010 to 44.6 percent in 2019 must be understood. At the same time, this was most probably driven by industrial restructuring and growing reliance on technology-oriented sectors. The employment rate in China went down from 44.6 percent in 2019 to 40.9 percent in 2020, which might reflect the significant loss of jobs due to the disruption of economic activities and industrial production caused by the pandemic. On the other side, in 2021, China reported an employment rate of 42.7%, a growth from the previous year's rate of 40.9%. This is very nice because the increase itself brings very good signals that the Chinese labor market resumed on very high ground and marks an upsurge in economic activity after peaking in the pandemic.

In Iran, by contrast, the employment rate changed. It fell from 20.8 percent in 2010 to 19.3 percent in 2019, with a low of 18.4 percent in both 2014 and 2015 indicating the instability of the labor market caused by economic sanctions and domestic policies. Moreover, the employment rate went down from 19.3 percent in 2019 to 17.1 percent in 2020. Meaning, it indicates that the COVID-19 crisis is hitting an economy already being hit by sanctions and internal issues. The Iranian employment rate, on the other hand, decreased from 17.1 percent in 2020 to 16.8 percent in 2021. This points to a slight decrease, signaling there is still some economic strain on Iran and expresses the continuity of hardship in job creation and market stabilization.

Whereas in Chile, the rate of employment dropped from 30.5 percent back in 2010 to 25.4 percent in 2019, it is patently clear that the creation of employment opportunities remained elusive during the decade. In addition, the employment rate dropped significantly from 25.4 percent in 2019 to 20.1 percent in 2020, an indication that the pandemic was a very serious shock to the country's labor market, thereby increasing the existing downward trend. The rate of employment rose from 20.1 percent in 2020 to 21.3 percent in 2021, the labor market in that country was recovering at a snail's pace, revealing the first steps that its economy was taking toward regaining its pre-pandemic state.

Similarly, in Colombia, the employment rate decreased from 40 percent in 2010 to 37 percent in 2019, which indicates a gradual drop over the years in the level of employment after peaking in 2012 at 42.8 percent. On the other hand, in Colombia, the employment

rate decreased from 37 percent in 2019 to 34.1 percent in 2020, thereby acting as an indication of heavy job losses resulting from the economic recession ignited by the COVID-19 pandemic. . Employment rates in Colombia grew from 34.1 percent in 2020 to 36.3 percent in 2021. This is one of the good trends of recovery being the case that the employment rates for this country are recoiling back after the pandemic.

The employment rate in Costa Rica also went up and down; however, on the net, it declined from 36.8 percent in 2010 to 31.1 percent in 2019. It hit its highest point in 2012 at 37.3 percent before starting to trend generally downward. In addition, employment decreased from 31.1 percent in 2019 to 26.2 percent in 2020, thus it is essential to note that there is a serious impact on employment. The employment rate increased from 26.2 percent in 2020 to 27.5 percent in 2021. This reflects a steady recovery in the labor market of this country, even if it remains below the pre-pandemic levels.

While in Korea, the employment rate increased from 21.1 percent in 2010 to 24.8 percent in 2019, indicating improving employment conditions likely based on economic growth and demographic changes. Moreover, the employment rate also saw a slight drop from 24.8 percent in 2019 to 23.5 percent in 2020. While this decline is modest compared to other countries, it is supposed to underline the unsatisfactory effect of the pandemic on employment. On its part, for Korea, employment increased from 23.5 percent in 2020 to 25.2 percent in 2021. This is an indication that the labor market recovery continues with several pointers to resilience and recovery from the pandemic.

Whereas in Mexico, from 2010 to 2019, it remained more or less stable, finishing off at 41.6%, thus showcasing a stable labor market with very little fluctuation. The employment rate in Mexico dropped from 41.6 percent in 2019 to 36.7 percent in 2020, an indication of the remarkable negative impact the pandemic is having on the labor market in the country and the reverse of what had been clear, stable trends. Mexico showed an appreciable rise in the employment rate from 36.7% in 2020 to 40.7% in 2021, thus portraying a very strong rebound of the Mexican labor market, which may be due to the resumption of industries and economic activities.

In Turkey, the employment rate moved up from 30.1% in 2010 to the peak of 35.1% in 2018, which fell slightly to 33.2% in 2019, hence indicating overall employment growth coupled with a recent decline, evidencing new challenges. In Turkey, this indicator fell from 33.2% in 2019 to 29.3% in 2020, a strong negative impact of the COVID-19 crisis on employment, interrupting the growth trajectory of the last years. The employment rate

of the country increased from 29.3 percent in 2020 to 32.3 percent in 2021, hence marking a significant recovery in the employment rate of Turkey with an improved labor market post-peak pandemic times.

Comparative analysis before the COVID-19 crisis shows that employment rates in Afghanistan, China, Chile, and Colombia declined continuously throughout the decade, while it shows ups and downs in both Iran and Costa Rica and ends the decade with a declining trend. In Korea, Mexico, and Turkey, employment rates were more stable or rising, indicating better or more stable economic conditions. In summary, pre-COVID-19 trends in employment reflect the uniqueness of labor market behavior across different countries. While in general Korea and Turkey managed to improve their employment rate, Afghanistan, China, and Chile all dropped considerably. These trends therefore present a foundational knowledge of what employment looked like before the global disruptions caused by COVID-19, adding context to how various economies could be impacted differently.

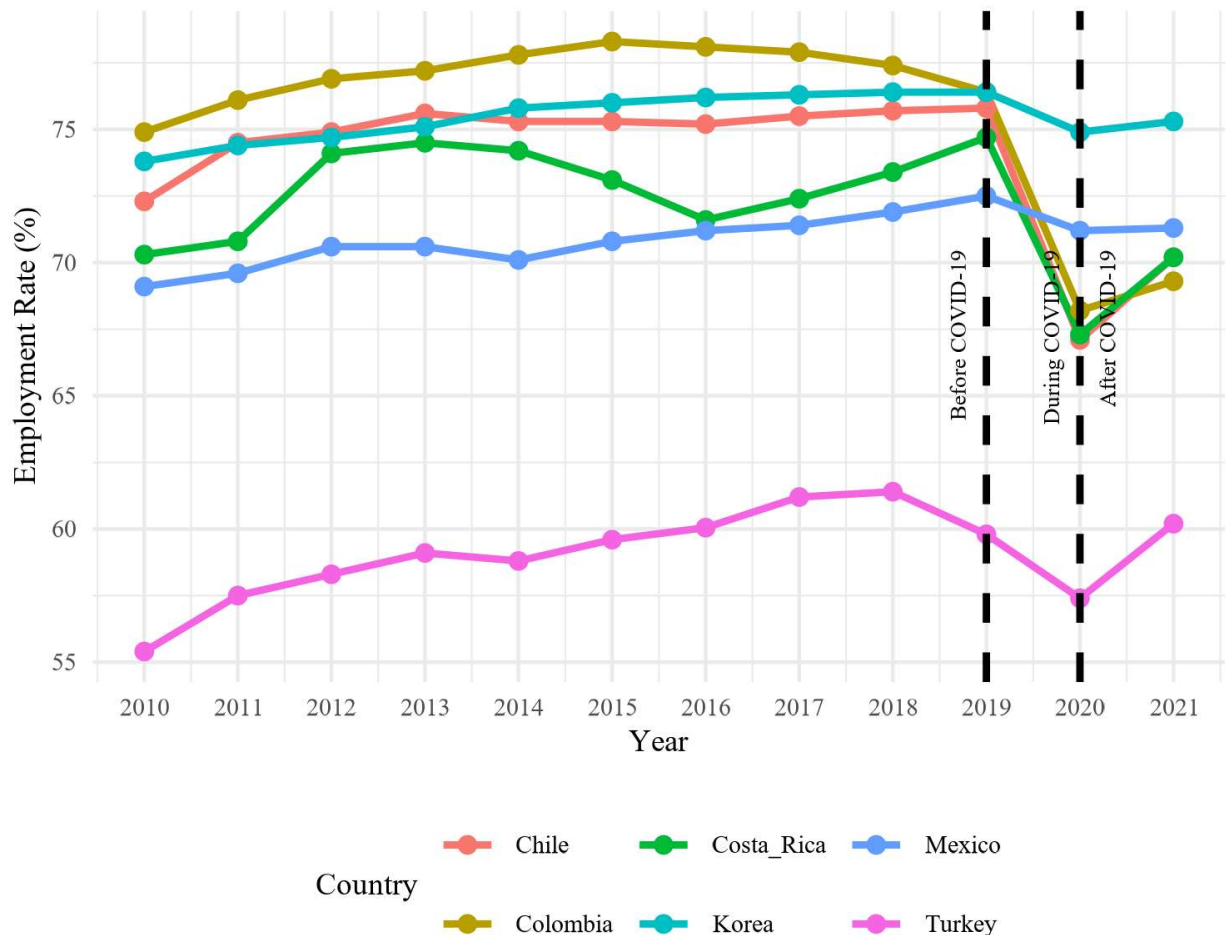
Comparative analysis during the COVID-19 crisis, Afghanistan, China, Chile, Colombia, Costa Rica, and Mexico recorded a drastic decline in employment rates resulting from the COVID-19 crisis. In the case of Iran and Turkey, the decline was moderate, reflecting how this pandemic affected already volatile labor markets. A relatively small decline in the employment rate was seen in the case of Korea, thus it could be stated that compared to other countries, the Korean labor market is more resistant.

Comparative analysis after the COVID-19 crisis shows that if, in countries like China, Colombia, Mexico, and Turkey, this value has strongly surged upwards, foreshadowing a genuine recovery tendency, countries such as Chile, Costa Rica, and Korea depict more moderate upward shifts, indicating a gradual improvement in each respective labor market. In sharp contrast, Afghan and Iranian economies recorded slight declines or minimal recovery, underlining the ongoing economic challenges and instability these countries face. Moreover, the 2021 employment data shows that employment rates are slowly recovering in different countries as they grapple with the aftereffects of COVID-19. Some were turning out under the robust recovery trend, such as China, Mexico, and Turkey, while some, like Afghanistan and Iran, faced serious economic challenges. However, the

data shows a positive recovery trend; this varies across the pace and extent in the different countries analyzed.

Figure 4. 17

Total (Women and Men) employment rate: working age population from 25 to 54 years, Calendar and seasonally adjusted



Source: Author's calculation based on OECD countries

Figure 4.17 presents data for the employment rate of the working-age population aged 25-54 in Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey from 2010 to 2021. Due to insufficient data, Afghanistan, Iran, and China were excluded from the analysis. The data examines trends and changes in employment rates before, during, and after the COVID-19 crisis.

In Chile, the employment rate increased from 72.3% in 2010 to 75.8% in 2019. The trend of the employment rate indicates its continuous year-by-year increase. The highest employment rate was 75.8% in 2019, showing that the labor market was healthy before the COVID-19 crisis. In 2020, the employment rate was 67.1% in Chile, from 75.8% in the

previous pre-pandemic year of 2019. This dramatic fall to 67.1% in the year 2020 shows how big an effect the crisis of COVID-19 has had on employment, a fact that is reflected in general terms in the widespread job losses and rupture of the economy. Moreover, the employment rate was 70.2% in 2021, up from 67.1% in 2020; it therefore seems on track to secure this positive recovery path, although it has not yet climbed back to the pre-pandemic level of 75.8% in 2019.

While in 2010 the employment rate equaled 74.9% in Colombia, by 2015 it had increased to 78.3%, then gradually dropped in 2019 to 76.4%. In the early 2010s, there was a steep climb in the employment rate of Colombia. It gained momentum up until 2015 but declined somewhat in the second half of the decade, thus showing some failures in holding this high pace of employment. The case for Colombia accounted for an employment rate of 68.2% in 2020, pointing out a sharp decline in it. This means that against the 76.4% observed in 2019, before the outbreak of the pandemic, the 68.2% posted in 2020 simply underlines the negative effect of the pandemic on the labor market. The employment rate in Colombia grew to 69.3% in 2021 from 68.2% in 2020. While the increase denotes a gradual recovery, it remains below the pre-pandemic level of 76.4% in 2019.

In Costa Rica, the employment rate has risen from 70.3 percent in the year 2010 to 74.7 percent in 2019, which shows that Costa Rica is following the wave of ups and downs but generally upward. There was strong growth from the year 2011 to 2013; then, it had some fluctuations up and down in later years and ended with a positive trend towards 2019. Besides, in Costa Rica it was 67.3% in 2020, and hence a drop in the employment rate, as against the 2019 figure before the pandemic of 74.7%. The disruption of the pandemic to employment rates during the COVID-19 crisis can be located within Costa Rica. The employment rate in Costa Rica surged, from 67.3% in 2020 to 70.2% in 2021. Being quite remarkable progress, this improvement confirms the trend of a robust recovery and is on the path to approaching the level seen before the pandemic, at 74.7% in 2019.

In Korea, the employment rate has increased by 2.6 percentage points from 2010 to 2019 and continues to have an increasing tendency in the past decade, reflecting the stable and growing labor market. It plateaued at 76.4% over the past two years, indicating sustainably high employment. The employment rate in Korea is 74.9 percent, while that for the age group of 25-54 makes a difference in 2020. Though lower than the 76.4 percent seen among the general age group in 2019 before the pandemic, the decline was less severe compared with other countries, thus proving the resilience of the Korean labor market

amidst the pandemic. In the case of Korea, the employment rate increased to 75.3% in 2021 from 74.9% in 2020. The small magnitude of this rise suggests quite a stable recovery close to the pre-pandemic rate of 76.4% in 2019.

The employment rate in Mexico increased within the 2010-2019 period from 69.1% to 72.5%. In Mexico, the rates of employment have had a rising tendency in a consistent manner, with annual growth numbers. This trend indicates a continuous improvement in the labor market conditions found throughout this decade. In Mexico, in 2020, the prime-aged labor force group decreased to 71.2% compared to the pre-pandemic rate of 72.5% for the general labor force in 2019, showing only a moderate impact of the pandemic on employment. For Mexico, there was a slight increase in the employment rate, to 71.3% in 2021 from 71.2% in 2020. Although modest, the increase denotes that the level of employment is slightly above the level before the pandemic, since in 2019, it stood at 72.5%. Meanwhile, in Turkey, the percentage figure of employment rose from 55.4 % in 2010 to 61.4 % in 2018, with only a small decline of 59.8 % in 2019. Turkey is strongly increasing the rates of employment, though mainly during the period 2010 to 2017, which proves a positive development in labor market dynamics. Even though there is a slight fall in 2019, it might indicate the fruition of some restraints or may prove to be a natural cycle for growth, which must by all means be an optimistic growth trend throughout the decade. In Turkey, it had an employment rate of 57.3% in 2020 as opposed to 59.8% in 2019 for the general labor force. The decline underscores the negative impact of the COVID-19 crisis on the Turkish labor market, albeit not as drastic as in some other countries. Lastly, there is Turkey, where the employment rate rose to 60.2% in 2021 from 57.3% in 2020. One would observe that the trend is for a robust recovery, bringing the rate close to the pre-pandemic level of 59.8% in 2019.

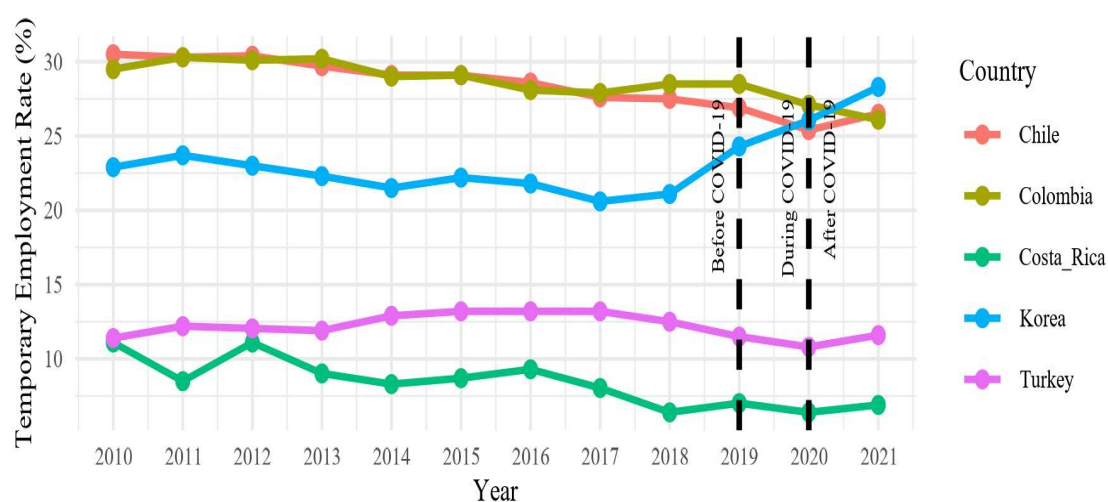
Comparative analysis before the COVID-19 crisis shows that over the last ten years, Chile, Korea, and Mexico have recorded continuous and uninterrupted development in their employment rates, outlining the strength of their respective labor markets. In Costa Rica and Colombia, in contrast, the employment figures indicate a stronger fluctuation marked by phases of growth, which have balanced phases of decline. Turkey saw the highest growth in employment rates throughout this period, before leveling off somewhat towards the end of the period under consideration. If considering all the different employment indicators for the working-age population, what it points out overall is a general trend of rising employment rates across all six countries under consideration throughout

2010-2019. This trend mirrors favorable labor markets before the unprecedented COVID-19 crisis, though each country exhibited its growth pattern interjected with transient behavioral fluctuations. According to the dataset, would reflect the resilience and progress seen in the employment metrics before the outbreak of the global pandemic, thereby giving insight into the positive labor market conditions that prevailed during the period under analysis. The comparative analysis during the COVID-19 recession shows that Chile, Colombia, and Costa Rica registered a massive drop in employment rates, thus indicating that each of these countries has been hard hit by the COVID-19 crisis. Mexico and Turkey had a moderate decrease in employment rates, showing a relatively small but noteworthy impact of the pandemic. Korea followed as the best case since it recorded a slight drop in the rates compared to peers.

Comparative analysis after COVID-19 shows that both Chile and Costa Rica depict strong recovery trends in 2021, where the employment rate grows significantly as compared to 2020. In Colombia and Korea, there were modest improvements that suggest a continued but slow recovery. Mexico maintained a stable employment rate with marginal increases, pointing to a slow pace of recovery. For its part, Turkey showed an impressive recovery and was able to improve its employment rate quite significantly against the previous year.

Figure 4. 18

Total (women and men) temporary employment rate for the working age 15 years or over



Source: Author's calculation based on OECD countries

Figure 4.18 shows a comprehensive analysis of temporary employment rates for the period from 2010 to 2021 in Chile, Colombia, Costa Rica, Korea, and Turkey, to illustrate the prevailing trends observed in the labor market before, during, and after the outbreak

of the COVID-19 pandemic, especially concerning fluctuations in the temporary employment rate. It is worth noting that for countries such as China, Afghanistan, Mexico, and Iran, temporary employment was remarkably low due to the lack of accessible and reliable data in the period indicated.

In Chile, the temporary employment rate fluctuated considerably over the entire period under review. At the beginning of 2010, it was an impressive 30.55%, followed by a continuous and significant decline, culminating in a rate of 26.99% in 2019. It can also be noticed that for Chile, the recorded temporary employment rate for the year 2020 was about 25.41 percent, which falls steeply from the preceding year of 2019, which recorded about 26.9 percent. Moreover, temporary employment rates have increased slightly, from 25.41% in 2020 to 26.5% in the following year of 2021-a proportion that signals gentle but significant changes in employment patterns. The slight increase in temporary employment figures may indicate that such labor reflects ongoing adjustments in the Chilean labor market, which will still struggle with residual pandemic effects well into 2021. Even though most sectors of the economy were already on their way to recovery, they still strongly relied on flexible working arrangements since firms were facing a lot of uncertainties and unpredictability in consumer demand at this time. Sectors like retail, tourism, and construction are likely to have retained their labor practices with casual workers since these were among the most badly affected sectors when lockdowns and other social distancing measures were put in place to help slow down the transmission of the virus. This increase in the share of temporary employment is evidence enough that any perceived end of workers' need to be adaptable and flexible in labor markets, at the behest of an increasingly volatile economy, is very far from over.

This development has nonetheless created genuine job security apprehensions and raised fundamental questions on the quality of jobs, particularly those affecting vulnerable workers. Chile might, consequently, do well to concentrate its efforts on improving labor conditions, in particular, for temporary workers, so that such workers enjoy the social benefits they require, get sufficient health insurance, and earn equitable pay commensurate with their input to the country's economy.

This heavy reliance on temporary employment is perhaps explained by the strategic steps taken by the country to keep labor market flexibility open given the disrupting challenges caused by the pandemic. In this respect, employers might have used fixed-term contracts as part of a practical short-term solution to deal with uncertainties and fluctuations related

to the COVID-19 crisis. It should also be mentioned that such branches of industry as retail, hospitality, and construction, having gained the most debilitating blows from the COVID-19 pandemic, usually tend to rely more on temporary workers, thus artificially inflating these statistics. While the high share of temporary employment may have its positive characteristics in certain contexts, this is relevant to consider that this phenomenon does have a two-edged perspective. Moreover, it provides firms with an opportunity to change the composition of their workforce rapidly in negative economic conditions to make them adapt more or less effectively to the market fortunes. On the other hand, reliance on temporary work puts labor in a precarious position; individuals working on temporary contracts usually have low job security and are often denied access to the basic benefits normally available to permanent employees.

The temporary employment rate in Colombia was 29.56% in 2010 and then increased to 30.33% in 2011. After that, it slightly decreased to 30.13% in 2012 but in 2013 it again slightly increased to 30.24% and then decreased to 29% in 2014. After that, it gradually decreased to 27.98% in 2017. Between 2018 and 2019 it increased to 28.58%. The temporary employment rate in Colombia went down significantly. It moved from the high 28.58% in 2019 to the much lower 27.1% in the following year, 2020. Such a change in the employment landscape features evidence of the still unresolved issues in the Colombian labor market, which has always been marked by a high level of informality and temporality in employment relationships. The unprecedented situation brought about by the pandemic probably accentuated the need for greater flexibility, since many companies had to address the complexity of lockdowns and all the different restrictions on their activities. Besides that, the economic structure in Colombia is heavily dependent on sectors like agriculture, construction, and informal retail, where temporary work practices are generalized and may have accentuated trends already existing with respect to temporary work arrangements. While temporary work can provide flexibility for employers and employees alike, such prevalence of these types of arrangements points to the deeper structural problems that have beset the labour market in Colombia. Most of its population does not have access to sufficient social protection and may be vulnerable to precarious working conditions; all this gets worse with crises like COVID-19.

During 2020, the rate of temporary employment in Colombia was 27.1%, while during the year 2021, it reached a value of 26.15%. This marginal decrease in the rate of temporary employment perhaps indicates the fact that indeed a part of economic activities must

have just started recovering from the unprecedented shock at the start of the pandemic that reverberated across the globe. In fact, given that the national economy has begun to get back on its feet, it is of course particularly to be appreciated that many firms may have already started switching their labor forces back to permanent from temporary contracts, or at least reducing their reliance on temporary work solutions. However, this continuously high level of temporary employment underlines that the Colombian labor market is still highly dependent on short-term contractual arrangements. It points to more serious structural problems that preceded the COVID-19 pandemic, such as the extensive informality of the labor market and a relatively great degree of underemployment. Against the background of having had only a minor decline in the temporary employment rate, the continuously high number of such employment relationships shows that the country still struggles to pursue stable and formal job opportunities. Long-term sustainable recovery and increased resilience to possible future economic shocks require addressing these structural problems at the roots of the country's labor market.

In Costa Rica, the temporary employment rate decreased from 11.1% to 8.5% between the period of 2010 and 2011 and then increased to 11.13% in 2012. After that, there was a continuous decrease to 8.3% in 2014 and then increased to 9.3% in 2016. Between 2016 and 2018 it gradually decreased to 6.46% and then slightly increased to 7.02% in 2019. Costa Rica, in turn, reports rather low levels of temporary employment; thus, in 2020, it reached only 6.48%, which also presupposes much lower dependence on temporary workers in general within the labor market framework. This relatively low level of temporary employment rate may be interpreted as suggesting that permanent contracts depend more on labor market supply—a fact that could be indicative of stronger protection of labor or other employment policies, which aim at the reduction of safeguarding the rights of employees. But over recent years, the country of Costa Rica has taken on board the task of formalizing employment practices and raising labor standards in a major way, which has helped keep low levels of instability in its labor market. Either the pandemic had less impact on the workforce of permanent employees in Costa Rica compared to other countries, or the government may have implemented more effective supporting mechanisms so far that have allowed for the retention of permanent employment. The fact that fewer workers had to resort to temporary employment during the pandemic could suggest that the job market is more resilient and provides more stability for laborers against economic disruption. On the other hand, it can be given another meaning: perhaps

because employers faced sudden changes that they could not adapt to, unemployment or underemployment rates went up due to their inability to use temporary work provisions. moreover, Costa Rica recorded a slight increment in the rate of temporary employment from 5.84% in 2020 to 6.91% in 2021. The modest increase in the rate of temporary employment can be justified by residual operational flexibility needs in certain activities after the companies started to reopen their doors and to actively rehire people after the first waves of the pandemic. However, since the overall level of temporary employment remains quite low, Costa Rica's labor market is more characterized by employment stability compared with other countries in the region. Indeed, government policies and labor regulations aimed at stimulating formal permanent employment opportunities have probably played a crucial role in dampening the growth of temporary employment. In countries where temporary employment is relative, such as Costa Rica, it is overt that this country was in a better position to secure permanent jobs during the pandemic period. It may well have been stability in the labor market that could allow economic recovery to be faster, with more security and confidence being provided to the workers of the country. However, the Sahm rule-based measure of labor market conditions shows that temporary employment is continuing to grow in fact, faster than permanently-much as the challenge of returning employment practices fully to pre-pandemic levels was yet to be resolved in some sectors.

The temporary employment rate in Korea between 2010 and 2011 increased from 22.9% to 23.7% and then continued and gradually decreased to 21.5% in 2014. In 2015, it was increased again to 22.2%. after that period it eas decreased to 20.6% in 2017 and then increased to 24.3% in 2019. Temporary employment was recorded to reach an incredible rate of 26.05% as of 2020-an astonishing statistic that puts this country at the top compared with all other countries globally. One of the serious problems that has always plagued the South Korean labor market is its dualistic structure, whereby one class of employees enjoys very high protection and benefits while their non-regular or temporary peers are often exposed to unstable working conditions that make them vulnerable. This gap has more than likely been widened by the outbreak of the COVID-19 pandemic, where an increasing number of firms resort to fixed-term contracts as a deliberate strategy to cut labor costs and adjust their supply to lower demand, which is sharp in key sectors such as manufacturing, retail, and several service industries. People working on fixed-term contracts are often not protected in terms of basic social benefits and enjoy less job

security. In the case of an extraordinary crisis, such as that caused by the COVID-19 pandemic, they face the highest risk of redundancy or being obliged to work fewer hours than usual. This could make their jobs precarious and serve to widen the gap of social inequality. Younger workers and women who are overrepresented in fixed-term contracts have been hit particularly hard. The consequences of such inequalities will therefore need to be critically considered and challenged since these are related not only to economic productivity but also to wider issues of social inequality and social justice. Therefore, government agencies, businesses, and workers' organizations all must combine efforts to find ways of dealing with these challenges and striving for a labor market that is far fairer and takes into account the rights and well-being of all workers regardless of their employment status. After all, an inclusive work environment will play an important role in maintaining long-term economic stability and social cohesion in South Korean society.

Moreover, it increased from 26.05% in 2020 to 28.3% in the following year, 2021. The large increase in the rate of temporary employment in Korea could be indicative of the uncertainty and instability that the economy will continue to face in 2021. The sharp division that characterizes the Korean labor market between regular or permanent employees and non-regular or temporary ones has possibly been hastened and exacerbated by the pandemic that continues to bite. It is most probably the case that several companies have decided to remain with temporary workers as a deliberate cost-cutting strategy while seeking to retain some level of flexibility in operations given the persistent and shifting impact of the pandemic. Recent growth of temporary work in Korea points to many significant labor market challenges, such as greater job insecurity and broader income disparity among workers. This unusually high share of temporary workers in the workforce risks undermining not only long-term economic stability but also so much of the social cohesion upon which a healthy society is premised, especially as so long as they continue to be denied many of the most basic benefits and sufficient job protections. Given these two pressing issues, consideration and implementation of more vigorous labor market reforms will be crucial for Korea to handle the mentioned problems and simultaneously work on less dependence upon temporary employment as a significant employment policy.

In Turkey, the temporary employment rate increased from 11.4% in 2010 to 12.2% in 2011 and then instantaneously decreased to 11.9% in 2013. There was a gradual increase

in the temporary employment rate to 13.23% in 2017 and then dropped to 11.5% in 2019. The peak of temporary employment in Turkey was around 10.87% in the year 2020. It is a statistical figure that reflects a decrement compared with the previous year, 2019; therefore, the temporary employment rate in Turkey was comparably lower than the employment scenarios observed in countries like Korea, Chile, and Colombia. While the Turkish labor market is flexible by nature, there might have been some stabilization in the aftermath of government interventions initiated within the extraordinary conditions of the pandemic. In line with the challenges posed by the pandemic, Turkey has taken some measures intended to maintain employment opportunities. These ranged from the introduction of temporary wage subsidies to the introduction of leave schemes to help both employers and employees through such difficult times. This may be a strategic approach that explains why, up until now, fixed-term contracts, despite all the turmoil on the economic front, have not increased as much, but rather have remained at a moderate level. However, one has to take into account the economic structure of Turkey, which relies more obviously on more permanent forms of employment, particularly in more sensitive sectors such as public administration, health, and education may have contributed to this relative stagnation of temporary employment during the period under review. A lower rate of temporary employment could reflect stronger employment protection policies or targeted labor market interventions that were effectively pursued in the pandemic crisis. But from the same set of figures, it is also possible to read this situation in terms of employers' proclivity to shed labor in economic downturns rather than relying on fixed-term contracts when the latter would more effectively achieve their objectives of increasing unemployment in the labor market. Given such complexities, it is relevant to disaggregate the complex dynamics of the Turkish labor market and how various factors interact with each other in influencing employment trends during crisis times. The interaction between government policy and the decisions of employers can be a probable reason for the identified trend in temporary employment rates. In the end, it is both the carefully analyzed macroeconomic conditions and the complex response by each of the actors in the labor market that will enable a full understanding of such phenomena.

In the case of Turkey, the temporary employment rate increased from 10.8% in 2020 to a marginally higher rate of 11.6% in the following year of 2021. Given this relatively modest rise in the temporary employment rate, it could be realized that Turkey, like many other nations of the world, was still reeling under the prolonged impact of the pandemic

in the year 2021. Although the government of Turkey had taken various measures to secure employment during the pandemic, such as introducing furlough schemes and providing wage subsidies to the affected workers, some sectors of the economy probably reverted to relying on temporary employees once they started reopening and regaining the ability to skillfully manage fluctuations in consumer demand. The lower comparative rate of temporary employment indicates that labor in Turkey is more stable than in other regional countries. However, the observed increment in the rate of temporary employment indeed means that even now, some fundamental issues persist in some sectors that need attention and intervention. As Turkey continues to advance in its process of recovery, policymakers should be more aware of the development and implementation of policies that encourage not only job creation but also the inclusion of temporary workers, who must not be forgotten or marginalized in the process, as the country moves steadfastly to recovery and reinvigoration following the economic downturns brought about by the pandemic.

Conclusively, the empirical data tend to show sharp contrasts in the strategies adopted by these five varied nations while governing temporary work during the COVID-19 pandemic, which is a global crisis that called for prominent changes in labor practices. In particular, the labor markets of Korea, Colombia, and Chile had high levels of temporary employment, which might mean a flexible work environment. While this flexibility is not without certain negative consequences, such as precarious conditions of work for many workers, on the other side, in the case of Costa Rica and Turkey, a minor rate of temporary employment might suggest an employment situation that is more stable but not without specific problems in effectively dealing with labor market shocks during crisis time. Increased reliance on temporary work and the crisis at hand caused by COVID-19 has raised larger economic and social questions about workforce security and the possibility of economic recovery for these countries.

Temporary work gives businesses some flexibility during economic uncertainty and provides employers with the opportunity to employ workers on short-term contracts, which may facilitate the management of fluctuations in demand that commonly affect different sectors. While this may be appealing to temporary contract workers, in reality, it is often quite the opposite, since this class of employment is usually associated with loss of job security, the basic amenities, and bankruptcy protection because of redundancy or dismissal. Indeed, the increases in the temporary employment rate recorded during the

COVID-19 pandemic in some countries could well be the result of an apparent chary attitude developed by employers against entering into long-term contracts given the prevailing economic uncertainty that characterized this turbulent period. Sectors more vulnerable to the negative impact of the pandemic, such as hospitality, retail, and tourism, were probably the contributing factors to higher rates of temporary employment in those countries relying heavily on these sectors for economic activity and providing jobs.

This means that in nations with a high percentage of temporary employment, the social issues will increase more strongly during the pandemic and in the subsequent phase of recovery. Generally speaking, the workers employed in temporary jobs don't have social security benefits such as health insurance, unemployment benefits, or pension plans; they're thus particularly vulnerable during hard times economically and during crises. For some countries, such as Korea, Colombia, and Chile, the goal of reducing dependence on temporary employment and thereby solving dualism in the labor market may be a major factor in achieving more inclusive economic growth with equity. On the contrary, the lower temporary employment rates in Costa Rica and Turkey could reflect more stable conditions in the labor market. However, it is relevant that these countries not forget the unemployment and informality problems, often hidden in data referring exclusively to temporary employment statistics.

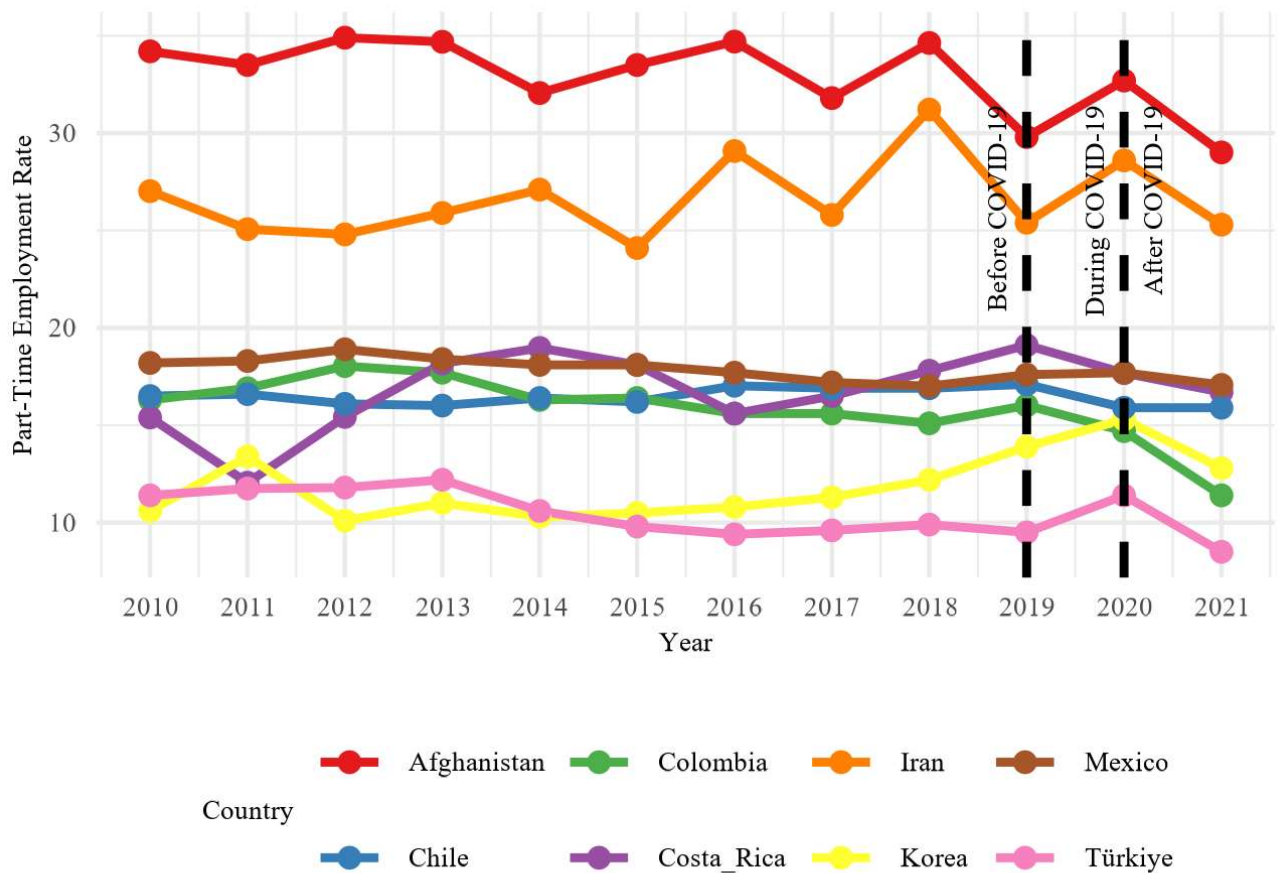
In summary, after the COVID-19 outbreak, the temporary employment rate has either risen or faced a minimal decline in most countries of the world in 2021—a sure-shot indication that many economies were still finding their way to recovery from the widespread pandemic effect. These temporary work phenomena gave businesses the much-needed agility and flexibility to maneuver through the hitherto inchoate economic climate, underlining at the same time ongoing challenges associated with job insecurity and economic inequality that plagued many labor markets. Certain countries, like Korea, Colombia, and Chile, have been found persistently suffering from high rates of temporary work; in fact, these are deeply ingrained structural problems in their labor markets and need immediate attention and action. Since the economies depend a great deal on temporary or non-regular arrangements of employment, then, thereby, a big chunk of the workforce is rendered vulnerable to economic shock and vulnerabilities. This is because many of them are typified by inadequate availability of key social protection, coupled with increased job instability risks that come with financial crises. That countries like Turkey and Costa

Rica might hold relatively low rates of temporary work compared with other countries just goes to show the intricateness of the dynamics within the global labor market.

Most temporary jobs fall within such sectors as construction, retail, hospitality, and agriculture which were among the hardest hit by the disrupting forces of the epidemic. Companies within these specific industries may have shied away from committing to long-term employment arrangements, given the overall instability within the environment for that time; this perhaps inadvertently helped to push up the levels of temporary work within the same period. The persistently high rates of temporary labor in some countries raise important questions concerning social inequality and the effectiveness of the social safety nets in place for workers. Temporary workers usually receive lower wages, have fewer benefits, and bear a disproportionate impact of layoffs during recessionary economic times. Some pressing concerns around temporary employment will be vital in ensuring the pandemic recovery is inclusive and sustainable and in support of a fair labor market for all workers.

Figure 4. 19

Part-time employment rate for the working age group 15 years or over



Source: Author calculation based on OECD countries, World Bank, and International Labor Organization (ILO)

Figure 4.19 shows the part-time employment rate in Afghanistan, Colombia, Iran, Mexico, Chile, Costa Rica, Korea, and Turkey between 2010-2021, analyzing the labor market dynamics before, during, and after the COVID-19 pandemic. China is not included in the analysis because the data was not available at the time. In the Chilean labor market, the share of people employed part-time has proved remarkably stable over the years. These figures only deviate between 16.01% in 2013 and 17.1% toward the end of 2019. From this relative stability in the part-time employment rate, one can understand that, at least for the prevalence of part-time employment, the general structure of the Chilean labor market did not change significantly throughout this period. Supportive factors such as a steadily stable economy, minimal changes in labor legislation, and a moderate demand for flexibility of the workforce probably established this trend in perpetuity.

In this respect, part-time work has represented an employment relationship relatively stable, although subordinated, with evidence of a labor market where full-time jobs are strongly predominant. Actually, despite minor annual fluctuations, the growth of part-time work has not been particularly significant, and this implies the absence of any marked transition toward precarious or flexible employment in the labor market. Consequently, data indicates that the nature of employment in Chile still retained its traditional characteristics, where full-time employment is the main source of employment for the majority of the workforce. It can thus be concluded that employment dynamics in Chile remained broadly the same as a reflection of general economic and regulatory conditions that did not necessitate drastic changes in the employment pattern.

It follows that the COVID-19 pandemic has had a most profound impact on the labor market of Chile, indicated by the fall in part-time employment from 17.1% in 2019 to 15.9% in 2020. Stricter lockdowns and economic downturns implemented to contain the virus have greatly impacted those sectors that are more dependent on part-time employees, such as retail, hospitality, and personal services. Indeed, within these sectors were the most intense closures and reduction of activities, with strong cuts in part-time jobs. This somehow suggests that many of the part-time workers become unemployed, while others became full-time workers as far as that was possible, which turns part-time work into the most vulnerable one during economic crises. Part-time employment also received serious hits on account of Chile's dependence on specific sectors like retail, tourism, and agriculture. These industries, reliant on heavy part-time workers, suffered most from pandemic-related restrictions and changed consumer behavior. The fall in part-time work became one of the contributing factors to broader economic contraction, yet underlined how very close so many sectors are interrelated in the Chilean economy. This new trend in employment could have long-lasting repercussions in Chile's job market and influence designs for the future of workforce strategies and policy decisions that would attempt to get it on its feet from such crises and be resilient toward similar crises. On the downside, reduced part-time jobs beg questions of stability and security for these positions during such economic times. This suggests that more comprehensive social protection programs and labor market policies are required, which would put fewer shocks on workers who are in precarious work situations. Another argument that might go in this direction is that the decline in part-time work may have fallen more disproportionately on particular groups, such as women, young workers, and the low-skilled, who are overrepresented in

part-time jobs. This might further entrench labor market inequalities and lead to less inclusive economic growth. The labour market shift in employment has been important in determining how the government's response has influenced the shape of Chile's economic recovery. Among several measures put in place to cushion the impact of job losses and help stabilize the labour market are wage subsidies, unemployment benefits, and support to small businesses. However, how such interventions contribute to addressing the specific challenges of part-time workers has become open to debate and further analysis. Though Chile is in the wake of economic recovery post-pandemic, flexibility in the labor market with job security and stability increasingly becomes a big challenge for policymakers and businesses alike. The pandemic has exposed the need for stronger models that can absorb economic shocks without losing protection and opportunities for career advancement among workers. Changing patterns of part-time work may accelerate ongoing trends in the Chilean labor market, such as the adoption of remote work and the growth of the gig economy. These changes can also pave the way for newer ways of conceiving part-time work, opening up several flexible forms of employment that present their own challenges and regulatory issues. Finally, the decline in part-time employment in Chile resulting from the COVID-19 pandemic is many-dimensional; in fact, its traits blossom far into the country's labor market and broader economic setup. It underlines the vulnerability of some sectors and types of employment to exogenous shocks and points toward adaptive policies and strategies that might be pursued with the aim of building up a resilient and inclusive labor market in view of future crises.

Part-time employment is quite stable in Chile, as it stood at 15.9% both in 2020 and in 2021, which signals a rather limited degree of recovery in this part-time employment area. This is contrary to what has been happening in a number of other economies, where the initiation and realization of recovery efforts have seen significant increases in the level of employment. However, it has to be taken into consideration that, in Chile, the growth rate of part-time employment has not changed much; therefore, a fact to prove that this part of the labor market still faces quite significant problems, which are further exacerbated within sectors highly dependent on part-time employment, such as retail or the service industry. During the whole period of the pandemic, Chile faced a serious economic decline that seriously struck many industries, and though at the beginning of 2021 vaccination campaigns and actions aimed at the renovation of the economy began to take shape, the performance of part-time jobs, especially in service and trade, remained under strong

pressure and tension. This current situation illustrates that a high proportion of the part-time jobs within these industries especially pertain to hospitality-may not be recovered to this date or have reached pre-pandemic levels, thus making employees still very insecure about their jobs. Moreover, it should be underlined that the Chilean economy highly depends on the exportation of different types of commodities. While the pandemic has continued to be a rollercoaster, sectors like mining have remained relatively stable; for other sectors, however, which depend more on home consumption, it would appear fairly difficult to include workers in the part-time integration process.

Part-time work in Colombia reached its peak in 2012, with 18.04%, then fell dramatically to 15.6% in 2017, while increasing modestly to 16.02% in 2019, thus showing dynamic development during that period. Ups and downs of data hint that such fluctuations are likely to be the result of an interaction of economic and social factors, acting complexly in the labor market. The striking increase in part-time employment in 2012 is owing to the combined action of high levels of informal employment and the spread of flexible working contracts, favoring together the expansion of the part-time sector. However, the subsequent decline in part-time employment may suggest that labor market reforms, either to reduce informality or to improve the overall quality of the available jobs, were implemented in the country. It should also be underlined that the share of informal employment is a considerable part of the time in the Colombian labor market. Such a fact has likely played a huge role in the trends that could be observed over the last ten years concerning part-time employment. The slight upturn observed in 2019 could probably indicate an increase in demand for flexible employment within certain traditional sectors associated with such employment, including service, retail, and tourism, among others.

Part-time employment in Colombia has shown a drastic drop from an initial rate of 16.02% obtained during 2019 to recording a high level of decline in the following year to 14.7%. The pandemic had quite terrible and severe implications on the Colombian labor market since many part-time opportunities were wiped out within the country, especially within its informal sector, which absorbs quite a substantial share of the nation's workforce. While the country was showing one of the highest levels of employment informality in all of the region, it simultaneously recorded the most significant fall in the number of both informal and part-time workers- a considerable number of either losing their jobs or shifting into full-time employment in the sectors considered essential during the health crisis. This could, therefore, be a very good reason for the general decline in the part-time

employment rate across the nation. The economic structure of Colombia is mainly based on agricultural and service sectors, which were both severely affected by the general impacts of the pandemic. This structural dependence on informal work arrangements might have significantly hampered the possible recovery of at least part-time employment opportunities and thus has created considerable obstacles for many people in their pursuit of formal or full-time employment opportunities. The situation well elaborates on the interaction between economic structure and labor market outcome, particularly in times of crisis. This also points to the sufferings of the workers who are stuck in informal labor, generally devoid of the security and benefits accompanying formal work. Hence, the interaction of these elements may continue to shape the course of employment in Colombia during the post-pandemic recovery period.

the share of part-time employment in Colombia for 2021 decreased from 14.7% in 2020 to a much lower rate of 11.4% in 2021, reflecting fluctuations in the labor market dynamics of that country. Such a decline would therefore imply that many of the part-time workers in Colombia might have managed to fruitfully flow into full-time jobs or out of the labor market altogether during such a time when an economy was showing signs of recovery from such a negative pandemic shock. The pragmatic fall in the part-time employment rate could be perceived either as a serious intent by the government and institutions of Colombia to formalize the labor market in the post-pandemic period or as an outcome of companies in different sectors opting to hire fewer part-time workers and bringing in full-time workers to stabilize their operational capacity. Moreover, since Colombia is in the middle of an economic boom, more informal jobs became available, which most probably knocked out many of the previously existing part-time jobs. This being said, it is significant to highlight that Colombia is traditionally facing high levels of underemployment, and the circumstances generated by the pandemic may have been forcing this category into an active job search in search of better opportunities in a particularly adverse labor market situation. It might also mean that the decline in the rates of part-time employment indicates a large number of informal part-time workers risked unemployment or retreated into the labor market in search of better forecasts.

In this respect, Costa Rica followed a very tortuous road of changes within the framework of the employment indicator, having started from 15.4% unemployment in 2010, then decreased to 12.05% in 2011, and later impressively grown to 19.11% in 2019. This is most likely a signal that the structural nature of Costa Rica's labor market notably, the

extent and rhythm of part-time work open to employees changed dramatically. While an initial decline in the unemployment rate can be an indication of strategic measures taken either to stabilize the labor market or even enable the environment to increase full-time employment, the subsequent rises in part-time employment may be due to the rising demand for labor flexibility as a result of increasing service sectors or other different economic challenges over time. In this way, substantial growth in part-time employment through 2019 might be interpreted as a direct response to increasing economic pressures whereby employers seek to implement cost-cutting measures while expanding the supply of part-time jobs. Besides, this trend can also testify to the fact that the labor market is becoming more flexible: people take up part-time jobs due to family commitments or other personal reasons that require a more adaptable approach to employment. In other words, the detailed interrelations of employment rates and the structural peculiarities of the Costa Rican labor market reveal that employment in itself is a very complex and multifaceted thing, influenced by a great number of socio-economic factors, which influence the patterns of labor. The changing patterns, therefore, have to be analyzed in-depth to appreciate the wider ramifications for the economy and labor in this Central American nation. The South Korean case provides an interesting gradual rise in the level of part-time jobs, starting from a humble 10.6% in 2010 to an astonishing 143.98% in 2019. This trend of constant rise in part-time employment rates in the Korean labor market is driven, above all, by a series of vibrant demographic changes-particularly the rising proportion of elderly people and the nation's growing dependence on flexible labor arrangements to meet diverse employment needs.

The part-time employment rate in Costa Rica saw a minimal decline from an impressive 19.11% in 2019 to 17.6% in 2020. Essentially, the sectors that dominate the Costa Rican labor market include the service, tourism, and agriculture sectors, which were all badly crippled by the unprecedented happenings in the pandemic period. Travel restrictions and lockdown measures directly reduced the demand for labor in these significant sectors of the economy and led to the removal of a substantial number of part-time jobs. This is consequently perhaps to have forced part of the workforce to shift to other forms of informal employment or find themselves completely unemployed, hence apparently acting to explain this observed decline in the part-time rate of employment. The sudden collapse of tourism-these very vital and integral building blocks of the Costa Rican economy-functioned to have a disproportionately unusual effect on part-time jobs, particularly for

those workers who were employed in related fields of hospitality, such as hotels, restaurants, and transportation services. This loss underlines how fragile the contours of the employment landscape are with respect to the health of the tourism industry but also serves to point out other wider economic frailties that may emanate from global crises. Thus, the interlinkages between these sectors and the overall economic stability of Costa Rica come more clearly into view, underlining the urgent need for resilient workforce strategies in the face of future uncertainties.

While the part-time employment rate in the labor market of Costa Rica has slightly decreased from a respectable 16.7% in 2020 to a slightly lower 16.7% in 2021-it indicates that a gradual but identifiable return toward job or work patterns before the outbreak of the epidemic has been achieved. The mere decline in the rate of part-time employment signifies a sluggish but continuous recapture for those sectors highly reliant on part-time employment, especially the tourism and service industries. Though these sectors were under some pressure, there were some signs of gradual improvement with the lifting of international travel restrictions and the reopening of the world's economy. For Costa Rica, reliance on tourism is an industry that has faced significant slippage during the height of the pandemic, so the part-time jobs it spawned were late to regenerate and recover former levels. The trend, as reflected in the data below, is positive; this, however, might suggest that it may take a long time to fully realize the complete recovery of these sectors. The fact that such a state of affairs has endured into the current period argues for a structural reliance on part-time and seasonal jobs in Costa Rica, especially in tourism and service sectors that traditionally have been characterized by fluctuating demand and seasonality. These types of jobs tend to recover more slowly, so, consistently, this trend would also reflect itself in the gradual improvement of Costa Rica's overall labor market landscape. In Korea, the labor market dynamics have been characterized by a phenomenal growth of non-standard working opportunities during the last ten years, ranging over the numerous forms of part-time, temporary contract, and various forms of dependent work. This tremendous growth in the service sector, along with the growing demand for flexibility in work arrangements, has doubtlessly been a significant factor in such a high growth of part-time employment. These two factors have combined with the massive entry into the workforce of women seeking part-time work and the increasing gig economy of freelance and short-term job opportunities to make the Korean labor environment even more flexible and dynamic over the past decade. Excluding these socio-economic changes, it is very

likely that the introduction of policies intended to reduce the duration of regular work hours and maintain work-life balance for employees further impacted the trend experienced in an increasing proportion engaging in part-time employment.

In Korea, the part-time employment rate increased from 13.9% in 2019 and 15.3% in 2020. Korea had an extraordinary capability to deal with the implications of this pandemic, having lower infection rates than many other countries worldwide, and faced much less dramatic shock in its labor market. While this slight increase in part-time work can partly be explained by the heightening demand in some sectors, especially those concerned with retail and personal services, other sectors entailing technology, finance, and manufacturing demonstrated their stability contributing to overall economic resilience. In this regard, solid support from the Korean government was lent, along with a quick and effective public health response, which gave the necessary impetus for an earlier-than-expected economic bounce-back that helped cushion the level of part-time employment relatively higher compared with far more severe declines recorded elsewhere. Government actions since then not only minimized the initial shock of the pandemic but also set a course for a more viable recovery path; in so doing, it ensured that the labor market in general, and part-time jobs in particular remained buoyant during a period of economic difficulty. The unique circumstances surrounding the Korean response to these unprecedented events highlight the important role that good governance and public health interventions play in determining labor market outcomes during a global crisis.

On the contrary, the part-time employment rate in South Korea plunged significantly from 15.3% in 2020 to a lower 12.8% in 2021, indicating strong recoveries that include full-time job opportunities in the country. In fact, the response of South Korea to the pandemic has been termed one of the most effective responses in the world, serving to contain the extent of economic decline during this difficult period. Partly, the decline in part-time employment may reflect a wider transition toward full-time employment, since companies gradually get the normal operational activities and processes running again. The relatively quick stabilization of the labor market can be seen as indicative of how well the government has managed the pandemic in addition to the different measures put into action to revive it. Strategic focusing by South Korea on the technology and manufacturing sectors may also have helped transition away from part-time employment opportunities toward full-time, more stable, long-term job opportunities in the wake of performing rel-

atively well amidst the adversities of the pandemic. Collected data shows that the recovery strategy has been doing well, focusing on the "creation and sustenance of the long-run job positions rather than a rise in the part-time or temporary job roles, which can be fundamentally characterized as a bouncing back labor market".

Part-time employment in Mexico has changed only insignificantly throughout the years and is very stable. This was reflected in a slight decline from an astonishing 18.2% in 2010 to a bit lower value of 17.6% in 2019. The labor market of Mexico is considered by very high intensiveness of informal employment phenomenon that substantially overshadows the importance and readability of formal partial work opportunities and hence complicates the general understanding of employment dynamics. In this sense, stability in the rate of part-time employment would signal that certain structural characteristics of the labor market-rigid laws on labor or an excessively large informal employment sector-are impeding a potential movement toward more flexible and adaptable forms of relations in employment.

This moderate decline in the incidence of part-time work may indicate sincere efforts at formalizing employment relations or a deliberate policy change concerning the promotion of full-time work opportunities within particular sectors. This period of economic expansion, however, did little to break down this consistent level of part-time employment rates, indicative that the mainstream of the Mexican workforce still depended on traditional full-time employment relationships as opposed to part-time. The persistence of full-time employment may hint at a deeper cultural or economic reliance on traditional, stable employment structures that are perceived as more secure and rewarding. These labor market trends have implications for the general effects that policymakers and labor economists use to address changing needs in the Mexican labor market.

Part-time work has increased slightly but remarkably in Mexico from 2019 to 2020, shifting the share from 17.6% in 2019 to 17.7% in 2020. This little increase could hence suggest that there is now generally a shift happening in labor from full-time to part-time work. It could relatively be attributed to the various pressures acting on the workforce. The COVID-19 pandemic has come with unparalleled challenges that have been forcing many companies to cut employees' hours or turn full-time jobs into part-time ones-desperate moves to lower operating costs and make sure of financial sustainability. It is also vital to note that the Mexican labor market is characterized by an extremely large informal

sector, and the amount of underemployed or part-time workers seeking employment probably rose accordingly. The fact that part-time jobs have increased within such a period of general economic decline shows that it is a strategic adjustment made by the employees themselves because people are taking up shorter hours as a required evil to at least continue with some form of employment. It is an indication of how complex and layered the labor market is in Mexico, specifically in the face of economic adversity accentuated by the pandemic. Taking it all together, the results suggest that increases in part-time employment reflect a broader structural shift in employment patterns which evidences the resilience and adaptability of labor in a hostile economic environment.

The part-time employment rate in the context of Mexico posted only a minimal decline from an impressively high 17.7% in 2020 to a little lower 17.07% in 2021, a signal that this is still quite a slow economic recovery process. This high part-time employment rate might also be understood in the context-form part of the deep structural challenges that persist in the labor market of Mexico, faced by common and problematic issues such as formality and underemployment. That the part-time employment rate in Mexico remains high may be a sign that, despite the reopening of most sectors of the economy, the latter continue to rely heavily on this or temporary jobs as a means of coping with the uncertainties characterizing the post-pandemic economic environment. Conjointly, the slight drop in the part-time employment rate might indicate that after all, there was a small quantity of those employees who managed to switch off to full-time jobs; still, it is crystal clear that on the whole, the labor market of Mexico shows further signs of fragility and instability. This is further complicated by the fact that there is quite a large informal economy in Mexico, and presumably, a substantial part of these part-time employment will fall within this informal category. The COVID-19 pandemic has greatly exacerbated the labor market vulnerabilities, and the sluggish recovery in 2021 is possibly a result of this residual setback, especially in industries entailing very high consumer contact, such as the retail or hospitality sectors.

The share of part-time employment has declined sharply in Turkey. Starting from a remarkable 11.8% in 2012, it fell to 9.5% in 2019. In other words, the huge change in only seven years. A decline in part-time working could be considered as proof that general improvement in labor market conditions has occurred. On the other hand, it could also be seen as a result of strategic policies in providing and multiplying full-time employment.

Given that during this period, the Turkish economy was at a stage of very rapid and dynamic growth; therefore, the associated decline of part-time working arrangements would strongly suggest that more full-time jobs can be expected, especially towards key economic sectors of manufacturing as well as various service industries. It may therefore be suggested that the impulse to this could have come from economic reforms combined with active labor market policies to provide the impetus for creating full-time jobs and thus facilitated the turnaround in employment. Besides the purely economic factors, there are the cultural dynamics whereby the likely decline in part-time employment can be a reflection of the change in perception about the workforce in Turkey, where part-time positions now started to be perceived as less desirable compared to more stable and extensive full-time employments. The diversified situation of changing employment in Turkey is multilayered, underlining the complex interaction between economic development, labor market conditions, and societal values. This vast decline in part-time employment rates among both men and women signals a shift in not just economic realities but also one with broader impacts on the preferences of employees and the whole labor market. This is in contrast to Turkey, where the rate of part-time work attained a remarkable level of stability in a few countries, with a slight but remarkable rise to 11.4% in 2020 from 9.5% in 2019. Relatively stable concerning part-time work, this development vividly contrasts with the development in many other countries of the world where employment rates are often experiencing heavy ups and downs. This will validate the argument that structural complexities of the labor market, together with selective government interventions and deep-seated cultural traditions, may have played a very critical role in the maintenance of employment in Turkey. For this reason, part-time employment rates may increase partly due to rising demands for a diversified workforce in the Turkish economy. In its wake, it can reveal one of the dynamic relations between demand and supply within the labor market.

Meanwhile, the part-time employment rate in Turkey drastically declined from 11.4% in 2020 down to the impressive 8.5% in 2021-yearly decline among a few countries globally. The recovery process in Turkey through 2021 appears to have been far more strong and vigorous compared to most of the observed recovery patterns in many countries worldwide. Hence, this spectacular decline in the part-time employment rate may reflect the structural switch currently underway in the labor market, with so many workers shifting from part-time to full-time, along with the broader reopening of the Turkish economy.

On the other hand, such a decline in the part-time-to-full-time ratio may also indicate fewer available positions, where workers either successfully shift to full-time jobs or completely withdraw from the labor market. This economic recovery for Turkey may be sector-specific, particularly in the manufacturing and service sectors, which usually tend to hire more full-time workers as opposed to part-time workers. Indeed, the diversified economy of Turkey, supported by a wide array of sectors-textiles, agriculture, and manufacturing, to mention a few probably contributed much to further ease the absorption of part-time workers into full-time employment positions once the demand for goods and services rebounded. One may also want to consider that, in employment, Türkiye has undergone a sea change rather as a result of effective policies by the present government, where an overwhelming emphasis on creating jobs and introducing stimulating economic measures in rejuvenating the labor market is an outcome of the same.

Part-time work data in Iran became the most volatile throughout the period. its share of employees reached a maximum of 31.2% in 2018 and slid back to 25.4% in the following year of 2019. The extreme volatility of part-time work rates in Iran can be explained by economic sanctions against that country, a widely spread climate of political instability, and various economic stressors that together have tended to decentralize the labor market. The peak in 2018 in part-time employment may be indicative that more and more people have been forced into part-time or precarious types of work as some form of survival strategy amidst the difficult economic conditions. On the other hand, the sudden drop in the part-time employment rate in 2019 may suggest an easing of labor market conditions or indicate labor market policies directed toward creating and promoting full-time employment opportunities for the labor force. Moreover, changes in the rate of part-time work may be closely connected with a set of economic reforms targeting greater employment stability, even under the overarching influence of punitive measures that likely exerted such immense influence on these employment fluctuations. In sum, the tight interplay between economic sanctions, labor market policies, and market dynamics provides a complex backdrop that influences the trend in Iranian part-time employment as pragmatic and observed in these years. It is, therefore, imperative that all these factors be critically looked into to ensure that a full representation is made as regards the way such fluctuations affect the overall socio-economic landscape of the country.

Part-time work statistics in Iran became the most volatile: its share of employees reached a maximum of 31.2% in 2018 and slid back to 25.4% in the following year of 2019. The

extreme volatility of part-time work rates in Iran can be explained by economic sanctions against that country, a widely spread climate of political instability, and various economic stressors that together have tended to decentralize the labor market. The peak in 2018 in part-time employment may be indicative that more and more people have been forced into part-time or precarious types of work as some form of survival strategy amidst the difficult economic conditions.

On the other hand, the sudden drop in the part-time employment rate in 2019 may suggest an easing of labor market conditions or indicate labor market policies directed toward creating and promoting full-time employment opportunities for the labor force. Moreover, changes in the rate of part-time work may be closely connected with a set of economic reforms targeting greater employment stability, even under the overarching influence of punitive measures that likely exerted such immense influence on these employment fluctuations. In sum, the tight interplay between economic sanctions, labor market policies, and market dynamics provides a complex backdrop that influences the trend in Iranian part-time employment as observed in these years. It is, therefore, imperative that all these factors be critically looked into to ensure that a full representation is made as regards the way such fluctuations affect the overall socio-economic landscape of the country.

Speaking about the changes in the character of employment, it should be underlined that in some countries, for example in Iran, part-time work became highly developed, having increased from 25.4% in 2019 to 28.6% in 2020, and it was a big change in the configuration of this country. The COVID-19 pandemic pushed the Iranian economy into a worse state than what it was already facing amidst international sanctions and an internal array of challenges it had struggled to bear. Most noticeably, however, this rise in part-time employment serves as an excellent barometer of the wider trend of the labor market shifting significantly away from traditional full-time employment towards either part-time or informal work, since many firms were forced to scale back hours of operation or, worse, struggled to survive under the harshest conditions of the economic downturn.

This high incidence of part-time work in Iran suggests that the country is greatly plagued with a problem of underemployment—a fact that suggests a good deal of the nation's manpower is grossly underutilized concerning their skill and potential. In this regard, most probably, this pandemic was a catalyst forcing many into precarious jobs of taking whatever comes around, mostly part-time or informal, thereby underlining the bitter economic situation experienced by so many people.

In 2021, the part-time employment rate in Iran went far down from the high of 28.6% observed in 2020 to 25.37%, which might be indicative of some part-time positions having been replaced with full-time employment status, or on the other hand, might be indicative that part-time employment still is high due to the continued economic issues the country has been facing. This particular phenomenon indeed signals that the Iranian economy, strained by international sanctions, faced considerable challenges to realize a diffused recovery in 2021. The drop in part-time work may partly reveal changes in labor market conditions whereby workers shifted into full-time jobs or other forms of employment, including informal job opportunities; however, the still extremely high rate of part-time working provides evidence of severe under-employment and a high level of informal work arrangements. The high incidence of part-time work is indicative of persistent economic instability whereby a majority of workers are still involved in either part-time or informal work that offers very limited opportunities within the formal labor market. This decrease in the incidence of part-time employment may be indicative of some movement toward informal full-time or alternative coping strategies that have been employed in an attempt to cope with a tight economic environment.

In Afghanistan, the share of part-time jobs is extremely high. Indeed, the figures provide an average of about 34-33%, while this number has recently declined notably and reached 29.8% in 2019. This notably high level of part-time work in Afghanistan testifies to the risky position of the country's labor market, which for several years has been profoundly influenced by long stretches of conflict and systemic instability. This could be explained by quite an apparent lack of full-time employment, at least in rural areas and unregulated parts of the economies. On the other hand, the decline in 2019 may indicate an improvement in the labor market as probably a result of international aid or development projects strategically pointed at creating more sustainable and steadier jobs for the residents. On the other hand, it is the continuously high level of part-time employment that signals that persistent and deep-seated economic problems impede a substantive part of Afghans' access to full-time work.

Likewise, the part-time work rate has grown in Afghanistan, from 29.8% in 2019 to 32.7% in the following year of 2020, developing into a worrying trend in the labor market. Indeed, the Afghan labor market is extremely informal, and part-time work is a general characteristic that mirrors quite peculiar economic and social dynamics. The COVID-19 pandemic struck the Afghan labor market with incredible violence, where an increase in

part-time employment reflects doubtless the growing economic desperation of so many workers. This is mainly because, in a large swathe of the Afghan economy constituting the informal sector, damage due to the pandemic was so brutal. It means that many people are balancing several part-time jobs or precarious jobs just to be able to survive during these hard times.

Where the Afghanistan rate was even declining - from 32.7% in 2020 to 29.01% in 2021 - it is still the highest compared with other analyzed countries and might suggest an improved situation of labor market conditions and possibly economic recovery when businesses resumed their activity or increased hiring for full-time work after the outbreak of the pandemic. However, the continuously high incidence of part-time work signals the persistence of the problems of under-employment, joined by the general fragility of the Afghan economy. What is more, the Afghan labor market is still deeply affected by the effects of the COVID-19 pandemic and the political instability that Afghanistan has suffered in recent months, which has generated a rather fractured and precarious employment situation. The large share of part-time workers in Afghanistan indicates a labor market typified by informal work and subsistence. This points to the difficulties of securing stable full-time work an important portion of the workforce has been facing. The very big share of this shows part-time work; people need to work at multiple places and part-time just for survival. These labor market conditions have been further compounded and worsened by the peculiar political situation in Afghanistan, adding to the various barriers that exist toward economic stability and growth. Under conditions of political uncertainty, with limited opportunities in the formal sector and a hangover of the pandemic, labor markets are unable to provide adequate full-time employment opportunities to their workforce; hence, targeting interventions and policies towards resolving such persistent challenges. In summary, before the COVID-19 recession comparing trends in part-time employment rates in several nations employed a mixed set of economic and social factors, coupled with policy-related ones, which have together affected the suppleness of labor markets differently. Where there is more elasticity within the labor market or a change in demographics, like in the case of Costa Rica part-time employment has risen. It also brought down the rate of part-time work or caused fluctuations in rates of part-time employment in some countries, such as in Türkiye and Afghanistan, due to economic reforms. These emerging trends are instructive on the general trend in labor market dynamics but also reflect economic compulsion that shaped the employment scenario in the run-up to the

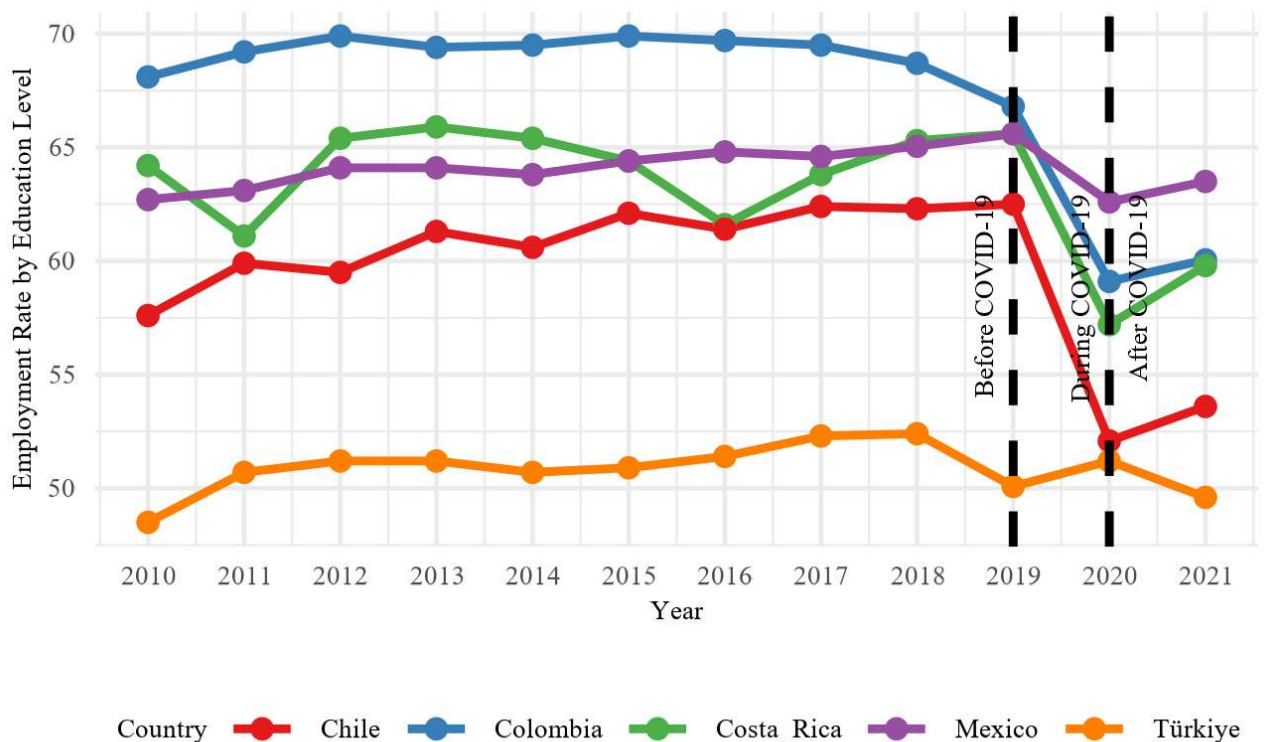
COVID-19 pandemic by bringing into focus the large disparity that exists between different regions and differential responses of labor markets to external impulses.

During the COVID-19 crisis, considering these, the unprecedented pandemic caused declines in various countries' part-time employment opportunities in 2020, especially within countries like Chile, Colombia, Costa Rica, and Korea, whose capacities for offering part-time employment opportunities have been immensely diminished due to strong economic disruption. By comparison, however, the countries of Mexico, Iran, and Afghanistan have figured out how to increase part-time employment substantially. That in and of itself would be explained by the sad fact that part-time or unofficial work was imposed on the labor force due to either very large-scale job losses or a reduction in hours of individual workers' employment. This many-sided effect of the pandemic has shown a wide divergence between different countries influenced strongly by factors such as the nature of their respective labor markets, the stringency of lockdown measures taken, and the quantum of government support provided to workers in these most trying times. The analysis of such employment trends therefore yields valuable insights into the robustness and adaptiveness of labour markets in the course of global crises and focuses, at the same time, on the need for policy responses appropriate to each country since no uniform national response fits all.

After the COVID-19 crisis, and the elaborative in their dynamics, the labor market in 2021 has created a multi-dimensional recovery process that has emerged in response to the unprecedented challenges presented by the COVID-19 pandemic, which had a far-reaching impact on economies across the world. Specifically, countries with strong and effective policy measures in place, or those with inherently resilient economic structures, saw major falls in the share of part-time employment, such as South Korea and Türkiye. On the other hand, countries still beset by major structural barriers did not include Mexico, Iran, and Afghanistan in their fold, which remained stuck in high levels of part-time or informal labor engagements. In a broader perspective, while full-time employment recovery was visible in many regions, several economies still had to grapple with the fact that longer-term pandemic impacts have been deeper-seated and, in several ways, potentially transformative in their labor markets. Ultimately, it brings to the forefront the continuing relevance of analysis and strategic policy intervention regarding dissimilar country trajectories of recovery and dissimilar mitigating effects of adverse employment in the informal sector that continued to persist in certain regions.

Figure 4. 20

Employment rate by education level: Below upper secondary, working age population of 25-64 year



Source: Author calculation based on OECD countries

Figure 4.20 shows the employment rate by education level from 2010 to 2021 in Chile, Colombia, Costa Rica, Mexico, and Turkey with a working-age population of 25-64 years to examine the pre-, during, and post-COVID-19 recession trend in labor market dynamics. Due to the unavailability of the data Afghanistan, Korea, Iran, and China were excluded from the analysis.

In Chile, from 2010 to 2011, the rate of employment rate by education level particularly Below upper secondary markedly soars up from 57.6% to the more impressive 59.9%, already an indicative sign of improving conditions in the labor market dynamics. This period was characterized by the good situations of the Chilean economy, mainly anchored on the stability of copper prices within the global market and the extension of international trade engagements pursued by the country. Later on, in the years 2012 and 2013, the employment rate continued to climb further up and reached 61.3% at the end of 2013, which indicates strong and healthy labor demand from sectors that usually employ individuals with lower levels of attainment, including agriculture, construction, and many service sectors. Besides, the employment rate continued to increase between the years

2014 and 2015, reaching 62.1% by the year 2015 again because of the fact that economic development was unrelenting notwithstanding the moderate fluctuations in global commodity prices that should have caused dampening. During this period, the employment rate remained surprisingly stable between 2016 and 2017, standing steadily, more or less, within the narrow range of 61.4% to 62.4%, hence showing a considerable degree of flexibility within the labor market with regard to changing economic circumstances. Entering the period of 2017 to 2019, the level of employment balanced out and stabilized at around 62.5% in 2019. Despite global uncertainties and the political turmoil that characterized the year 2019, the labor market for less-than-tertiary educated persons was relatively stable, partly due to the fact that the active economy is service-based and its labor-intensive sectors were still healthy.

From a broader perspective, Chile has experienced a period of largely steady economic growth, which in itself is characterized by healthy exportation activities combined with the implementation of efficient economic reforms that have been targeted at stimulating various sectors of the economy. This steady economic growth probably played a very crucial role in making such steady increases in the amount of employment opportunities available to all people of relatively lower educational attainment. The unabated rise in the employment figures shows that even the people with a minimum education manage to get employment, which could be credited to the fact that strong labor demand in the essential sectors like agriculture, mining, and different other service sectors that are the mainstay of the Chilean economy. Also, Chile has made a number of investments in social programs and initiatives targeted directly at improving labor participation rates among its population. Some of these programs may have benefited the people with the lowest educational backgrounds, thereby aiding in the positive movement of the employment rate among this group. Still, it is fascinating to think that even while this category of laborers has better job positions, they still receive a ceiling effect due to the fact that individuals from this background are more susceptible to any economic cycle, and on such an off-moment, there strikes an economic crisis hard regarding jobs and positions.

Starting in 2020, Chile's employment rate for less than upper secondary education will decrease by a huge percentage to a low of about 52.08 percent. This forms a very huge and alarming drop compared to the employment rate recorded in the previous year, estimated at about 62.5 percent. The epidemic massively disrupted the normal course of business in many other sectors of the economy; industries such as retail, construction, and the

informal labor market have been disproportionately exaggerated and overstated, and these sectors are largely composed of less educated citizens. It means that this economic turmoil translated into sudden layoffs of workers due to which the unemployment rate witnessed a sudden surge almost when all economic activities came to a grinding halt during nationwide lockdowns. The pandemic hit Chilean society particularly hard during the first semester of 2020, and since the process of recovery was such a slow one, the labor market has still been slow for those people who have less education, since they are employed in activities that have reopened most slowly.

The employment rate of less-than-upper-secondary-educated individuals has been reduced considerably in Chile and will reach only 52.08% in the year 2020. Much can be attributed to the severe effect that COVID-19 has had on the economy and the general negative outcomes of such a pandemic. In the following year, 2021, this rate increased to 53.6%, showing that at least partially, the labor market is recovering from this disease. While this indeed constitutes recovery, the rate of employment in this particular population group is still quite a way from its pre-pandemic levels, which was around 61% back in 2019, and thus finding post-crisis employment is still a cumbersome task.

In the country of Colombia, the employment-population ratio increased markedly within the period from 2010 to 2012—from 68.1% to 69.9%—a positively trending feature of participation within the labor market during those particular years. The growth in employment rate is a result of the huge boom in the economy of Colombia, wherein large investments in various infrastructure and construction projects opened many employment opportunities earmarked for individuals with lower levels of educational accomplishment. Looking ahead to the next period, which covers 2013 and 2015, the unemployment rate has gone up and down; still, it has remained within this narrow range, within the values of 69.4% and 69.9%, thus indicating stability within the variability. It was supported by the relatively high levels of employment in those years, along with continuous growth in the informal sector and growth in the services industry, by improving the productivity of the agricultural sector.

It should be considered that from 2017 to 2019, there was a perceptible and palpable contraction in the employment rate, which finally came down to a figure of 66.8% towards the end of 2019. This contraction is partially the result of various economic risks that the nation of Colombia has faced—several of them relating to the slump in oil prices and fiscal tightening measures, wherein labor forces are typically involved in informal

sectors of the economy. This can also be helpful in underlining the rising vulnerabilities of the lesser-educated workers, most of whom have to depend on precarious job sectors devoid of stability and security. The relatively stable high rates of employment recorded in the labor market might have been indicative of Colombia's vast informal economy, where people with less than complete secondary education often secure employment. However, the more recent declines in employment rates could be indicative of the challenges presently experienced in the informal sector; above all, considering the unprecedented shocks of the COVID-19 pandemic, whose impact on informal employment has been disproportionately negative.

Probably, the high rate of employment in Colombia among those with low attainment reflects a tendency toward informal employment, where one with quite a low amount of formal education tends to secure jobs, even if not as stable. Nonetheless, it is often well-appreciated that these occupations are predominantly bereft of permanence and more susceptible to adverse shocks linked to economic consequences. The drop observed in the employment rates, particularly from 2019, would, hence, be better considered a translation of various exogenous shocks like the pandemic discussed above-which highly impacted informal labor markets with sizeable job losses. In all likelihood, the stringent restrictions on such sectors as services and agriculture, which are crucial for the informal economy, may have been the reason for this category of workers to bear the brunt of unemployment.

While in 2019, the rate was relatively higher at 66.8%, less than upper secondary education attainment recorded an employment rate of only 59.1% in Colombia in 2020. It can thus be deduced that the impact of the pandemic was very strong in Colombia. During this period, the country has remained those whole seriously affected by the negative impacts, especially on total economic activity, which forms the very basis of livelihood and national development. This dramatic decline in job numbers indeed reflects the massive job losses in the unorganized sectors, as most of these sectors employ people with relatively lower educational profiles besides the closure of small businesses that were compelled to shut down during strict lockdown measures taken to try and mitigate the spread of the virus. The prevalence of the informal labor market in Colombia aggravated the situation of these workers, most of whom found themselves particularly vulnerable to the adverse impacts of the pandemic because they did not have access to basic social safety

nets that would protect them at least somehow from the economic penalties brought about by the epidemic. This factor further aggravated the fall in employment levels.

By 2020, the employment rate in Colombia also fell to 59.1%. This decrease is linked to economic woes and disruption brought about by the global pandemic. This huge drop is considered to be a massive loss for a nation whose overall level of employment among people with lower qualifications had earlier remained high, at 67.7% in 2019. The following year, 2021, the rate increased slightly to 60.05%, manifesting that as much as the national economy was gradually showing auspicious signs of recovery, the labor market for the low-educated portion of the population had yet to get back on track and gain stability similar to the period before the outbreak of the pandemic. While this was still quite a distance from the pre-pandemic peak of about 66.8%, this marginal recovery indicates an attempt to stabilize the employment conditions as the economy gradually started recovering. Yet at the same time, it has been painfully slow and is probably coupled with a combination of several other economic concerns in the world and the peculiar dynamics that characterize the country's labor market, which continue to stymie its complete return to its previously set levels.

In the country of Costa Rica, an examination of the employment figures from 2010 to 2012 shows quite a dramatic drop in the percentage, which plummeted to an alarming low of 61.1% back in 2011; this, however, saw a stunning turn of events as it bounced back up to a healthier 65.4% the following year in 2012. Such a decline in employment during this period might accurately mirror the greater economic adjustments that were required in response to the 2008 global financial crisis, while on the other hand, the strong recovery experienced in 2012 can be quite convincingly explained by the increased performance and expansion in key sectors like agriculture and tourism, staples of the Costa Rican economy. The employment rate in this Central American nation was quite stable and high between 2013 and 2015, standing at about 65.4%, reflecting slight fluctuations upwards and downwards, which is indicative of the resilience in the labor market during this period. Importantly, one should note that the strong social policies of Costa Rica—with wide-ranging labor rights protections and a fast-growing eco-tourism industry have played the most important role in terms of job opportunities for low-skilled, low-educated workers.

While, from 2016 to 2017, a contraction in the employment rate was noted at 61.6% in 2016, which may be seen as caused by a combination of factors ranging from an economic

slowdown to inherent rigidities in the labor market itself. Nonetheless, employment by the year 2017 showed signs of getting better when the rate rose to 63.8%, a recovery that most likely led to renewed tourism and increased foreign direct investment within the country. Fast forward to 2018 and 2019, yet another positive development came along, as the rate of employment continued higher and reached a healthy 65.6% toward the end of 2019, which could only go on to prove that the very basics of the economy of Costa Rica were strong, particularly in service industries such as tourism, where jobs for people with a lesser degree of educational attainment are readily provided. Costa Rica's economic structure is highly dependent on strategic tourism, among other sectors, hence explaining changes in the rate of employment, especially for people with lower levels of education. Perhaps this decline was evidence of a general economic downturn during periods when the world or region goes through economic turmoil and its subsequent dampening effect on labor markets. The decline in the employment rates in the years 2016-2017 may, therefore, be an indication of the continuation of economic restructuring processes, while the recovery recorded in later years suggests that the national labor market was in fact able to absorb more workers, probably because of the rebound in tourism or the revitalization of informal sectors. Recent recovery trends can, therefore, be closely linked with strategic efforts put in place by Costa Rica in diversifying its economy, which would serve to facilitate accommodating the low-educated workers-particularly those in crucial areas like agriculture and manufacturing, which are of vital importance to the nation's economic outlook.

The employment rate within Costa Ric reached a remarkable 57.2% in 2020 figure which reflects a moderate decline when compared to the previous year's employment rate, which stood significantly higher at 65.6% in the previous year. The economic setting of Costa Rica is deeply rooted in the context of high dependence on tourism, a sector whose flow was disrupted by nothing short of strict global travel restrictions as a response to the COVID-19 pandemic. This has led to a significant drop in hospitality employment, other service industries, and related professions that are primary employers, particularly for individuals with minimal levels of education; thus, this has drastically reduced job availability. While various stimulus packages have been initiated by the Costa Rican government to rejuvenate the economy and support the workers who became displaced, the trajectory of recovery for these individuals with fewer educational backgrounds has been very slow. This is because, as experienced in other nations, such vital sectors took quite

some time to recover from this kind of widespread trauma that resulted from the pandemic.

In 2020, Costa Rica experienced a sudden and deep drop in employment, as reflected in the significant decrease of its employment rate to a low of 57.2% in people who have not completed upper secondary education. This unprecedented fall is basically attributed to the disruption caused by the global pandemic, especially in key sectors such as tourism, which is an industry that forms a very significant component of Costa Rica's economic framework, besides opening employment opportunities to a large share of low-skilled labor. The employment rate then increased to 59.8% in 2021, a noticeable and encouraging recovery with the country now cautiously reopening its borders to tourists and allowing other important industries to resume their activities. The recovery rate notwithstanding, however, it is important to underline that the unemployment rate had not yet managed to climb back to the pre-pandemic rate of 65.6%, thus suggesting that Costa Rica continues to face considerable challenges in the restoration process of its labor market for that particular age group.

The labor market trends in Mexico from 2010 to 2012, the proportion of employed people increased significantly from 62.7% to 64.1%. This period is characterized by the remarkable recovery of this Latin American country in manufacturing and service sectors, a recovery which has been powerfully promoted through different trade agreements among which the North American Free Trade Agreement (NAFTA) is at the frontline, providing especially greater benefits for less educated workers in key industries. This indeed came to be a reality in the subsequent years of 2013 through 2016, where the employment rate had high levels of stability due to its fluctuation from about 64.1% up to 64.8%. Despite the occurrence of different global economic threats that might have impeded growth, Mexico still showed resilient economic performance buoyed by a very impressive manufacturing sector, most specifically within the automobile and electronics industries where the bulk of labor forces were less educated. This steady rise continued in the three years from 2017 through 2019, with employment reaching an impressive rate of 65.6% in 2019. The growth can thus be observed to be a reflection of the continued industrial expansion and increased demand for labor from most of the industries, including agricultural and construction sectors, amidst the uncertainty in global trade conditions brought about by the renegotiation of the North American Free Trade Agreement into what is now called the United States-Mexico-Canada Agreement. Moreover, one should point out that the

labor force of Mexico is rather extensive; the biggest part of the labor force works in the informal sector of the economy. The informal sector of the economy also employs the majority of low-educated labor, most of whom work in agriculture, manufacturing, and low-skilled services are the key sectors providing them with the means of subsistence. This upward trend has been slow but sure and might show or reflect the general economic stability of Mexico along with the solid foundation of its manufacturing-based economic model. Besides, active participation in international trade arrangements like NAFTA and its successor United States-Mexico-Canada Agreement (USMCA), would most likely have contributed to the creation of job opportunities in the country, even for those with lesser educational backgrounds. While these emerging trends can be interpreted as a series of positive developments, it has to be taken into consideration that dependence on informal employment is a rather complicated problem to solve, given the precariousness that is usually associated with such jobs. While informal employment undoubtedly provides important jobs for that group, it does not guarantee job security or employment benefits; therefore, this makes the above group very susceptible to a future economic shock or even economic fluctuations in general life.

It has also cut down the employment rate in Mexico for people with less than upper secondary levels of education. In 2020, it had fallen to 62.6 percent from the relatively better 65.6 percent in the previous year, 2019. Evidence of the presence of the pandemic is thus very clear throughout the Mexican economy, especially in those sectors dependent on heavy manpower because of the large number of lowly educated workers. Consequently, industries involving manufacturing, construction, and informal trade have been among the most badly affected sectors during the recession. This contraction in demand for goods and services after the health crisis has drastically reduced employment opportunities in these very important sectors. While dire, this in comparison to the employment rate in other countries in the regional context has managed to keep it relatively resilient; this might be due to the fact that fewer restrictions were imposed and an earlier-than-expected reopening was allowed to the economic landscape. This approach has not come without its setbacks, one of these being posing a risk to public health outcomes.

During the chaotic period brought forth by the pandemic, Mexico somehow saw a rather resilient employment rate for people within the same education cohort. The fall in employment rates for this group in Mexico was 62.6% in 2020, a figure that, though in de-

cline, didn't reach such dramatic levels as seen in several other countries, which is probably explained by Mexico having softer pandemic measures and, therefore, can cushion the impact of widespread job losses through a very large informal sector. Going into 2021, the rate of employment in Mexico started trending upward and reached 63.5%, closer to pre-pandemic levels at around 65% of the workforce. The recovery process in Mexico underlines the fact that, even though the pandemic surely caused great losses to the labor market, the country was able to escape the serious employment crises observed in several other areas. This was no doubt due to the large informal economy, added to the wide range of labor sectors that together contributed to being more resilient throughout this period of crisis. Precarious and alarming, the declining trend in the employment rate of less-than-highly-educated individuals in Turkey calls for greater serious academic attention. The lowest rate reached 51.2% in 2020 for this group of the population, reflecting an immediate and negative economic consequence due to the COVID-19 pandemic that has been disrupting labor markets globally.

In Turkey, the employment rate by education level has also risen from 48.5% in 2010 to 51.2% in 2013. This trend of steep rise in the number of employees indicates that the overall development occurred in the economy of Turkey in this period. In essence, the entire growth is essentially induced by an extraordinary boom in the construction sector and extensive development in the manufacturing industry. Amongst the lower educational backgrounds, many different types of jobs were available, particularly in sectors requiring more labor, such as textile industries and construction. In the three subsequent years from 2014 to 2016, the rate stayed between 50.7% and 51.4%. It is reasonable to assume that external shocks, including political instability and regional conflict, would have played a negative role in shaping the jobs creation, especially in rural areas where the presence of less-educated workers is greater. Between 2017 and 2019, the graph for the employment rate surged to a peak of 52.4% in 2018 but subsequently trended downward, closing the year 2019 at 50.08%. The drop in the level of employment may perhaps be due to the recession and inflationary pressures which have taken a greater toll on low-income strata and the lesser-educated groups, especially in the informal sector of employment. The generally lower overall rate of employment among the less educated may be viewed as one aspect of structural problems in the Turkish labor market, with low-skilled labor being more exposed to unemployment risks. Most of the decline in recent years may be

exaggerated by the volatile nature of the Turkish economy reflected in the currency devaluation and continued inflationary pressures. Improvement in the employment rates between 2011 and 2017 might be structural and therefore linked with the rise of economic activity in Türkiye, especially within the construction and manufacturing sectors that usually have lower shares of the less educated. However, the more recent reversal of the employment rate could be due to general economic pressures that have caught up with the country during which time low-skilled labor in general becomes less in demand for certain sectors. Moreover, the interrelated issues of political turmoil, combined with the economic slumps faced by many countries in the past several years, have undoubtedly played a significant role in ensuring that employment rates for less than adequately educated individuals have been consciously brought down. This population segment is generally more prone to such disrupting forces, especially for industries with so much labor involvement that may have scaled back their hiring process or even downsized in reaction to such unfavorable conditions.

In 2020, Turkey there was a drop in the level of employment to 51.2% from 50.08% in comparison with the previous year, representing a slight increase in the context of a global recession that hit economies worldwide particularly hard. Although the country also fell into the pandemic's unfavorable economic conditions, proactive government measures toward sustaining businesses and providing strategic sectors such as construction and agriculture with important support might have played an essential role in cushioning what was otherwise an even bigger drop in figures of employment across the board. One would, however also like to highlight that the informal employment sector continued to suffer badly, and many people with low levels of education were notably afflicted by redundancies or losses of income, further worsening precarious financial situations. In addition to the COVID-19 pandemic, long-lasting economic problems in Turkey, including high inflation and a depreciating currency, have increased hardships on labor, especially at lower-income levels whose labors were mainly to make ends meet.

This gives an overview of the general effect that the pandemic has had on employment rates in the year 2020, and it becomes clear that, within the five countries surveyed, the level of employment among those with below upper secondary education has suffered most due to this crisis. The section of the workforce section that normally operates within an informal labor market or in jobs that are neither stable nor secure has been badly bat-

tered by the consequence of lockdown, economic contraction, and slow recovery in various economies. On the other hand, countries with a bigger informal labor market, such as Colombia and Costa Rica, were hit even worse, because employment levels fell to an extent in those places, whereas countries like Mexico and Turkey have been able so far to contain the magnitude of employment losses due to the earlier reopening strategies and selective economic interventions. However, the general trend that emerged during 2020 is a powerful mirror of the challenge the world is facing in saving jobs during the pandemic for vulnerable groups of people who are susceptible to economic collapse.

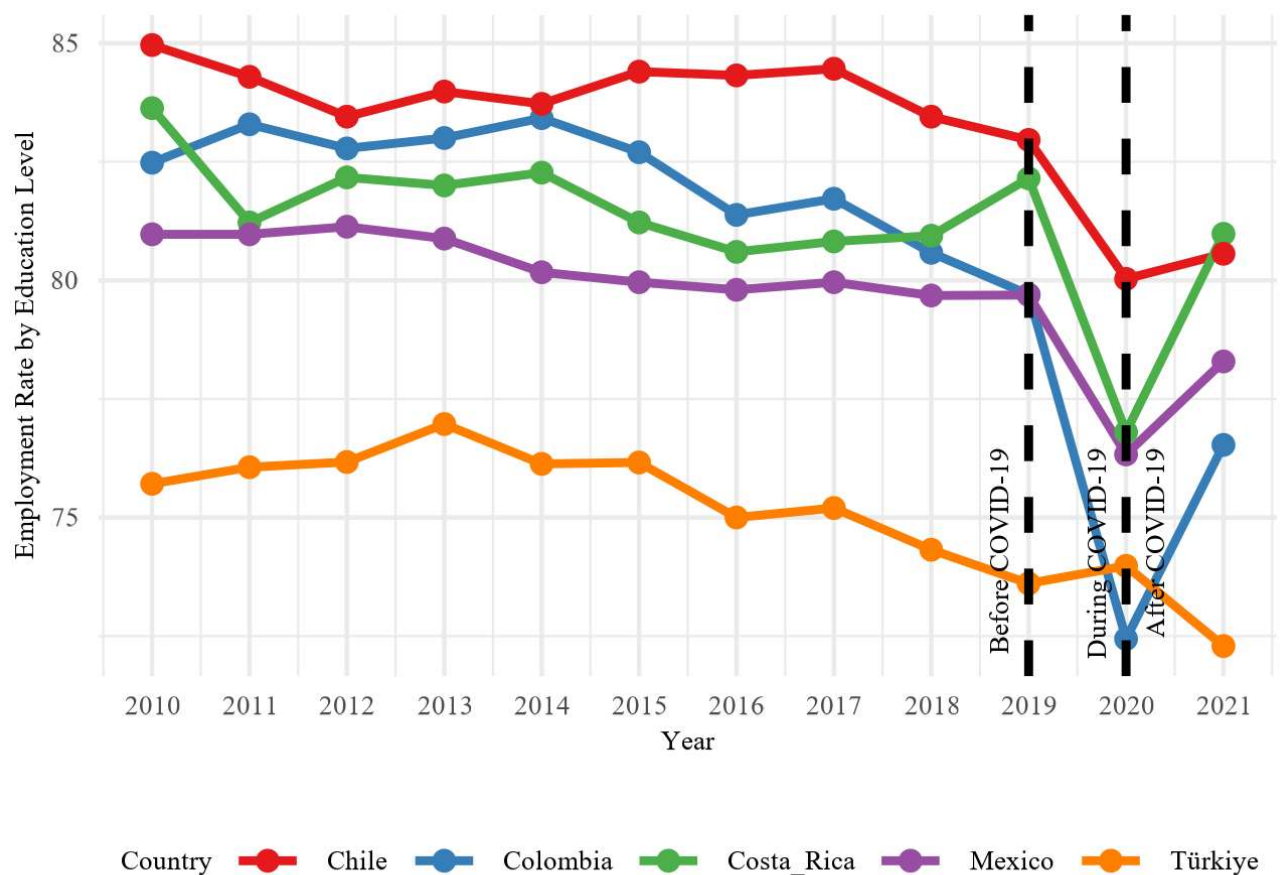
Contrary to what happened in most of the other countries, the following year 2021 did not show any remarkable upward shift in the employment figures for Turkey, and these numbers have further deteriorated to 49.6 percent. This indicates that there is a deep-seated structural problem prevailing in the labor market of the country, which needs examination and comprehensive action in order to bring it to an end. This downward trajectory in employment rates has therefore continued to worsen and may be partly explained by the broader economic challenges facing Turkey, including rampant inflation and other financial difficulties that are particularly hard on low-skilled workers. Furthermore, the respective government responses were less than adequate and efficient in keeping the damage to a minimum for this vulnerable group, thereby raising questions about the sufficiency of the policy measures taken to respond to the workforce individuals' needs with low education. The interrelationship between these economic factors and tendencies of employment, therefore, needs detailed scrutiny for further comprehension of the exact dynamics and the instillation of effective measures for improvement.

Indeed, in all countries, the employment rates for workers with less than upper secondary attainment have fallen much more sharply during 2020, since such a workforce was most vulnerable to layoffs in lockdown-sensitive industries like retail, hospitality, and tourism. The pandemic hit low-skilled labor hardest because these individuals were more likely to be employed in hard-hit industries or those where economic shutdowns and reopenings significantly lowered demand. While the economies of Chile, Colombia, Costa Rica, and Mexico started recovering in 2021, respective employment-to-population ratios have gradually improved, and their economies started to rebound. In the case of Türkiye, it turned out worse, with continued declines in employment rates probably because of other ongoing economic challenges outside of the pandemic, such as high inflation, and fewer effective policy measures that have been put in place to support the labor market. The

employment rates among the less well-educated recovered more slowly than in better-educated portions of the labor force. This reflects the fact that low-skilled labor was disproportionately affected by the pandemic, with slow gains in employment as economies reopened. These changes in employment rates reflect the fact that the recovery in labor market dynamics for low-skilled workers during the COVID-19 recession is at different stages. While some countries had posted moderate gains in employment rates in 2021, such as those mentioned above, others the case of Türkiye-have continued their downward trend of declining employment, which might have been further influenced by general economic factors outside the ambit of the pandemic. The economic structure of the country concerned, on response and support measures stemming from the government, and also on the resilience of industries employing the largest number of low-skilled workers-the recovery trajectory would depend largely upon these.

Figure 4. 21

Employment rate by education level: Tertiary, working age population of 25-64 years



Source: Author's calculation based on OECD countries' data

Figure 4.21 represents the employment rate by education level, specifically the tertiary-educated labor force in Chile, Colombia, Costa Rica, Mexico, and Turkey from 2010 to 2021, to examine the trend in the labor market before, during, and after the COVID-19 recession. Due to the unavailability of the data, Afghanistan, Korea, Iran, and China were excluded from the analysis.

For workers who have tertiary education, the hiring rate started high in Chile at 84.9%, which is an excellent proxy of the strong demand for those with completed higher education. Over the following years in 2011 and 2012, the rate took a slight decline to 84.2% in 2011 and decreased to 83.4% in 2012; this decrease may therefore indicate that some minor fluctuations or structural adjustments have been taking place in the labor market. In the year 2013, the hiring continued with an excellent rebound, reaching 83.9%, now showing very good resistance in the Chilean job market, especially among those who are academically well-educated to a tertiary level. Although the statistics had some fluctuation, one thing to note is that from 2014 to 2015, Chile's employment rate has remained quite stable: in 2014, the rate was 83.7%, and in 2015, it further increased to 84.4%, showing that continuous demand was placed on the workers who are educated. In the same period from 2016 to 2017, the country still maintained a high level of employment that ranged between 84.3% and 84.4%, hence continually ensuring demand for the workforce with higher levels of education. From the year 2018 and going forth to 2019, this rate has gradually reduced. The rate dropped to 83.4% in the year 2018 and further dropped to 80.9% in the year 2019. By the turn of the decade, labor had started weakening a bit more. Contrarily, with a broader view of the figure, one can find that the employment tendency of the tertiary-educated labor force of Chile has been continuous where their employment rate crossed the 80% threshold now and then, referring to the continuity in demand for highly educated workforce within the economic structure of the country.

In Chile, for 2020, the employment rate of people with higher education dropped significantly to 80.03%, in comparison to 82.96% during the previous year, which was 2019. The main reason for such an observed drop in employment statistics can be traced back to the overall mass disruption caused by the pandemic, through which many industry segments experienced severe disturbances in their operations and had previously acted as sources for providing opportunities to highly skilled laborers. This would be an approximate drop of 2.93 percentage points and should be good enough as a signal that these changes in the economic setup have indeed hit hard. At the same time, even though the

employment rate for those with tertiary education was still relatively high compared to other countries, it showed the resilience of the labor market in the face of adversity. High-skilled areas, such as services, education, and high-tech sectors, did not escape the exigencies of the consequent economic recession. Since Chile used lockdowns, among other various measures directed at the spread of the virus, opportunities for the best-educated in the workforce correspondingly shrunk.

In Chile, this is about recovery from the 80.03% employment rate in 2020; in 2021, the country realized a modest but very important increase in the employment rate for those with tertiary education, up 0.53 percentage points compared to 2020. Indeed, this increase marks an important indication of stabilization in labor market conditions after the huge disruptions that characterized 2020, largely because of the global pandemic. This recovery is part of the progressive and orderly rebirth of the economy, together with the revival of demand in strategic sectors requiring high skills that are mainly located in the areas of finance, technology, and other service industries. It is worth underline, however, that the level of employment of the population with tertiary education in Chile in 2021 did not return to pre-pandemic indicators in 2019, when the rate was at an impressive 82.96%, showing that some recovery process had been observed, but still far from being completed.

With an impressive 82.4%, the employment rate of workers with higher education in Colombia was one of the best in the year 2010, reflecting the strong demand for higher education in the country's labor market. The year after, in 2011, a possible anomaly in the labor market described an increase, for that series, to 83.2% that disrupted the series of employment data. However, for this analysis, we would assume that the rate of employment was maintained at a level equal to that of the previous year. In fact, from 2012 to 2013, the employment-to-population ratio was so stable that it fluctuated between 82.7% and 83%, further corroborating consistency in demand for people with tertiary qualifications into the workforce. In 2014, this employment rate slightly peaked at 83.4%, which can be interpreted to mean that favorable labor market conditions are translating into more employment opportunities for the educated.

This positive trend was followed by the gradual fall from 2015 to 2016. In 2015, the employment rate decreased to 82.70%, and even more so in 2016 to 81.3%. Thus, one can note the labor market is in a contest and challenge to maintain the achieved level of employment. These countries include Brazil, Colombia, and Costa Rica. In 2017 and

2018, the fall in the employment rate continued slightly in Colombia and finally reached 80.5% at the end of 2018. For the year 2019, the labor employment rate recovered to 79.7%, indicating that there was a slight catch-up at the end of the period under review. On the whole, Colombia presents an employment trend that is characterized by relative stability with a slight tendency of decline. Rates hovered between the range of 80% to 82%, indicating that in this period the economic conditions may have prevailed on the demand for workers with tertiary education qualifications.

Employment in Colombia was low and sharp in the year 2020, standing at only 72.44%, as compared to the robust rate of 79.7% the preceding year of 2019. This steep fall of 7.26 percentage points is a telling tool for understanding how COVID-19 with its consequent economic contraction impacted the economy of Colombia, especially for those people who had higher educational attainments. It is practical to say that the great fall in employment shows the violent shock of economic activities, widespread lock-up of businesses, and shrinkage in hiring rates across specialties and segments that need a workforce with advanced qualifications. These shocking trends bring out the imperative of comprehensive policy intervention regarding the revitalization of the labor market, targeted support for businesses in distress, and unique challenges by the tertiary-educated persons struggling through this unprecedented economic crisis.

But to further put into context the deteriorating employment situation in Colombia, the experiences of other nations have to be put into consideration; all were similarly hurtling into the economic aftermath the COVID-19 pandemic has brought to light. Most of those countries have shown a similar decline in employment because of the overall global health crisis leading to an economic upheaval in general and affecting labor markets, hitting hard at higher education credentials. Therefore, what is rather important is to see the policy responses and mitigation strategies taken by other countries, which could provide valuable lessons and impetus to the making of adapted interventions toward reviving the economy and creating opportunities for highly educated workers in Colombia.

The case of Colombia is precisely one of strong and notorious recovery from the employment rate, which was 72.44% in the year 2020 because this same country reached a remarkable increase of 4.09 percentage points in 2021 and thus represented an important and substantial upturn in the employment rate, showing workers with tertiary education. This remarkable surge in employment can indeed be attributed squarely to the easing of restrictions imposed during the pandemic, the revitalization of the service sector, health,

and other professional sectors that had been particularly affected. An upward trajectory in employment suggests highly qualified workers, as badly affected in 2020, have benefited from spillover caused by general economic recovery in the country. It has to be underlined, however, that this good recovery notwithstanding, the employment rate in Colombia for the year 2021 remained at levels below those recorded pre-pandemic-in 2019-they were estimated at 79.7%, which indicated that the country continued to face significant structural challenges in its labor market, with issues related to informality and sectoral mismatches impeding full recovery.

Meanwhile, the employment rate in Costa Rica stood at 83.6% in 2010, which could be an indicator of the need and demand for college degrees in the labor market. In this respect, the surprising drop in the employment rate, reaching 81.2 % in the year 2011 and recovering only a little bit for the year 2012 at a value of 82.1 %, might reflect the uncertainties that were taking place during this time. For the year 2013, it seems incomplete, but preliminary data appears to reach about 82 %, estimating that the true rate followed the same trend over previous years, even though detailed data is not provided for that year. In 2014, it stabilized at 82.2%, reflecting how solid the labor market of Costa Rica is and also how employable the population with higher education has become. Then, for 2015 and 2016, there was a steep decline: from 81.2% in 2015, it dropped further to 80.6% in 2016, signaling softening employment for the educated. This shows that from 2017 to 2019, Costa Rica maintained a stable employment trend, fluctuating between 80.8% and 82.1%, indicating that the labor market demand for those with tertiary education credentials is balanced. Broadly speaking, Costa Rica was thus characterized by a relatively stable employment rate during this period, with fluctuations and minor declines during the mid-decade years. However, the tertiary educated fared pretty well and resilient in this regard.

In Costa Rica, in 2020 those who have tertiary education are facing a huge decline in their employment rate. It stands at 76.8%, which marked a 5.35 percentage-point drop from the previously recorded level of 82.15% in the 2019 employment rate. Such employment figures, representing a big drop, will not be some form of statistical anomaly, since it does carry an important indication about the general economic downturn that has been caused by the recent global pandemic, impacting sector after sector in the economy. Because Costa Rica is so dependent on industries, such as tourism, that are extremely vulnerable to external shocks, disruptions across the board have brought about many job losses, even

to the most educated parts of the workforce. While it is important to note that, compared with other groups, the employment rate among tertiary-educated workers has remained relatively high, the observed sharp decline does point toward indicative vulnerabilities inherent in a small economy reliant on tourism and thus affected during such global crises. On the other hand, the rate for Costa Rica recovered considerably and attained 76.8% in 2020, after having been heavily hit during the global economic crisis. In 2021, the employment rate for those with higher education in Costa Rica showed a remarkable increase of 4.18 percentage points, reflecting a robust recovery in the labor market for that group of the population. It is; therefore, appropriate to say that since Costa Rica is thought to be in the category of heavily tourism-dependent economies, the observed recovery in 2021 is proportionate to the partial renewal of international travel, creating employment in highly skilled labor-intensive sectors like hotel management, ecotourism services, and consulting industries. Probably most impressively, the employment rate for Costa Rica in 2021 reached the incredible level of 79.98%, easily passing the pre-pandemic level of 81.15% recorded in 2019. Such a remarkable statistic strongly points toward the implication that the Costa Rican labor market targeting highly educated individuals not only recovered from the negative impact of the pandemic but also showed performance superior to the levels observed before the crisis.

in Mexico, there was stability and even went employment rate as high as 80.9% in 2010 and 2011, which is a surefire indicator of an undisturbed demand for the highly educated. The rate did increase by a decent margin to 81.1% in the year 2012, presumably due to the improvement in labor market conditions that may have been favorable to educated professionals. In 2013 and 2015, the rate however, started to go on a gradual downtrend and reached 79.88% in 2013 and further declined to 78.96% in 2015 - an indication of a very soft labor market and significant erosion of job opportunities for the higher (tertiary) educated. In the years between 2016 and 2019, labor seems to stabilize within a range of 79.8% to 79.6%, indicating stable but slightly lower demand for educated professionals. Mexico has held a relatively stable rate of employment during this period, with a slight drop after 2012. This therefore tends to indicate that there existed a steady yet somewhat cold market for those who have higher education qualifications.

The case for Mexico was not different from other countries, where the employment rate for those who have received a tertiary education also goes down a notch, coming to 76.33% for the year 2020, which is insignificantly low compared to an earlier 79.69%

recorded in the year 2019, therefore showing a fall of 3.36 percentage points. This fall in employment is rather highly disturbing, given that it reflects the annihilating impact that the COVID-19 pandemic has caused on the Mexican labor market. Nevertheless, this decline needs to be put into a broader perspective in light of the trends in employment shown across many countries. The Mexican case is far from being an easy one; still, it looks like the country is faring relatively well compared to some regional peers. The reason could also relate to the large informal labor market that characterizes the country and to some sectors proving resilient to the shocks of the pandemic.

A decline in the employment rate in Mexico simply shows that the world health crisis had a wide effect on the labor market. The available opportunities for people within the tertiary-educated workforce contracted after there were losses of jobs, thus elaborating on the far-reaching consequences of such unprecedented events on the dynamics of employment across the various sectors of the economy. This informs the need for comprehensive and concerted policy interventions regarding support for affected workers and industries toward sustainable economic recovery in light of these constant challenges. What is now needed in the case of Mexico is an immediate and bold intervention by the government and policy thinkers to address the crisis in employment, particularly through job creation, and support workers in both formal and informal sectors for a strong and inclusive post-COVID economic recovery.

Meanwhile, a more modest recovery was noted in the case of Mexico, where the employment rate reached 76.33% in the year 2020, also influenced by global economic situations at that moment. In the following year, it recorded a more sluggish increase of 1.96 percentage points in the employment rate for people with tertiary education. This points out a pace of recovery that is very slow compared to its Central American neighbor. This can, therefore, be explained by general economic weaknesses: the period of subdued growth—particularly in high-skilled industries like technology and professional services—those sectors that are supposed to generate new jobs for the upper tiers of the labor market. While the employment rates of those with tertiary education improved to a certain extent, it should be noticed that the rate for 2021 remained far below the pre-pandemic level of 79.69% that had been established in 2019. Be that as it may, it seemingly appears that the relative stability of the labor market of Mexico has been maintained over two years, 2020 and 2021, which could suggest that its highly educated market segment is more resilient

in the pandemic than what was evident in the labor markets of several other countries that suffered extreme shocks.

In Turkey, however, 2010 marked a period with an employment rate of 75.7%, which is admittedly lower compared to the rates seen in other countries but still reflects a very remarkable level of demand in the Turkish labor market for college-educated workers. Between 2011 and 2013, the growth rate of employment had a slight increase until it reached its peak in 2013 at 76.9%. This is indicative of some noticeable improvements within the same period in the labor market. Finally, after the peak in 2013, from year 2014 to 2015, the average rate of employment remained stable by floating between approximately 76.13% and 76.16%, indicating continued demand for well-educated individuals at the same rate. However, in the following two consecutive years of 2016 and 2017, the recorded employment rates had visibly fallen. It fell to 75% in 2016 and recovered a bit to 75.2% in 2017, reflecting an already emerging slowdown in the job opportunities accruable to the workforce. Matters continued to worsen in the year 2018-2019, when the employment rate contracted further to 73.6% in 2019, depicting a cooling labor market that perhaps may not have favored the tertiary-educated individuals as strongly as before. First, in Turkey, the employment rates amongst those with tertiary education increased with a spike and have started to gradually decrease from the year 2014 onwards; this reflects overall economic difficulties or changes in the labor market. It is plausible that various economic factors and structural challenges have quite considerably contributed to this fall and may indicate labor oversupply at a high level of education or changes in the structure of the labor market, which affects employment opportunities.

Regarding the case of employment of tertiary-educated persons, the overall trend in these five countries has been one of relative stability with minor deteriorations in recent times. For example, some countries such as Chile and Mexico have experienced only negligible declines in recent years hence maintaining a steady track of overall employment rates in their tertiary educated. Stability like this portrays the continued demand for a well-educated labor force in those countries, irrespective of adverse economic conditions that may prevail. The country of Turkey had a more pronounced decline in the employment rates of the tertiary-educated after 2014, arguably due to combined economic and political factors, unique to its situation. For these five countries taken as a whole, there is a general sense of resistance within the tertiary-educated labor market. Despite some minor fluctu-

ations and country-specific variations, demand for such highly educated employees during the decade has been strong. Resilience on this order suggests a premium for advanced education in such labor markets and insulation from broader economic pressure to a corresponding degree. The analysis provides a baseline that is important in understanding how the COVID-19 recession has affected the employment rate of the tertiary-educated. It allows a more differential explanation of how the pandemic could have disrupted or accelerated pre-existing trends in the employment of highly educated workers within these diverse national contexts.

On one hand, in the case of Turkey, the employment rate decreased slightly to 73.98% for the year 2020. It reflected an increase of 0.37 percentage points from last year's rate of 73.61%, so it has seen rather a minor reduction. While many countries around the world were going through unprecedented difficulties caused by the global pandemic, Turkey was able to maintain a relatively stable employment rate among those with tertiary education, hence proving labor market resilience. This might be explained by the fact that, thanks to the diversified nature of the Turkish economy, it is built in such a way that some of its sectors can easily tone down the negative impacts of the recession and not allow employment rates to fall as low as in other countries. Probably because of the diversified sectors of the economy and their interaction with the labor market dynamics, employment remained relatively insulated from the turmoil that was characteristic of the global economy in those days.

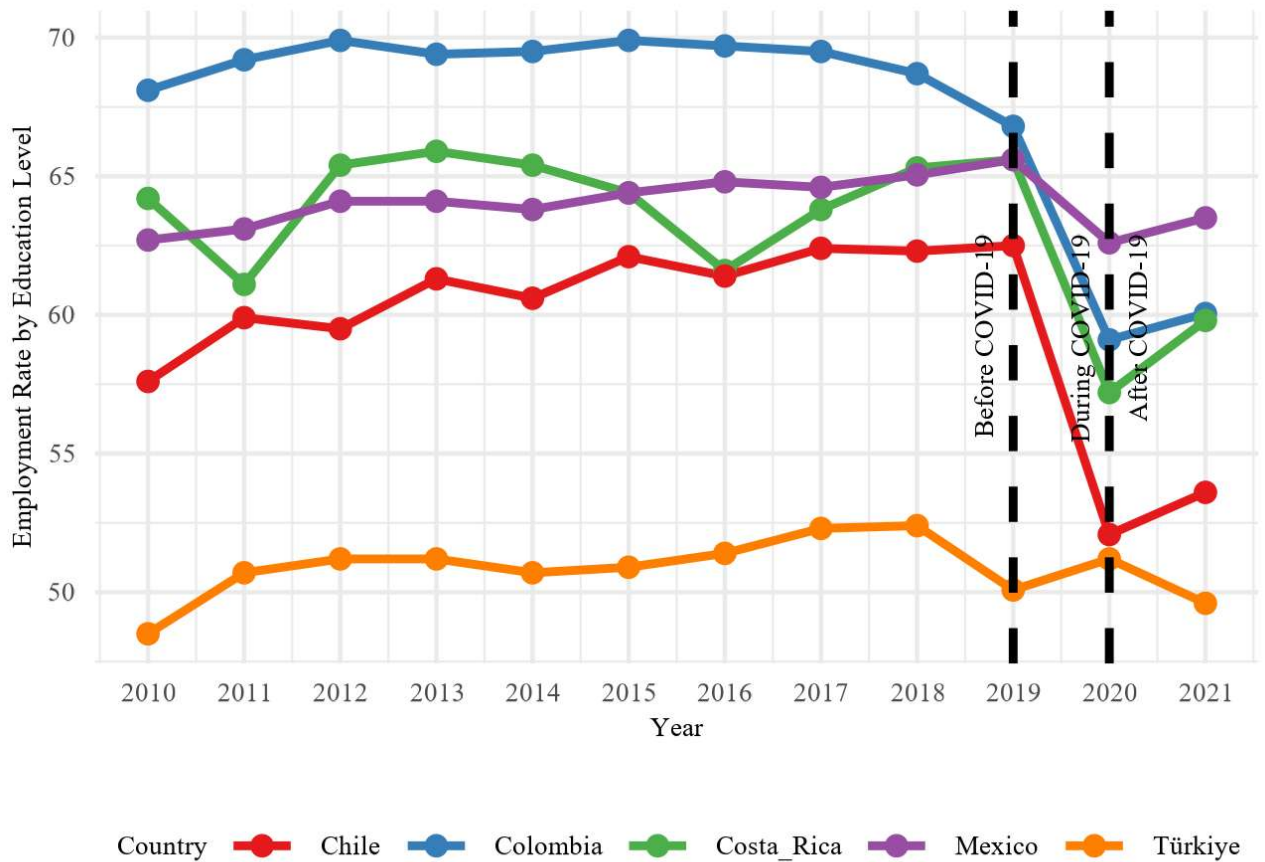
The COVID-19 crisis has hit hard on the labor market in many countries, but even tertiary-educated workforces have suffered seriously. The figures show a large number of different consequences for different countries, underlining the complex ways that economic structures, policy responses, and the severity of the impact driven by the epidemic interact. While the significant decline in the job opportunities of the highly educated workforce showed evidence of higher disruption in the economic life of Colombia, the comparatively smaller declines in Chile and Mexico may indicate that their labor markets are resilient for their skilled professional classes. The considerable decrease in Costa Rica's rate shows the weakening of its economy, and the fact that Turkey could preserve an employment rate for laborers having tertiary education means more or less that the country managed quite well in its economic situation during the crisis. These trends in 2020 underpin how infrequent the slump caused by COVID-19 was and how far-reaching. The fact that even the highly educated, often thought to be in a more

secure labor market position, suffered from labor market problems speaks volumes about the strength of the shock. This also points out another crucial element, namely that broad and flexible policy responses are required to protect employment at all levels of education in moments when crises occur. Since the crisis was quite inversely practiced in various countries, factors such as economic diversity, labor market structure, and efficiency of government interventions are apparently of crucial importance when accounting for resistance regarding the employment of tertiary-educated employees. These might constitute some valuable and beneficial lessons to draw from for upcoming strategies aimed at building more resilient and inclusive labor markets that could sustain similar shocks.

The decline in employment rates of workers with tertiary education in Turkey depicts an interaction between economic and social elements. From 73.98% in 2020 to 72.29% in 2021, this sets back, in rather big measure, the provision of a highly informed labor force in the country. Indeed, this is somewhat remarkable when juxtaposed against its global context, where many countries have shown resilience or even a rise in employment rates for those who have tertiary education. The fact that the 2021 rate was below the pre-pandemic level of 73.61% in 2019 underlined the magnitude and persistence of the challenges faced by the Turkish labor market. All these factors have been blamed for the continuous employment problem in Turkey's educated workforce. Economic instability within the country, fostered by a high inflation rate and political uncertainty, has created an unsupportive climate for expanding business operations to absorb more employees. Major sectors of the economy, such as manufacturing, tourism, and professional services, which should absorb a great share of tertiary-educated (higher education) workers, have faced many challenges, affecting their hiring negatively and causing possible job loss. Furthermore, economic recovery in Turkey, very slow due to global economic pressure and local challenges, has contributed even more to retard job creation and employment chances for highly skilled labor. This situation influences not only the immediate prospects of new graduates and job applicants but also, in the longer term, involves risks for the economic competitiveness and innovative capacity of Turkey because underutilization of this educated workforce could result in brain drain and diminished productivity in key sectors.

Figure 4. 22

Employment rate by education level: Upper secondary. non-tertiary, working-age population of 25-64 year



Source: Author calculation based on OECD countries' data

Figure 4.22 shows the employment rate by education level, especially upper secondary and non-tertiary education levels in Chile, Colombia, Costa Rica, Mexico, and Turkey from 2010 to 2021 to examine the trend in the labor market before, during, and after the COVID-19 recession. Due to the unavailability of data, Afghanistan, Korea, Iran, and China were excluded from the analysis.

In Chile, for 2010, there was no data available regarding the employment rate by education. However, from available data, it is evident that as early as the beginning of 2011, the employment rate stood at 70.3%; this was 0.6% less than the following year, 2012, standing at 70.9%. This trend represents early recovery or, at the least, stabilization of the labor market and an improvement of the situation relating to employment. On the other hand, between 2013 and 2017, there was a gradual yet consistent increase in the trend of employment on an annual basis, peaking at 71.8% in the year 2017, which does indeed

indicate that during this period there was consistent accessibility to employment for those with upper secondary educational qualification. However, during the year 2018, the same employment rate drastically reduced to 66.5%, which surely indicates that there was a sudden break in the economy or that there was a shock that was unanticipated within the labor market environment. Apart from this, in the year 2019, there was a spectacular catch-up when the level of employment reached 63.8%, a comeback that could most presumably be due to strong economic growth, or labor market reforms, one of which helped create an exceptionally good climate for employment right before the COVID-19 pandemic started.

For Chile, the employment rate has fallen from 63.8%, as recorded in 2019, to 62.6% in 2020—a change that effectively reveals the huge economic effect of this global pandemic on the country's manpower. The 1.2-percentage-point decline represents one of the largest falls among the surveyed countries and is part of this worrying trend because a great part of those jobs shed were in industries employing a high proportion of people who never attended college. It is very indicative of how vulnerable the labor market of Chile has been and disproportionately negatively affects those with non-tertiary education that the employment rates would decline by that magnitude. Economically, this has badly hurt the pandemic in the consequent crisis of high labor-intensive sectors dependent on this level of education vital industries of manufacturing, services, and construction—entailing massive losses of jobs at all levels.

In Chile, the employment rate of people with upper secondary, non-tertiary education recovered somewhat in 2021 from the decrease in 2020 by 0.3%, reaching 62.9%, and it remains lower than the 63.8% observed in 2019 before the pandemic. It still has some way to go in labor market recovery. Perhaps the gains are modest because the pandemic continues, especially in services, tourism, and retail sectors that usually provide jobs for people with non-tertiary educational attainment. These industries have faced longer struggles with restrictions, reduced consumer spending, and changed consumer behavior, thus affecting the employment of this group.

The tendencies of employment rates in Colombia from 2010 to 2019 are complex and dynamic. A few years into the decade, there was a positive trend; for instance, the employment rate went up from 73.7% in 2010 to 74.94% in 2012, showing good levels of performance in the labor market and improved economic levels. This was stabilized between 74.8% and 75.3% from 2013 to 2015, which indicated that there was an identical

and balance of the labor market for individuals with special educational qualifications. However, this upward trend has gone in reverse so far in the latter half of the decade, as the employment rate declined from 74.6% in 2016 down to 71.4% by the end of 2019 gradual contraction in job opportunities initial growth, stability, and succeeding fall in the pattern of employment rates involve imperative and significant implications for economic policy in Colombia, as well as for educational strategy. An integrated approach toward workforce development, therefore, would be underlined by data that links educational outcomes to changing labor market demands. The latter include but are not limited to technological changes, changes in industry sectors, and worldwide economic stimuli that labor markets may contribute to observed trends in the share of employment. The decreasing trends of recent years demand targeted interventions that will stimulate job creation, enhance skill-development programs, and create a climate propitious for the continuity of employment growth. With close consideration to such trends and strategy adaptation to them, it will be possible for Colombia to work on enhancing its resilience in the labor market and improving employment prospects against the background of dynamic economic conditions.

In Colombia, employment fell from 71.4% in 2019 to a lower rate of 63.1%, hence corresponding to a big fall of 8.24 percentage points. Compared with Chile, this is a smaller fall, but it also accounts for part of the significant decline in the job chances of workers with non-tertiary education in light of the likely negative impacts of the pandemic on informal jobs and the predominant lower-skilled sectors of the labor market of Colombia. This can be graphically seen within the informal sector in Colombia since it generally implies many workers with only a non-tertiary level of education. As the pandemic reached as far as a drop in the employment rate, to which the government tried to stem the damage with various measures in an attempt to soften the blow among workers and businesses, it surely has an unmistakable effect.

The employment rate in Colombia went up more significantly, growing by 1.34%, from 63.1% in 2020 to 64.5% in 2021. This rate is nevertheless far below the level recorded in 2019, that of 71.4%, so it would appear that the job market is recovering only gradually and incompletely. This sluggish recovery might indicate structural problems in the labor market of Colombia, particularly among informal workers who have not received a tertiary education. Such a category is likely to find it even more difficult to protect stable

employment or reorient themselves to new positions in the emerging post-pandemic economy. Besides, the gap in the employment rate from its pre-pandemic value indicates that the COVID-19 shock remains effective in the Colombian labor market and that targeted policies towards job creation and skills development among those with non-tertiary education are still to be called for.

In the case of Costa Rica, it is worth mentioning that the starting value of the employment rate in 2010 was 73.4%, and it increased slightly, reaching 74.1% at the end of 2012, which could be considered as a reflected positive trend in the first years of the decade under review. However, within the period from 2013 to 2015, it received significant ups and downs: from its peak, it collapsed as far as 72.5% in 2013. Then, in 2014, it managed to recover a bit to 73.1%. However, this recovery was extremely short-lived. After another collapse, the rate fell as low as 71.71% in 2015. Over the last period under review, 2016 to 2018-the tendency of decline in the employment-to-population ratio continued, reaching a worrisome low of 69.1% in 2017 and further showing that the labor market has been steadily going down. Even with this, it must be put forward that the trend has been downward, and even so, it increased slightly and attained a value of 69.8% in 2018. Further in 2019, the employment rate continued to grow and reached the level of 72.8%, which can be viewed as some recovery ahead of the global pandemic crisis; such recovery could have been brought about by certain improvements in the economic context or particular labor market reforms.

The labor force participation rate in Costa Rica fell drastically, from 72.8% in 2019 to 64.3% in 2020. The decline of 8.51 percentage points was much larger and could be partly due to this pandemic slamming into Costa Rica's service-based economy, especially in tourism and hospitality, which involves the common people not having a tertiary education. Tourism and leisure activities were minimized during the crisis. These contractions arguably translated into job losses among the non-tertiary-educated population and thus into the overall sharp decline in employment rates. This was not a singular impact of the pandemic on the employment structure of Costa Rica, but the most replicated one, as many developing nations have witnessed the shift towards primary and secondary sectors due to the severe economic disruptions caused by the service sector.

Costa Rica had relevant progress in economic recovery during 2021, which is demonstrated by the increase in the level of employment that went from 64.3% in the previous

period to 65.8% in 2021. This 1.5% rise can be seen as a positive, though moderate, rebound considering the severe disruption caused by the pandemic that reached every corner and had repercussions widely in the labor market. However, it is important to notice that, as also happened with Chile and Colombia, Costa Rica's level of employment has not reached the recovery level of the pandemic, which in 2019 reached 72.8%. A gap like that underlines a very important fact: while for the general economy, there was a recovery process in place, for the individuals who had this level of education, the recovery is far from being complete and quite complex.

From 2010 to 2012, the employment rate of Mexico increased gradually, going from 70.4% to 71.02% in 2012; hence, this implies a developing trend in the labor market. After this period, the years 2013 to 2016, the level of employment has remained relatively stable, going up or down within a range from approximately 70.2% to 70.4%. Such a pattern of stability points to a labor market in which neither heavy growth nor shrinkage is observed, but instead a state of balance. Around the transition to the years 2017-2019, employment gradually started growing and reached a value of 70.53% in 2019. This gradual rise in the rate of employment signals an improvement in the labor market conditions, which especially favored the people with upper secondary education, reflecting optimism in the overall employment scenario during this period.

The Mexican labor market has fallen less rapidly: 71.5% in 2019 and reached 67.7% in 2020, a drop of 3.8 percentage points. It is smaller because the labor market for non-tertiary workers may have been more resilient, at least during the pandemic. At the same time, fewer lockdowns and fewer labor market restrictions possibly influenced this situation. Yet it is still indicative of considerable pressure on the labor market, particularly that part which is non-tertiary-educated and engaged in the manufacture and trade of goods.

In addition to that, the percentage of working people in Mexico increased from 67.7% in the year 2020 to 69.2% in 2021, hence an increase of 1.5% is fairly considerable. This upward trend can indeed be seen as positive, but one must remember that it does not attain 71.5% of 2019. The slow pace of improvement in the case of Mexico might therefore be a consequence of strategic reopening policies put in place to restart economic activities, and may be due to internal intrinsic resilience evident in core sectors such as manufacturing and trade, where a big chunk of labor consists of non-tertiary educated workers.

From 2010 to 2012, Turkey's employment rate developed very impressively, starting at about 60% in 2010 and gradually and incrementally rising to eventually reach 61.7% at the close of 2012. Although the specific growth pattern exhibited here is consistent, it is relatively slow, and indicates the labor market recovery is slow. Beginning in 2013 and going up to 2015, there was an employment rate stabilization phenomenon, in which the range of employment rates in 2013 and 2015 stayed around 61.6 to 62.07%. That means there were a few changes in these continuous years. Besides, in 2016 and 2017, there was a slight increase in employment rate in 2017 to 62.54%, which marked the prelude for the gradual recovery trend in employment. However, going by the years 2018 to 2019, matters were somewhat different; in fact, this percentage increased notably in the year 2018 to 63.14%, followed by a rather sharp fall to 60.02% for 2019. This sharp drop in the employment rate signals that there is a serious set of economic or labor market issues arising and worsening as the country approaches the year 2020.

The employment rate in Turkey fell from 60.02%, as was reported in the year 2019, to 59.6% in 2020, hence recording a diminutive fall of 0.42 percentage points. The fall is modest and only relative to the broader fluctuation that the employment level faced by Chile during this period. On any statistical count, though, this may be precisely what serves to accentuate certain pre-existing labor market vulnerabilities that already had a deep presence in Türkiye and which the pandemic simply brought into full relief a function of which one would conclude that the overall impact of the global health crisis on employment in Turkey was relatively moderate. A valid argument might be that the labor market in Türkiye was resilient enough during this period, hence fewer people lost their jobs with this level of educational attainment. However, it is important to mention that employment was at a relatively low state before the COVID-19 outbreak matter which might justify why the magnitude of the decline in the number of employment was not as critical as compared to most countries worldwide. Therefore, the slight drop in the employment rate may not be so striking at first sight, but in any case, it reflects an already sophisticated interrelation between existing labor market conditions and the external pressure created by the pandemic. This, in turn, underlines the urgent need for more complex research on the specific features of labor market dynamics in Turkey within the context of global economic challenges.

In the same period, the employment rate for individuals with a non-tertiary upper secondary education in Turkey dropped slightly from 59.6% in 2020 to 59.4% in 2021, below

0.2%. Although such a slight decline is not serious, it might signal that labor market recovery from the outbreak of the COVID-19 pandemic remains difficult. Still below the pre-pandemic level of 60.02% in 2019, it is evident that this particular incidence of employment for the educational demographic has not fully recovered up to date. This slow recovery among this particular group indeed reflects the overall challenges that have been faced by the Turkish labor market and is likely to be driven by several factors. This modest progress might partly be related to domestic economic conditions, such as the rate of inflation, growth, and structural changes in some sectors. Secondly, the ongoing pandemic effects, like business disruption, changes in consumption patterns, and possible changes in skill requirements, may continue to affect job availability for persons with upper secondary but without tertiary education. The above situation, therefore, underlines the need for focused policies and initiatives that would support job creation and the acquisition of skills by this particular segment of the labor force, on top of wider action promoting economic recovery and resilience in the Turkish labor market.

Before the COVID-19 crisis, it was concluded that, from the labor market point of view, Chile and Mexico have shown some stability in their respective employment rates. Chile, in particular, had a very strong increase in employment in 2019, which was just before the start of the pandemic. On the other side, countries like Colombia and Costa Rica show a relatively stable employment trend. While both countries at the end of the period show a drop in their employment rates, this is very much more pronounced in the case of Colombia. The same time in Turkey shows quite slow but in general steady growth in the rate of employment, facing a drastic decline in 2019—one of the key indicators of economic challenges that appeared shortly before the outbreak of the COVID-19 crisis. This updated information illustrates the dynamic labor market situation before the recession induced by the COVID-19 pandemic. It is supposed to highlight the fact that most of the analyzed countries have gone through all kinds of fluctuations in employment rates, with the biggest rebound in Chile and the biggest downturn being observed in Turkey within the same year, 2019.

During the COVID-19 crisis, the most significant decline in employment figures has been noted to have occurred in Chile, which further helps explain the large, extended impact of COVID-19 on its economic landscape and especially on the job market for those with only non-tertiary qualifications. Also, aside from these, Colombia and Costa Rica were able to record significant decreases in their respective levels of employment; however,

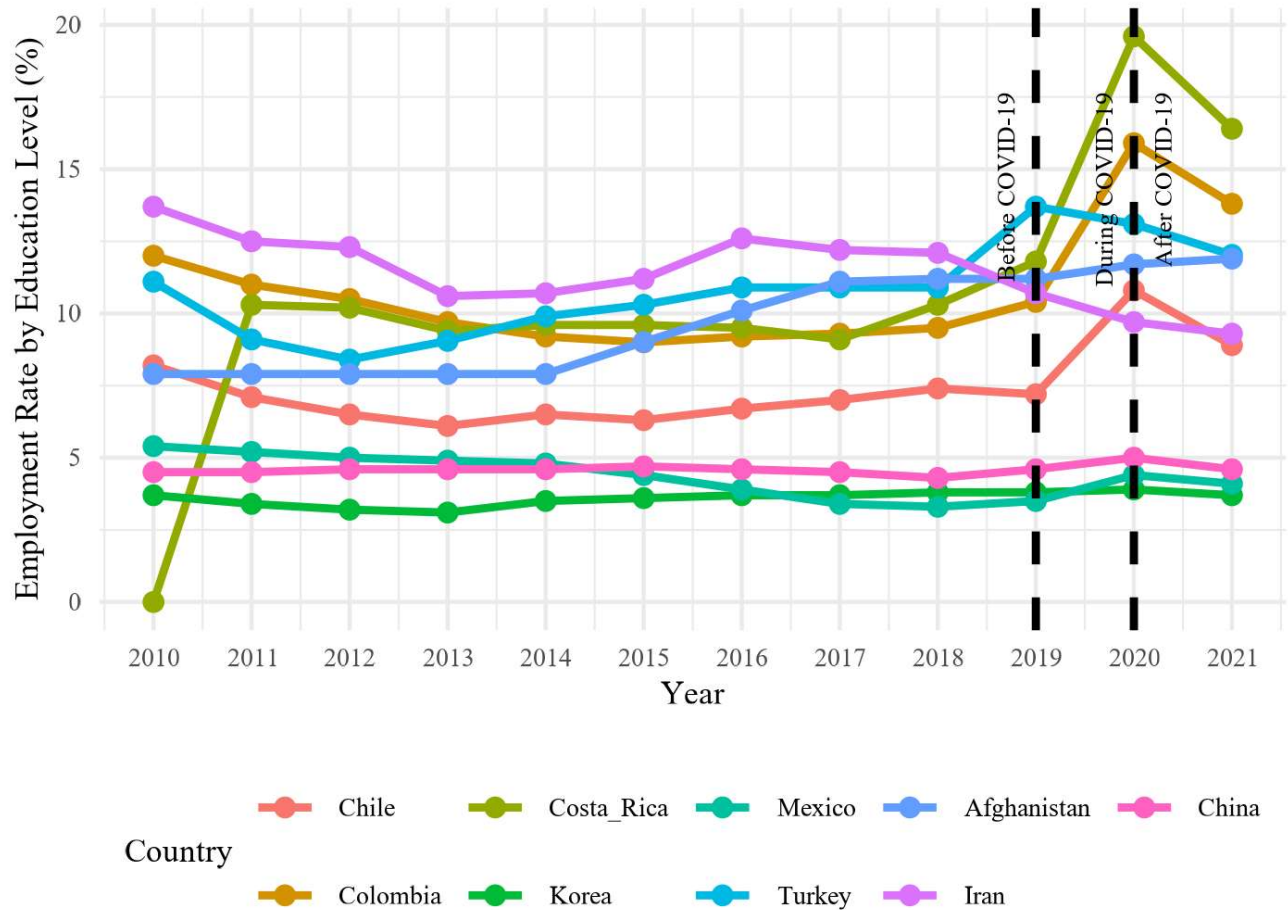
the figures there proved to be less serious compared with the noticeable decline in Chile's case, thus putting into perspective the inherent vulnerabilities within the informal and service-related occupations of these countries. By contrast, Mexico's contraction was perceived to be relatively moderate compared to the more severe declines elsewhere in the region, arguably because of the fewer lockdown restrictions and a more solid and resilient labor market that was comparatively better positioned to withstand part of the shock from the pandemic. While Turkey has shown the smallest decrease in employment rate during this turbulent period, it is crucial to underline that its employment rate before the pandemic era was very low. It implies that the challenges in the labor market of this country were long-standing and systemic even before the pandemic, and it is especially hard for people with non-tertiary educational backgrounds.

After the COVID-19 crisis, compared to steep losses in 2020, employment rates slowly recovered in 2021 in all five countries. While this is the case, in all five countries, the employment rates of people with non-tertiary upper secondary education were still below pre-pandemic levels in 2021. This is an indication that as economies started recovering, recovery was slow, especially for workers with lower levels of education who may encounter greater difficulties in sectors most affected by the pandemic. The others are Chile and Costa Rica, whose improvements were slower as compared with those of Turkey and Mexico, reflecting the heterogeneity in the level of economic resilience of these countries, and how quickly they have been able to reopen or catch up in economic sectors such as services and tourism. Among the countries for which data is presented, labor markets were showing all positive signs of recovery in 2021; employment rates for those workers who are non-tertiary educated have failed to recover to pre-pandemic levels. The gradual pace of recovery underlines ongoing vulnerabilities for this demographic in post-pandemic labor markets.

4.2.2 Unemployment rate

Figure 4. 23

Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted



Source: Author calculation based on World Bank indicator, International Labor Organization (ILO), and OECD countries' data

Figure 4.23 shows unemployment figures for countries such as Chile, Colombia, Costa Rica, Korea, Mexico, Turkey, Afghanistan, Iran, and China from 2010 to 2021, observing labor market trends before, during, and after the COVID-19 crisis.

In Chile, unemployment decreased from 8.2 percent in 2010 to 6.1 percent in 2013. In 2014-2019, however, there were interim fluctuations that peaked at an increase of 7.2 percent at the end of 2019. Although generally speaking, during the first few years, unemployment fell, in the last part of the decade, it showed instability, characterized by a slight growing trend. The unemployment rate in 2020 was 10.8%, considerably higher

than the previous level of 7.2% recorded in 2019. Therefore, the pandemic caused a massive increase in unemployment, which clearly outlined the scale of disruption in the labor market of Chile. Chile's unemployment rate was 8.9 percent in 2021, down from 10.8 percent the previous year. For Chile, this drop in unemployment shows a recovery that is heavy on improvement in economic conditions and a revival of the labor market.

The unemployment rate within the territory of Colombia reduced from 12.0% in 2010 to 9.7% in 2013, although it has continued the rise from 2014 to 2019 and finally 2019 stabilized at an increase of 10.4%. In Colombia, unemployment increased to 15.9% in 2020 from 10.4% in 2019. The pandemic was hard on the labor market in the country, and this large increase in the unemployment rate reflects it. In Colombia, this percentage is 13.8 percent for 2021, as against 15.9 percent in the previous year. The big drop in Colombia's unemployment rate thus puts it as an economy in recovery, with improved labor market dynamics after the pandemic.

While declining throughout the first years, the subsequent years were characterized by strong fluctuations and a lot of volatility. On the one side, the unemployment rate increased in Costa Rica from 10.3% in 2011 to 11.8% in 2019, which reflects an increasing labor market challenge with a visible upward trend of the unemployment rate. Costa Rica also underwent an increase in the rate of unemployment from 11.8% in 2019 to 19.6% in 2020. In Costa Rica, the unemployment rate reached 16.4% in 2021 from 19.6% in 2020. This huge drop in unemployment in Costa Rica, hence, shows a clear indication of positive trend impulses toward economic revival and recovery.

In Korea, the unemployment rate has fallen slightly from 3.7 percent in 2010 to 3.1 percent in 2013, while gradually growing to 3.8 percent in 2019. The Korean labor market was quite steady with minor changes and maintained a low unemployment rate. The pandemic broke out in tandem with very high unemployment figures, signaling strong disruptions to the economy and the labor market. For instance, the unemployment rate for 2020 in Korea was 3.9 percent, indicating a minor increase from 3.8 percent in 2019. Despite that minor increase, Korea retained a relatively low unemployment rate with minimal disruption from COVID-19 infiltration into the labor market. The unemployment rate in Korea was 3.7% in 2021, nearly the same as the 3.9% in 2020. Proof that the country has maintained a very low unemployment level attests to its effective economic policy and great resistance to shocks in the labor market.

In Mexico, during 2010-2019, the unemployment rate dropped from 5.4 percent to 3.5 percent, with a trough of 3.3 percent in the year 2018, clearly reflecting an improving labor market with a highly declining trend of unemployment. In 2020, Mexico recorded an unemployment rate of 4.4 %, which, compared to the rate in 2019 of 3.5 %, had risen slightly. While there was a rise, it was a moderate shock compared to other countries, and thus it exposed some kind of resilience in the Mexican labor market. This is similarly applicable to Mexico, which would reduce unemployment marginally from an unemployment rate of 4.4 percent in 2020 down to 4.1 percent in 2021, showing a smooth trajectory in its recovery.

Whereas in Turkey, the unemployment rate did drop from 11.2 percent in 2010 to 9.02 percent in 2013, increasing afterward to 13.7 percent between 2014 and 2019, demonstrating a huge turn to deteriorating labor market conditions in the latter part of the decade. In 2020, Turkey recorded an unemployment rate of 13.1%, compared to the 13.7% rate in 2019. Quite surprisingly, despite all odds, the unemployment rate in Turkey slightly improved, probably due to economic measures or differences in the way things are reported. In 2020, Turkey recorded an unemployment rate of 13.1%, compared to the 13.7% rate in 2019. Quite surprisingly, despite all odds, the unemployment rate in Turkey slightly improved, probably due to economic measures or differences in the way things are reported. It has been established that the unemployment rate in Turkey decreased from 13.1% in 2020 to 12.0% in 2021, reflecting improvements in its economy and labor market conditions.

In Afghanistan, from 2010 to 2013, the unemployment rate did not change that much and was 7.9 percent; from 2014 to 2019, it steeply increased to 11.2 percent, thus indicating a deteriorating labor market situation during the latter years. In 2020, Afghanistan reported an unemployment rate of 11.7 percent, up slightly from 11.2 percent in 2019. At the country level, it affected the nation very mildly. It reflected incremental changes in the unemployment figures, denoting continuous economic hurdles increased by the pandemic. However, the unemployment rate of Afghanistan increased from 11.7% to 11.9%, hence proving that it still experiences a few monetary issues with instability.

In Iran, since 2010, the unemployment rate has dropped from 13.7% down to 10.6%, then went through fluctuations to finally balance out at 10.7% in 2019, showing that despite the improvement at the beginning, the rate remained very volatile and high. In sharp contrast, reports are that Iran's unemployment rate dropped to 9.7 percent in 2020 from

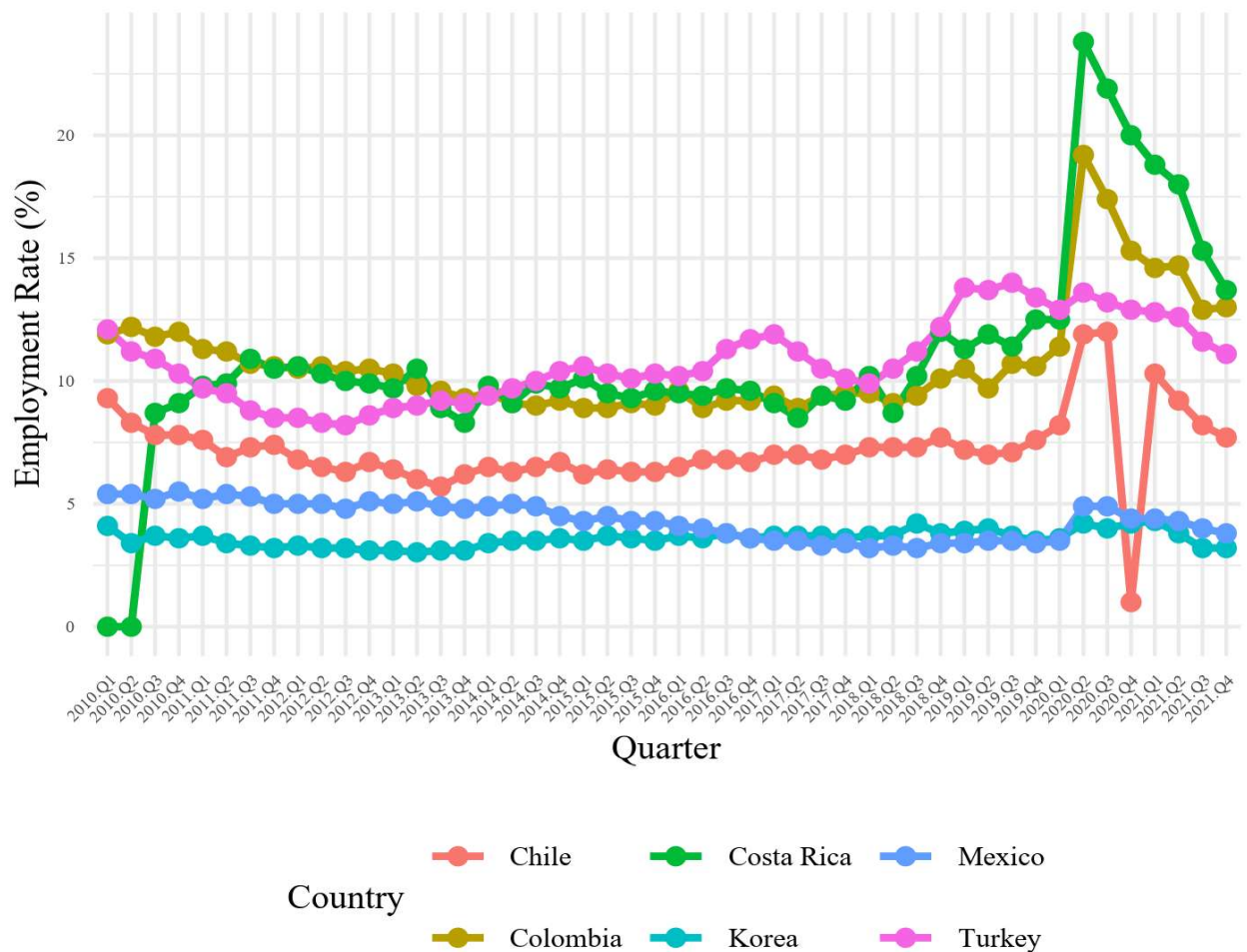
10.7 percent in 2019. This decline in the unemployment rate could have been due to reasons such as difficulty in collecting data or higher employment of people in the informal sector during the pandemic. In Iran, when considering the rate of unemployment, going from 9.7 percent in 2020 to 9.3 percent in 2021, a moderate recovery of the labor market. In contrast, the unemployment rate of China in 2010 was 4.5 percent and has been relatively stable at the level of 4.6 percent during 2011-2014, fluctuating between 4.3 percent and 4.7 percent. From 2015 to 2019, the unemployment rate showed a gradual decline from 4.7 percent to 4.6 percent; hence, it can be seen that there exist continuous labor market conditions with only minor fluctuations in the unemployment rate. the unemployment rate in China in 2020 stood at 5.0 percent, an increase from the 4.6 percent recorded in the year 2019. In China, this effect was very mild and was seen as a slight increase in the unemployment figures—this was an indication of its effective control measures and strong resilience in its economy. The unemployment rate in China in 2020, went down to 4.6 percent in 2021, continuing stability and recovery.

Before COVID-19, Chile, and Colombia experienced a starting off with a decline and then a rise in instability towards the end of the decade. The data obtained for Costa Rica showed upward-sloping unemployment signaling deterioration in labor market conditions. In contrast, Korea kept its rate of unemployment low and stable with small fluctuations. Mexico did relatively well because it continued to reduce its unemployment figures. By contrast, in Turkey, there was a very steep increase in the unemployment rate, particularly in the last phase of the decade. In Afghanistan, the situation in the labor market deteriorated further and the trend in unemployment is increasing. In Iran, there were rather significant fluctuations in the employment situation; no long-term trend is perceivable, although it has remained relatively high. In China, the unemployment rate remained steady with little change, indicating a stable labor market environment.

During COVID-19, high surges in unemployment rates were registered in Chile, Colombia, and Costa Rica—indicating that these labor markets were hard hit—Mexico, Afghanistan, and China recorded moderate increases in unemployment rates, a relative resilience. Korea distinguished itself by keeping unemployment at low levels and having strategies to dampen the impact of the pandemic on its labor market. Trends for Turkey and Iran were unexpected and included slight decreases or very small increases in the level of

After COVID-19, the unemployment rate decreased drastically in Chile, Colombia, and Costa Rica, which reflects that these countries made a robust economic recovery. It was shallow in the case of Korea and China, trying to portray the right economic policies and the standing of their labor markets to shocks. The moderate rise in unemployment for Mexico, Turkey, and Iran broadly showed steady progress on the road to recovery. On the other hand, the slight increase in unemployment in Afghanistan has exposed the country to ongoing economic hurdles.

Total (Women and Men) unemployment rate: Working age population from 15 years or over, Calendar and season-ally adjusted



281

Figure 4.24 shows quarterly unemployment rates from 2010 to 2021 in Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey. The series indicates the path of the labor market before, during, and after the COVID-19 crisis.

In Chile, during the first quarter of 2010, there was very high unemployment, and it has significantly come down to 6.2% in the last quarter of 2013. Again, the unemployment rate bounces between 6.5 and 7.7 from the first quarter of 2014 to the fourth quarter of 2015. It would be pertinent to add that the trough for unemployment was 5.7 percent in the third quarter of 2013, while it peaked at 9.3 percent in the first quarter of 2010. This represents the recovery phase of the economy or an expansion phase, which in turn represents a downward pressure on the unemployment rate. From 2014 to 2017, the unemployment rate has been stable and shifted only slightly within the range of 6%-7%. The lowest rate of unemployment was 6.0 percent in the second quarter of 2014, and as high as 7.1 percent in the second quarter of 2017. The labor market is therefore very stable and undergoes only slight seasonal changes. The unemployment rate indicated a mild increasing trend from the third quarter of 2017 through the fourth quarter of 2018. In the third quarter of 2017, the unemployment rate was 6.8, the lowest rate ever achieved, and further rose to 7.7 percent in the last quarter of 2018, becoming the highest rate of unemployment during this period.

In the first quarter of 2020, Chile had an unemployment rate of 8.2 percent. This increased to 11.9 in the second quarter, thus marking a precipitous increase in unemployment. By the third quarter, it increased to 12, thus showing a slight incline in unemployment numbers. However, in the fourth quarter, it slightly decreased to 11, thus portraying a minor drop in the unemployment rate. Now, this precipitous increase in unemployment in Chile in the second quarter is because of the pandemic inhibiting measures that had been enforced at the time, and this includes lockdowns and economic shutdowns. The minor decline in the fourth quarter charts a path of economic resurgence.

The unemployment rate in Chile during the first quarter of 2021 was 10.3 percent, further dropping to 9.2 percent in the second, 8.2 percent in the third, and 7.7 percent in the fourth quarter. That steady unemployment rate in Chile in 2021 was one indicator of a full, robust recovery because economic activity had started again. The leveling out of the labor market speaks to good health in the country and the capacity to face shocks.

In Colombia, unemployment fell gradually from 2010 through 2013. From 12.2 in the second quarter of 2010, which represents the highest level of unemployment, it fell steadily to 9.3% in the third quarter of 2013, which is the lowest level of unemployment. Probably, improvements in the economy contributed importantly to lowering the rate of unemployment. From 2014 to 2017, there is a general declining trend in unemployment rates, with occasional ups and downs. In 1Q 2015, it dropped to as low as 8.9%, while it hit as high as 9.6 in 1Q 2016. This duration indicates that the economy is stabilizing because of steady improvement in job opportunities. Between 2018 and 2019, the unemployment rate has been increasing. The unemployment rate began at 9.5 during the first quarter of 2018, which is the lowest throughout this period. During the third quarter of 2019, the unemployment rate hit the highest at 10.7%.

The Colombian unemployment rate stood at 11.4 for the first quarter at the beginning of 2020. It then makes a dramatic increase to 19.2% in the second quarter, an indication that it shoots up rather sharply and drastically. There would be a slight improvement in the third quarter when the rate would be thrown to 17.4%. The positive trend continued in the fourth quarter when the unemployment rate fell further to 15.3%. What is important to note is that Colombian unemployment rated its most significant rise in the second quarter, but anti-pandemic programs mitigating the economic impact were evident in further quarters, gradually reducing the unemployment rate.

Moreover, the unemployment rate in the first quarter of 2021 was 14.6 percent before increasing a bit to 14.7 percent in the second quarter, with a strong reversal to 12.9 percent in the third quarter. It inched up a bit at the end of the year to 13 percent. The Colombian unemployment rate has been increasing and then decreasing again, peaking during the second quarter and dropping during the third, thus depicting a gradual recovery path with continued obstacles in the scenario of the labor market. This underlines the need for sustained effort in questions related to employment.

The unemployment rate in Costa Rica had been on the rise and hit its peak in the ultra-peak year of 2011, which saw the unemployment rate at 10.9% during the third quarter. This is compared to a low of 8.7% in the third quarter of 2010. A high level of unemployment in the early years of the decade could be indicative of possible frictions or changes in the labor market. After the peak rate, it continued changing and gradually went down up to the end of 2017. The fourth quarter of 2013 showed a low of 8.3 percent in contrast to a sharp fall from 10.5 percent in the second quarter of that very year. Some stabilization

of the labor market is observed while generally, according to the trend, the unemployment rate is trending downwards. The trend from 2017 to 2019 shows that the unemployment rate dramatically spiked toward the tail end of the period, peaking as low as 8.5 percent in the second quarter of year 2017 and surging as high as 12.5 percent in the fourth quarter of year 2019. In the second half of the decade, these economic challenges began to become more acute, underlined by significant increases in unemployment.

The unemployment rate in Costa Rica was 12.5% during the first months of 2020 before dramatically surging to 23.8% in the next quarter, which shows a very large increase—shocking for any country—to be exact. Next, the calendar would turn out in the third quarter with a slight recovery of 21.9%. The positive trend would continue in the fourth quarter, further dropping to 20%. The challenge was the steep increase in unemployment in Costa Rica in the second quarter, where it nearly doubled from the previous quarter. However, a slow but gradual recovery and improvement were then noted in terms of the employment situation.

Contrary to this, the unemployment rate in Costa Rica was 18.8 percent in the first quarter of 2021 and 18 percent in the second. It dropped to 15.3 percent in the third and drastically down to 13.7 percent in the last quarter. The steep decline of the unemployment rate in Costa Rica, more so during the second half of the year, pointed out that there were effective recovery strategies and a stronger labor market environment; hence, it was a positive omen for development regarding the course toward economic recovery within the country.

In Korea, from 2010 through 2013, the level of unemployment was relatively low and stable. The unemployment rate in the first quarter of 2010 was as high as 4.1 percent while in the second quarter of 2013, it was as low as 3 percent. It reveals that, other than minor fluctuations noted, the labor market is stable and healthy. The unemployment rates have shown mild fluctuations across the period between 2014 and 2017 but were largely confined to a narrow range. Although it peaked in the second quarter of 2015 at 3.7 percent, several other quarters were as low as 3.1 percent, thus portraying the consistency achieved in the labor market. Information shows gradual increases with minor deviations thereafter between the years 2018 and 2019. The third quarter of 2018 peaked at 4.2 percent, while the last quarter of 2019 had the lowest unemployment rate at 3.5 percent. The unemployment rate had modest increases, generally, though it was very low and highly stable.

In Korea, the unemployment rate was as low as 3.6 percent at the beginning of 2020, while it showed a moderate increase to 4.2 percent in the second quarter. It showed a little decline in the third quarter and fell to 4 percent. This stability of the unemployment rate continued as it remained at 4.2 percent in the fourth quarter. Whereas the unemployment rate of the Korean labor market has moderately risen compared to other countries during the pandemic, it has stayed relatively stable throughout the year, which puts it in a more resilient employment landscape than that of the rest of the world.

Korea's unemployment rate in the first quarter of the year was 4.3 percent, further mitigated to 3.8 percent in the second quarter, and leveled off at 3.2 percent in both the third and fourth quarters. Clearly, over the past year, a gradual decline of the unemployment rate in Korea reflects the great resilience and recovery of this country's labor market, while it being very low towards the end of the year shows a robust recovery of the economy in this country.

From 2010 to 2013, the unemployment rate in Mexico has continuously been downward. If the unemployment rate for the fourth quarter of 2010 was 5.5 percent, that rate would be 4.8 percent in the same period for the year 2013, the lowest rate during the period under consideration. This statistic underscores an improvement in the labor market, setting the stage for the uptrend economy. Between 2014 and 2017, the unemployment rate dropped continuously. It hit a low of 3.6 percent in the fourth quarter of 2016 and reached a high of 4.5 percent during the fourth quarter of 2014. This, once more, refers to further labor market improvement and consolidation. The corresponding level of unemployment was consequently low and flat between 2018 and 2019. In most of the quarters, the unemployment rate was 3.2%, while it was simultaneously at its highest at 3.5% in some. If such a low unemployment was continuous, it reflected a stable economy.

In Mexico, it was a gradual increase at the beginning, and then the unemployment rate kept on improving. In the first quarter of 2020, it was 3.5 percent which increased a bit more in the next second quarter to 4.9 percent. At the beginning of the third quarter, it was at 4.9 percent. The rate, however, improved a bit during the fourth quarter and went down to 4.4 percent. Mild unemployment growth had also been experienced by Mexico in the second quarter, with a gradual recovery in the fourth—though reflected in the slight fall of the rate.

The unemployment rate of Mexico stood at 4.4 percent in the first quarter of 2021, where it dropped slightly to 4.3 percent in the second quarter before rising to 4.0 percent in the

third quarter and another fall to 3.8 percent in the fourth quarter. Because of that, the uninterrupted reduction of the unemployment rate throughout 2021 marked the recovery's stability and gradual stabilization of the labor market, stipulating a positive outlook on Mexico's economic trend in the post-COVID era.

Between 2010 and 2013, the unemployment rate in Turkey fell, indicating that fewer people remained unemployed. During this time, the unemployment rate was highest during the first quarter of 2010 when it stood at 12.1%. The rate, however, dropped to 8.2 during the third quarter of the year 2012 from the peak, which was an indication that labor market conditions were improving with prospects of economic growth. This downward trend in the unemployment rate was one of the welcome indicators of the economy. But this trend exactly reversed from 2014 to 2017, and again, the unemployment rate showed an increasing trend. At the beginning of 2017, it increased to 11.7%, which already posed an increasing challenge for the labor market. From 2018 to 2019, there was a strong rise in the unemployment rate, reaching 14.0% in the third quarter of 2019. In the first quarter of 2018, it decreased to 9.9%, which again expressed the temporary lightening of the pressure on the situation in the labor market. The ups and downs of unemployment rates indicate that huge economic hurdles have brought about very high unemployment.

In the first quarter of 2020, the unemployment rate had been 12.9 percent, and only a very small increase in the second quarter to 13.6 percent. The following quarter brought this rate down slightly to 13.2%. In the fourth quarter, the rate was the same, 12.9%. While the trend in unemployment in the case of Turkey increased in the second quarter, that increase was missing in the next two quarters, showing relative stability in the labor markets against all odds posed by the pandemic.

On the other hand, the unemployment rate of Turkey was 12.8 percent in the first quarter, further eased to 12.6 percent in the second quarter and to 11.6 percent in the third quarter before finally posting 11.1 percent in the fourth quarter. The gradual, slow fall of the unemployment rate in the case of Turkey during the year pictures collective efforts towards recovery and improved economic scenario, reflecting progress on positive lines in combating employment problems and promoting economic growth.

The trends in the different countries before the COVID-19 crisis can be summarized as follows: whereas in Costa Rica, the rate of unemployment was increasing in the first years of the decade, followed by a phase of stabilization, towards the end of the period, it experienced a dramatic increase. On the other side, that of Korea remained very low and

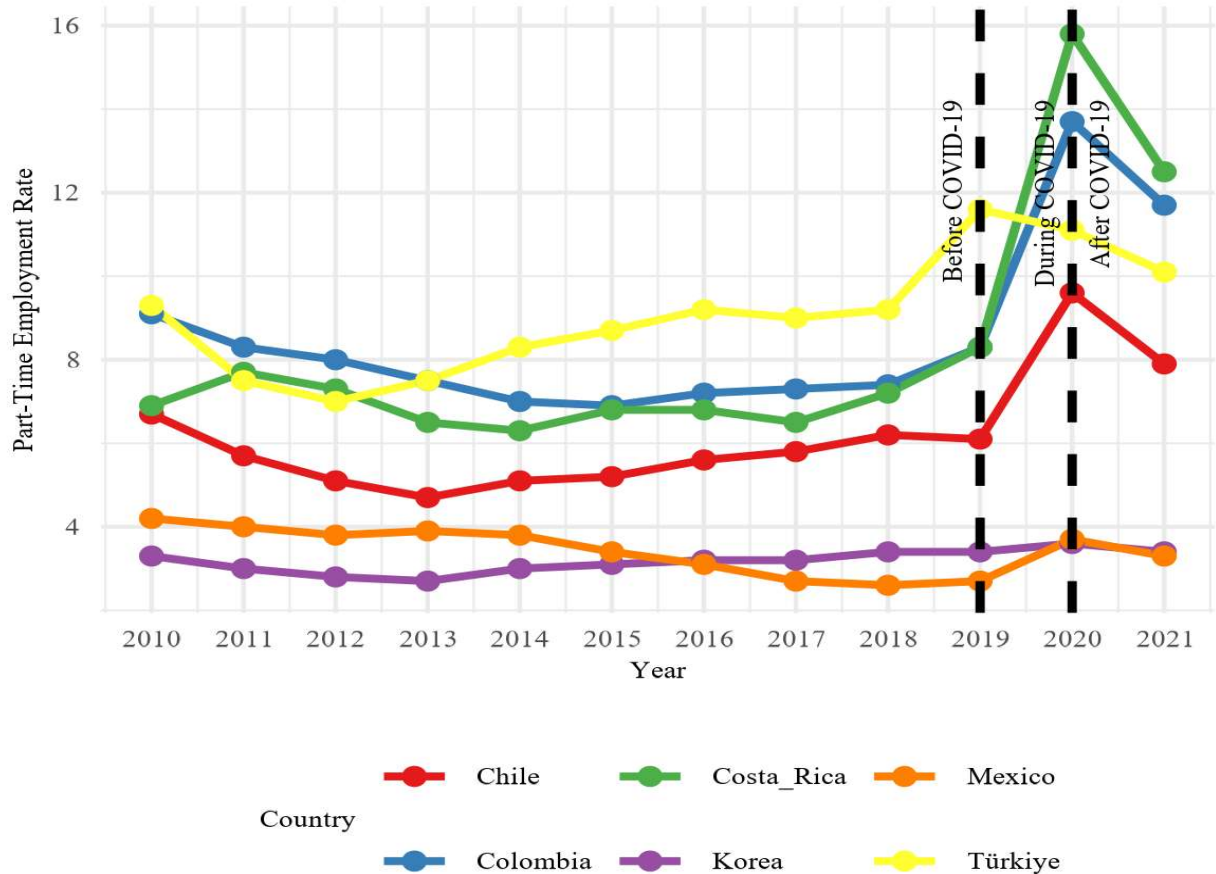
stable throughout the decade, portraying a very strong labor market. Whereas the case of Mexico shows a downward trend in unemployment rates, ending at a very stable and low rate towards the end of the decade, Turkey started by declining, soon showing a high increase in unemployment—especially towards the end of the period—which must be regarded as indicating how bad the Turkish economy was at absorbing unemployment.

In the line of unprecedented global crisis by COVID-19, almost all countries in the world showed a strong incline in the unemployment rate, more so in the second quarter of the year 2020. The pace by which recovery came differed from country to country; some showed encouraging signs of progress by the end of the year. Whereas South Korea and Mexico were generally in a more stable condition concerning the labor markets, the same cannot be said of Colombia and Costa Rica, which had the sharpest increase in unemployment rates. This could be because of the proper blend of policy actions and strong economic fundamentals that have helped Korea and Mexico to keep the employment situation more or less stable, while the difficulties for Colombia and Costa Rica manifest in an urgent need for suitable interventions to tackle the crisis's consequences.

After the COVID-19 crisis, the unemployment rate for different countries signals a recovery phase following the COVID-19 crisis. Huge drops in the unemployment rate were seen in Chile, Costa Rica, and Korea. Very slow but gradual improvements were then noted in Colombia and Turkey. The rates have stayed low and stable in both Korea and Mexico—an indication of how these respective labor markets defied being broken under such dire circumstances.

Figure 4. 25

Total (women and men) unemployment rate: Working age population from 25 to 54 years, Calendar and seasonally adjusted



Source: Author's calculation based on OECD countries' data

Figure 4.25 Unemployment rates in Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey for examining the trends in the labor market from 2010 to 2021. The labor market of Chile has improved drastically; there has been a straight decline in the unemployment rate from 6.7% to 4.7% between 2010 and 2013. In 2014 and 2016, it was slightly increased from 5.1% to 5.6%. Then, from 2011 to 2019, it rose again, from 5.8% to 6.1%. Hence, the general trend in Chile was that it improved, stabilized, and then experienced a small upturn in the latter half of the presidential term.

The unemployment rate for Chile in 2020 reached the level of 9.6%. This is considerably higher compared to the pre-pandemic rate of 6.1% recorded in 2019. Such an increase of some 3.5% may be viewed as evidence of the strong impact brought about by the outbreak

of COVID-19 on the labor market of Chile and underlines the susceptibility of the dynamics of employment against shocks in general—as was the case with this global health crisis. Unemployment in Chile was 7.9% in 2021, significantly down from 9.6% in 2020; that is a drop of 1.7%, certainly suggesting a shift in labor market dynamics. This shift can be explained by the gradual alleviation of the worst consequences of the pandemic. In Colombia, from 2010 to 2013, there was a gradual decrease in the unemployment rate from 9.1 percent to 7.5 percent, which shows a recovery and improvement in employment. From 2014-2016, there was a continuous decline in the rate of unemployment to the lowest of 6.9 percent in 2015. From 2017-2019, a constant rise in the rate of unemployment from 7.3 percent to 8.3 percent is observed. The unemployment rate in the year 2020 surged to 13.7 percent from the rate of 8.3 percent noted down in the previous year in 2019. The increase of about 5.4 percent clearly shows how deep the influence of the COVID-19 pandemic has had on labor market conditions within Colombia and signals a period of economic uncertainty with challenges for the workforce. on the other hand, posted an unemployment rate of 11.7% in 2021, down from 13.7% in the previous year—down a huge 2 percentage points. Though this does foreshadow some kind of economic recovery, one should bear in mind that unemployment remains high compared with the periods before the pandemic.

In the case of Costa Rica, from 2010 to 2013, there was a decline in unemployment from 6.9 percent to 6.5 percent. This is then followed by a mirrored volatility in 2014 and 2016, sustaining from about 6.3 percent to 6.8 percent. In the period from 2017 to 2019, an increase in the level of unemployment from 6.5 percent to 8.3 percent is evident. Generally, the trend was that there was an initial volatility or variations followed by a gradual increase in unemployment towards the end of the period.

Moreover, the unemployment rate went up to 15.8% in 2020, which was considerably higher than 8.3% in 2019. This grew by 7.5%, which would give serious implicating importance that the pandemic raised critical havoc on the labor market in Costa Rica, painting a scenario of very few job opportunities amidst major disruptions to economic stability. This therefore shows that such statistics really represent a complex interaction between global health emergencies and their impacts on national economies and their labor markets, with the result that there is a need for strong policy responses and support mechanisms to mitigate such adverse outcomes over employment and livelihoods. in 2021, the unemployment rate was 12.5%, against 15.8% in 2020. A drop of 3.3 percentage points reflects a

notable improvement in employment conditions; however, with high unemployment rates compared to the pre-pandemic period, this country still has to fight a hard battle.

The unemployment rate in Korea from 2010-2013 has been slowly falling from 3.3 percent to 2.7 percent. Then, in 2014 and 2016, it crept up from 3.0 percent to 3.2 percent. There has been a slight rise in the unemployment rate in 2017 and 2019, from 3.2 percent to 3.4 percent. Overall, it gives evidence of a low, stable unemployment rate with minor volatility. In 2020, the unemployment rate of Korea stood at 3.6 percent from 3.4 percent in the year 2019. This was a marginal increase of 0.2 percent that did not affect the labor market situation within the Korean economy much as compared to other countries globally. In 2021, the unemployment rate of Korea stood at 3.4 percent as opposed to 3.6 percent during the previous year. Of late, a small drop of 0.2 percentage points adds up to the general view of the retention of relative stability in the labor market of Korea; this could be considered one that is resilient amidst economic fluctuations.

In Mexico, the trend of unemployment has continuously decreased from 4.2 percent to 3.9 percent during this period, 2010–2013. It continued to decrease, hitting rock bottom at 3.1 percent in 2016. There was a further drop in unemployment in 2017 and 2019. The unemployment rate can now be seen at a low of 2.6 percent in 2018, with a slight increase to 2.7 in 2019 %. In a nutshell, the rate of unemployment decreases follows a downward trend, which proves the good conditions of the labor market. On the other hand, Mexico recorded an increase in its unemployment rate to 3.7 percent in 2020 from 2.7 percent the previous year, which registers a 1 percent rise in the unemployment rate. This move underlined a very major but sensible impact on the nature of labor market dynamics in Mexico. At the other end lies Mexico, which had an unemployment rate of 3.3 percent in 2021, compared to 3.7 percent the previous year. This reduction of 0.4 percentage points from 2020 represents the continuity of this trend towards stability, with hope for a pre-pandemic return for the Mexican labor force.

The unemployment rate in Turkey decreased from 9.3% to 7.5% between the years 2010 and 2013. And then increased to 9.2% in the years 2014 and 2016. However, from 2017 to 2019, it increased rapidly to 11.6% in 2019. From the general trend, there is a decline initially, followed by a rise and fluctuation, then finally a sharp increase at the end. Whereas a decline in the unemployment rate, reaching 11.1 percent in 2020 from 11.6 percent in 2019—a drop mirrored by approximately 0.5 percent. Although being one of the countries affected by the COVID-19 pandemic, Turkey still seemed to have improved

slightly in terms of unemployment, which may be an effect of some economic policies or some statistical anomaly. Thus, it would turn out that the labor market of Turkey was showing some resilience amidst these turbulent economic times. Moreover, the unemployment rate was 10.1% in 2021, which is an increase compared to the 11.1% unemployment reported in 2020. This marked decrease of 1 percentage point reflects positive developments within the Turkish labor market; nevertheless, it is still relatively high compared to pre-pandemic times and hence could be improved further in the future.

In summary, before the COVID-19 outbreak, Chile marginally improved during the early years, and remained so over this period's last bit. Colombia got better up to the middle of the decade, after which it started increasing. In Costa Rica, there were some fluctuations over the period, with an uptrend in the end. Korea went through the entire period with a low and stable rate of unemployment. In Mexico, there has been a gradual decrease in unemployment, symbolizing good economic conditions, but in Turkey, though there was always a drop in the initial years, an extreme increase was again witnessed towards the end, which can indicate a state of economic challenge that the country may be facing.

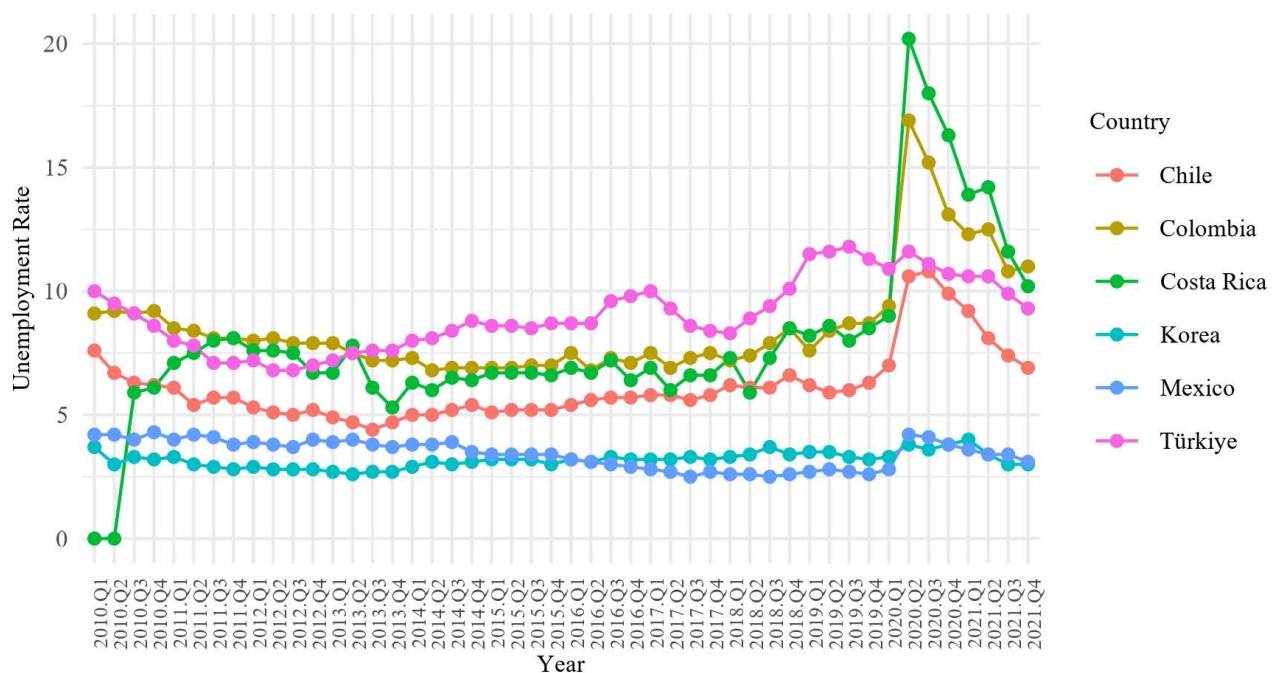
During the COVID-19 crisis, In a nutshell, Chile experienced a very steep rise in its unemployment rate, while the case of Colombia saw an awful increase that indicated the presence of strong bumps within their economies. The case of Costa Rica, however, underwent a dramatic increase in unemployment rates, thereby indicating a major shock to its economic system. On the other side, South Korea was almost sound in its labor market, with only a slight shock as noted. In contrast, Mexico moderately increased in unemployment, observable but not as bad as some of the others. Finally, that of Turkey marginally decreased, probably owing to its uniquely different economic situations or particular interventions that were taken to help resolve problems like unemployment.

After the COVID-19 recession, Chile has been recovering post-pandemic; although the country has been recovering at a decent rate, its case numbers are yet to escalate to pre-pandemic levels. Indeed, recovery in Chile is notable and bodes well for positive trends in the economy. In Colombia, a recovery is also underway, but with a very high unemployment rate, there is a problem for the country in order to maintain economic stability. In Costa Rica, a good recovery is also underway: some promising signals have been registered, but again, the problem of high unemployment emerges as a challenge to be considered and faced urgently. In contrast, Korea is holding quite steady, with unemployment

ticking down a little—a fairly good omen for its labor market. Mexico is also on a stabilization trend, which has shown that the return to the pre-pandemic labor market is working well. While labor markets in Turkey have shown improvement, the country still faces higher unemployment rates than before the pandemic. This fact underlines the existing and prospective challenges that must be addressed so that full recovery can be attained and stability ensured.

Figure 4. 26

Total (women and men) unemployment rate: Working age population from 25 to 54 years, Calendar and seasonally adjusted



Source: Author's calculation based on OECD countries' data

Figure 4.26 shows the Patterns in quarterly unemployment data of Chile, Colombia, Costa Rica, Korea, Mexico, and Turkey for the period first quarter of 2010 to the last quarter of 2021. The unemployment rate for Chile during that period ranged within a certain variable range, though it was very stable, moving up and down only a little. In particular, the unemployment rate in 2010 started at 7.6 percent in the first quarter and fell to 6.2 percent at the end of the fourth quarter. During the ensuing years, the unemployment rate declined steadily, with the greatest drop occurring in 2013, reflected in a rate of 4.7 percent during the last quarter of that year. Subsequently, small rises occurred during the fourth quarter of 2017 to 5.8 percent and the fourth quarter of 2019 to 6.3 percent. A strong discrepancy can also be observed between the unemployment rate recorded in the first quarter of 2010

and the last quarter of 2019; hence, it is representative of comprehensive improvements in labor market conditions over the period. Seasonality imparts nuanced complexity to data on unemployment rates. This is offset by small changes seen throughout the year. The unemployment rate has been very volatile throughout 2020 in Chile, which is a very clear signal of the very deep economic impact caused by the COVID-19 pandemic. The data jumps to a sharp peak in the unemployment rate mid-year before then modestly declining towards the end of the year. At the beginning of 2020, Chile recorded an unemployment rate of 7, which corresponded with the scenario before the full outbreak of COVID-19. This rate remained relatively constant and was commensurate with the previous years. In the second quarter of 2020, the unemployment rate advanced to 10.6. This rise in unemployment during the second quarter reflects the implications of economic lockdowns and restrictions enforced to suppress the transmission of the virus. The second quarter is marked as the period when unemployment has surged the most due to immediate economic pandemonium. The unemployment rate in the third quarter of 2020 reached 10.8%. There has been a slight increase in the level of unemployment this quarter, thus portraying the continuity in economic adversity and slow recovery. Due to the continuation in restrictions and reduced economic activity, the labor market was still tight. At the turn into the fourth quarter of 2020, the unemployment rate fell to 9.9%. The decline in unemployment in the fourth quarter, with the gradual easing of restrictions and the resumption of activities by companies, portrays a gradual recovery of the economy. However, the rate still stayed above the pre-pandemic level. Excluding the influence of pandemics in 2020, it is usually the case that the unemployment rate undergoes seasonal changes, while data for 2020 principally reflect the effects of the COVID-19 crisis and less of seasonal patterns of years without pandemics. The steep increase in unemployment from the first to the second quarter of 2020 underlines a very key observation that brings out the immediate impact of the pandemic. Though there was a slight decline in the unemployment rate in the fourth quarter, indicating some recovery, it also brought out the fact that the economy was not back to the pre-pandemic conditions at the end of 2020. The unemployment rate still stood at 9.2 percent at the beginning of the first quarter of 2021, down from its peak in 2020, which implies that despite the recovery of the Chilean economy from the COVID-19 shock, major challenges prevail on the labor market. Still reeling from the pandemic, full recovery was the unconscionably cumbersome task that some industries and sectors were engaged in during the first quarter. The government's

interventions and the economic policy measures that became operative at the end of 2020 and the beginning of 2021 for the stabilization of the economy and job promotion were successful in the first instance, though the labor market had not yet fully recovered. Thus, the unemployment rate went down to 8.1 percent in Q2 2021, a massive decline that indicates a more solid recovery. Companies were much freer to do business in the second quarter, with relaxed COVID-19 restrictions, and as such, they hired more people, causing a drop in the unemployment rate. Among other factors, seasonal factors could also be what contributed to the lower rate of joblessness, such as agricultural activities and tourism-related jobs. The unemployment rate further dropped to 7.4 percent in the third quarter of 2021. It was a period characterized by robust recovery, hence favoring job creation in various industries. Government programs and stimulus packages must have been vital in keeping the employment rate at this level. In addition, areas such as retail, hospitality, and manufacturing—the worst hit by the pandemic—started recovering to drive growth in the employment rate. The unemployment rate slid in the fourth quarter of 2021 to 6.9 percent, barely below the pre-pandemic rate in the first quarter of 2020 of 7.0 percent. This quarter appears to reflect a more stable economic climate, along with the continuing success of government policies geared toward stimulating and revitalizing companies to create more jobs and deliver balanced growth. The other structural changes in the labor market, changing over to more flexible relations of employment and the growth of other sectors, have also been instrumental in bringing down the level of unemployment rate. The largest increase was in the second and third quarters due to seasonal factors such as increased tourism and agriculture. Since the fourth quarter ended with a decline, this result suggests both seasonal employment and the sustained improvement of the economy. For this reason, the continuous reduction in unemployment throughout 2021 served as a sign that it was recovering well from the pandemic. It could be that the labor market has faced structural changes—for instance, the growth of telework and digitalization, which would cast a different light on long-term trends in employment. Most important in stabilizing the labor market have been government policies, encompassing stimulus packages, social aid projects, and active labor policy initiatives.

From the first quarter of 2010 to the fourth quarter of 2014, Colombia's unemployment rate dropped linearly from 9.1 percent to 6.9 percent. Since 2014, again, an oscillating increase in the unemployment rate was witnessed until the end of 2019, when it reached 8.7 percent in the fourth quarter. The case of Colombia thus shows seasonal variation: the

unemployment rate tends to be a little higher in the first and last quarters in comparison with the second and third quarters of the year. This pattern may indicate that seasonal employment influences that there is increased hiring in the second and third quarters, with a decrease toward the end and beginning of the year. The highest rates in a year tend to occur in the first quarter, and normally the unemployment rates are low during the second and third quarters. The trend, in general, was downwards from the beginning of the decade to about 2015, with some increase and stabilization around 2017-2019.

The unemployment rate in Colombia in the first quarter of 2020 stood at 9.4%. Given the global COVID-19 pandemic that subsequently hit the country, this figure had been stable and in line with past trends. Then, in the second quarter of 2020, it went up to 16.9%. Such a sudden spike is directly attributed to the adversaries of the COVID-19 crisis and, more importantly, to the rigid lockdown that was implemented that caused many economic activities to be suspended. Moreover, unemployment reached its peak in the second quarter since most companies were forced to stop their operations, thereby rendering a good number of their employees either redundant or furloughed. The unemployment rate went down slightly to 15.2 percent in the third quarter of 2020 but remained significantly above its level in the previous quarter. The country gradually improves its level of employment with the easing of restrictions and gradual resumption of economic activity. However, the unemployment rate stayed very high due to prevailing economic uncertainties and a sluggish recovery. The unemployment rate has declined steadily to about 13.1 percent across the third quarter. Further reopening of businesses and rehiring of workers were supported by continued economic recovery and adjustment to the "new normal." Offsetting these favorable developments, the unemployment rate remained higher compared to the pre-pandemic levels, which was a clear indication that the labor market had not recovered yet from the health crisis.

As far as 2021 began, 12.3% was the unemployment rate in Colombia—thereby pointing explicitly to the fact that the labor market was still experiencing the aftereffects of COVID-19. Later, the unemployment rate increased slightly to 12.5 percent in the second quarter, which shows continued pressure in labor market recovery. During the second quarter, the infection rate peaked in Colombia, and new restrictions and economic disruptions probably contributed to rising unemployment. Activity in some sectors, in particular those related to tourism and international trade, picked up very slowly, hitting employment as a whole. Beyond that, there are also deeply-rooted, more structural problems—

not least high informal employment and regional differences—that have long troubled the Colombian labor market. The unemployment rate dropped to 10.9 percent in the third quarter, a sign of recovery. The unemployment rate went up slightly to 11.0% in the fourth quarter; although there were some changes, the trend remained downward compared to the beginning of the year. In the fourth quarter, seasonal trends of employment probably influenced this slight increase at the end of the year holidays. The third quarter saw the highest change, recording the impact of vaccination campaigns and the relaxation of restrictions. The fourth quarter showed an additional modest increase due to seasonal employment trends, joined with continued economic stability. From the second to the third quarter, there has been a constant decline in the unemployment rate, showing that the recovery efforts made by Colombia are quite successful amidst the pandemic. In addition, some of the deep-seated structure-based challenges—including high levels of informal employment and regional disparities—still stood in the way of labor market recovery. Government policy measures, such as economic stimulus packages and job support programs, softened the shock to the labor market; however, structural challenges persisted. The unemployment rate in Costa Rica from the first quarter of 2010 to the fourth quarter of 2019 was very volatile, moving between 6.9 percent in the third quarter of 2010 and 8.5 percent in the fourth quarter of 2019. This means that during this decade, there was an increasing trend in the unemployment rate. It is also high in the first and third quarters of every year. This is often evident in the data: many series demonstrate an increase during the first quarter of each year, reflecting the fact that certain sectors probably showed a decline in employment due to the probable termination of seasonal works or the slow start of economic activity at the beginning of the year. The same kinds of spikes in the third quarter could be indicative of a mid-year economic slowdown or the end of temporary summer jobs. Higher rates of unemployment are observed, and the trend to have them higher during the first and third quarters compared to the second and fourth quarters is observable. On the other hand, the movement of the unemployment rate moves up and down but still generally shows an increasing trend with prominent peaks and troughs that mirror periods of economic boom and bust. In this regard, over the years, there are prominent fluctuations that insinuate the job market in Costa Rica to be quite volatile and driven by various seasonal and economic factors.

in the first quarter of 2020, Costa Rica's unemployment rate was 9.0 percent. This rate was already very high and therefore puts a face to the economic misery that the country

is experiencing, even before the pandemic fully affects it. In the second quarter, there was a high rise in unemployment to 20.2, more than double the rate in the first quarter. The large spike is mainly due to the COVID-19 outbreak, which led to prolonged and serious lockdowns, business shutdowns, and an overall slowdown in economic performance. This sudden spike reflects that numerous businesses were unable to retain their employees due to the raging pandemic. Throughout the third quarter, the unemployment rate declined modestly to 18.0. This decline shows a partial recovery and seems to indicate that perhaps the country started learning to live with the new economic reality, and sectors began to rehire or adjust production in light of the requirements the pandemic had imposed upon them. The rate was still very high, though, showing the continuance of the economic crisis. In the final quarter, it dropped even further to 16.3. This downward trend likely reflects the ongoing recovery efforts and the seasonal employment increase toward the end of the year. Despite that, the first-quarter rate was still above pre-pandemic levels, showing the economy had still not fully recovered from this crisis. Seasonal hiring measures might therefore have been responsible for an easing in unemployment from the third to the fourth quarter. Nevertheless, from a general point of view, unemployment remained very high because of the continuous effects of the pandemic. This sharp increase in the second quarter overshadowed the usual seasonal movements since the wide-ranging disruption caused by the pandemic became the centerpiece. This data shows how exogenous shocks can change the whole picture of the labor market and raise the unemployment rate dramatically, as in the case of the COVID-19 pandemic. Modest improvements in Q3 and Q4 hint at a gradual recovery. As companies adjusted and several sectors opened, the unemployment rate began to decline but remained higher than before the pandemic.

Through the first quarter of 2021, the unemployment rate in Costa Rica remained at 13.9%, below the highs reached in 2020 but still reflecting an important burden to the economy. Compared to the first quarter of 2020, the unemployment rate increased significantly, remaining above 9.0%, thus showing that the pandemic was having long-lasting effects. In the second quarter of 2021, the unemployment rate was 14.2%, which presents a small uptick in unemployment compared to the first quarter of 2021. Compared to the same period last year, which had an unemployment rate of 20.2%, the unemployment rate in the second quarter of 2021 had improved significantly. The second quarter was marked by economic uncertainty and intermittent lockdowns/restrictions impacted employment

stability. The unemployment rate in the third quarter of 2021 was 11.6%. The unemployment rate had a visible drop, defining that the economy is recovering. In comparison with the third quarter of 2020, it was 18.0 %; compared to that period, it had been a very great improvement, hence showing thereby recovery and adjustment efforts related to the pandemic. It was 10.2% in the fourth quarter of 2020. The unemployment rate has been falling sustainably, hence the recovery. In the fourth quarter of 2020, it had been 16.3%. Further improvement compared to, thus indicating a strong recovery path. Thereafter, fluctuations occurred: first, the slight rise in the second quarter of 2021 and then the steady fall in the third quarter and fourth quarter—indicative of a recovery. There has been a clear recovery through 2021, with unemployment falling quarter on quarter and from the second quarter onwards. Costa Rica's economy is one in which tourism is of significant importance, and tourism has been very hard hit by the pandemic. However, at the same time, the recovery of tourism was important in driving an overall improvement in the unemployment rate. Just as importantly, these government interventions and economic stimulus packages both helped to support the economy and provided jobs.

In Korea, the unemployment rate has been low and rather stable from Q1 2010 through the fourth quarter of 2019. It is very stable, starting from 3.7% in the first quarter of 2010, then ticking slightly down to about 2.7% in the first quarter of 2013, and staying stable at around 3.2%-3.4% toward the end of the decade. Although modest, there is some seasonality in the Korean unemployment rate. The first quarter is normally higher than other quarters. There is therefore the likelihood that seasonal factors such as the end of the academic years and new graduates entering into the labor market might influence this pattern during the first quarter. The highest rates within a year tend to be in the first quarter, with the lowest rates normally in the second or third quarter. Overall, very minor fluctuation—but it generally stays very flat for this decade.

The unemployment rate in Korea stood at about 3.3 percent in 1Q 2020, compared to a lot of other countries, hence indicating a quite stable labor market at the beginning of the pandemic. The slight increase to 3.8% in the next quarter might be attributed to the early effects of the COVID-19 pandemic; this was the time when most countries were on lockdown, thus having temporal closure and interference with business operations. However, this increase was relatively at a moderate rate, an indication that Korea was able to cushion some economic impacts of the pandemic in its early days. The unemployment rate declined slightly to 3.6 percent in the third quarter, an indication of some stability or slight

recovery as the business and economy learned to live with prevailing pandemic conditions. It could be that government interventions and economic stimulus packages held the unemployment rate lower than it had peaked in the second quarter. The unemployment rate picked up slightly to 3.8 in the remainder of the year up to the fourth quarter. This uptick could be attributed to residual effects from the pandemic and possible seasonal fluctuations. However, all through the year, the unemployment rate remained almost constant, with no major fluctuations noted. Unlike some other countries, there was no sharp seasonal variation in the unemployment rate in Korea during 2020. The rates are very stable, moving only slightly up and down from one quarter to the next. The fact that the unemployment rate has remained that low and relatively stable in 2020 is a telling feature of how well the labor market in Korea has resisted the pandemic. Government policy implementation, supportive measures, and maybe a robust public health response have been the reasons that kept a check on the rise in unemployment figures. The unemployment figures underline the ability of Korea to hold its ground on economic stability with respect to the global downturn. All this becomes possible only because of the management of the pandemic, which went well through methods of contract tracing, social distancing protocols, and financial aid to businesses and individuals.

The unemployment rate in the first quarter of 2021 reached 4.0% in Korea. This is a very moderate rate. The global employment rate has been disturbed by such extensive macroeconomic impacts of the COVID-19 pandemic that the effects may be considered consistent and widespread; it went down to 3.4% in the next quarter. This 0.6 percentage point fall in the rate might be regarded as indicating that the labor market is on the road to recovery, perhaps out of policies of economic revival, deregulation, and seasonal readjustment of employment, which usually inflates employment in some industries. Unemployment continued to decline, hitting 3.0 percent in the third quarter. This additional decline means the economy is still in recovery, and the government's job creation efforts may have some results. A constant unemployment rate at the revised lower rate implies that businesses did expand or reopen and the economy is becoming stable. In the final quarter, the unemployment rate docked at 3.0%. This steadiness in unemployment showed that the labor market was relatively stable toward the end of the year. Although the traditional winter slowdown in the economy might take place, the rate remaining steady demonstrated that the gains from previous quarters were held. In other words, this downward-stabilized rate of unemployment in Korea speaks stronger volumes about the

recovery and potential of the economy compared to some more erratic patterns within other countries. Thus, the unemployment rate in Korea has run smoothly downward and stabilized, as opposed to the more erratic behavior observed in some of the other countries, and could be indicative of a more solid recovery with more successful labor market policies.

The unemployment rate in Mexico declined during the decade from 2010 to 2019. In the first quarter of 2010, it was 4.2%, although little by little, it fell to 2.6% by the fourth quarter of 2019. The general situation with labor on the market became better. The unemployment rate in Mexico is very seasonal. In general, the first and third quarters of the year have higher unemployment rates in comparison with the second and fourth quarters. It can be related to some seasonal features of the labor market, some sectors, or even particular agricultural circles. By the end of the decade, the unemployment rate stood at 2.6-2.7%, representing solid and stable labor market performance.

In Mexico, In the first quarter of 2020, the unemployment rate was relatively low, at 2.8 percent, which denotes a very solid labor market and economy at the beginning of the year. It increased substantially to 4.2 percent in the second quarter. This sudden jump could be due to the effect of the COVID-19 pandemic. Due to the implementation of a lockdown, with a consequent order to shut down the businesses, massive job losses were there, sending the unemployment figures spiraling. At the beginning of the third quarter, there was slight ease, with the unemployment rate reducing slightly to 4.1%. This modest decline does throw up some signals of stabilization in the labor market, and accordingly, the companies and the economy have started adjusting to the present situation. Perhaps resumption of various economic activities has resulted in this marginal improvement. On a yearly basis to the fourth quarter, the unemployment rate came down further to 3.8%, reflecting a continued healthy trend towards recovery for the labor market. Probably towards the end of the year, the unemployment rate went down because of the seasonal jobs created and government aid schemes. Consequently, the increase in unemployment during the second quarter was the immediate consequence of the COVID-19 pandemic on the world of work. The steep rise from the first to the following quarter underlines how the closures and restrictions were directly reflected in job losses. On the other hand, the downward trend in unemployment rates seen within the third and fourth quarters does suggest that the Mexican labor market began a recovery process throughout the year. This could have been driven by the adaptability of companies to new operating paradigms and

support measures put in place by the government. Analysis of the 2020 data does not indicate any pronounced seasonal fluctuations. That suggests that changes in the unemployment rate mainly depend on the development and overcoming of the pandemic, not seasonal dynamics in labor market activity. As such, against the backdrop of other countries in this research, Mexico's unemployment rate was pretty low for 2020—though the second-quarter peak of 4.2 percent was very high by its standards. It still is low compared to a country like Colombia and even Costa Rica, both of which hit much higher peaks in unemployment.

The Mexican unemployment rate in the first quarter of 2021 was 3.6, which could indicate an impact of the pandemic that is very minimized in this country, or, on the contrary, the very incipient economic phase of recovery, given that an unemployment rate around that figure would be relatively low. Even though difficulties from the previous year could be pending to be overcome, stability in this figure denotes labor market stability. It then fell to 3.4 percent in the second quarter, signaling a slow but sure labor market improvement probably driven by the resumption of corporate hiring activity and an upturn in economic activity. This could be due to some sectors that usually have more employment during the spring and summer months and therefore help pull down the overall unemployment rate during those months of the year. As in the third quarter, the jobless rate held at 3.4%, underscoring that labor market gains made a run-up in the previous quarter were sustainable. Jobs losses or gains posted for the period were not sharp, again underlining the resiliency of the Mexican economy in holding up a stable job scenario. As such, the unemployment rate continued to fall to 3.1% by the fourth quarter, a clear indicator of a more robust labor market later in the year, probably driven by effective policies in the labor market and a rise in economic activity during the vacation season. The Mexican unemployment rate for the whole year showed a very stable upward path in improvement, with minor ups and downs but only a general trend of downward movement.

The data set for the unemployment rate in Turkey for the period 2010–2019 reflects the fluctuations and trends. It had both seasonal and trend influences concerning economic conditions. In the first quarter of 2010, the unemployment rate was 10.0%, decreasing to 8.6% in the fourth quarter. It continued its downward trend into the fourth quarter of 2011, reaching 7.1%. In the fourth quarter of 2012 the rate went up a bit, but it was still lower than in the previous years and reached 7.0% in the fourth quarter. The unemployment rate was gradually growing, from 7.2% to 7.6% in the first and fourth quarters of 2013. In the

first and fourth quarters of 2014, it continued climbing, starting from 8.0% and hitting its peak at 8.8%. The first and second quarters of 2015 continued the trend of increasing unemployment to about 8.6 percent, as low as 8.7 percent in the fourth quarter. After this, there was a rapid increase in the rate of unemployment, which peaked at 9.8 percent in the last quarter of 2016. In the first quarter of 2017, the opening unemployment rate was 10.0 percent, remaining high until it finally stabilized at 8.4 percent in the fourth quarter. The unemployment rate moved up and down but stayed high, starting from 8.3 percent in the first quarter of 2018, and peaking at 10.1 percent in the fourth quarter. After that, the unemployment rate surged to 11.8 percent in the third quarter of 2019, then slightly eased to 11.3 percent in the fourth quarter.

At the beginning of 2020, the rate of unemployment in Turkey was 10.9%. This rather high unemployment rate indicates that the country was already suffering from labor market challenges before exposing it to the full effect of the COVID-19 pandemic. The unemployment rate increased to 11.6% in the second quarter. This increase is attributed to economic disruption caused by the COVID-19 pandemic. The lockdown measures, business closures, and the general slowdown of the economy created a lot of job losses, thereby raising the level of unemployment. In the third quarter, the rate of unemployment had a small drop to 11.1%. This drop could be an indication that since restrictions have been opened up, economic activities resumed, and hence there has been some labor market recovery. However, the decline was at a moderate rate, an indication that recovery was slow and the labor market was still under pressure. This time, in the fourth quarter, there was a more significant drop to 10.7%. With these step-by-step improvements, the labor market is expected to gradually stabilize. On the other hand, temporary jobs and boosted economic activities towards the year-end are some of the seasonal factors that could have caused the decline. To this effect, the resultant increase in the unemployment rate in the second quarter showed the immediate impact of COVID-19 on the Turkish labor market. The increase from the first quarter to the second quarter reflects the number of lockdowns and economic restrictions that translated into job losses.

Slight declines in the third and fourth quarters would thus indicate a slow recovery in the labor market. The decline in unemployment rates has been gradual, which might suggest that while an area of economic activity seems to come back, real recovery has had serious challenges. There are slight signs of seasonal fluctuations towards the end of the year,

with the fourth quarter when the unemployment rate fell. This could be a result of temporary job offers during the holiday period and the increase in economic activities.

On the other hand, Turkey reported a double-digit unemployment rate of 10.6 percent for the first quarter of 2021, a quite high rate of unemployment and, therefore, indicative of serious concerns in the labor market. The high rate may also have been driven by the lingering impact of the COVID-19 pandemic on the economy, which has had extensive effects on so many industries through loss of jobs, thereby reducing the chances of getting employment. Keeping the rate at 10.6 percent in the second quarter might have pointed out that there had not been any fundamental improvement in labor market conditions due to a variety of factors, such as lingering concerns over the economic outlook and strength, and leading sector slowdowns. However, the unemployment rate fell in the third quarter to 9.9 percent, down 0.7 percentage points, signaling a change for good in labor market dynamics. Maybe this was due to economic recovery or seasonal employment patterns wherein conditions are generally expected to improve during summer months and hiring is accelerated in certain sectors. The jobless rate in the fourth quarter slid further down to 9.3 percent, a clear indication of a labor market picking up toward year-end. While the 0.6 percentage point decline from the previous quarter might indicate positive trends in new job creation, it could also be interpreted as an indication of the efficiency of government measures aimed at reducing non-farm unemployment. The unemployment rates of Turkey were among the higher values of the dataset and, even though following a positive downward trend throughout the year, they are higher than those of Chile, Korea, and Mexico but lower than those of Costa Rica and Colombia. Gradual improvement in labor market conditions within Turkey does seem to have taken place throughout 2021, which can be shown by the decrease from 10.6 % down to 9.3 %.

In summary during the COVID-19 crisis, The quarterly data on unemployment for the period of 2010-2019 states a relatively stable labor market with minor jumps. There is a visible, though small, downward trend in the unemployment rate for the decade, which indicates an overall improvement. While there is not a very sharp seasonal pattern, still, the highest unemployment rates in a year tend to appear during the first and fourth quarters of the year, whereas the lowest rates frequently occur in the second and third quarters. The above analysis therefore arrives at the inference that despite minor seasonal fluctuations, Chile has still been able to sustain a relatively stable level of unemployment with slight improvements over time. Colombia's quarterly unemployment data from 2010 to

2019 shows that, within the decade, there does appear a slight downward trend. There is some seasonality in the data, so normally higher unemployment rates happen in the first and fourth quarters, while the second and third quarters of each year have lower rates of unemployment. This will mean that the Colombian labor market is driven by seasonal employment patterns, and more job opportunities are likely to be available mid-year. Despite these seasonal fluctuations, the trend is a gradual improvement of the unemployment rate until, say, 2015, then some leveling, and slight increases towards the latter part of the decade.

The Costa Rican unemployment statistics for the 2010-2019 period give evidence of a rather volatile labor market, showing a general tendency toward rising unemployment rates. Seasonal swings are very visible, especially in the higher rates observed during the first and third quarters, which attests to the strong seasonality of employment that influences the evolution of the labor market. This phenomenon might be the result of the fact that some sectors have an inherent element of cyclicity—for instance, agriculture and tourism—which experience fluctuations in demand due to seasonal patterns. The periodic ups and downs of unemployment rates underline the need for implementing those measures that will selectively enhance employment stability and tackle the causes of seasonal unemployment. Quarterly data from 2010 to 2019 in Korea portrays a low and stable situation of unemployment throughout the decade. The overview of this data shows minor movements during the season. The first quarter usually experiences slightly higher rates of unemployment, as this is the time of year many new college graduates come into the labor market. Contrastingly, unemployment rates are seen to be marginally lower in the second and third quarters. Despite these seasonal fluctuations, there is a general trend of equilibrium in the sense that the unemployment rate continues to hover around the 3% mark. This would therefore imply that Korea has been quite successful in sustaining a dependable labor market with relatively low rates of unemployment over the period.

The country's unemployment rate also showed a drastic decrease from 4.2 percent in 2010 down to 2.6 percent in 2019. The data indicated the rates are higher for the first and last quarter of the respective years in comparison with the second and third, thus providing proof of seasonality. The unemployment rate appeared to be constant over time within the range of 2.6 to 2.7 percent, showing no signs of labor market weakness. From this trend of continuous decline to leveling off of the unemployment rate, one can assert the pres-

ence of strong growth with effective measures in the labor market. Taking a look at quarterly unemployment figures for Turkey, in the same period from 2010-2019, one has to understand the seasonality and larger general trends to adroitly address and mitigate challenges related to unemployment.

In comparative terms during the COVID-19 recession, among other countries, the case of unemployment in Turkey was relatively stable across 2020, moving only slightly from one quarter to another. The figures all stayed above 10% without exception, as if the labor market was still facing problems. In summary, Chile's 2020 quarterly data of unemployment clearly shows that there is much disruption caused by the COVID-19 pandemic and difficulty in recovery. Understanding these trends is important for developing strategies to mitigate the effect of these economic shocks in the future. The quarterly data in 2020 reflects the very harsh effect of the COVID-19 pandemic on the Colombian labor market. Given this, the maximum peak dates back to the second quarter, followed by a slow recovery in the ensuing ones. On the other hand, the next quarters—third and fourth—witnessed a very slow but steady recovery; even in these cases, the unemployment rate was very much higher vis-à-vis the period before the outbreak of the pandemic.

The moderation of the unemployment rate from the second to the fourth quarter suggests some resilience in the economy and the labor market, probably due to government interventions and the gradual resumption of economic activities. The COVID-19 pandemic skyrocketed the unemployment rate in Costa Rica to more than double in the second quarter of 2020. Although there was a recovery from this in the second half of the year, unemployment remained remarkably high compared with pre-2020 pandemic levels. The data gives great detail about the profound impact of the pandemic on the labor market in Costa Rica and how gradual the economic recovery was. Although the COVID-19 pandemic slightly increased unemployment in Korea, the rate was still low and relatively stable in 2020. From this, it could be interpreted that the labor market in Korea has been very robust, probably on account of good policies by the government and management strategies adopted against the pandemic. The slight fluctuations between quarters suggest a minimal seasonal impact and underline the country's economic stability at a difficult global time.

In the case of Mexico, as a result of COVID-19, the unemployment rate surged during the second quarter of 2020 but gradually recovered in the second half of the year. It ap-

appears that its labor market was quite resilient, with unemployment rates gradually reducing in both the third and fourth quarters, indicating stabilization and recovery efforts. This data much more reflects the pandemic than the seasonal changes, which sets Mexico in relative terms of stability during a very tough time globally. The unemployment rate in Turkey stepped up during the second quarter of 2020 due to the pandemic caused COVID-19 but showed, with slow recovery, signs in the latter half of the year. The labor market in the country gradually stabilized over the period under review, showing minor declines in unemployment rates for both the third and fourth quarters. The figures remain reflective of the ongoing impact of the pandemic, though some minor seasonal variations do seem to have contributed to the fall in the case of the fourth quarter. But in any case, the general scenario was one wherein, through the year 2020, Turkey remained afflicted with relentless labor market problems, while unemployment rates stayed reasonably high compared to pre-pandemic norms.

In summary after the COVID-19 outbreak, In Chile, the unemployment rate at percentage levels dropped significantly throughout 2021, from 9.2 percent in Q1 to 6.9 percent in Q4. This recovery path epitomizes the combined effects of stringent policy measures taken by the government, relaxation of the COVID-19-induced restrictions, vaccination programs, and resumption of activities across a wide swathe of sectors. By the end of 2021, Chile's unemployment rate had not only recovered from the pandemic but also improved slightly compared to the pre-pandemic level, thereby showing a strong and resilient recovery in the labor market. Colombia—Unemployment rate Although there have been fluctuations in 2021, there are still present miseries in the labor market and a recovery from the pandemic. The unemployment rate was 12.3% in the first quarter, shot up to a peak of 12.5% in the second quarter from a third wave of COVID-19, before easing to 10.9% in the third quarter as vaccination efforts and reopening of the economy had an effect. On the other hand, the slight increase to 11.0% in the fourth quarter also suggests seasonal fluctuations and possibly ongoing structural challenges. This, in general, is data telling a story of gradual recovery, influenced both by the external factors of the pandemic and internal structural problems within the labor market.

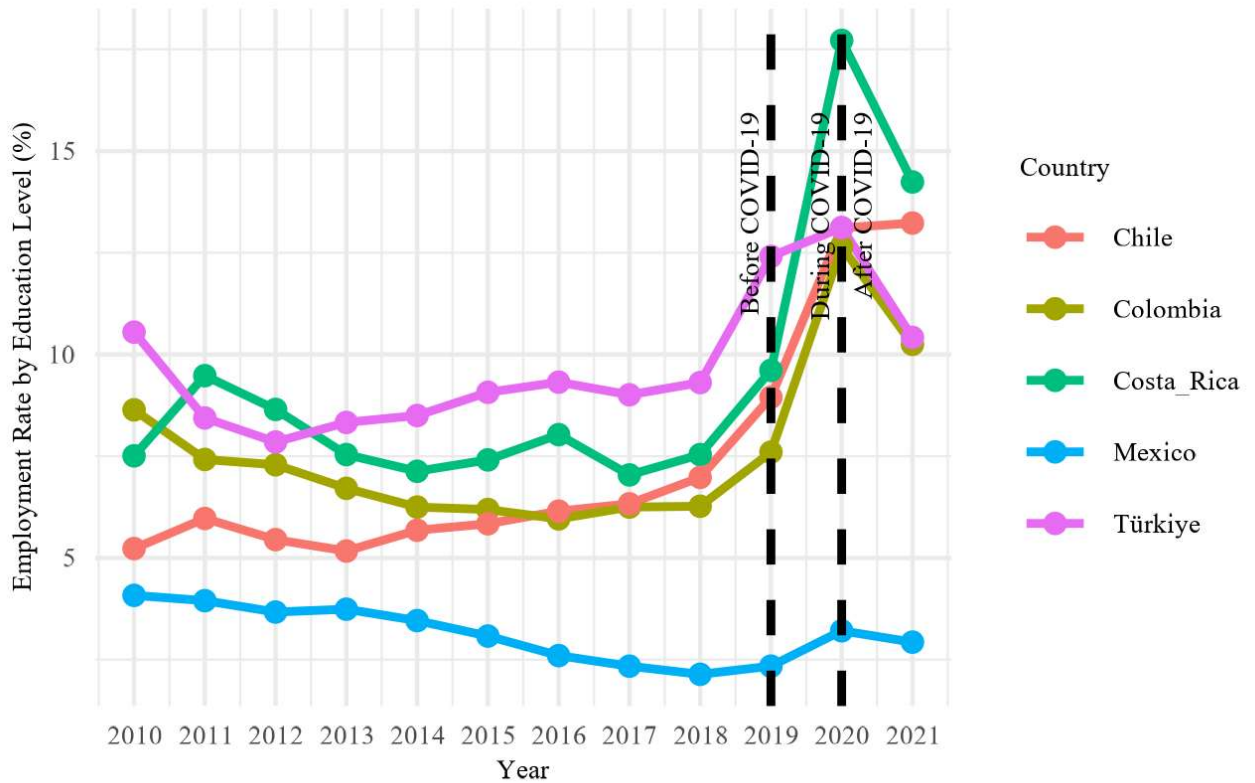
The data from Costa Rica on unemployment rates of 2020-2021 give a gruesome picture of the effects of the COVID-19 pandemic and its recovery process. In 2020, the rate reached a very high 20.2% in the second quarter, owing to strict lockdowns and the general downturn in the economy. In 2021, this had drastically dropped as the economy began

to reopen and more Costa Ricans were vaccinated. Still in all, it remained at a higher level than before the pandemic, indicating that still more work remained to recover lost ground in the labor market. On this score, the 2021 unemployment data out of Korea are indeed upbeat: unemployment has plummeted from 4.0% in the first quarter to as low as 3.0% in the third and fourth quarters. This testifies to the strong recovery from the pandemic that caused economic shock, noted as a well-managed factor in the labor market. It is further proof that Korea can hold fast and raise its employment level under such challenging global conditions.

Mexico's 2021 unemployment rates show a stable, gradually improving labor market. From 3.6 percent in the first quarter, the unemployment rate went down to 3.1 percent in the fourth quarter, which, of course, insinuates a quite resistant economy that has put in place effective tools to help employment. Mexico had some of the lowest rates of unemployment among the countries included in this dataset compared to other nations, speaking to its strong labor market performance against challenges in global economic performance. The 2021 unemployment data of Turkey shows a quite testing, gradually improving labor market. A high unemployment rate of 10.6 percent in the first and second quarters continued improving to 9.9 percent in the third and further improved to 9.3 percent in the fourth quarter. On this criterion, it is clear that there is a positive trend in the labor market, and an array of massive efforts must have been made and are being worked on to resolve the challenge of unemployment. Although high compared with other countries in this dataset, Turkey's steady decline throughout the year suggests that some effective measures have been taken to stimulate job creation and economic recovery.

Figure 4. 27

Unemployment rates by education level, below upper secondary, working working-age population of 25-64 years



Source: Author's calculation based on OECD countries' data

Figure 4.27 shows the unemployment rate, especially below upper secondary education in Chile, Colombia, Costa Rica, Mexico, and Turkey from 2010 to 2021 to look at the trend in the labor market before, during, and after COVID-19. Due to the lack of data, this analysis did not include Afghanistan, China, Iran, and Korea.

Chile has witnessed a remarkable and somewhat worrying rise in the unemployment rate, particularly in those with less than upper secondary education. The rate in Chile rose from a relatively modest 5.2% in 2010 to an alarming 8.95% in 2019, showing nearly three times more unemployment in this population group. Unemployment rates in the first years of the observed decade-2010 to 2016-had been quite stable, within a narrow bracket of 5-6%, a figure that can be considered low and indicates a reasonably favorable labor market for people without higher education qualifications. Still, the amazing turnaround took place in 2017-2019, when the unemployment rate began to dramatically rise, which, at the end of 2019, jumped to 8.95%, a sure indication of an economic shock or dramatic change in the structure of the labor market forces.

In the event of such economic disruptions, workers with lower levels of educational qualification stand more prone to precarious positions because they are mostly situated in sectors more vulnerable to fluctuations and volatility in market demand. This precarious situation is further compounded by specific labor market features, whereby less educated workers do not have easy access to other job opportunities that could provide cushioning for them from such economic blows. In this regard, the interaction of these factors makes the need for targeted policy interventions quite urgent given providing support to this vulnerable part of the labor force against such economic fluctuations.

In 2020, the share of joblessness for the working age group population of 25-64 with below upper secondary education augmented and rose from 8.9% in 2019 to 13.1% in 2020 in Chile. This group's highest unemployment rate indicates the harsh effect of the COVID-19 epidemic across the labor market, particularly to less educated individuals. Through strict curfews insisted on by the Chilean government, several organizations laid off their employees; usually, persons with low levels of education were affected based on sectors like construction, tourism, and retail amongst others. Unemployment proves the world economic and financial crisis and Scotland's vulnerability of low-educated workers to abrupt economic changes. Chile's economic stimulus program, which included cash transfers, job creation measures, and wage subsidies, was probably insufficient to prevent this group from experiencing a huge loss of jobs during the worst of the pandemic.

According to the projections for 2021, the rate of joblessness among the labor force with those below than upper secondary education level in Chile rose to 13,2% from 13,1% in 2020. However, this increase still shows that joblessness in this education group in Chile is still a problem. This means that for low-skilled workers wage income has only begun to recover after the COVID-19 recession. The situation in Chile was not any dissimilar, as even at the time of writing this paper, the country is grappling with the effects of the pandemic and where official job opportunities are limited to construction, tourism, and retail where the employment rate for primary education was higher than that recorded in the advanced education bracket. Likely, the sluggish rate of growth in the economy and oscillating demand for labor in lower-skilled employment may have held a high job loss rate among this category.

In Colombia, throughout the past decade, the share of unemployment has exposed a gradual surge, particularly for persons with less than upper secondary education. This reflects a positive trend in labor market dynamics for that group. In 2010, the share of job losses

was 8.6%, and then fell to 7.2% in 2012. This evidences a better labor market dynamics that has become increasingly favorable to lower-educated employees seeking employment. It is, however, vital to show that the unemployment rate stalled between 2015 and 2019 and even showed a growing tendency that saw it reach 7.6% toward the end of 2019. While this rate is indeed an improvement compared to the joblessness condition in 2010, such a rise in recent years calls for relevant questions about whether, at this rate, the pace at which Colombia has been absorbing low-skilled labor into the labor market is slowing down due to several economic factors or some basic changes in workforce demand favoring higher-skilled job categories. It, therefore, becomes a situation that tends to underline the complexity of the labor market, as well as the need for interventions that could better enhance the employability of people with lower education. It is, therefore, an indispensable ingredient for policymakers, educators, and other agents in the labor market to make an in-depth study of the trends and causes that may underlie them if they want to create an enabling environment that is truly inclusive and promotes further job growth for all labor force.

In Colombia, joblessness went up from 7.6 % in 2019 to 12.6 % in 2020, a great adverse change for the labor force status of persons with less than upper secondary education. According to experts, these 5 percentage points are due to the rather high susceptibility of low-skilled occupations to pandemic-related risks. Currently, a large number of people in Colombia are employed in the informal sector the majority of whom are persons with low levels of education. This meant that these workers who had no labor protection of any form or social security were in a very vulnerable position during the COVID-19 epidemic. Another factor deepening unemployment was the shutdown of the tourism, hospitality, and retail industries which are known to employ many workers who are often without an elementary education. The crisis that arose due to the COVID-19 pandemic deepened pre-existing trends, primarily worsening unemployment among low-paid and low-skilled employees in the Country.

The rate of joblessness in Colombia has reduced from 12.6 percent in 2020 to 10.2 percent in 2021; thus meaning a slight improvement in the market for low-skilled workforce. This salvage and recovery as well suggests that the Colombian labor market has returned to a decent position after the initial hit of the epidemic but still higher pre-pandemic level (7.6% in 2019). The joblessness rate declined after the government began assistance with the measures of lockdown and the informal sector which provides job opportunities

to a great number of people with low education standards tended to become better. Government stimulus measures, wage subsidies, and job creation programs probably have been conducive to the employment of low-birth merit workers while employment in low-skill sectors such as retail and hospitality jobs has persisted below pre-virus levels.

In the case of Costa Rica, the unemployment rate below upper secondary education was 7.5% in 2010 and then increased to 9.4% in 2011. After that, it was continuously decreased to 7.4% in 2015. In 2016 it increased again by 8.03%. between 2017 and 2020 there was an increase in the unemployment rate from 7.04% to 17.7%. but in 2021 it decreased to 14.2%.

In Costa Rica, the high rate of joblessness of workers with inadequate education, including those with education lower than the upper secondary level was 17.7% in 2020. This is an increase from 9.6% recorded in 2019 and thrice the joblessness rate in the country. Tourism forms one of the biggest pillars of the Costa Rican economy and as we all know during the pandemic its numbers have reduced significantly. .aspect of low-skilled employ is that many of those workforces employed in tourism services which have nearly been brought to a complete halt due to continued travel restrictions. That is why measures taken by the Costa Rican government, such as guarantees of fiscal support and workforce fortification, have not been appropriate to prevent enormous dismissals in the service and tourism sector, which primarily impacted employees with low schooling. The steep surge in job loss indicates that the Costa Rican labor market is structurally weak; a high level of employees are unceremonious and perilous with scant social security.

In Costa Rica, the unemployment rate of those with an educational qualification below upper secondary went up somewhat from 17.7% in 2020 to 14.24% in 2021. However, it still stood well above the pre-pandemic level of 9.61% in 2019-and signals that the low-skilled workers of Costa Rica are still suffering significantly in the labor market. It most likely owes to the gradual recovery of the tourism sector and the industries connected with it but going was slow, considering that international travel remained disrupted for most of 2021. The high joblessness rate underlines that low-skilled workers in heavily tourism-dependent Costa Rica's economy face persistent difficulties since this economic sector took more time to recover compared to others.

From 2010 to 2019, the unemployment rate in Mexico drastically declined from 4.08% to 2.34%, indicating a very encouraging trend for workers with a low level of education in the Mexican labor market during the period under consideration due to the strength of

labor-intensive sectors such as manufacturing and agriculture that may have provided regular job opportunities. Very low unemployment rates at the end of the decade would suggest that the Mexican economy has been relatively successful in generating jobs for the low-educated, especially when compared to other regional economies.

That initial job market recovery may have been simply due to the resurgence of labor-intensive sectors such as tourism and other service industries. On the other hand, the rise in employment thereafter could also mean that structural unemployment had set in, probably linked to technological changes that favored the more educated and skilled, bypassing the less educated ones. Tourism, for example, has largely contributed in terms of jobs during the recovery period, as duly underlined by the industry's resiliency and leading sector position in many regions, not only towards economic growth but also in employment. The recovery is also uneven across a wide set of sectors and demographic groups, hence truly inclusive and sustainable policies are in demand.

Compared to other countries, in Mexico, this group was more resistant in the labor market during the pandemic. The Mexican unemployment rate for an individual with an educational qualification below upper secondary level increased rather slightly from 2.3 % in 2019 to 3.21 % in 2020. Mexico is characterized by large informal labor markets in which many people with less education work. While informal employment might not offer anything in terms of benefits or protection, it proved flexible and adaptive during the pandemic period. Most of the workers that have low levels of education are found to be employed in agriculture and other essential services, which remained open during the pandemic and therefore cushioned the rise in joblessness. This is rather a low increase in the job loss rate, reflecting the relatively lighter approach that Mexico took to managing the pandemic and consequently kept its economy more open.

In contrast, the Mexican job loss rate for individuals with less than upper secondary education went from 3.2 percent in 2020 to 2.9 percent in 2021. This meant returning to the pre-pandemic level: in 2019, this rate was 2.3%, thus proving that the labor market was more resilient for workers in Mexico with low levels of education than it was for other countries. Indeed, many of the below-upper-secondary educated workers in Mexico were either in the informal economy or in essential sectors such as agriculture and construction that were less hit during the pandemic. Mexico did not go into full lockdown mode during the pandemic and relaxed its economic restrictions, a factor contributing to keeping those

individuals employed. Besides, it might have also been aided further by the recovery of the manufacturing and service sectors in the wake of the global economic recovery.

in Turkey, The increase in the unemployment rate from 10.5% in 2010 to 12.4% in 2019 among people with below upper secondary education is a dynamic process influenced by economic and social factors that affect one another. Although this trend sheds light on the hardships of low-educated workers, it unveils deeper issues within the Turkish labor market. The decade-long trend is telling in that if a structural change occurred in the economy over the last ten years, ie increasing reliance on technology or transitioning out of low-knowledge industry job types, it may have well-shifted income creation towards those with more education and away from those who did not finish high school. This skills mismatch could result from changes in the job market (more jobs may require higher levels of education or specialized skills than this demographic typically possesses). It also serves to highlight that this is part of a larger issue in Turkey's system of education, as well as within its workforce development programs.

Economic growth in some sectors is not to be having benefited a substantial slice of the population, who are unable to hold down secure jobs. This offers a possible agenda for investment: vocational training, adult education, and reskilling initiatives. It furthermore questions the efficiency of current labor market policies in meeting the requirements of more vulnerable groups. The distorting effect this has on social inequality, economic mobility, and potential social unrest, is alarming for long-term future implications of extended unemployment among low-skilled individuals. A comprehensive solution to this problem would likely require some mix of education policy (especially targeting the most reform-mired schools), job training policies, and broad employment-enhancing economic policy that lifts all layers of skill.

In the case of Turkey, in 2020, the share of job loss for individuals with less than upper secondary education was 13.1%; this figure corresponded to 12.4% in 2019. During the pandemic, the Turkish economy suffered a lot due to shrinkages in manufacturing, construction, and tourism, normally hiring sectors for people with low education. The government of Turkey also decided to do something regarding this situation: it implemented short-time work benefits and wage subsidies. This is most likely to have averted even more dramatic surges in unemployment than would otherwise have occurred. Pre-existing structural problems, including low labor force participation rates, and sectoral dependencies did mean, however, that less-than-highly-educated individuals remained at high risk

of losing their jobs. The fall in unemployment could also be because of the decline in the workforce, whereby the discouraged workers dropped out of the labor market altogether due to a lack of employment opportunities.

While, for Turkey individuals who possess below upper secondary education the rate of unemployment has reduced from 13.1% in the year 2020 to 10.4% in the year 2021 so the Turkey job market condition is good for this group. While this is generally helpful, the rate is still higher than that in early 2019 (12.4%), which means that the labor market recovery for low-skill employees is ongoing. The employment protection programs, wage subsidies and short-term work as introduced by the Turkish government have probably reduced the unemployment rate in 2021. However, slow recovery for the workers with education below upper secondary education was also observed due to several structural rigidities in the Turkish labor market; high youth unemployment and jobless recovery in low-skilled industries. Growing inflation and sectoral disruption with workers with low levels of education suffered more reductions in earnings due to the economic slowdown in 2021.

Overall, before the COVID-19 recession, Mexico's significant drop in unemployment rates for low-skilled workers is a testament to a labor market increasingly able to absorb them. That compares with rises from between 2013-14 which informs us that it ever-more difficult it becomes for those who haven't got much education or skill level at all still to get into work. Certainly, at the close of the last century or the dawn of this one Costa Rica, and Colombia did see some improvement in their low-skilled worker joblessness rates; but in later years these either hovered or rose again demonstrating just how volatile these labor markets are.

The rise of unemployment in Chile and Turkey may have become a strong signal indicating fundamental economic changes lower the demand spot for low-skilled labor (Chile and Turkey) Technology, global economic pressure, or changes in the kinds of jobs being created favored more highly skilled workers. The steady drop-in unemployment rates seen over time for Mexico carries implications for this country's economic direction and endowment. It says something about which class will be strongest--who holds power in society for generations to come--in an increasingly competitive world. Even while Mexicans ' overall moral character as judged by their willingness to exploit fellow human beings just for profit or pleasure certificates no praise at all from any objective standpoint

nowadays in our politically correct century and modern Internet times anticorruption sentiment is mounting faster than ever before because unendurable levels become built into a system through coarse behavior like embezzling on one hand.

The diverging outcomes across countries in the improvement of unemployment for the low-educated testify to the fact that the interactions of causes bringing forth labor market outcomes are complex. Countries that have experienced significant progress probably designed and implemented policies and programs that were appropriate for enhancing the employability of people with limited formal education. These efforts may have included vocational training, apprenticeship schemes, and liaison between schools and industries to make skills more responsive to the needs of the labor market. The economies of successful countries might also have provided an enabling environment that generated ample opportunities for jobs considered traditionally the domain of low qualifications, including manufacturing, construction, and service industry work. Countries, however, that have grappled with growing difficulties in this area may have been dealing with shifts in economic structure, leaps in technology, or international competition where jobs were lost disproportionately from lower-skilled employment. This lends plausibility to the fact that these countries also failed to keep in step with their lightning-fast changing labor market demands through the non-revision of strategies for workforce development and/or introduction of less-than-enough supporting policies to lifelong learning and skills upgrading. What has happened in terms of persistence or deterioration in unemployment for this age group in some countries certainly confirms the need for comprehensive diversified approaches, for policies and programs aimed at both supply and demand sides of the labor market, and for inclusive economic growth strategies that provide opportunities at all skill levels.

During the COVID-19 crisis people with lower levels of education were especially vulnerable in all countries to the economic shock induced by COVID-19. A large fraction of them work in tourism, retail, and services, industries badly hurt by the lockdowns and social distancing. While there has been a moderate rise in unemployment in countries like Mexico and Turkey, it is indicative of more resistance in the labor market situation in those countries, probably due to informal employment and government intervention. The sharp rise in unemployment seen in Costa Rica and Colombia underlines that the pandemic has widened the prevailing vulnerabilities in the labor markets of these two countries, especially among the lesser-educated segments. Any recovery strategy from these

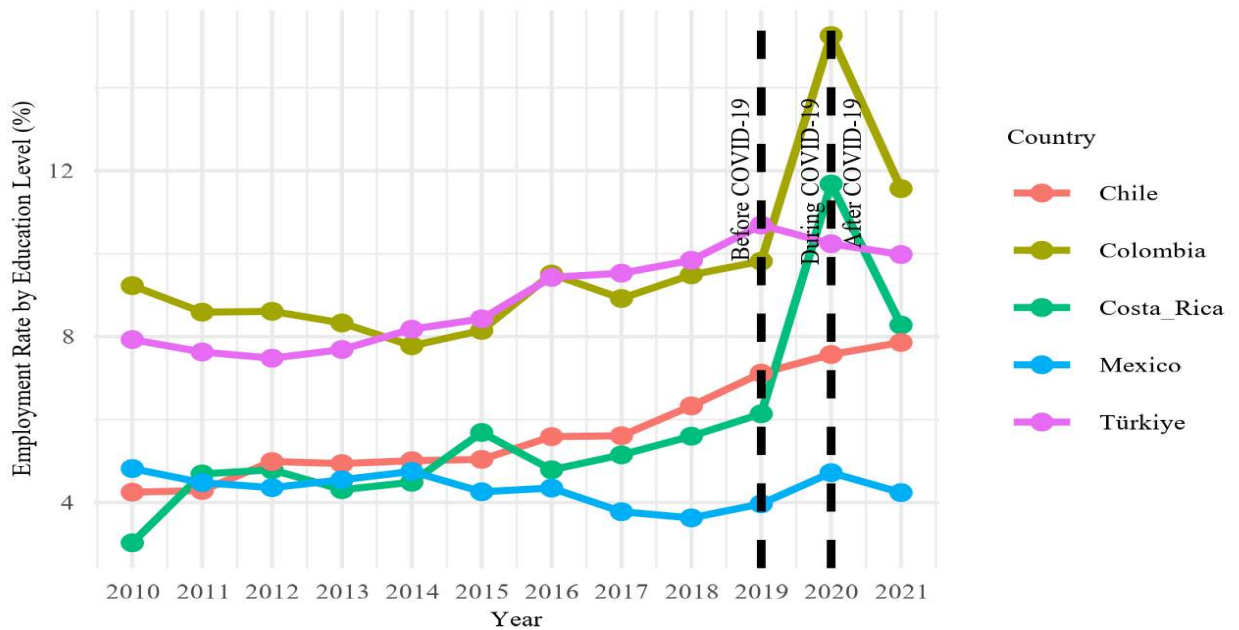
economies would henceforth need to be inclusive, targeting the sectors employing the low-educated, and ensuring them access to social protection programs and training opportunities, so that this vulnerable group does not suffer any long-term damage. The COVID-19 pandemic has hit people with below upper secondary education harder, although labor market disruption also varies across countries. Costa Rica and Colombia have been among the countries with the highest costs, while Mexico and Türkiye have better contained the increase in unemployment rates.

After the COVID-19 crisis, across most nations, the average job loss rate of individuals with lower levels of education went down in 2021, reflecting at least partial economic recovery from the pandemic shock. However, the economic recovery was very uneven across countries. Mexico registers an exceptionally low level of unemployment, which could indicate that its low-skilled labor market has withstood the economic consequences of the epidemic particularly well, probably supported by its informal economy and key sectors. However, countries like Costa Rica and Chile continued to depict a high level of joblessness that showed the vulnerability of low-skilled labor in fragility conditional on sectors like tourism and services, which take their time to rebound. How much the labor market in each country currently recovered to employ low-skilled labor was extremely dependent on the sectoral composition of the economy and how fast the reopening of sectors such as tourism, retail, and services happened right after the pandemic.

Thus, it is possible to conclude that the unemployment rate for those with education below upper secondary in 2021 was somewhat lower in comparison with 2020 but the global recovery is far from completion, as most of the countries continue to reveal elevated rates in comparison with the previous to the COVID19 pandemic. It is also important to point out that the nature of the changes, in this case, remains highly synchronized with the structure of the economy's sectors and the effectiveness of the further recovery drives of each involved country.

Figure 4. 28

Unemployment rates by education level, tertiary, working working-age population of 25-64 years



Source: Author's calculation based on OECD countries' data

Figure 4.28 shows the unemployment rate, especially in tertiary education, in Chile, Colombia, Costa Rica, Mexico, and Turkey from 2010 to 2021, to look at the trend in the labor market before, during, and after COVID-19. Due to the lack of data, this analysis did not include Afghanistan, China, Iran, and Korea.

In Chile, the share of jobless workers with higher education ranged from 4.2 % to 4.9 % between 2010 and 2012, signifying a fairly stable job market environment for those with advanced(tertiary) education. From 2013 up to 2016, the joblessness rates of this group were extremely low and were ranging between 4.9% and 5.5%. This slight increase suggests that there is a few economic factors that probably have contributed to the availability of job offers for these alumni too, a result from the stoppage of growth and some difficulties faced by coming industries including difficulties in mining as well as construction. The unemployment rate trimmed down a bit between 2017 and 2019 but stagnated slightly higher to a range of 5.61 percent to 7.1 percent; by the end of the decade, the economy had gained an uplift but was not to the rate recorded in the early part of the decade. Chile also experienced a minor oscillation in the joblessness rate of tertiary educated employees over the decade to the peak at 5.61% in 2017, though there was moderate sign of improvement in 2019.

The Chile the share of joblessness for those with tertiary education is relatively moderate, at 7.5%. Compared with the rates for other countries, it may indicate that the highly educated labor market in Chile was less affected during the pandemic. It could be that skilled professionals in finance, IT, and public administration-where the mode of work would have been less affected by demand. In the case of COVID-19 shock, these industries proved to be resilient, and many educated manpower were able to remain employed. Also, the less than 5% joblessness rate of the tertiary-educated labor force proves that the Chilean-educated labor was at least secure, particularly in the industries labeled as essential and knowledge-based. While unemployment was on a rising graph related to the pre-pandemic level, it was not that severe when associated to other countries.

In Chile, the unemployment rate for those who had received tertiary education stood at 7.8% in 2021, as compared with 7.57% registered in 2020. This indicates higher but continued job market strain for highly educated individuals, though it was well below the more serious unemployment rates compared with the lower levels of education. The increase in 2020 points to a catching-up, delayed by the economic consequences of the pandemic. When the economy started recovering, some of the industries that involve tertiary-educated workers could have faced slower recoveries, therefore slightly increasing unemployment. However, the modest change in the overall rate would suggest that the labor market for educated workers in Chile remained resilient and, hence, many sectors, such as finance and IT, would underpin recoveries.

The rate of unemployment, in contrast to some countries, for graduates of higher education in Colombia has also moved from 9.2% in 2010 down to 8.3% in 2013, therefore indicating further labor market improvement since painful restructuring in the aftermath of the financial crisis. It continued to decline in 2014 to 7.7%, then increased again in 2016 to 9.5%. These fluctuations could indicate the susceptibility of the economy, for instance, to external shocks in commodity prices, such as oil, leading to some job losses, even in a class of educated workers. A continued high unemployment rate in the period from 2017(8.9) to 2019(9.8) for highly educated workers means economic recovery efforts were slow in trickling down to skilled workers. Even college-educated workers in Colombia suffered from problems finding employment during the whole decade. The very high unemployment rate among 2019 graduates reveals persistent structural problems in the economy, which also affect this very skilled and educated group.

While for those tertiary-educated in Colombia, it could reach as high as 15.2%. Evidence abounds on quite serious disruptions in the labor market for educated people. Professional sectors, services, and tourism are among those worst-hit sectors due to lockdown measures and the general economic slowdown. Such a rise in the shares of the job loss infers that even higher levels of education could not assure some of its owners of employment. Apart from the contraction of the formal labor market, this was perhaps exacerbated by a supply-demand gap for tertiary-educated labor. Increasing unemployment of the educated workforce unmasks structural issues in the economy of Colombia where higher education did not protect residents from recession.

Where tertiary education is attained, unemployment rates have drastically dropped from 15.2% in 2020 to 11.5% in the year 2021 in Colombia. This drastic decline in unemployment proves that in the case of Colombia, the labor market for skilled workers started recovering once the economy opened and businesses found ways to operate under post-pandemic conditions. The lower level of unemployment for persons who have completed tertiary education testifies that even though the pandemic hit hard even within this group, in 2021 this group started to improve as industries like services and professional sectors began hiring again. However, the rate is still quite high compared to that of pre-pandemic years, reflecting that full recovery was still underway at this juncture given the structural challenges facing Colombia's labor market.

For 2010 and 2013, Costa Rica had the least unemployment for tertiary graduates, starting the decade with 3.03% that year but going up to 4.3% by 2013; thus, recording some slackening of the labor market during those years. During 2014-2017, unemployment rates among the tertiary-educated workforce continued to inch up and even reached a peak of 5.69% in 2015. Truly representative of Costa Rica's struggles, which were facing a slowing economy and labor market challenges that were most probably exacerbated by fiscal imbalances and global economic uncertainty at that time. In the year 2018 and 2019, it further increased to 6.1% in the year 2019, evidencing continuous problems for tertiary-educated people to get employed within the diversified service-based economy of Costa Rica. Despite the otherwise strong service-based economy traditionally present in Costa Rica, unemployment among tertiary graduates continued its uptrend, reaching a peak of 6.1% in the year 2019, reflecting the difficulties encountered by educated workers in finding jobs.

In Costa Rica, unemployment among people with tertiary education reached 11.6% in the year 2020. Linked to the pre-pandemic level, this rate has improved a lot and points out the strong influence of the pandemic on the economy, especially in industries that rely on high levels of skills, such as education, professional services, and tourism. The Costa Rican economy depends heavily on tourism, which virtually came to a complete standstill during the pandemic. This had a snowballing effect on other industries, even those that usually employ tertiary-educated workers. The high unemployment rate points to the fact that well-educated workers also lost their jobs in companies' downsizing or total closure of businesses. In addition, job opportunities

In Costa Rica, the unemployment rate of those with tertiary education dropped from 11.6% in 2020 to 8.28% in 2021. This shows partial recovery, but higher unemployment levels compared to those that existed before the pandemic. The slower pace in Costa Rica might have been because of an economy dependent on tourism. The decline in unemployment notwithstanding, highly skilled workers-particularly those involved in the tourism, hospitality, and educational sectors-are still suffering because of continued travel restrictions and very slow recovery internationally in tourism. That this rate is still high underlines the fragile nature of the Costa Rican economy and labor market that continues for the educated individual.

In Mexico, the level of unemployment among tertiary graduates stood at 4.8% in 2010 and then dropped to 4.3% by 2012. This reflects a relatively stable job market for educated workers during the early part of the decade. between 2014 and 2017, the unemployment rate went from a low of 4.2% to a high of 3.7%; hence, this would suggest that the economy of Mexico, amid volatility in some respects, could absorb workers who are at the level of tertiary education relatively well. That fell to a low of 3.63% in 2018, before ticking back up to 3.9% in 2019. This may signal the resilience of the Mexican economy for those with skills, though the late-decade uptick could hint at slowdowns beginning to manifest before the pandemic. In the period, unemployment rates of tertiary-educated workers largely stayed below 3% toward the end of the period, which shows good absorption of educated workers into the labor market.

Despite this situation, in Mexico, the rate of jobless individuals between employees with tertiary education has stayed low at 4.7 percent in 2020 suggesting the stability of this sector in the protected employment market. This could be due to several factors including the ability of the large employment-generating sectors offering an educated workforce to

quickly bounce back from the shocks such as major employment segments of health, public administration, and education services which faced moderately lesser employment cuts during a pandemic. Different from other nations, the joblessness rate of tertiary-educated people in Mexico is quite small; therefore, such employees possibly did not lose much employment due to the economic repercussions of COVID-19. Mexican authorities might have achieved below the job loss pressure because of the high informality level. As for the educated workers, especially those who work in the sphere of essential services or sectors that could easily transfer working processes from the workplace into the home environment the mentioned breach of their professional activity was less noticeable.

But in Mexico, the unemployment rate of the tertiary-educated decreased from 4.7 percent in 2020 to 4.2 percent in 2021-a relatively strong recovery that partly reflects the resilience of health, education, and technology sectors. The lower unemployment rate among tertiary-educated workers means that the labor market, for those, in any case, bounced rather quickly in Mexico, probably propped up by industries that could be done from home or were otherwise essential during the pandemic. Added to this may be the fact that Mexico's huge informal sector provided alternative employment opportunities, hence keeping unemployment as a whole lower than in many other countries.

from 2010 to 2013, the joblessness rate for tertiary graduated workers in Turkey hovered between 7.6% and 7.93% during the early part of the decade. Therefore, this would imply that even as economic growth was accelerated in Türkiye, highly educated workers were still confronted with quite significant job market challenges. From 2014-2017, the unemployment rate grew very gradually and peaked in 2017 at 9.5%, showing that the economy of Turkey had gone slow due to regional instability and political uncertainty. In the meantime, a probability could be outlined for a high level of job loss among graduates, probably because of reduced foreign investment and fluctuations in internal strategies. The unemployment rate peaked in 2018 and 2019 at 10.6 percent, being the highest in this decade. Inflation, depreciation of the currency, and further economic problems that faced even the sectors usually hiring highly educated workers, such as technology, finance, and public administration, were the drivers of deterioration in job loss. Joblessness among tertiary-educated workers continued to deteriorate in the case of Turkey, whose joblessness rate for tertiary-educated workers stood at 10.6% by the end of the decade, reflecting both the country's macroeconomic problems and the basic labor market difficulties.

The jobless workers rates show that in 2020 the joblessness rate in Turkey for those having tertiary education was 10.2% revealing the problems of educated unemployment in the country. This increase showed that the pandemic impacted different levels and sectors of education in the matter of unemployment. Sectors that generally hired a large number of workers with tertiary education, including manufacturing, tourism, and education, were not spared. This increase in the unemployment rate, notwithstanding the governmental measures to afford some protection from the severity of the pandemic, indicates that numerous highly educated people have lost their jobs or experience restricted opportunities for new employment. Besides the economic stagnation, inherent structural flaws are deepening existing challenges that educated employees in the Turkish labor market have been experiencing, during the recession.

Turkey saw a slight reduction in the unemployment rate for tertiary-educated workers, from 10.24% in 2020 to 9.9% in 2021. This modest decrease points to a slow and fragile recovery in the job market for highly educated individuals. The small drop in unemployment reflects ongoing challenges in Turkey's economy, exacerbated by inflationary pressures, currency volatility, and political instability. Despite some recovery, many highly educated individuals continued to face difficulties in finding stable employment, particularly in sectors like tourism, manufacturing, and education, which were slow to rebound. The persistently high unemployment rate suggests that the labor market for tertiary-educated workers remained under strain.

Before the COVID-19 crisis, From the selected countries, most of them showed an increasing trend in unemployment for tertiary-educated workers within the decade. This is indicative of economic challenges, structural inefficiencies, and turbulence in the global markets. The rather more volatile cases are those of Chile and Colombia, especially in the middle of the decade, reflecting the sensitivity of this job market to broader economic conditions. Mexico has continually recorded the lowest rate of unemployment among tertiary-educated workers, reflecting the country's better performance in those sectors where these workers are employed. The increasing trend in the unemployment of tertiary graduates shows that Turkey is in trouble regarding broader economic health due to political uncertainty, currency devaluation, and regional challenges. Finally, while countries like Mexico posted relatively good results in maintaining unemployment rates for tertiary-educated workers at low levels, others, such as Costa Rica, Türkiye, and Colombia did

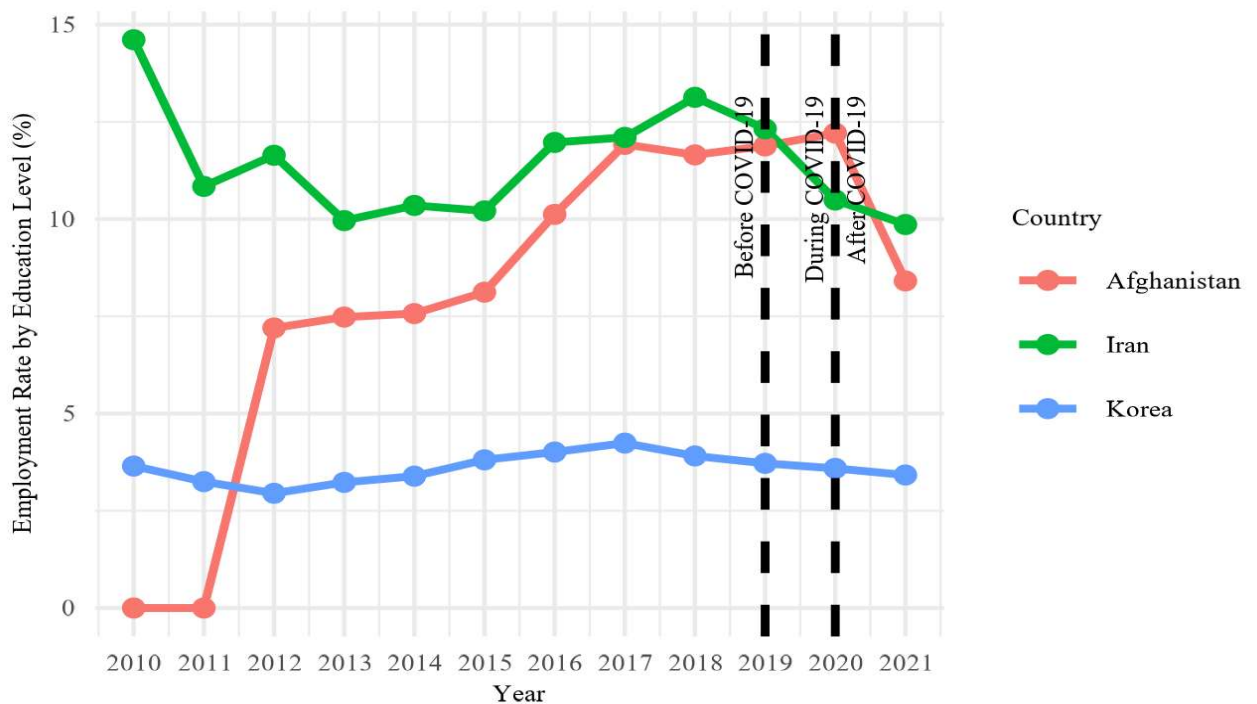
not, showing the structural problems in their labor markets, to be accentuated during the recession caused by COVID-19.

During the COVID-19 crisis, comparative joblessness rates had risen for persons with tertiary education in the five countries and by a larger amount than before the pandemic for as much as at prior levels depending on the economic structure and the ability of the key industries to sustain employment and government intervention to save jobs. As shown joblessness of tertiary educated workers increased during the pandemic yet it was overall lower than that of less educated workers. This observation implies that attainment in higher education offered some insulation in the labor market, especially for industries that can apply work from home or are considered essential. Open economies which included tourism dominated economies of Costa Rica and service economy countries such as Colombia realized high unemployment among the educated. Meanwhile, Mexico kept joblessness relatively low education employees found jobs in essential or buoyant industries. Governmental interventions with accepted industries' organizational conditions during the pandemic period as a determinant of the shares of unemployment seemed to be significant factors. Higher social protection and more diversified crises affected the joblessness variations to a lesser extent: countries with structural issues – to a greater extent – including Colombia and Turkey.

After the COVID-19 crisis, the share of jobless tertiary-educated workers improved in all selected countries in 2021, but the pace and magnitude of recoveries were very different. While countries like Mexico and Chile have shown better resistance to this crisis, countries like Colombia and Costa Rica remain haunted by the continuously high rate of joblessness, as that indicates more profound structural problems and slow sectoral recoveries. Variation in joblessness rates points to the relevance of the sectoral dynamic. Countries with stronger knowledge-based sectors, for example, or those that adapted to work from home, like Mexico and Chile, were resilient, while economies very dependent on either tourism or services demonstrated more sluggish recoveries, such as Costa Rica and Colombia. Where the general trend in 2021 was a decline in joblessness compared with the peak reached in 2020, the persistence of higher-than-usual job loss rates among the tertiary-educated in some countries portends that economic scarring from the COVID-19 recession may take years to heal fully.

Figure 4. 29

Unemployment rates with advanced education, male labor force participation



Source: Author calculation based on World Bank, and International Labor Organization (ILO) data

Figure 4.29 shows the unemployment rate especially with higher education in Afghanistan, Korea, and Iran for the period of 2010 to 2021 to look at the trend in the labor market before, during, and after COVID-19. Due to the lack of data, this analysis did not include China.

There was no data in Afghanistan from 2010 to 2011. The unemployment rate is only published in the following years. In 2012, the share of jobless workers of highly educated men in Afghanistan was 7.2%. It can be assumed that the country was going through some problems in creating adequate employment opportunities for its people in those times. Compared to the previous year, in 2013 an increase of 7.4% was detected showing the labor market was not able to absorb more skilled workers. In 2014, the rate of unemployment labor reached 7.5%, which represents a steadily increasing trend showing that finding a job as a qualified worker did not improve and was even slightly worsening. In the year 2015, unemployment suddenly reached the level of 8.1% in comparison to previous years. This might relate to the socio-political and economic troubles facing Afghanistan in that period.

This increased significantly to 10.1% in 2016 and reflects the increasing tightness of the Afghan labor market, probably as a consequence of deteriorating security and political instability, further constraining job creation even for the highly skilled worker. For 2017, it is even more dramatically higher at 11.9%. This can be taken to indicate worsening conditions for job creation, particularly for skilled workers in a pressurized economy. It went down slightly from 10.92% to 11.6% in 2018, perhaps signaling the partial recovery or stabilization of the labor market, but still keeping the joblessness rate very high. Finally, in 2019, it got even higher and stood around the percentage mark of 11.8%, indicating continued difficulties in the absorption of trained workers by the labor market during the years preceding COVID-19. The jobs of unemployed high-skilled males in Afghanistan increased gradually from 2012 to a peak of 10.92% in 2017. As can be concluded, all the challenges the economy is facing most likely including political instability appear to impede job opportunities for the country's educated workforce.

in Afghanistan the number of men who had advanced education, the joblessness rate rose from 11.8% in 2019 to 12.2% in 2020. The epidemic has very likely been exacerbating the pecuniary and economic problems of Afghanistan by narrowing the scope of labor market chances for highly qualified workers, given the breakdown of a lot of sectors, such as services, education, and administration, because of restrictions, lockdowns, and not sufficiently developed healthcare abilities. Besides, the safety situation continued to deteriorate, making the economic context even more fragile.

The joblessness rate in Afghanistan depressingly dropped from 12.2% in the calendar year 2020 to 8.4% in the calendar year 2021. Such a steep drop signals a partial restoration of the Afghan labor market from its extreme in the pandemic year, 2020. However, taking the political situation of Afghanistan in the year 2021-August when the Taliban again came to power, the labor market was highly dynamic. The changes in the share of job losses may be due to some methodological factors or cyclical in the light of the recent change of political regime. It is also important to add that Afghan people who have received education most likely faced much more profound issues related to migration, dismissal from work, or the breakdown of the formal economy owing to the change of power. The share of jobless employees for highly educated males in South Korea was about 3.6% in 2010, a very good condition for skilled workers. The rate slightly fell to 3.2% the following year, probably because of the good economic performance of the country at that time. It further continued at 2.9% in the succeeding year of 2012, showing the country's

capability of absorbing the qualified workforce in its economy. The fact that in 2013 it slightly increased to 3.23% might be testimony to minor fluctuations in the level of job provision rather than significant changes in the economic environment. In 2014, the level of unemployment persisted at about 3.3%, which testified to a stable employment situation for this type of graduate. In 2015, there was a marginal rise of 3.81%, which may show relative retardation in the job market. 2016 was a critical year when this rate for the first time crossed more than 4% and was at 4.01%. This could mean threatening or structural conditions in the labor market for educated labor. The uptrend continued in 2017, when unemployment reached 3.24%, perhaps due to heightened competition among high educational attainments. In 2018, there was a partial recovery: the unemployment rate was 3.9%, therefore showing a better scenario for the qualified when finding jobs. This has further gone down to 3.7% in 2019. These figures therefore show that it is generally stable in terms of a labor market for educated males in Korea before the COVID-19 pandemic.

While there was some increase in a couple of years, the unemployment rate among highly educated males was relatively low throughout the decade, with minor increases in some years. The trend also indicates periods of marginally higher unemployment on occasion. However, in large measure, the Korean labor market proved quite resilient before the pandemic period by being able to absorb its highly educated labor force in employment efficiently.

The share of the job losses of educated males in Korea decreased to 3.5% in 2020 from 3.7% in 2019, proving that Korea has been able to cope with the economic significance of COVID-19 positively. Korea was thus in a position to adopt some swift public health measures that minimized the economic disruption of life and allowed key sectors in technology and manufacturing to keep operating. This fell in the rate of job loss for educated workers may also reflect the greater opportunities for remote work during this period, chances to which skilled and educated workers are disproportionately compared to other workers. Furthermore, government stimulus measures that prevented job losses supported this particular segment of the labor market.

This is a development since it has reduced from 3.5 percent in the year 2020 to 3.4 in the year 2021. Generally, the Korean labor market for highly skilled male employees has proven rather stable and even more, relatively unfazed by the implications of the pandemic in modern global practice compared to other countries. This gradual reduction of

unemployment rate can be an indicator of the high-skilled sectors' recovery that possibly benefited from the government's vigorous stimulus on the economy. Theoretically, the high-skilled labor force is often imbalanced with industries that are best positioned to shift towards remote work, which helps create this stability seen in Korea.

The share of individuals that have lost them in Iran was an astonishingly high level of 14.6% in 2010. This implies that the country had significant issues regarding the hire of the more educated male segment of society. However, this came down drastically to 10.84% in 2011. This can be due to a more positive labor market condition or the result of government policies employing the skilled labor force. The next year, 2012, the curve went further down at 11.6%. In 2013, the job loss rate in this country was 9.9%. A drop below 9% infers economic growth and creates more opportunities for skilled workers to find employment in the country. In the year 2014, a slight increase in unemployment to 10.3% might have been experienced due to additional as well as external forces of pressure on its economy such as imposed sanctions or economic turmoil. In 2015, it was at 10.2%. A slight decline in this indicates that the labor market is relatively stable, and the employment of skilled workers has slightly improved. In 2016, this unemployment rate increased to 11.97%, reflecting new labor market challenges that are probably linked to economic sanctions or inflationary pressures.

In 2017, it added a bit more, reaching 12.1%, with implications of greater economic pressure. A further increase in 2018 to 13.13% could reflect significant economic stressors binding a job market that has limited opportunities for such a high-quality workforce. It then went down in 2019 to 12.3%, but it remains high, reflecting continuous labor market stresses during pre-pandemic times. Throughout this decade, unemployment rates among educated males in Iran have remained high, ranging from 8.96% to 13.61%. The high rate of unemployment can be considerably contributed by economic challenges such as sanctions, and inflation, which resulted in limited employment opportunities for the educated labor force in the country. Aggregate analysis: Afghanistan: The unemployment rate of the educated male has hugely increased since 2012 to its peak of 10.92% in 2017 and reflects substantial labor market challenges before the COVID-19 recession.

The trend in the male unemployment rate with higher education in Iran was fast declining starting from 14.12% in 2006 to 9.49% in 2020 which despite the COVID-19-induced global economic slowdown is a peculiar trend. However, this decline may not be true in the real sense of the actual improvement in the labor market. It may be for a reason of

low employment or can arise from the underemployment effect because, in the job market, many qualified individuals may have been out of work or job hunting due to COVID-19. Thirdly, unemployment rates calculated for Iran do not necessarily take into account the informal sector where many educated workers are currently employed. The sanctions and the devastating outcomes of the pandemic might have sharpened such tendencies.

the share of job loss of male workforce with advanced education in Iran dropped from 10.4 % in 2020 to 9.8 % in 2021. However, unemployment's effect is still seen expensively in Iran, where the joblessness rates have stayed relatively high. It can also be a sign of worse underlying structural economic issues inside the Iranian economy, which has been suppressed by sanctions consistently testing the limit of Iran's labor market.

Before the COVID-19 crisis, in Korea despite a slight upward trend for the middle part of the decade, the joblessness rate amongst educated males remained low. Thus, in that aspect, the entire labor market for skilled workers was relatively stable. In Iran, The constant economic challenges kept the unemployment level among skilled workers high throughout the decade, which meant unemployment rates among skilled men were always high. Afghanistan and Iran already suffered from difficulties in integrating educated manpower into their labor markets before the start of the COVID-19 pandemic, while in the case of Korea, the situation regarding the integration of highly skilled labor in the labor market was quite favorable.

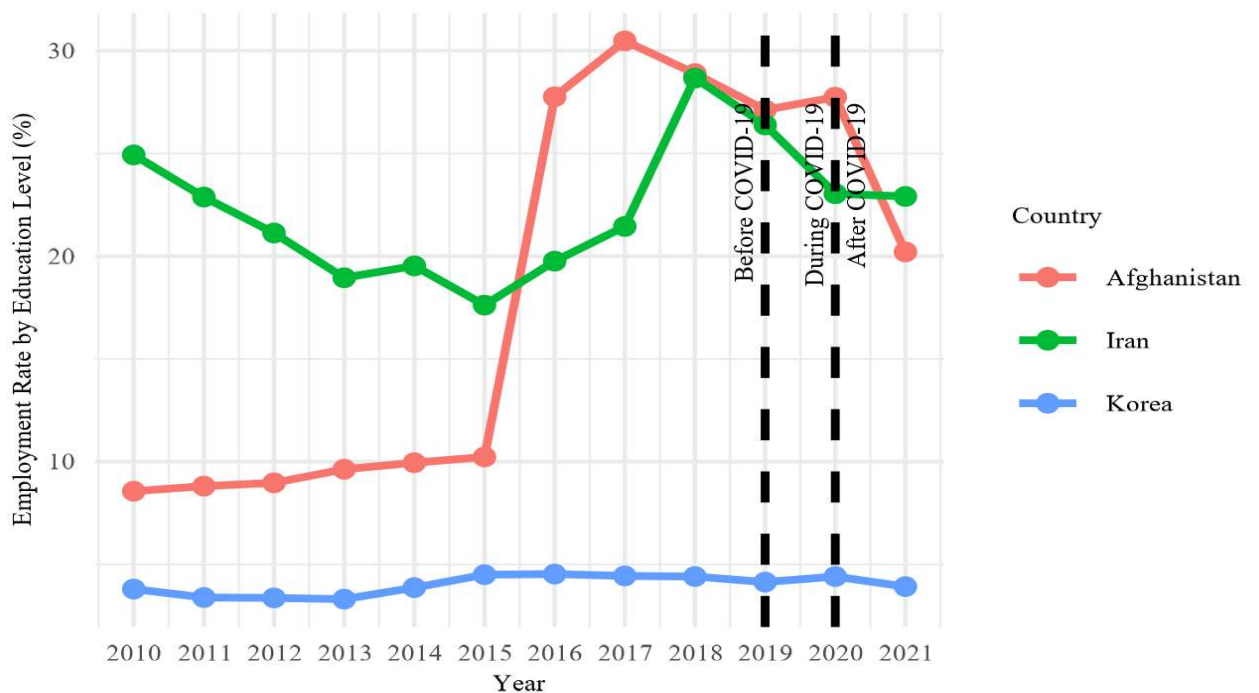
During COVID-19, the share of unemployed educated males in Korea was relatively invariable but slightly improved in 2020, testifying to the resilience of the national economy and to the efficiency of both public health and economic policy responses in times of a pandemic. For Iran, the relatively low 2020 unemployment rate for the highly educated is misleading and probably a function of reduced labor force participation rather than an improvement in job chances for the highly skilled. Sanctions, economic hardship, and the outbreak or epidemic have combined to pound the Iranian economy terribly.

After COVID-19, In general, Afghanistan had a very rocky path in the post-pandemic political recovery. Nevertheless, with this slight reduction in the rate of joblessness, the joblessness problem in the country seems to remain sensitive in the job market. Because of the politics of government and the stability of sectors where highly educated male workers are employed, Korea has remained enjoying a relatively low and stable unemployment rate. Iran was still left with some post residual economic and political problems but was slowly evidencing slight improvement in the unemployment rate as the country

shifted to the pandemic and the challenges from the world. Therefore, employing ratios and variations in job and joblessness for these countries reveals not only such consequences of COVID-19, but also the specificities of the countries' economic, political, and structural development. Though all countries have taken a hit from the global pandemic, different paths to the Republic of Korea being stable, Afghanistan having a politically driven uncertainty in recovery, and Iran with both domestic and international pressures on its labor forces being undergone by all.

Figure 4. 30

Unemployment rates with advanced education, female labor force participation



Source: Author calculation based on World Bank development indicator data, and the Central Statistics Office (CSO) of Afghanistan

Figure 4.30 shows the unemployment rate, especially with higher education of the female labor force in Afghanistan, Korea, and Iran from 2010 to 2021, to look at the trend in the labor market before, during, and after COVID-19. Due to the lack of data, this analysis did not include China.

In Afghanistan, the share of job losses for the female labor force with higher education was 8.5% to 10.2% between 2010 and 2015. This suggests a very stable period before 2016. The slight increase shows minor fluctuations but no real economic shock during the given time. A massive surge in 2016 has brought joblessness from 10.2% in 2015 to

27.7% in 2016-2019. This jump could imply severe economic challenges or political unrest that finally hit the labor market. The joblessness rate continued to surge further until 2017 and reached 30.4%, but during the years 2018 and 2019, it started to decrease to 28.8% and 27.1%, respectively, though still very high compared to the previous years, reflecting continuous labor market difficulties. Afghanistan's labor market depreciated after 2015; it might have a link to the rising internal conflict, economic instability, or poor job creation for highly skilled female workers.

The rate of joblessness for female employees reached a high of 27.7% in Afghanistan in 2020 alone, as those with advanced educations experienced. This shows big disruptions in the economy with the pandemic, which further creates a fragile economy, with the added issues of gender inequality in Afghanistan, hence making hiring women for higher-skilled jobs very limited. Afghan women, in general, and educated ones in particular, have met many impediments to job market entry: lack of admittance to formal employment due to strong, deeply ingrained cultural norms. The pandemic likely furthered these impediments and pushed women out of the labor market. This large increase in joblessness could be traced to reduced job opportunities in education, healthcare, and other sectors, where educated females are most likely employed.

After having increased sharply in 2021-from 27.7% to 20.2%-the unemployment rate of highly qualified women in Afghanistan decreased significantly. This decline does indeed suggest recovery, but the general rate is still extremely high. The fragile economy of Afghanistan, combined with political instability-mostly after the fall of Kabul to the Taliban in August 2021-makes it likely to have kept on substantially preventing the recovery concerning female labor, in particular among higher-educated women, who may face supplementary restrictions under the new regime.

In Korea, the joblessness rate for women employees with higher education was rather low and stable between 2010 and 2015, ranging from 3.31% to 4.5%. In the year 2010, it was 3.8% and gradually decreased to 3.31% in 2013. That number in 2015 was 4.5%, indicating small fluctuations in the economy during this time but with no great shock. Unemployment was steady and hovered between 4.4% and 4.5% in both years, 2016 and 2019. In 2019, it was 4.1%, the same as or at least near what it has always been. That is to say, Korea has provided a clear example of the fine workings of its labor market for females with higher education since the share of unemployment is small and has remained practically constant. This is very indicative that Korea enjoys a quite stable labor market for

the highly educated women of their population, hence reflecting economic resilience and, as a result, opportunities for well-educated people.

The unemployment rate for highly educated women in Korea, at 4.4%, compared to Afghanistan. This shows more robustness of the female labor market with education attainment although the pandemic saw most people lose their jobs particularly those in the service industry. In Korea, numerous female workers suffered from the situation where they were laid off or their work hours were cut short though the government's policies made it easier for the harsh impact of the economic decline to be felt. For any given time, Korea has experienced low unemployment rates among highly educated people given the fact that education systems are well understood within the labor market. Nonetheless, the emergence of the pandemic had a more significant impact on women because, in many families, it became their breadwinner, during the pandemic, sectors like hospitality, tourism, and retail," they mentioned. The government supports the battered industries and females with education may be less pretentious due to the well-developed digital economy.

In 2020, the very low joblessness rate of highly educated women in Korea was only 4.4%, falling slightly to 3.9% in 2021. This may be indicative that Korea has quickly caught up from the damage of the pandemic on the labor market at least for highly educated women. Thus, Korea's emphasis on technology, gazing toward digital transformation and remote work, was set to help cushion the negative long-term impact caused by a disruption in female employment.

In Iran, the rate of jobless women workers was very high during the period ranging from 2010 to 2015 and was 24.9% in 2010 among females, which fell gradually down to 17.6% in 2015. This decrease was gradual, signaling an improvement in the Iranian labor market of highly skilled females in the early 2010s-possibly due to economic reforms, stabilization efforts, or improvement in educational infrastructure. From 2015, it increased rather modestly up to 2016-2019. It continued growing from 19.7% in 2016 to 21.4% in 2017, continuing to grow to 28.6% in 2018. In 2019, it was 26.3%, showing that such job loss was highly unstable within the job market. Such fluctuations in rate may indicate greater economic difficulties, such as sanctions, inflation, or political instability, impeding the creation of jobs for highly skilled females. The Iranian labor market improved from 2010-2015; after that year, due to internal or external economic challenges, the trend completely reversed and unemployment started to increase again.

This proves that in Iran, the joblessness rate among females with higher education reached 23.04%, a big problem signaling economic disruption caused by COVID-19. Iran's economy was strained enough with the already imposed sanctions and then came additional stress due to the pandemic. Thus, it turned out to be quite severe in the case of women with higher education in Iran. High unemployment among Iranian-educated females is but an indicator of labor market access at the systemic level of gender disparity. Even with one of the highest female literacy rates in the region, Iranian women face a very limited number of opportunities for formal employment. This constraint has been increased by the COVID-19 pandemic, particularly for professional and skilled segments of the labor market. This probably represents the general pattern observed in most parts of the world during the pandemic the pandemic hit harder on the female population, even from among the better-educated, than it did on the male population.

The Iranian female job loss rate decreased from 23.04% in 2021 to 22.91%. This marginal variation tends to indicate that, in the case of females, recovery in Iran has been slow and may be linked to ongoing economic challenges and a lack of opportunities for women in professional sectors. These imposed sanctions and economic restrictions hit relentlessly and debilitated all recovery efforts while impeding disproportionately upon the educated workforce.

In summary before the COVID-19 outbreak, Afghanistan had a relatively stable trend at the beginning of the decade and then faced a huge disruption in the labor market after 2015, keeping joblessness high up to 2019 for female workers. Korea turned out to be the most stable: it managed to keep the unemployment rate for females with advanced education low and constant throughout the period. The turbulence in Iran was greater. The most striking features of this series are the steep decline of unemployment during the first half of the decade and its bounce-back during the second doubt resulting from intervening economic and political factors.

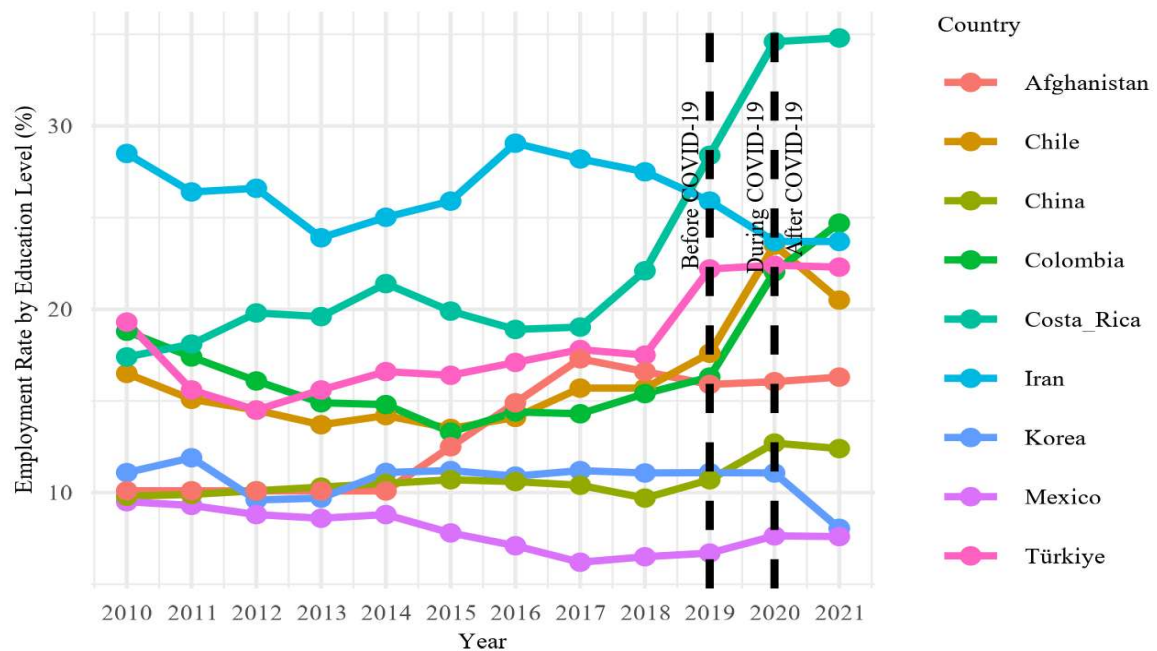
During the COVID-19 crisis, as we can see from cross-country evidence with this dataset and many others tracking the pandemic, educated women were not spared from adverse economic impacts. But the level of joblessness significantly differed from the previous economic conditions, government subsidies, and the structure of the labor market. The COVID-19 pandemic further intensified gender disparities, especially in nations like Afghanistan and Iran where women seek, and struggle to remain in, the workforce. Korea,

reflecting a somewhat more robust economy, does not escape this challenge: its somewhat lower joblessness rate for females than the Korean labor market.

After the COVID-19 recession, the inability of Afghanistan and Iran to bring down the worrying rate of unemployment among their educated women during the COVID-19 epidemic, and even afterward, speaks volumes about the deep-seated structural problems in the job markets. While some of these pre-COVID problems were further exacerbated by the pandemic, partial reopening and reconstruction efforts have resulted in an improving situation in 2021. Korea has shown resilience in the labor market of highly skilled women and has kept joblessness rates very low despite the global economic downturn due to COVID-19. The little change between 2020 and 2021 shows that Korean policy has effectively cushioned the impact on this demography. While in 2021 the situation was relatively better compared to the sharp downturn in 2020, the COVID-19 outbreak did expose the deep vulnerabilities in the Afghan and Iran labor market for highly educated women. By contrast, the case of Korea shows how effective and proactive economic policies coupled with a strong digital economy could help keep female employment going uninterrupted even during global crises.

Figure 4. 31

Total (women and men) youth unemployment rate: Working age population from 15 to 24 years



Source: Author calculation based on OECD countries, World Bank, and International Labor Organization (ILO) data

Figure 4.31 shows the youth unemployment rate in Chile, Colombia, Costa Rica, Korea, Mexico, Turkey, China, Afghanistan, and Iran from 2010 to 2021 to look at the trend in the labor market before, during, and after COVID-19.

In Chile, there was a continuous and gradual decrease in youth unemployment from 16.5% to 13.7% between 2010 and 2013, and then a slight increase to 14.2% in 2014. After this period, there was an immediate and gradual increase from 13.5% to 17.6%. The youth unemployment rate in Chile was also record-breaking at 23.5% in 2020. Some sectors, such as manufacturing, hospitality, and retail, also saw massive lockdowns, with many of the young workers losing their jobs and staying at home for a while. These conditions had a direct impact on overall economic activity. The youth unemployment rate in Chile currently fell from 23.5% in 2020 to 20.5% in 2021, showing that the labor market has recovered significantly after the COVID-19 recession. This could be the strong impact of the government's labor market policy, which has created employment opportunities in some sectors such as IT, manufacturing, tourism, etc.

In Colombia, the youth unemployment rate fell steadily from 18.8% to 13.3% between 2010 and 2015 and then rose to 16.3% in 2019. In Colombia, the youth unemployment rate in 2020 (during the COVID-19 crisis) was 22.04, while in 2019 it was 16.3. This could also be due to the massive restrictions imposed by the government during COVID-19. In Colombia, the youth unemployment rate increased significantly from 22.04% in 2020 to 24.7% in 2021, meaning that the labor market recovery in Colombia was more focused on youth employment opportunities. This could be due to weak government policies and also structural fluctuations in the labor market, such as a mismatch between employment opportunities and professional qualifications.

In Costa Rica, the unemployment rate fluctuated throughout the period. Between 2010 and 2012, for example, there was an immediate and gradual increase from 17.4% to 19.8% and then a slight decrease to 19.6% in 2013. In 2014, it peaked at 21.4% and then fell steadily to 19.03% in 2017. It then reached 28.4% in 2019, indicating a high peak throughout the period. In Costa Rica, the youth unemployment rate of 34.6% in 2020 was very high compared to the other countries. In Iran, the youth unemployment rate was relatively high compared to the other countries on the list. Nevertheless, it was mitigated by government restrictions or structural factors, such as the low labor force participation of young people during the pandemic.

The youth unemployment rate in Costa Rica increased slightly from 34.6% in 2020 to 34.8% in 2021. This may be due to many factors such as volatility in the labor market, the economic downturn in some sectors, and weak government policies. The youth unemployment rate in Iran was stable during and after the COVID-19 crisis (23.7). There were no significant changes in the dynamics of the labor market.

In Korea, an increase in the youth unemployment rate was observed between 2010 and 2011, which then gradually fell to 9.7% in 2013. This was followed by an immediate increase in the youth unemployment rate to 11.09% in 2019. The youth unemployment rate in Korea was 11.07% in 2020. Like other countries, this country has also been affected by COVID-19, resulting in a relatively minor economic recession. In Korea, the youth unemployment rate has dropped significantly, from 11.07% in 2020 to 8.05% in 2021. The current decline shows that there are many employment opportunities for young workers, especially in temporary and part-time work.

In Turkey, the youth unemployment rate also fell steadily from 19.3% to 14.5% between 2010 and 2012 and then gradually increased to 16.6% in 2014. It then fell slightly to 16.4% in 2015. Between 2016 and 2017, the youth unemployment rate rose from 17.1% to 17.8% and then fell slightly to 17.5% in 2018. In 2019, it rose again to 22.2%, indicating a high peak throughout the period. In Turkey, the youth unemployment rate in 2020 was 22.4%. This was the highest unemployment rate among other workers. In the case of Turkey, there was also a small change in the youth unemployment rate from 22.4% in 2020 to 22.3% in 2021, indicating that this country still has a problem with creating a high level of employment opportunities for young workers. In this country, the youth unemployment rate is still relatively high compared to other countries.

In Mexico, a continuous decline in the youth unemployment rate from 9.5% to 8.6% was also observed between 2010 and 2013, which then rose slightly to 8.8% in 2014. This was followed by a continuous decline to 6.2% in 2017 and then an increase to 6.7% in 2019. Mexico also reported a youth unemployment rate of 7.64%. Compared to the other countries, the youth employment rate here was relatively low. This may be due to different economic structures or employment conditions. The youth unemployment rate in Mexico has fallen slightly from 7.64% in 2020 to 7.6% in 2021. This means that the labor market for young workers has remained relatively stable. There was no major upswing in the labor market. Therefore, it is still difficult for young workers in this country to find a job.

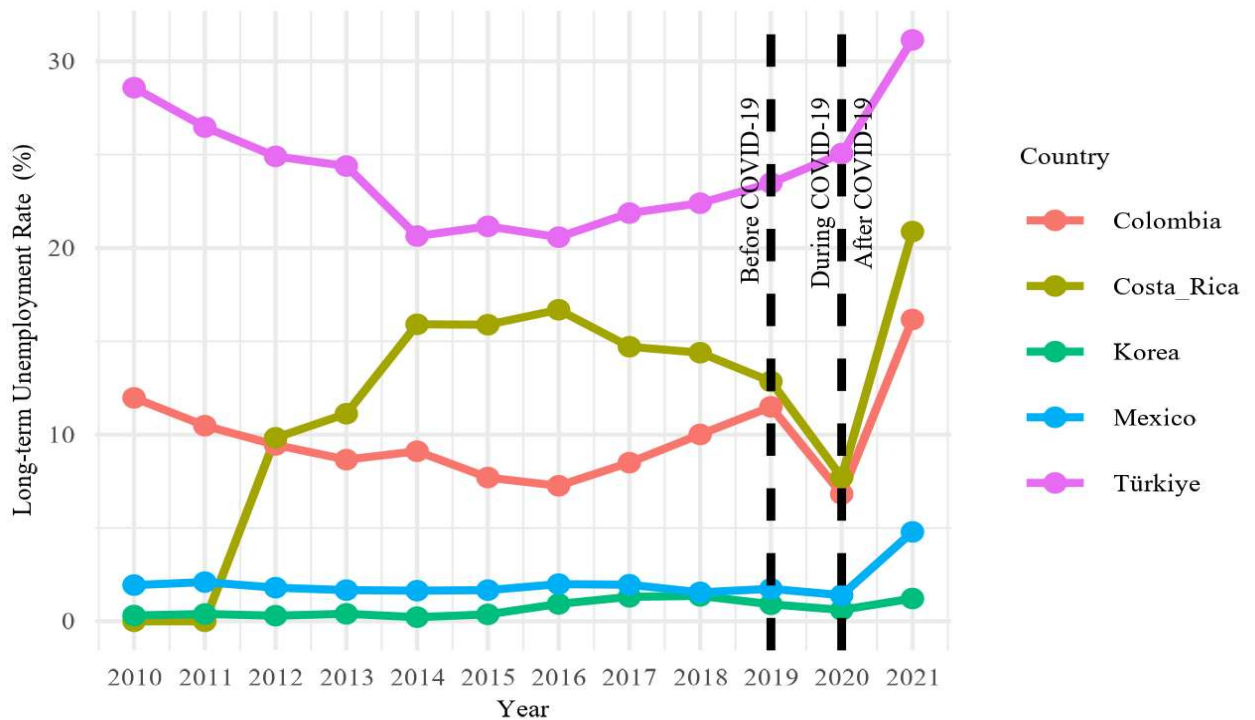
In Afghanistan, a decrease in the youth unemployment rate was observed between 2010 and 2014 from 10.1% to 10.09%, which then increased to 17.3% in 2014. It was then gradually reduced to 15.9% in 2019. In Afghanistan, youth unemployment was relatively high (16.05%) in 2020 compared to the previous year due to the curfew imposed by the Afghan government. In Afghanistan, the youth unemployment rate rose to 16.3% in 2021 compared to the previous year. This indicates that there was no recovery in the labor market as some sectors such as manufacturing and services were in strict lockdown and also political changes took place as the international community left Afghanistan in August 2021. These conditions had a direct impact on overall economic activity.

In China, the youth unemployment rate rose from 9.8% to 10.7% between 2010 and 2015 and then fell to 9.7%. It then rose to 10.7% in 2019. The youth unemployment rate was 12.7% in 2020 indicating a relatively high rate compared to the previous. The increased count shows the global economic recession caused by COVID-19 in some important sectors where young workers commonly work in part-time and temporary employment. The youth unemployment rate fell slightly from 12.7% in 2020 to 12.4% in 2021.

In Iran, the youth unemployment rate fell from 28.5% to 26.4% between 2010 and 2011. In 2012, it rose slightly to 26.6% and then fell to 23.9% in 2013. Between 2014 and 2016, it fluctuated from 25.02% to 29.06% and then fell to 25.9% in 2019. In Iran, the youth unemployment rate was relatively high compared to the other countries on the list. Nevertheless, it was mitigated by government restrictions or structural factors, such as the low labor force participation of young people during the pandemic. The youth unemployment rate in Iran was stable during and after the COVID-19 crisis (23.7). There were no significant changes in the dynamics of the labor market. To summarize, in some countries, the youth unemployment rate has decreased from 2020 to 2021. This shows that there will soon be a high level of employment opportunities. However, other countries still face the task of creating employment opportunities for young workers.

Figure 4. 32

Total (women and men) Long-term unemployment rate from 2010 to 2021



Source: Author calculation based on OECD countries, World Bank, and International Labor Organization (ILO) data

Figure 4.32 shows the long-term unemployment rate in Colombia, Costa Rica, Korea, Mexico, and Turkey for the period from 2010 to 2021 to look at the trend in the labor market before, during, and after the COVID-19 recession. Some countries such as Chile, Afghanistan, China, and Iran were excluded from the analysis as the data was not available for the entire period.

In Colombia, the long-term unemployment rate fell steadily and gradually from 11.97% to 8.66% between 2010 and 2013 and then rose slightly to 9.11% in 2014. It then fell again to 7.26% in 2016. Between 2017 and 2019, the long-term unemployment rate rose from 8.5% to 11.49%. In Colombia, the long-term unemployment rate in 2020 was 6.82%. It has fallen significantly compared to the previous year (2019) but is still relatively high. To reduce the existing unemployment rate, the Colombian government must develop effective and efficient labor market policy measures that focus in particular on the recovery of the labor market and provide financial support to sectors that are more affected by COVID-19. In the case of Colombia there was a notable increase in the long-term unemployment rate which rose to 16.17% in 2021 compared to the previous year

indicating a significant deterioration in employment stability. To effectively moderate this rise in the long-term unemployment rate and boost the overall situation of the labor market dynamics, the government of Colombia needs to formulate a strong and operative or efficient labor market policy that can discourse fundamental and concern matters.

Due to unavailability of the data, there was no long-term unemployment rate in Costa Rica between 2010 and 2011. Between 2012 and 2014, there was a continuous increase in the unemployment rate from 9.8% to 15.9%. In 2015, it fell slightly to 15.8% and then rose to 16.6% in 2016. Thereafter, there was a gradual decline in the long-term unemployment rate to 12.8% in 2019. In Costa Rica, the long-term unemployment rate fell from 12.85% in 2019 to 7.71% in 2020. This could depend on the impact of effective labor market policies. The long-term unemployment rate reached a concerning 20.88% in 2021, which is relatively high when compared with the records from the previous year, specifically 2019, reflecting ongoing challenges in job creation and retention. To ameliorate the environments within the labor market, the Costa Rican authorities must take proactive steps to develop and introduce a wide-ranging economic policy that explicitly targets the labor market dynamics and aims to improve greater opportunities for employment for the labor force.

In Korea, the long-term unemployment rate rose from 0.31% in 2010 to 0.39% in 2011, after which there was a gradual decline to 0.22% in 2014. After this period, it immediately rose to 1.3% in 2018 and then fell again to 0.91% in 2019. In Korea, the long-term unemployment rate was 0.61% in 2020, which was relatively low compared to 2019 (0.91%). This low rate indicates that the Korean labor market was robust during COVID-19. This could also depend on the effective government measures and stimulus packages, which could help to reduce the massive impact on labor market dynamics.

The rate of long-term unemployment in Korea also increased slightly from 0.6% in 2020 to 1.22% in 2021, proving that the labor market recovery process has been very tedious and complicated. This might be indicative of a softer rise in unemployment, reflecting more systemic problems at large, or perhaps the failure of existing policies in the labor market that could restrain the more forceful recovery policies now needed in response to the economic disruptions brought about by the pandemic. In short, the differences in long-term unemployment rates across these countries indicate the difference in the impact of the COVID-19 crisis on their respective labor markets and call for urgent policy responses

based on specific conditions to promote recovery and resilience against such an exceptional shock.

The long-term unemployment rate in Mexico fluctuated throughout the period. There was an increase in the unemployment rate from 1.9% in 2010 to 2.1% in 2011 and then an immediate and gradual decline to 1.6% in 2015. It then rose again to 1.99% in 2016. However, in 2017 it fell slightly to 1.96%. in 2018, it fell to 1.55% and then rose slightly to 1.74% in 2019. Mexico's long-term unemployment rate was 1.4% in 2020. Nevertheless, the labor market was hit hard during COVID-19 and many workers are still able to find a job or keep a job, possibly due to the resilience of the informal sector. The current unemployment rate is low, but it needs to be reduced. To do this, the Mexican government must focus on formalizing informal economic activities, especially employment and improving working conditions.

looking closely at the long-term unemployment rate in Mexico for those out of work longer from 1.4% in the moderate year of 2020 to a significantly higher rate of 4.79% the following year 2021 signals a worrying trend in the labor market the COVID-19 crisis has hit key sectors of the economy very hard especially those driven by services in nature such as hospitality and tourism which is a sure signal of shrinkage in the availability of employment opportunities especially to the youth it should be further emphasized that such prevalence of the informal economy has contributed to the aggravation of the unemployment rate which is disproportionately high given the clandestine nature of many employment opportunities that do not have formal employment status.

The remediation and management of such complexity within this difficult context call for the prioritization of strategies by the government itself related to the formalization of employment practices with financial subsidies for emerging sectors that could present potential alternatives in attracting large quantities of youth into the labor market this would not only benefit the youths in terms of their employability but would also have a positive influence on the overall stabilization and growth of the economy in the post-pandemic era eventually all these measures may translate into a more robust and inclusive labor market and either reduce or eliminate the repercussions of long-term unemployment on the population in Mexico.

In Turkey, the long-term unemployment rate fell continuously between 2010 and 2014 from 28.5% to 20.6% and then rose steadily to 23.4% in 2019. The long-term unemployment rate in Turkey rose from 23.48% in 2019 to 25.05% in 2020. The extremely high

long-term unemployment rate indicates that the Turkish economy is suffering from the COVID-19 recession, which has worsened. The pandemic has hit some sectors of the country, such as manufacturing, services, and tourism, extremely hard. To reduce or highlight the high level of long-term unemployment, the government needs to develop strong economic policies, especially in the labor market.

In Turkey, the long-term unemployment rate has surged significantly moving from 25.06% in 2020 to 31.15% in 2021 an upward trend of this nature is alarming because it points to the continuing struggle of the country with the complex and unstable conditions of the labor market among all the critical sectors that were hit hardest by the negative impact of the unimagined crisis brought about by the COVID-19 pandemic worldwide are manufacturing and tourism which made several jobs among young workers disappear. To rectify the existing situation in the labor market there is a need for the authorities not just to make tough but tailor-made economic policies capable of resolving multifarious problems of the local scenario stress the status of targeted interventions to help advance a stronger and more sustainable economy underpinned by job growth and workforce stability within in our community in the final analysis success in implementing such measures is essential to securing a recovery that not only brings back lost jobs but also better functionality of the Turkish labor market in the long run.

4.2.3 Estimates of the duration dependence parameter for developed countries

Table 4. 1

Generalized Least Squares (GLS) regression

ln_jobfindingrate	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
durationofunemploy~s	-.139	.002	-58.68	.000	-.143	-.134	***
Constant	3.665	.022	165.90	.000	3.622	3.709	***
Mean dependent var		2.550	SD dependent var			0.255	
Overall r-squared		0.974	Number of obs			131	
Chi-square		3442.901	Prob > chi2			0.000	
R-squared within		0.962	R-squared between			0.977	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author's calculation based on OECD countries' data

The results of the duration dependence parameter for target countries (Austria, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, and the United Kingdom) are shown in table 4.1. Due to a lack of data, Switzerland was excluded

from the analysis. Additionally, because of insufficient data for the entire sample from 2010 to 2021, we focused on the period from 2010 to 2020.

First, we estimated the fixed-effects model and then the random-effects model to explore the relationship between the job finding rate and the duration of unemployment. To determine which model is most suitable for our analysis, we employed the Hausman Test. Based on the results of the Hausman test, we found that the random effects model is appropriate for our analysis (which includes observations across countries over time, under the assumption that unobserved country-specific effects are uncorrelated with the explanatory variable). Because the p-value is larger than the 0.05 significance level, we cannot reject the null hypothesis or fail to reject the null hypothesis. Therefore, we utilized a log-linear random effects model to examine the relationship between the job finding rate and the duration of unemployment.

In the random effects model, it is assumed that the unobserved heterogeneity among countries (such as labor institutions and cultural norms) and the explanatory variable are not correlated. This allows us to leverage both within-entity and between-entity variations, making our estimates more efficient.

R-squared, the model overall explains 97.4% of the changes in the log job finding rate over time and among countries. This indicates that the model accounts for the majority of the systematic changes observed in the dependent variable. Because the R^2 is high, we can conclude that unemployment duration plays an important role in explaining changes in the job market, and the model performs well in both between-country and within-country variations.

The constant term explores the expected value of the job finding rate when the unemployment duration is equal to zero ($d=0$). In our analysis, the constant term is 3.6, which means that if the duration of unemployment is zero, the log job finding rate would be 3.6%. The Wald test evaluates whether the explanatory variable (duration of unemployment) significantly affects the dependent variable (log job finding rate). With a test statistic of 3442.90 and a p-value of 0.0000, we reject the null hypothesis that the coefficient is zero. This confirms that the duration of unemployment is highly statistically significant, even at the 1% level. In other words, the Wald test effectively shows that the duration of unemployment is jointly significant, indicating that the model explains variations in the (log) job-finding rate much better than an intercept-only model.

The result of the random effects model indicates that the coefficient for the duration of unemployment is -0.139, and it has a semi-elastic interpretation because our dependent variable is the natural logarithm of the job finding rate, while our independent variable is expressed in levels. A one-unit increase in the duration of unemployment (e.g., one additional month) leads to approximately a 13.9% decrease in the job finding rate, holding all other factors constant. Moreover, this coefficient is statistically significant at the 0.05 level, as the p-value is 0.000, which is less than 0.05.

4.2.3.1 Check the reliability and validity of the panel data models

Now we want to be sure that the results of our regression are valid, interpretable, and reliable. For that purpose, we check diagnostic, stability, and robustness tests.

4.2.3.1.1 Serial correlation test

Serial correlation (also called autocorrelation) refers to the correlation of a variable with its own past values. In regression models, this specifically means that the error terms are correlated over time. In panel data models, such as fixed or random effects, the most recognized and comprehensive test for autocorrelation (serial correlation) is the Wooldridge Test.

Hypotheses:

- *Null hypothesis (H_0):* errors are independent (No serial correlation)
- *Alternative hypothesis (H_1):* errors are correlated over time (Serial correlation exists)

Decision criteria

- If the p-value is < 0.05 , reject the H_0 , meaning that serial correlation exists.
- If $p > 0.05$, do not reject the H_0 , meaning that no significant serial correlation.

We check for the serial correlation by applying the Wooldridge Test and get the F-statistic is 3.320 and the corresponding p-value is 0.0957. So, at a 5% level, we cannot reject the null hypothesis because the p-value is greater than 5%, meaning that there is no strong evidence of autocorrelation (serial correlation).

4.2.3.1.2 Heteroskedasticity Test

Heteroskedasticity happens when the variance of the error terms is not constant across observations. In the context of panel data, this would mean that the variance of the residuals (unexplained part of job-finding rates) is different for different countries or time periods.

Hypotheses:

- Null hypothesis (H0): the variance of the error terms is constant across panels (countries) (Homoskedasticity).
- Alternative Hypothesis (H1): — the variance of the error terms varies across panels (countries) (Heteroskedasticity).

Decision Rule

- If $p < 0.05$, we reject H_0 , meaning that Heteroskedasticity is exist.
- If $p \geq 0.05$, fail to reject H_0 , meaning that no evidence of heteroskedasticity.

We have now performed the Breusch-Pagan test for heteroskedasticity using the residuals from a random effect and found that heteroskedasticity exists and reject the H_0 . Because the p-value is 0.00, which is less than the 0.05 level. Now we are using the robust standard errors to ensure that our statistical inferences (like p-values and confidence intervals) remain valid when the assumption of constant error variance (homoskedasticity) is violated. They correct for heteroskedasticity and make the standard errors more reliable, even if the data have irregularities like non-constant variance or clustering.

Table 4. 2

Robust standard errors

ln_jobfindingrate	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
durationofunemploy~s	-.139	.007	-19.86	0	-.152	-.125	***
Constant	3.665	.063	58.31	0	3.542	3.789	***
Mean dependent var		2.550	SD dependent var			0.255	
Overall r-squared		0.974	Number of obs			131	
Chi-square		394.384	Prob > chi2			0.000	
R-squared within		0.962	R-squared between			0.977	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author's calculation based on OECD countries' data

The result of the Robust standard errors shows in table 4.2. The coefficient of duration of unemployment is $-.139$, and it is statistically significant at the 1% level ($p < 0.01$) even after adjusting for heteroskedasticity using robust standard errors. This indicates that a 1-unit increase in the duration of unemployment leads to a 13.9% decrease in the job finding rate, on average, holding other factors constant (due to the log-linear model specification). The Wald chi-square statistic of 394.3 (with $p = 0.000$) confirms the overall statistical significance of the model. Using robust standard errors ensures that our inference is valid even if the assumption of homoskedasticity is violated.

4.2.3.1.3 Cross-sectional dependence (CSD)

Cross-sectional dependence refers to the situation where individual units (e.g., countries) in a panel dataset are not independent from each other. In other words, the error terms across cross-sectional units are correlated.

Hypotheses

- Null Hypothesis (H_0): Errors are independent across units (no cross-sectional dependence)
- Alternative Hypothesis (H_1): Cross-sectional dependence exists

Decision rule:

- If the $p < 0.05$, this indicates that cross-sectional dependence exists, which is neither acceptable nor desirable.
- If the $p > 0.05$, this indicates that no cross-sectional dependence is detected, which is acceptable and desirable.

To test Cross-Sectional Dependence (CSD), we have various statistical tests such as Breusch–Pagan LM test (1980), Pesaran’s CD (2004), Bias-corrected scaled LM test (Pesaran 2004), and finally, Kraay standard errors (alternative approach). We now applied only the Pesaran CD test and got the p-value = 0.443, which is larger than the 0.05 level, indicating that no cross-sectional dependence was detected. In other words, we fail to reject the null hypothesis of no cross-sectional dependence. This means our panel data does not show significant dependence across units (countries, individuals, etc.). Thus, our model’s assumption of cross-sectional independence is likely valid, and you do not need to apply special corrections (like Driscoll–Kraay standard errors or spatial methods).

4.2.4 Estimation of the matching function for developed countries

Table 4.3

Regression result of the matching function

Inhires	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lnjobvacancyrate	.004	.033	0.13	.900	-.062	.07	
lnunemploymentrate	-.412	.052	-7.86	.000	-.516	-.308	***
Constant	4.315	.133	32.47	.000	4.052	4.579	***
Mean dependent var		3.553	SD dependent var			0.259	
R-squared		0.460	Number of obs			109	
F-test		40.382	Prob > F			0.000	
Akaike crit. (AIC)		-256.882	Bayesian crit. (BIC)			-248.807	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author calculation based on Eurostat data

Table 4.3 shows the results of the estimation of the matching function for the target countries in Austria, Belgium, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom. Due to the lack of most data from Canada, it was not included in the model. Also, for Germany and some other countries, we have missing data in some years, based on which our observation is 109 instead of 132. Additionally, because of insufficient data for the entire sample from 2010 to 2021, we focused on the period from 2010 to 2020.

First, we estimated the fixed-effects model and then the random-effects model to explore the relationship between the matches, job vacancy rate, and unemployment rate. To determine which model is most suitable for our analysis, we employed the Hausman Test. Based on the results of the Hausman test, we found that the fixed effects model is appropriate for our analysis, because the p-value is less than the 0.05 significance level (unobserved heterogeneity is correlated with regressors). Therefore, we utilized a log-log linear fixed effects model to examine the relationship between the hires, job vacancy rate, and unemployment rate. The overall model is significant and well-fitted, as the $\text{prob} > F = 0.00$. The dependent variable in this regression is the natural logarithm of new hires. The independent variables are the natural logarithm of the vacancy rate and the natural logarithm of the unemployment rate.

The within R-squared of 46% suggests that the model explains a moderate proportion of the variation in hiring within countries over time. The constant (expected) value of log

hiring is 4.31 when both the natural log of job vacancy rate and the natural log of unemployment rate are zero (i.e., both equal to 1 in level terms).

This coefficient of job vacancy rate is positive (0.004) but statistically insignificant because the p-value (0.90) is high and tells us we cannot reject the null hypothesis. A 1% increase in the job vacancy rate leads to a 0.004% increase in hiring, other factors remaining constant (*ceteris paribus*).

The positive and insignificant coefficient of job vacancy rate implies that the level of job openings does not greatly enhance the number of matches. This result can be an indication of a number of factors in the labor market. First, not every posted vacancy is good or live, as it can be a tentative hiring strategy or be unfilled for a long period, thus undermining and weakening the correlation between the vacancies and the matching. Second, a factor is a mismatch in the skills or sectoral imbalances, i.e., the unemployed people do not meet the specific requirements of the jobs offered to them. Third, labor market rigidities, including slow or bureaucratic personnel practices, may slow rates of position filling and lessen responsiveness to matches, especially in the state and local governments. Fourth, premises used in the measurement of vacancy data may limit its precision and extent because it can be distorted by either underreports of vacancies or omission of unofficial advertisements. Lastly, when the vacancy rate remains relatively unchanged over the different observations, then the model is not powerful enough to reveal a statistically significant effect.

Overall, these facts can explain the reasons behind the positive interrelation between vacancies and job matches not being deeply anchored in the empirical findings, in spite of the fact that this interrelation was indicated in the theoretical scheme notions. We can conclude that there is no clear evidence that changes in the job vacancy rate have any effect on hiring(matches) within countries over time, once unobserved country characteristics and time shocks are controlled for.

Moreover, the coefficient of unemployment rate is negative (-0.412) but highly statistically significant because the p-value is 0.00, which is less than the 0.05 significance level. this represents a robust negative relationship between the unemployment rate and matches. A 1% increase in the unemployment rate leads to a 0.412% decrease in matches, holding constant all time-invariant country traits and common time effects. From an economic point of view, when unemployment rises, labor-market slack depresses the flow into employment, consistent with standard search-and-matching models.

4.2.4.1 Serial correlation test and heteroskedasticity test

We check for the serial correlation by applying the Wooldridge test and get the F-statistic is 8.390 and the corresponding p-value is (Prob > F= 0.0145). So, at a 5% level, we reject the null hypothesis because the p-value is less than 5%, meaning that there is strong evidence of autocorrelation (serial correlation) in the panel. We also check the problem of heteroskedasticity by applying the Modified Wald test and get the chi2 (12) =1155.18, and the corresponding p-value is (Prob > chi2=0.000). As the p-value is less than 0.05, we reject H_0 , and the problem of Heteroskedasticity exists. To correct the problem of both serial correlation and heteroskedasticity, we used clustered standard errors. Because Clustering standard errors guarantees the correctness and validity of all statistical inference by handling both within-panel serial correlation in the error terms and heteroskedasticity. This method provides more consistent and reliable standard errors and test statistics, particularly in panel data.

Table 4. 4

Clustered standard errors

Inhires	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
lnjobvacancyrate	.004	.014	0.30	.770	-.027	.035	
lnunemploymentrate	-.412	.114	-3.62	.004	-.663	-.161	***
Constant	4.315	.232	18.64	.000	3.806	4.825	***
Mean dependent var		3.553	SD dependent var		0.259		
R-squared		0.460	Number of obs		109		
F-test		20.272	Prob > F		0.001		
Akaike crit. (AIC)		-258.882	Bayesian crit. (BIC)		-253.499		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Author calculation based on Eurostat data

The result of the Clustered standard errors showed in table 4.4. The F-test strongly rejects the null hypothesis because the p-value is 0.001, meaning that all coefficients are jointly zero, representing that the model as a whole or jointly statistically significant. R-squared within indicates that the fixed effects model explains 46% of the variation in hiring rates within countries over time. This is a reasonable fit given the model includes only two explanatory variables and controls for unobserved country heterogeneity.

The coefficient of job vacancy rate shows that a 1% increase in the job vacancy rate leads to a 0.004% increase in hiring(matching), all other factors remaining constant. Though

the high p-value (0.77) represents that the relationship between job vacancy rate and hiring is statistically insignificant. This proposes that fluctuations or variations in the job vacancy rate do not have a reliable and consistent impact on matching (hiring) activity, once country-specific factors and unemployment are accounted for. This may include delays of the recruitment process, rigidity, and labor market mismatches that deteriorate the temporary or the short-run relationship between hires and vacancies. The coefficient of unemployment is negative (-0.412) and statistically significant, demonstrating that a 1% increase in the unemployment rate leads to a 0.412% decrease in the matching (hiring), on average, within a country over time. This robustly captures how labor-market slack dampens the flow into employment within countries over time.

4.2.5 Estimation of the matching function for developing countries

This section analyzes the impact of unemployment and job vacancy on the matching(hiring) process in Turkey, China, Chile, Costa Rica, and Korea by using the log-log linear model; for some countries, we don't have enough data to analyze labor market dynamics, such as Afghanistan, Iran, Colombia, and Mexico. For this reason, these were excluded from the analysis. Additionally, was no data being available for the entire sample from 2010 to 2021, we focused on the period from 2010 to 2020. In our model, matching (M) is the dependent variable. This explores the number of matches (new hires). The independent variables are the unemployment (U), which shows the pool of job seekers, and the vacancy (V), which shows the availability of job openings.

Table 4. 5*Results of the matching function*

Country	LnMatches(new hires)	Coef.	p-value	R-squared	F-test	Prob > F
Turkey	LnUnemploymentrate	-.052*	.13	0.831	22.068	0.000
	lnJobVacancyrate	.054***	.000			
	Constant	3.919***	.000			
Chile	LnUnemploymentrate	-.23**	.011	0.600	6.004	0.026
	lnJobVacancyrate	.013	.931			
	Constant	2.855***	.000			
China	LnUnemploymentrate	-2.2***	.384	0.55	8.389	0.034
	lnJobVacancyrate	.77*	.082			
	Constant	5.18***	.000			
Costa Rica	LnUnemploymentrate	.068	.402	0.52	4.021	0.057
	lnJobVacancyrate	.284**	.040			
	Constant	2.518***	.000			
Korea	LnUnemploymentrate	1.6***	.005	0.619	7.326	0.013
	lnJobVacancyrate	.585*	.074			
	Constant	.454	.529			

*** p<.01, ** p<.05, * p<.1

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China, Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.5 shows the results of the matching function for Turkey, Chile, China, Costa Rica, and Korea. For Turkey, the unemployment coefficient is -0.052 and is statistically insignificant. This represents that a 1% decrease in unemployment leads to a 0.052% increase in the number of matches, *ceteris paribus* (holding the job vacancy rate constant). The negative sign of the unemployment rate suggests that a high level of unemployment may

not necessarily lead to more matches. This may be attributed to labor market friction, such as inefficiencies in the matching process, low mobility, and skill mismatches. The coefficient of the job vacancy is 0.054 and statistically significant, representing that a 1% increase in job vacancy leads to a 0.054% increase in matches(hires). This suggests that as the number of vacancies that are posted increases, the probability of successful matches should also increase, as predicted.

Overall, the results indicate that Turkey's labor market is relatively elastic with respect to changes in unemployment and vacancy. The small coefficient of the job vacancy rate (0.054) might reflect the inefficiency in the labor market, as the vacancy rate cannot reflect a proportional increase in the hires because of failures in the matching of skills in the regions. the small but negative impact of unemployment on matches, which may result from structural barriers, such as informal employment or low job creation in high-demand sectors, precludes further reduction of unemployment.

Reducing unemployment is a policy implication for the government. To reduce unemployment and improve matches, structural barriers to employment, e.g., regional disparity and skill gaps, are to be overcome. Additionally, the government should promote job creation by stimulating investments and the corresponding spectrum of job openings to enlarge matches. Efforts should also be made to improve job search platforms and career counseling to improve matching efficiency and consequently match job seekers with vacancies.

For Chile, the unemployment coefficient is 0.23, which is statistically significant; that is to say, a 1% increase in unemployment increases matches by 0.23%. This implies an increase in the number of active job seekers. This relationship can be attributed to tightening the labor market, wherein businesses may experience increased success in hiring as available workers are more likely to fill job openings expeditiously. In addition, the unemployment coefficient is positive, indicating that a high level of unemployment is associated with an increase in the number of matches and has a countercyclical effect. During economic downturns, this may reflect a large availability of job seekers, which can increase the likelihood of matching(hiring)

While the coefficient of the job vacancy rate is 0.013 and statistically not significant, a 1% increase in the rate of job vacancies corresponds to an increase in matches, or hires, of 0.013%. This positive coefficient on job vacancies in the case of the Chilean labor market does not come as a surprise since higher numbers of vacant jobs will mean better

opportunities for the unemployed to secure work. The rather small magnitude of 0.013 suggests that job vacancies are an important determinant of matches but not the only one; for instance, elasticities in the labor demand, availability of workers, and efficiency in hiring may also be relevant. That could suggest that the job market in Chile is not perfectly efficient, with not all vacancies turning into matches right away.

These results indicate that in Chile, an increase in unemployment as well as an increase in job vacancies generate more matches. This could mean that, although there is a role for vacancies in hiring, unemployment, specifically its structural, should be targeted. Distribution and efficiency of the labor market can be improved by better matching skills via more targeted training and development programs that connect job seekers to potential employers and increase placement rates.

for China, the unemployment coefficient is -2.2, implying that with a 1% decrease in unemployment, the number of matches rises by 2.2%, *ceteris paribus* (keeping the job vacancies constant). The negative sign of the unemployment rate suggests that a high level of unemployment may not necessarily lead to more matches. This may be attributed to labor market friction, such as inefficiencies in the matching process, low mobility, and skill mismatches. The P-value ($0.38 > 0.05$) confirms that the association between unemployment and matches is not statistically significant.

The coefficient of job vacancies is 0.77; this means that with a 1% increase in the rate of job vacancy, the matches will increase by 0.77%, *ceteris paribus*. The P-value ($0.082 < 0.05$) confirms that the association between job vacancy rate and matches is statistically significant. High job vacancy rate leads to an increase in matches (hires), which indicates that job vacancies play an important role in the creation of employment opportunities. In China, these results show the significance of raising job creation and improving the matching efficiency through better labor market policies.

For Costa Rica, the unemployment coefficient is estimated at 0.068, which, all things being equal, means a rise in the unemployment rate by 1% will increase the number of matches by approximately 0.068%. The P-value of 0.4 is much larger than common significance levels, e.g., 0.05, so the association between unemployment and matches is not statistically significant. A positive coefficient may suggest that a small increase in unemployment is associated with more matches, which could indicate that with a larger pool of unemployed, there is a slightly better match with available jobs. However, the absence

of statistical significance suggests that this relationship is not robust and could be due to random fluctuations or other unobserved factors.

The coefficient is 0.284, suggesting that for every 1% increase in vacancies, the match increases by 0.284%, and all else is constant in unemployment. Its p-value = 0.04 is smaller than the level of significance = 0.05, therefore, the presence of a job vacancy is statistically important in determining job matches. A positive and significant coefficient for vacancies corresponds to the fact that an increase in vacancies would correspond to an increase in matches. Its moderate magnitude, 0.284, would be suggestive of a moderately responsive labor market in Costa Rica to an increase in job openings, probably due to active hiring when job openings become available. For unemployment, the magnitude and significance of the coefficient are higher for job vacancies; thus, the response of the labor market is quite sensitive to changes in this variable. The result points to the fact that the more significant creation and advertising of job vacancies could potentially lead to substantial gains in hiring outcomes. The government should, therefore, address the creation of more jobs and the elimination of inefficiencies in the labor market, which would be significant for an improvement of the matching rate in Costa Rica.

For Korea, the coefficient for unemployment is 1.6, representing that a 1% increase in unemployment leads to a 1.6% increase in matches (new hires), assuming the job vacancy rate is constant. The positive coefficient suggests that matches are considerably increased as unemployment increases because more people or job seekers improve the odds of matching (hiring). The coefficient for the job vacancy rate is 0.58, which means that a 1% increase in job vacancies leads to a 0.58% increase in the number of matches (new hires) when unemployment remains constant. The positive coefficient logically reflects that more job postings by companies increase the likelihood of matches when a pool of job seekers is available. This relationship between unemployment, job vacancy, and matches is statistically significant because the corresponding p-values are lower than the 10% significance level.

Policy makers should concentrate on unemployment reduction through active labor market programs, sector-specific measures, and cooperation with the private sector. Such measures can improve labor market efficiency, reduce skills mismatches, and promote a more inclusive and robust workforce, which in turn supports long-term economic growth. Addressing structural imbalances in the labor market, e.g., through retraining programs or regional job creation initiatives, is crucial. While policies aimed at job creation (e.g.,

incentives for firms to advertise vacancies) can improve labor market outcomes, they should be complemented by efforts to improve matching efficiency.

4.2.5.1 Diagnostic checks

a diagnostic evaluation or test refers to a collection of statistical methods employed to assess the accuracy, dependability, and premises of a regression model or other statistical analyses. These evaluations aid in determining whether a model is properly defined, error-free, and appropriate for interpretation.

Objectives of diagnostic tests

- Verify that the model satisfies essential assumptions (such as normality, homoscedasticity, independence).
- Identify frequent issues like multicollinearity, heteroskedasticity, and autocorrelation.
- Enhance model dependability and predictive capability

Typical Diagnostic Tests in Regression Analysis include the Multicollinearity test, Normality test, Heteroskedasticity test, the Autocorrelation test, and the Specification Error Test (Model Misspecification).

4.2.5.1.1 Multicollinearity Test

Multicollinearity is a statistical occurrence where two or more independent variables in a regression model are strongly correlated. This relationship complicates the process of determining the individual impacts of each independent variable on a dependent variable.

To examine multicollinearity in the model, we must consider the following crucial criteria:

- If Inflation Variance Factor (VIF) < 5: no significant multicollinearity. The model is robust.
- if the variance inflation factor (VIF) for a variable is greater than 5, multicollinearity is present or exists. Alternatively, if the Tolerance value (1/VIF) is below 0.20 or in some textbooks 0.01, multicollinearity exists (indicating a substantial multicollinearity issue).
- If $5 \leq \text{VIF} < 10$: Moderate multicollinearity. However, some concerns might still be tolerable or acceptable.
- $\text{VIF} \geq 10$: Severe multicollinearity. The model suffers from multicollinearity and remedial actions should be considered.

To check whether the model suffers from multicollinearity or not we have done the variance inflation factor (VIF) test.

Table 4. 6

Variance inflation factor

Countries	Variables	VIF	1/VIF
Turkey	LnJobVacancyrate	1.10	0.913
	LnUnemployment rate	1.10	0.913
	Mean VIF	1.10	
Chile	Ln JobVacancyrate	1.08	0.929
	LnUnemploymentrate	1.08	0.929
	Mean VIF	1.08	
China	LnJobVacancyrate	1.00	0.999
	LnUnemployment rate	1.00	0.999
	Mean VIF	1.00	
Costa Rica	LnJobVacancyrate	1.11	0.899
	LnUnemploymentrate	1.11	0.899
	Mean VIF	1.11	
Korea	LnJobVacancyrate	1.07	0.933
	LnUnemploymentrate	1.07	0.933
	Mean VIF	1.07	

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China, Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.6 shows the result of the multicollinearity test for the selected countries. From this result, we can conclude that the variance inflation factor for all variables for all countries was less than 5, meaning that our model is robust and does not suffer from multicollinearity.

4.2.5.1.2 Breusch-Pagan and white tests for heteroskedasticity

Heteroskedasticity occurs when a fundamental assumption of Ordinary Least Squares (OLS) regression is violated: the constant variance of the error terms (homoskedasticity). In the presence of heteroskedasticity, the variability of residuals (errors) fluctuates across different observations, potentially resulting in inefficient estimations and inaccurate inferences. Various statistical tests and visual techniques can be used to detect heteroscedasticity, including the Breusch-Pagan test, the White test (an extended version of the Breusch-Pagan test), the Goldfeld-Quandt test, and the Park and Glejser test. In this study, the Breusch-pagan test is used to investigate whether the model has a problem of heteroskedasticity. The LM statistics for heteroskedasticity are just the sample size times the R-square.

$$LM = N \times R^2.$$

The LM version of the test is typically called the (BP test). Also, the LM statistics look for the table value or p-value. If the p-value is less than the significance level, then we reject the null hypothesis of homoscedasticity. This is the most popular assumption of the Breusch Pagan test.

H₀: Constant variance

Variables: fitted values of $\ln\_Matches$

Table 4. 7*Breusch-Pagan test for heteroskedasticity*

County	Test	Statistic	P-value
Turkey	Breusch-Pagan	chi2(1) = 0.00	Prob > chi2 = 0.9749
Chile		chi2(1) = 0.17	Prob > chi2 = 0.6844
China		chi2(1) = 1.52	Prob > chi2 = 0.2183
Costa Rica		chi2(1) = 0.00	Prob > chi2 = 0.9897
Korea		chi2(1) = 0.01	Prob > chi2 = 0.9176

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China, Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.7 explores the outcome of the Breusch-Pagan test for selected countries such as Turkey, Chile, China, Costa Rica, and Korea. From the above results, we can conclude that the p-values for all countries are larger than 0.05 significance levels. Thus, we do not reject the null hypothesis (homoscedasticity), and the model does not have the problem of heteroskedasticity.

The White test is a statistical test that shows whether the variance of the error term in a regression model is constant for homoscedasticity. White's test is used to detect heteroscedasticity in the regression model.

The test uses the Lagrange Multiplier (LM) statistic, which is calculated as:

$$LM = N \times R^2$$

In the above equation, N is the sample size and R is the R-square. Under the H_0 , LM follows a Chi-square distribution with degrees of freedom equal to the number of regressors in the auxiliary regression.

Null and alternative hypotheses:

- *Null Hypothesis(H_0):* Homoskedasticity exists (errors have constant variance). Our model does not suffer from the problem of heteroskedasticity
- *Alternative Hypothesis(H_1):* Heteroskedasticity exists (errors have non-constant variance). Our model suffers from the heteroskedasticity problem.

Decision criteria:

- If the p-value is larger than 0.05, we do not reject the H_0 or fail to reject H_0 . This indicates the absence of a heteroskedastic problem.
- If the p-value is less than 0.05, we reject the H_0 . Therefore, there is a problem of heteroskedasticity.

Table 4. 8

White test for heteroskedasticity

County	Test	Statistic	P-value
Turkey	White test	chi2(5) = 5.03	Prob > chi2 = 0.4119
Chile		chi2(5) = 6.11	Prob > chi2 = 0.2961
China		chi2(5) = 6.18	Prob > chi2 = 0.2890
Costa Rica		chi2(5) = 4.22	Prob > chi2 = 0.5176
Korea		chi2(5) = 1.54	Prob > chi2 = 0.9082

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China, Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.8 represents the results of the White test for selected countries such as Turkey, Chile, China, Costa Rica, and Korea. From the above results, we can conclude that the p-values for all countries are larger than 0.05 significance levels. Thus, we do not reject the

null hypothesis (homoscedasticity), and the model does not have the problem of heteroskedasticity.

4.2.5.2 Stability analysis

A stability analysis was done to see if the estimated regression coefficients were consistent across different samples or time periods. Model instability may render the predictions unreliable and wrong conclusions, signaling a structural break or parameter instability. To determine the stability of the model, several tests were conducted, such as the Chow test (structural break test), CUSUM and CUSUM squared test, recursive estimation (rolling regression), and Bai-Perron test (multiple structural breaks). The stability of the model is tested specifically with a Chow test (structural break test).

4.2.5.2.1 Chow test (structural break test)

The Chow test is a statistical method used to identify structural breaks in regression models. It assesses whether the associations between predictor(independent) and outcome(dependent) variables undergo significant changes across different groups or time periods.

Hypotheses:

- H_0 : There is no structural break; both groups or time periods adhere to the same regression model.
- H_1 : There is a structural break; the regression coefficients vary between the groups or time periods.

Interpretation:

- A significant p-value indicates the presence of a structural break.
- A non-significant p-value indicates the absence of a structural break.

Table 4. 9*Chow test (structural break test)*

County	Test	P-value
Turkey	Chow test (structural break test)	.0835
Chile		.0623
China		.07802
Costa Rica		.07804
Korea		.07284

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China and Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.9 represents the results of the Chow test for selected countries such as Turkey, Chile, China, Costa Rica, and Korea. From the above results, we can conclude that the p-values for all countries are larger than 0.05 significance levels, and we cannot reject the null hypothesis or fail to reject the null hypothesis. Meaning that there is no structural break and our model is stable over time across groups.

4.2.5.2.2 Ramsey RESET test for functional misspecification

The Ramsey Regression Equation Specification Error Test (RESET) tests the appropriateness of the functional form of a regression model. This test can be used to determine whether significant non-linear relationships or omitted variables have been missing from the model.

The hypotheses of the Ramsey RESET test are as follows:

- Null hypothesis (H_0): The functional form of the model is correct (no missing or omitted nonlinear relationships).
- Alternative hypothesis (H_1): The model is not correctly specified (misspecified), i.e. important non-linear terms or omitted variables are missing.

Decision criteria:

- If the p-value is low ($p < 0.05$) → Reject the null hypothesis → The model is incorrectly specified (additional variables should be incorporated).
- When the p-value is high ($p > 0.05$) → fails to reject the null hypothesis → The functional form of the model is correct and requires no further changes.

Table 4. 10

Ramsey RESET test

County	Test	Statistic(F-value)	Probability(p-value)
Turkey	Ramsey RESET test	F (3, 6) = 1.56	Prob > F = 0.2946
Chile		F (3, 5) = 0.94	Prob > F = 0.4879
China		F (3, 6) = 9.30	Prob > F = 0.0563
Costa Rica		F (3, 6) = 3.80	Prob > F = 0.0772
Korea		F (3, 6) = 0.52	Prob > F = 0.6823

Source: The author's calculation is based on the data of the OECD countries, the World Bank Development Indicator, the National Bureau of Statistics of China, Statista, the Ministry of Employment and Labor of Korea, and the National Statistics Institute (NIE)

Table 4.10 represents the results of the Ramsey RESET test for selected countries such as Turkey, Chile, China, Costa Rica, and Korea. From the above results, we can conclude that the p-values for all countries are larger than 0.05 significance levels, and we cannot reject the null hypothesis or fail to reject the null hypothesis. This shows that the functional form is correct. In other words, our model is fit there is no specification error in our data.

5 CONCLUSION

Long-term unemployment particularly increased during the 2007 Great Recession and recovery to find and regain employment after job loss had become slower thereby reviving discussion on the long-term dynamics of the labor market and the effects of job loss. Namely, the long-term unemployed were much farther away from a full-time job one year later than the short-term unemployed. According to a report published recently, the prospects of the global jobs market look rather grim. This is stagflation for the first time in a generation, with inflation high and growth weak because of now embedded supply chain constraints, disruption in the US and Europe by the Ukraine crisis, perpetual geopolitical tension, and uncoordinated responses to the pandemic. Fiscal policy side, increasing inflation rates, and a weak employment recovery during labor market imperfections make a tough decision for policymakers.

While the pandemic began in early 2020, it has spread rapidly to cover virtually every part of the globe. After the revelation of the COVID-19 case for the first time on 11th March, many measures have been taken to prevent the spread of COVID-19. The measures that closed schools, imposed sectoral lockdowns, and rolled out curfews on certain age groups were adopted. Besides, the need decreased in some industries, especially in service industries due to fear of contagion. Decreased industrial production was the ultimate consequence of the epidemic spreading throughout the global supply chain to depress global demand. These factors were all negative for the economy, and indeed, which was already reflected in the plunge of GDP by the second quarter of 2020. At the beginning and the peak of the pandemic, such steps were taken to decrease economic activity and increase social distancing.

Both the developed and developing countries' labor markets have suffered a blow, forced shut by the COVID-19 outbreak and measures taken by countries to reduce its spread. Employment and total hours worked fell faster than at any time in history. Unemployment increased more slowly and less than in continued employment plans and transitions to passivity, an indication of high take up in continuing plans and transitions to passivity. The adjustment of the labor market was primarily brought about by a remarkable decline in the average number of hours worked. In the first half of 2020, the labor force declined by around 5 million, more than half a million higher than that accumulated in the middle of 2013 and the final quarter of 2019. The spread of employment protection programs throughout the eurozone had major effects on the dynamics of the labor market.

This research focuses on examining labor market trends in developed and developing countries before, during, and after the COVID-19 recession. To achieve the research objectives, the following research question should be answered. What is the impact of the COVID-19 crisis on the labor market in developed and developing countries? Our main data sources are OECD employment and labor market statistics, Eurostat labor market statistics, statistics from the Japanese Statistical Office, the Turkish Labor Force Survey, the National Bureau of Statistics of China, the International Labor Organization and the World Bank Development Indicator, the National Statistics and Information Agency of Afghanistan (NISA), the National Statistics Institute (NIE) of Mexico and recent data from the Statistical Center of Iran (SCI).

The distributions of unemployment duration that we use to estimate job-finding rates are taken from the OECD data portal "Incidence of Unemployment Duration" for the period 2010 and 2020. These data are presented in five time periods (duration bins): < 1 month, >1 month, and <3 months, >3 months and <6 months, >6 months and <1 year, 1 year and over for all target countries and include all unemployed persons (women and men) of total age. Furthermore, we use a search and matching model to examine the relationship between matches (hires), job vacancy rate, and unemployment rate. We examine the four main states or transitions of the labor market. Employment (E), non-participation (not in the labor force) (N), permanent unemployment (P) refers to permanently laid-off workers who are actively looking for work, while (T) refers to temporarily laid-off workers. The statuses are E, N, P, and T. For unemployed workers, we quantify the duration of their unemployment, which we index by d .

In addition to these four primary employment statuses, we have separated the temporarily unemployed from the permanently unemployed and found that the rate of temporary unemployment has risen sharply during the COVID-19 crisis compared to the pre-COVID-19 period. We show that accounting for this variability within the unemployed population is essential to understanding the dynamics of the COVID-19 recession until the second quarter of 2020. The unemployment rate is greatly overstated if this variability is overlooked. We also looked at the job vacancy rate and the job found rate (job placement) in developed countries and found that both declined significantly during the COVID-19 crisis compared to the pre-COVID-19 period.

The results of the duration dependence parameter by estimation of the random effects model for developed countries show that the coefficient for the duration of unemployment

is negative and statistically significant. This indicates a significant relationship between the duration of unemployment and the job-finding rate.

The results of the matching function for developed countries by estimation of the fixed effect model show that the coefficient of job vacancy rate is positive but statistically insignificant. We can conclude that there is no clear evidence that changes in the job vacancy rate have any effect on hiring(matches) within countries over time, once unobserved country characteristics and time shocks are controlled for. Whereas the coefficient of the unemployment rate is negative and highly statistically significant. this represents a robust negative relationship between the unemployment rate and matches. From an economic perspective, when unemployment rises, labor market slack depresses the flow into employment, consistent with standard search-and-matching models. Furthermore, we applied diagnostic, stability, and robustness tests to ensure that the results of our regression are valid, interpretable, and reliable.

The estimates for the matching function and the duration dependence parameter provide information on the correlations of hiring rates to job vacancies, and how long-term unemployment affects hiring rates. These correlations convey very significant social, political, and economic implications. In what follows, I examine these implications in detail:

Social implication

1. The impact on Long-term unemployment: The duration dependency parameter suggests a negative relationship, that is, longer unemployment can lead to a reduction in the rate of job seekers, which consequently could lead to long-term unemployment. Unemployment over a long period may imply stigmatization, loss of skills, and even psychological effects. Such a relationship can also apply in the design of appropriate interventions—retraining programs, incentives to hire the long-term unemployed, and psychological support.
2. Labor market dynamics: An evident understanding of the matching function can bring out inefficiencies in the labor market. For instance, high vacancy rates that are coupled with low hiring rates might be indicative of a mismatch between the skills of the unemployed and those required for available jobs. This insight will assist **education** and training policy in better matching the skills of workers to market needs and improving employability, hence reducing mismatches.

Political implications

1. Policy formulation

- Unemployment Benefits and Active Labor Market Policies.

knowledge about the length dependence of unemployment might be useful in the setting of appropriate unemployment benefits. Benefits limited in time might be combined with active labor-market policies, like job-search assistance or vocational training, to combat long-term unemployment.

- Job creation programs: If the matching efficiency is low, the government can initiate job creation programs or subsidize industries that have many job vacancies to conduct effective recruitment exercises that reduce unemployment. Public perception and confidence.

2. Public perception and trust

- The government can formulate effective policies based upon such estimates, gaining public confidence. On the other hand, if there are no measures taken to prevent high long-term unemployment and structural inability to match the labor demand and supply properly, dissatisfaction among people can result in political disturbances
- Social stability: The reduction of long-term unemployment, particularly the improvement in the labor market, is bound to reduce social tensions and positively affect social stability.

Economic implications

1. Labor market efficiency

- Productivity and growth: The closer the match, the better the labor market will be worked; growth follows from the increased productivity. The use of reasonable human resources guarantees that no skills are wasted and the economic potential is exhausted.
- Wage dynamics: Income differential dynamics may also improve due to this better matching. If mismatches in a sector are reduced, it should prevent upward pressure on wages from a high level of vacancies from also pushing up inflation, and potentially anchor it.

2. Unemployment Costs

- Economic burden: Large economic costs related to lost income for individuals (individuals) and increased public expenditure on social benefits result from

the relationship of the long-term unemployment rate to the long-term. And, this lessening of long-term unemployment can bring the cost down and the resources available for other economic activities.

- **Aggregate Demand:** The level of employment increases and thus aggregate demand shifts outwards. When more people are employed then consumption and investment occur economic growth is shifted outwards.

To that end, we have estimated the duration dependency parameter and the matching function separately to summarize insights into the dynamics of unemployment and the effectiveness of the labor market might be obtained. By bringing this to the social demand of focused interventions among the unemployed for a long period toward matching labor skills to the market demand, it attracts attention. It politically gives an edge to developing laws around public trust, job creation initiatives, and unemployment compensation. It from an economic perspective, reduces the monetary expense of unemployment while increasing labor market productivity, growth, and efficiency. Recognition of the nature of these linkages facilitates tailor-made rational and economically robust labor market legislation, thereby engendering a more comprehensive and sustainable economic and social development. Governments and labor unions in developed countries use these policy measures to moderate the labor market situation after the crisis of COVID-19 to deal with topics such as temporary and permanent unemployment, job vacancy rates, rates of job placement, transition in the labor market from one state to another and the duration of unemployment.

For developing countries, based on the descriptive statistics results, before the COVID-19 recession, there was a downward trend, suggesting that fundamental economic shifts may be the cause of future challenges in sustaining employment growth concerning the working-age population. China and Afghanistan, on the other hand, had a fall in employment rates over the decade, especially in the second half, suggesting potential structural or economic issues. Furthermore, many countries have been noted to have peaked in employment rates around the middle of the decade, after which there was either a little downturn or stabilization.

During the COVID-19 employment rates have plummeted in several countries, and the impact has not been uniform. Chile, Colombia, and Costa Rica have been hit hard. We're talking about major job losses and a labor market that was thrown off-kilter. Well, Afghanistan, Turkey, Iran, and China didn't escape unscathed either, but it wasn't as bad.

The decline was there, but not as dramatic. We could say they weathered the storm a little better. Korea & Mexico are the lucky ones (if we can call them that). Their employment rates have fallen, but not by much. Their labor markets have shown real courage during this mess.

After the COVID-19 crisis we look at the situations, in Chile, Costa Rica, and China it's evident that these countries experienced an uptick in their employment rates from 2020 to 2021 suggesting some progress, even though they haven't fully returned to crisis levels. On the other hand, South Korea and Turkey showed recovery trends with their employment rates nearly back to where they were, before the crisis. On the other hand, Colombia, Mexico, Afghanistan, and Iran didn't show any signs of improvement; their employment rates either stayed the same or dropped further from 2020. This information shows the recovery patterns seen in countries that reflect varying levels of economic resilience and post-COVID-19 recovery efforts.

Before the COVID-19 crisis, Chile and Colombia experienced a starting with a decline in the unemployment rate and then a rise in instability towards the end of the decade. The data obtained for Costa Rica showed upward-sloping unemployment signaling deterioration in labor market conditions. In contrast, Korea kept its rate of unemployment low and stable with small fluctuations. Mexico did relatively well because it continued to reduce its unemployment figures. By contrast, in Turkey, there was a very steep increase in the unemployment rate, particularly in the last phase of the decade. In Afghanistan, the situation in the labor market deteriorated further, and the trend in unemployment is increasing. In Iran, there were rather significant fluctuations in the employment situation; no long-term trend is perceivable, although it has remained relatively high. In China, the unemployment rate remained steady with little change, indicating a stable labor market environment.

During the COVID-19 recession, in short, high surges in unemployment rates were registered in Chile, Colombia, and Costa Rica, indicating that these labor markets were hard hit. Mexico, Afghanistan, and China recorded moderate increases in unemployment rates, a relative resilience. Korea distinguished itself by keeping unemployment at low levels and having strategies to dampen the impact of the pandemic on its labor market. Trends for Turkey and Iran were unexpected and included slight decreases or very small increases in the level of unemployment; this might be influenced by the conduct of economic policy.

In short, after the COVID-19 crisis, the unemployment rate decreased drastically in Chile, Colombia, and Costa Rica, which reflects that these countries made a very strong economic recovery. It was very low in the case of Korea and China, trying to portray the right economic policies and standing of their labor markets to shocks. The moderate decline in unemployment for Mexico, Turkey, and Iran broadly showed moderate, steady progress on the road to recovery. On the other hand, the slight increase in unemployment in Afghanistan has exposed the ongoing economic hurdles in the country.

The results of the matching function indicate that in Turkey and China, the unemployment coefficients are negative and statistically not significant. Nevertheless, job vacancies have a positive relationship with the number of matches and are also statistically significant. In Chile, unemployment is positive and is found to be statistically significant. Job vacancy rates have a positive effect too, but this effect couldn't be proven with statistics.

Likewise, in Costa Rica, the unemployment coefficient is also positive, but the association between unemployment and matches is statistically insignificant. In addition, the coefficient of job vacancy rate is positive and statistically significant in determining job matches. Since the unemployment rate and job vacancy rate coefficients are both positive in Korea, there are statistically significant links between the job vacancy rate, unemployment rate, and matches.

Moreover, the reliability of the statistical model was tested thoroughly. Various tests (including the VIF test for multicollinearity, Chow test for structural breaks, Ramsey RESET test for misspecification, and Breusch Pagan test for heteroscedasticity) confirm that none of these problems has occurred in determining the model. The model is overall robust in both specification and stability from these results.

The COVID-19 pandemic interrupted labor markets universally, leaving significant and varied impacts on different countries. Below is a broad analysis of the social, political, and economic implications in Turkey, Korea, Afghanistan, Colombia, Mexico, Chile, China, Iran, and Costa Rica before, during, and after the pandemic.

1. Social Implications

The labor market in a large number of countries before the emergence of COVID-19 had many structural inefficiencies endemic to their system, which included high levels of vertical mismatch, high incidences of youth unemployment, and unequal distribution of jobs

creating regional disparities. Women and others in precarious employment situations described continued and complex barriers to gaining meaningful, well-paying work and attaining economic autonomy. As for the socioeconomic inequality, it was especially apparent in the income and wealth distribution, in particular, in Mexico and Chile, as wage and educational opportunities unrealistically limited actual opportunities for the social climb and enshrinement of poverty and marginalization for a great number of the population.

In the post-COVID-19 context, some countries, among others, went through another dramatic round of job cuts, not in the least among low-wage workers and people working in the informal sector in, for example, Mexico and Costa Rica, where the downturn was particularly devastating. The teleworking benefits observed based on the diverse needs of workers identified also as new work arrangements for workers were found to be concentrating on higher income groups and increasing the inequality gap to push out workers in manufacturing and hospitality industries.

Not only did the pandemic create instabilities within the economy, it also raised the already existing levels of flaming social tensions, as in the case of Turkey and Chile, where high unemployment together with the downward progression of living standards created social unrest and civil disobedience. This is also true of Costa Rica; the worst was already happening in the country that kept widening economic inequality and rural areas made worse than urban areas of the nation's divide.

In addition, the COVID cyberspace was not the cause of the mental health problem that first began nor the newly developed problems like job insecurity, social exclusion, persistent poverty and forced to bring a cocktail of problems to an individual and communities. The best shown is in South Korea where the presence of other cultural barriers had already prevented people from coming forward to help seeking to treat their mental condition. In a lot of countries recovery and resilience were underway in the aftermath of the COVID-19 pandemic, in a highly nonlinear pattern with large differences between the recovery patterns of regions and sectors. While tourism and manufacturing sectors rebounded slightly in Costa Rica, Mexico China, and Korea, respectively, informal workers struggled still longer in jobs that have been protracted and unstable. The pandemic's rapid, and more accelerated adoption of technological innovations also led to very pronounced skill mismatches in the labor markets and left millions of workers in Turkey and

Mexico unprepared to do the work of new jobs that are becoming more and more industry-specific and demanding superior technological competencies. High demographic challenges were also there, and countries such as Korea and China were mainly concerned with this. Thus, the labor market does more gravity and pressure, especially in labor markets where a few labor force should take the rise removals something that is not an advantageous environment for growth and labor market dynamics post-pandemic.

2. Political implications

During the outbreak of the COVID-19 pandemic, all countries have been paying great attention to labor market reforms, and countries such as South Korea and Turkey were paying close attention. The discussions and debates extended around the adjustments required in the labor market dealing with the required adjustments to the infrastructure to ensure that the inefficiencies had developed over time were talked to, but these proposed reforms suffered political resistance, which significantly hampered progress. The widespread protests in Chile in response to those glaring inequalities in society were a call for deep social reforms geared towards tackling the long-known entrenched inequalities in society.

On governance challenges, the absence of a strong institutional framework in countries such as Mexico and Costa Rica prevented the news of policies to reduce the unemployment rates and to raise the overall quality of jobs offered to workers to be materialized, thus reducing the room for economic progress in these regions. Events during the COVID-19 pandemic saw governments around the world introduce a range of emergency measures such as stimulus packages, provision of an unemployment benefit, and wage subsidies. This was especially true of South Korea where so many proactive measures were taken that they stabilized the economy. Conversely, the situation in Mexico contrasts significantly with this one, given the government's limited fiscal space available and the consequent limited scope and effectiveness of its response to the crisis.

In countries such as Turkey and Chile, distrust of government policy is growing, as public trust and accountability become increasingly important during the pandemic. During the time that the pandemic was so difficult, citizens started to voice their criticism to how the pandemic was handled, especially in relation to the way that resources were unequally distributed during that period. Moreover, citizens in Chile and Mexico also protested on the streets due to rising poverty and unemployment. Political tensions were running high

in Turkey as the government was accused of poor handling of the Turkish economy during the crisis.

After the COVID-19 pandemic, governments' policy focus shifted towards the imperative of recovery, job creation, and the immediate need to address the pandemic's regressive problem of inequality. For example, in South Korea, attention was directed toward encouraging digital transformation and creating green jobs, but in Turkey and Mexico, political instability prevailed and straightforwardly crippled any prospects of long-term planning and sustainable development. In addition, the uneven nature of the economic recovery across different regions intensified political polarization, which further sharpened divisions within the political spectrum in several Latin American countries that have persistently unequal economies, including Chile and Mexico.

3. Economic implications

Before the COVID-19 pandemic, each of these three countries experienced a range of structural problems with their labor markets: high unemployment, a high share of informal employment, and alarmingly low productivity levels. However, compared to Korea and China, countries like Korea were struggling to transition from traditional, labor-intensive industries to more sophisticated, high-tech, and service-oriented economies that required very different skill sets of their workforce. Moreover, countries such as China and Mexico exhibited great notoriety for the phenomenon of export dependency. Especially vulnerable to the vicissitudes and fluctuations of the global economy as a result of any geopolitical or economic crisis, these countries' economic structures were so based upon exports of goods.

All these countries studied experienced large declines in gross domestic product (GDP) during the COVID-19 pandemic with Mexico and Costa Rica experiencing large hits, for example, on tourism and international trade, and Korea exhibiting relative resilience due to its advanced manufacturing capabilities and the resilience of its digital economy. All governments chose to mitigate the damage caused by the pandemic by taking on massive amounts of debt to fund massive expansionary stimulus packages to stabilize their economies. But on this measure, the response in Turkey was hindered by pre-existing factors of economic instability made worse by continuing currency devaluation and rising inflation rates that also limited a fiscal policy response.

However, the pandemic's impact on the sector was diverse and large, as the tourism sector presents different examples, countries like Costa Rica and Mexico saw severe slump after the travel restrictions and the global decrease in demand for leisure travel. On the other hand, the supply chain disruptions resulting directly from the pandemic intruded on the manufacturing sector in both China and Korea, testifying to the connectedness of the global trade networks. Furthermore, the informal economy contributed quite a bit to the economic impact of the pandemic: informal workers across Turkey, Mexico and Costa Rica were hard hit by losses in income, money wiped out by the absence of sufficient nets, making them extremely susceptible to this never-before situation.

Following the COVID 19 pandemic, the recovery was stunningly uneven. Manufacturing and export sectors helped Korea and China recover faster mainly while other countries such as Mexico, Chile and Costa Rica took longer to emerge out of slump owing to their deep-rooted structural inefficiencies and slow rollout of vaccination programs. Moreover, the jobs and wage level of the upswing experienced by Mexico and Costa Rica was mainly due to the type of informal employment and low wages, which restricted possible improvements in the general living standard of the population. However, technological change, driven by the pandemic, also led to a wealth of growth opportunities, especially in countries like Korea and China. At the same time, however, this same phenomenon exacerbated the inequalities that predated the pandemic in terms of access to technology by exacerbating already existing inequalities among countries such as Turkey, Mexico, and Chile.

In this research, we examine the dynamics of the labor market in both developed and developing countries by estimating the nonlinear (exponential decay function) and the matching function. For developed countries, Austria, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, and the United Kingdom, we study the exponential decay function of the job finding rate with respect to duration of unemployment. In other words, we studied for the way the percentage of people with jobs decreases at an exponential rate with a longer job search period. Since not enough data were available, Switzerland was left out of this part of the research.

We also estimate the matching function for comparable developed countries, including Austria, Belgium, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, and the United Kingdom. Since there was not enough information on the subject,

Canada was excluded from this analysis. Additionally, due to a lack of data for the entire sample for the period from 2010 to 2021, we focused on the period from 2010 to 2020. For developing countries, due to insufficient data regarding the duration of unemployment, we are unable to analyze the relationship between the job finding rate and the duration of unemployment in Turkey, China, Chile, Costa Rica, Korea, Mexico, Afghanistan, Iran, and Colombia. Moreover, we examine the relationship between the unemployment rate, job vacancy rate, and matching (hiring) in Turkey, China, Chile, Costa Rica, Korea, and Mexico using a nonlinear model; for some countries, we lack sufficient data to analyze labor market dynamics, such as Afghanistan, Iran, and Colombia. So, these countries were excluded from the analysis.

These findings highlight some gaps in the current empirical literature and propose some avenues for future research. Researchers are encouraged to expand on this work by analysing the association between duration of unemployment and the job-finding rate by applying the exponential decay function in both developed and developing countries before, during, and particularly after 2020. Also, they should conduct further empirical analyses of the labor market by using the matching function, especially in data-scarce developing economies, before, during, and particularly after 2020, to know how the job vacancy rate and unemployment rate affect hiring(matches). They should also investigate the job separation rate as an equally important labor market transition, which remains underexplored in both developed and developing country contexts.

According to the empirical findings, it is evident that governments, policymakers and labor unions in both developed and developing countries approved and accepted a number of various policy measures with respect to the COVID-19 crisis-induced shock in the labor market. These measures aimed to reduce the adverse effects on employment by focusing on major dimensions of labor markets such as unemployment rates and the levels of job vacancies, job placement (finding rates) efficiency, and labor market flows from one state to another. Much attention has been paid to the comprehension of the length of unemployment and the job-seeking rates dynamics as they are the main instruments to determine labor market resilience and recovery rate after a shock (COVID-19).

Empirical evidence in the form of estimations using exponential duration models demonstrates that, as the unemployment period extends, the probability of job finding rates increases; vice versa, so the existence of negative dependence is confirmed. This shows that long spells of unemployment are linked to the probabilities of job finding, and as such,

interventions in the labor market must be carried out promptly, and they must be specific. These results are essential for developing evidence-based policies that support faster re-integration into employment, especially for those most susceptible to chronic joblessness



REFERENCE

- Abel, A., B., Bernanke, B.S., & Croushore, D. (2017). *Macroeconomics (19th ed.)*. Edinburgh Gate, Harlow, Essex CM20 2JE, England: Pearson Education Limited.
- Acevedo, I., Castellani, F., Lotti, G., & Székely, M. (2021). Informality in the time of COVID-19 in Latin America: Implications and policy options. *PLOS ONE*, 16(12), e0261277. <https://doi.org/10.1371/journal.pone.0261277>
- Arceo-Gomez, E. O., Campos-Vazquez, R. M., Esquivel, G., Alcaraz, E., Martinez, L. A., & Lopez, N. G. (2023). The impact of COVID-19 infection on labor outcomes of Mexican formal workers. *World Development Perspectives*, 29, 100488. <https://doi.org/10.1016/j.wdp.2023.100488>
- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.359088>
- Aina, C., Brunetti, I., Mussida, C., & Scicchitano, S. (2021). Who lost the most? Distributive effects of the Covid-19 pandemic. www.inapp.org.
- Alchian, A. A. (1969). INFORMATION COSTS, PRICING, AND RESOURCE UNEMPLOYMENT. *Economic Inquiry*, 7(2), 109–128. <https://doi.org/10.1111/j.1465-7295.1969.tb01469.x>
- Aldan, A., Çıraklı, M. E., & Torun, H. (2021). Covid 19 and the Turkish labor market: Heterogeneous effects across demographic groups. *Central Bank Review*, 21(4), 155–163. <https://doi.org/10.1016/j.cbrev.2021.12.003>
- ALDAN, A., & ÖZTÜRK, S. (2020). Kadın İşgücüne Katılımında Artışın Belirleyicileri: Kuşak Etkisinin Ayrıştırılması. *Doğuş Üniversitesi Dergisi*, 21(2), 141–156. <https://doi.org/10.31671/dogus.2020.454>
- Alstadsæter, A., Bratsberg, B., Eielsen, G., Kopczuk, W., Markussen, S., Raaum, O., & Røed, K. (2020). The First Weeks of the Coronavirus Crisis: *Who Got Hit, When and Why? Evidence from Norway*. *National Bureau of Economic Research*. <https://doi.org/10.3386/w27131>

- Altig, D., Baker, S. R., Barrero, J. M., Bloom, N., Bunn, P., Chen, S., Davis, S. J., Leather, J., Meyer, B., Mihaylov, E., Mizen, P., Parker, N., Renault, T., Smietanka, P., & Thwaites, G. (2020). Economic uncertainty before and during the COVID-19 pandemic (NBER Working Paper No. 27418). *National Bureau of Economic Research*. <https://doi.org/10.3386/w27418>
- Alvarez, J., & Pizzinelli, C. (2021). COVID-19 and the Informality-driven Recovery: The Case of Colombia's Labor Market. *IMF Working Papers*, 2021(235), 1. <https://doi.org/10.5089/9781513597805.001>
- Amuedo-Dorantes, C., Borra, C., Rivera-Garrido, N., & Sevilla, A. (2021). Early adoption of non-pharmaceutical interventions and COVID-19 mortality. *Economics & Human Biology*, 42, 101003. <https://doi.org/10.1016/j.ehb.2021.101003>
- Andrew, A., Phimister, A., Krutikova, S., Kraftman, L., Farquharson, C., Costa Dias, M., Cattán, S., & Sevilla, A. (2020). How are mothers and fathers balancing work and family under lockdown? *Institute for Fiscal Studies*. <https://doi.org/10.1920/bn.ifs.2020.bn0290>
- Appelbaum, E. (1979). Post-Keynesian Theory: the labor market. *Challenge Magazine*, 21(6), 39–47. <https://doi.org/10.1080/05775132.1979.11470483>
- Arni, P. (2020). *Switzerland (November 2020)* (Issue November).
- Arthur, R. (2021). Studying the UK job market during the COVID-19 crisis with online job ads. *PLoS ONE*, 16(5 May), 1–24. <https://doi.org/10.1371/journal.pone.0251431>
- Athukorala, P., & Wei, Z. (2017). ECONOMIC TRANSITION AND LABOUR MARKET DYNAMICS IN CHINA: AN INTERPRETATIVE SURVEY OF THE 'TURNING POINT' DEBATE. *Journal of Economic Surveys*, 32(2), 420–439. *Portico*. <https://doi.org/10.1111/joes.12206>
- Atiyas, İ., & Bakis, O. (2015). Structural Change and Industrial Policy in Turkey. *Emerging Markets Finance and Trade*, 51(6), 1209–1229. <https://doi.org/10.1080/1540496x.2015.1080523>

- Atkeson, A. (2020). What Will Be the Economic Impact of COVID-19 in the US? Rough Estimates of Disease Scenarios. *National Bureau of Economic Research*. <https://doi.org/10.3386/w26867>
- Aum, S., Lee, S. Y. (Tim), & Shin, Y. (2021). COVID-19 doesn't need lockdowns to destroy jobs: The effect of local outbreaks in Korea. *Labour Economics*, 70(June 2020), 101993. <https://doi.org/10.1016/j.labeco.2021.101993>
- Aygun, A. H., Kosal, S., & Uysal, G. (2022). Unpacking the Effects of Covid-19 on Labor Market Outcomes: Evidence from Turkey. *Economic Research Forum (ERF)*.
- Azariadis, C. (1975). Implicit Contracts and Underemployment Equilibria. *Journal of Political Economy*, 83(6), 1183–1202. <https://doi.org/10.1086/260388>
- Backhouse, R.E. (2002), 'Say's Law', in B. Snowden and H.R. Vane (eds), *An Encyclopedia of Macroeconomics*, Cheltenham, UK and Northampton, MA, USA: *Edward Elgar*.
- Baker, S., Farrokhnia, R. A., Meyer, S., Pagel, M., & Yannelis, C. (2020). How Does Household Spending Respond to an Epidemic? *Consumption During the 2020 COVID-19 Pandemic*. <https://doi.org/10.3386/w26949>
- Baldwin, R., & Weder, B. (2020). Economics in the Time of COVID-19. In *Economics in the Time of COVID-19* (Issue May). www.cepr.org/0Aresearchgate.net/publication/339780440_The_economic_impact_of_COVID-19.
- Balgová, M., Trenkle, S., Zimpelmann, C., & Pestel, N. (2022). Job search during a pandemic recession: Survey evidence from the Netherlands. *Labour Economics*, 75(March 2021). <https://doi.org/10.1016/j.labeco.2022.102142>
- Banister, J. (1991). China's Changing Population. *Stanford University Press*. <https://doi.org/10.1515/9780804765701>
- Barbieri, T., Basso, G., & Scicchitano, S. (2020). Italian workers at risk during the COVID-19 epidemic. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3660014>
- Barbosa-Filho, N. H., & Taylor, L. (2006). Distributive and demand regimes in the world economy. *Revue de la régulation*, 1(1).

Barradas, R. (2023). Why has labor productivity slowed down in the era of financialization? Insights from the Post-Keynesians for the European Union countries. *Journal of Economic Issues*. Advance online publication. (Examines how financialization impacts salary share, demand, and productivity.) journals.sagepub.com.

Bauer, A., & Weber, E. (2021). *Lockdown length and strength: labour-market effects in Germany during the COVID-19 pandemic*. <https://hdl.handle.net/10419/242452>

Baştav, L. (2021). Turkish Economic Growth:(Non) Labour Creating? (2000-2018). *Sosyoekonomi*, 29(50), 35-50.

Berger, D., Herkenhoff, K., & Mongey, S. (2020). An SEIR Infectious Disease Model with Testing and Conditional Quarantine. *National Bureau of Economic Research*. <https://doi.org/10.3386/w26901>

Berntson, E., Sverke, M., & Marklund, S. (2006). Predicting Perceived Employability: Human Capital or Labour Market Opportunities? *Economic and Industrial Democracy*, 27(2), 223-244. <https://doi.org/10.1177/0143831X06063098>

Bettin, G., Giorgetti, I., & Staffolani, S. (2023). The impact of Covid-19 lockdown on the gender gap in the Italian labour market. In *Review of Economics of the Household*. Springer US. <https://doi.org/10.1007/s11150-023-09659-5>

Blanchard, O., & Johnson, D. R. (2013). *Macroeconomics* (6th ed.). Pearson. (Contains detailed discussion on Keynesian labor market theory.).

Blázquez, M., Herrarte, A., & Moro-Egido, A. I. (2022). Has the COVID-19 pandemic widened the gender gap in paid work hours in Spain? *Journal of Demographic Economics*, 1–36. <https://doi.org/10.1017/dem.2022.15>

Blázquez-Reich, G., & Coglianese, J. (2020). Projecting Unemployment Durations: A Factor-Flows Simulation Approach with Application to the COVID-19 Recession. *National Bureau of Economic Research*. <https://doi.org/10.3386/w27566>

- Block, J., Kritikos, A. S., Priem, M., & Stiel, C. (2022). Emergency-aid for self-employed in the Covid-19 pandemic: A flash in the pan? *Journal of Economic Psychology*, 93(September), 102567. <https://doi.org/10.1016/j.joep.2022.102567>
- Boca, D. Del, Oggero, N., Profeta, P., & Rossi, M. C. (2021). Did Covid-19 Affect the Division of Labor within the Household? Evidence from Two Waves of the Pandemic in Italy. In *SSRN Electronic Journal* (Issue 14453). <https://doi.org/10.2139/ssrn.3870183>
- Bock-schappelwein, J., Leoni, T., & Bock-schappelwein, J. (2021). *Austria (December 2021)* (Issue December).
- Bonacini, L., Gallo, G., & Scicchitano, S. (2021). Will it be a shecession? The unintended influence of working from home on the gender wage gap related to the COVID-19 pandemic. In *EconPapers*. <http://hdl.handle.net/10419/229149>
- Bonet-Morón, J., Ricciulli-Marín, D., Pérez-Valbuena, G. J., Galvis-Aponte, L. A., Haddad, E. A., Araújo, I. F., & Perobelli, F. S. (2020). Regional economic impact of COVID-19 in Colombia: An input–output approach. *Regional Science Policy & Practice*, 12(6), 1123–1151. <https://doi.org/10.1111/rsp3.12320>
- Borimnejad, V., & Dehyouri, S. (2022). *Content analysis of the economic problems of COVID-19 on businesses: A case study of Tehran Province, Iran. Annals of Data Science*, 9(5), 1069–1083. <https://doi.org/10.1007/s40745-022-00380-1>
- Bosch, M., & Maloney, W. (2005). Labor market dynamics in developing countries: Comparative analysis using continuous time Markov processes. *Policy Research Working Papers*. <https://doi.org/10.1596/1813-9450-3583>
- Bosworth, B., & Collins, S. (2007). Accounting for Growth: Comparing China and India. *National Bureau of Economic Research*. <https://doi.org/10.3386/w12943>
- Boyer, G. R., & Smith, R. S. (2001). The Development of the Neoclassical Tradition in Labor Economics. *ILR Review*, 54(2), 199–223. <https://doi.org/10.1177/001979390105400201>

- Brandt, L., Ma, D., & Rawski, T. G. (2014). From Divergence to Convergence: Reevaluating the History Behind China's Economic Boom. *Journal of Economic Literature*, 52(1), 45–123. <https://doi.org/10.1257/jel.52.1.45>
- Brilli, Y., Del Boca, D., & Pronzato, C. D. (2016). Does child care availability play a role in maternal employment and children's development? evidence from Italy. *Review of Economics of the Household*, 14, 27–51.
- Brodeur, A., Clark, A. E., Fleche, S., & Powdthavee, N. (2020). COVID-19, lockdowns and well-being: Evidence from Google Trends. *Journal of Public Economics*, 193, 104346. <https://doi.org/10.1016/j.jpubeco.2020.104346>
- Brožová, D. (2015). Modern Labour Economics: The Neoclassical Paradigm with Institutional Content. *Procedia Economics and Finance*, 30, 50–56. [https://doi.org/10.1016/s2212-5671\(15\)01254-x](https://doi.org/10.1016/s2212-5671(15)01254-x)
- Brynjolfsson, E., Horton, J., Ozimek, A., Rock, D., Sharma, G., & TuYe, H.-Y. (2020). COVID-19 and Remote Work: An Early Look at US Data. *National Bureau of Economic Research*. <https://doi.org/10.3386/w27344>
- Bussink, H., Vervliet, T., & ter Weel, B. (2022). The Short-Term Effect of the COVID-19 Crisis on Employment Probabilities of Labour-Market Entrants in the Netherlands. *Economist (Netherlands)*, 170(2), 279–303. <https://doi.org/10.1007/s10645-022-09406-8>
- Cahuc, P. (2022): IZA COVID-19 Crisis Response Monitoring: France. *IZA – Institute of Labor Economics*.
- Caldwell, B. J., & Yonay, Y. (1999). The Struggle over the Soul of Economics: *Institutionalist and Neoclassical Economists in America bet.*
- Campa, P., Roine, j., & Strömberg, S. (2021). Unequal Labour Market Impacts of COVID-19 in Sweden-But Not Between Women and Men. *ZBW – Leibniz Information Centre for Economics*. [DOI: 10.1007/s10272-021-0996-3](https://doi.org/10.1007/s10272-021-0996-3)
- Cardenas, J., Montana, J., & Bosworth, D. (2021). Which Workers are Most Exposed to covid-19 and Social Distancing Effects in a Dual Labour Market? *Revista De Economía*

Del Rosario, 24(2), 1–44. <https://doi.org/10.12804/revistas.urosario.edu.co/economia/a.10549>

Champeaux, H., Mangiavacchi, L., Marchetta, F., & Piccoli, L. (2022). Learning at Home: Distance Learning Solutions and Child Development During the Covid-19 Lockdown. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4114231>

Chan, K. W. (2009). The Chinese Hukou System at 50. *Eurasian Geography and Economics*, 50(2), 197–221. <https://doi.org/10.2747/1539-7216.50.2.197>

Cheng, T., & Selden, M. (1994). The Origins and Social Consequences of China's Hukou System. *The China Quarterly*, 139, 644–668. <http://www.jstor.org/stable/655134>

Cheratian, I., Goltabar, S., & Gil-Alana, L. A. (2021). The Dynamics of Unemployment by Territory, Gender, and Age Groups in Iran. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3799447>

Chodorow-Reich, G., & Coglianese, J. (2020). Projecting unemployment durations: A factor-flows simulation approach with application to the COVID-19 recession (NBER Working Paper No. 27566). *National Bureau of Economic Research*. <https://doi.org/10.3386/w27566>

Choi, K., Renna, F., & Choe, C. (2023). The impact of Covid-19 on the Korean and US labour markets. *Applied Economics*, 56(38), 4529–4543. <https://doi.org/10.1080/00036846.2023.2212966>

Cole, D. (2022). The full employment interest rate implicit in classical economic theory. *Springer Economics*, 1(1), 1–12. <https://doi.org/10.1007/s40844-022-00244-6>

Collins, C., Landivar, L. C., Ruppanner, L., & Scarborough, W. J. (2020). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*, 28(S1), 101–112. *Portico*. <https://doi.org/10.1111/gwao.12506>

Colophon. (2022). Socio-economic monitoring. *Labour market and origin*. https://employment.belgium.be/sites/default/files/content/publications/Monitoring%202022%20ENG%20AS_0.pdf

Coppens, B., Minne, G., Piton, C., & Warisse, C. (2020). The Belgian economy in the wake of the COVID-19 shock. *Working paper*. https://www.nbb.be/doc/ts/publications/economicreview/2021/ecorevii2021_h6.pdf.

Cortes, G. M., & Forsythe, E. (2020). The Heterogeneous Labor Market Impacts Of the Covid-19 Pandemic. *W.E. Upjohn Institute*. <https://doi.org/10.17848/wp20-327>

Costa Dias, M., Joyce, R., Postel-Vinay, F. and Xu, X. (2020), The Challenges for Labour Market Policy during the COVID-19 Pandemic*. *Fiscal Studies*, 41: 371-382. <https://doi.org/10.1111/1475-5890.12233>

Costa, R., & Machin, S. (2020). *IZA COVID-19 Crisis Response Monitoring: United Kingdom* (Issue February). <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/co> ween the Wars. *Southern Economic Journal*, 65(3), 664. <https://doi.org/10.2307/1060830>

Cárdenas, J., Montana, J., & Alianza, E. F. I. (2020). Possible effects of coronavirus in the Colombian labour market. *Alianza EFI-Colombia Científica*, 1-28.

Çakmaklı, C., Demiralp, S., Kalemli-Ozcan, S., Yeşiltaş, S., & Yıldırım, M. A. (2020). Covid-19 and emerging markets: The case of Turkey (No. 2011). *Working Paper*.

Dang, H.-A. H., Salehi-Isfahani, D., & Do, M. N. N. (2024). The impacts of COVID-19 on female labor force participation in Iran (IZA Discussion Paper No. 17001). *Bonn: Institute of Labor Economics (IZA)*.

Davidson, L. (1998). Post Keynesian employment analysis and the macroeconomics of OECD unemployment. In *Uncertainty, International Money, Employment and Theory* (pp. 437–452). Palgrave Macmillan. https://doi.org/10.1007/978-1-349-14991-9_30

Del Boca, D., Oggero, N., Profeta, P., & Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*, 18(4), 1001–1017. <https://doi.org/10.1007/s11150-020-09502-1>

Demirel-Derebaşıoğlu, M., & Okten, Ç. (2022). Gendered impact of the COVID-19 pandemic on transitioning from university to the labor market: Evidence from Turkey (IZA DP No. 15169). Bonn: Institute of Labor Economics (IZA).

Demir-Şeker, S., Nas Ozen, E., & Acar Erdogan, A. (2020). Jobs at risk in Turkey: Identifying the impact of COVID-19. *World Bank*.

Development Ministry, (2018). *On Birinci Kalkınma Planı (2019-2023), İşgücü Piyasası ve Genç İstihdamı Özel İhtisas Komisyonu Raporu*.

Diamond, P. A. (1982). Wage determination and efficiency in search equilibrium. *The Review of Economic Studies*, 49(2), 217–227. <https://doi.org/10.2307/2297204>

Dolado, J. J., Felgueroso, F., & Jimeno, J. F. (2020). Past, present and future of the Spanish labour market: when the pandemic meets the megatrends. *Applied Economic Analysis*, 29(85), 21–41. <https://doi.org/10.1108/AEA-11-2020-0154>

Dubois, C., Lambertini, L., & Wu, Y. (2022). Gender effects of the COVID-19 pandemic in the Swiss labor market. *Swiss Journal of Economics and Statistics*, 158(1). <https://doi.org/10.1186/s41937-022-00099-z>

Duman, A. (2020). Wage Losses and Inequality in Developing Countries: labor market and distributional consequences of Covid-19 lockdowns in Turkey. <https://doi.org/10.33774/coe-2020-df4q9-v2>

D’Urso, P., & Massari, R. (2019). Fuzzy clustering of mixed data. *Information Sciences*, 505, 513–534. <https://doi.org/10.1016/j.ins.2019.07.100>

Dvořák, M., Rovný, P., Grebennikova, V., & Faminskaya, M. (2020). Economic impacts of Covid-19 on the labor market and human capital. *Terra Economicus*, 18(4), 78–96. <https://doi.org/10.18522/2073-6606-2020-18-4-78-96>

Egana-delSol, P., Cruz, G., & Micco, A. (2021). COVID-19’s Impact on the Labor Market Shaped by Automation: Evidence from Chile. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3761822>

- Eichenbaum, M., Rebelo, S., & Trabandt, M. (2020). The Macroeconomics of Epidemics. *National Bureau of Economic Research*. <https://doi.org/10.3386/w26882>
- Eichhorst, W., Leoni, T., Costa, R., & Houseman, S. (n.d.). *RESEARCH REPORT SERIES The Second Phase of the Crisis Table of Contents* (Issue 105).
- Eichhorst, W., & Rinne, U. (2020). IZA COVID-19 Crisis Response Monitoring: Germany (December 2020). In *IZA COVID-19 Crisis Response Monitoring* (Issue October). <https://covid-19.iza.org/crisis-monitor/germany/>
- Eichner, A. S. (1978). Post-Keynesian Theory: An Introduction. *Challenge Magazine*, 21(2), 4–10. <https://doi.org/10.1080/05775132.1978.11470415>
- Eichner, A. S., & Kregel, J. A. (1975). An essay on Post-Keynesian theory: A new paradigm in economics. *Journal of Economic Literature*, 13(4), 1293–1314.
- Elsby, M. W. L., Michaels, R., & Solon, G. (2009). The Ins and Outs of Cyclical Unemployment. *American Economic Journal: Macroeconomics*, 1(1), 84–110. <https://doi.org/10.1257/mac.1.1.84>
- Elsby, M., Hobijn, B., & Şahin, A. (2010). *The Labor Market in the Great Recession*. <https://doi.org/10.3386/w15979>
- Esteban-Pretel, J., Nakajima, R., & Tanaka, R. (2011). Are contingent jobs dead ends or stepping stones to regular jobs? Evidence from a structural estimation. *Labour Economics*, 18(4), 513–526. <https://doi.org/10.1016/j.labeco.2010.12.010>
- EURES. (n.d.). *Labour market information: Belgium*. https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-belgium_en.
- EURES. (2023). *Labour market information: Norway*. https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-norway_en.
- EURES. (2023). *Labour market information: Switzerland*. https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-switzerland_en.

EURES. (n.d.). *Labour market information: Belgium*. Retrieved November 28, 2023, from https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-belgium_en.

EURES. (n.d.). *Labour market information: Switzerland*. Retrieved December 22, 2023, from https://eures.europa.eu/living-and-working/labour-market-information/labour-market-information-switzerland_en.

Fang, H., Wang, L., & Yang, Y. (2020). *Human Mobility Restrictions and the Spread of the Novel Coronavirus (2019-nCoV) in China*. <https://doi.org/10.1101/2020.03.24.20042424>

Farber, H. S., Glaeser, E. L., & Kerr, W. R. (2024). *Job displacement effects and labor market sorting during COVID-19* (Latin American Journal of Central Banking, 5 [2], 100109). <https://doi.org/10.1016/j.latecb.2023.100109>

Farr'e, L., Fawaz, Y., González, L., & Graves, J. (2020). How the COVID-19 lockdown affected gender inequality in paid and unpaid work in Spain. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3643198>

Felstead, A., & Reuschke, D. (2020). Homeworking in the UK: before and during the 2020 lockdown. *WISERD Report*. <http://orca.cardiff.ac.uk/id/eprint/134545>

Feng, S., Hu, Y., & Moffitt, R. (2017). Long run trends in unemployment and labor force participation in urban China. *Journal of Comparative Economics*, 45(2), 304–324. <https://doi.org/10.1016/j.jce.2017.02.004>

Fernández-Huerga, E., & García-Arias, J. (2019). The Post-Keynesian view on labour demand in micro- and macroeconomic fields. *Economics & Sociology*, 12(2), 109–128. <https://doi.org/10.14254/2071-789X.2019/12-2/7>

Ferreira, P., Eichhorst, W., Rinne, U., Marx, P., Böheim, R., Leoni, T., Cahuc, P., Colussi, T., Jongen, E. L., Verstraten, P., & ... (2020). IZA COVID-19 crisis response monitoring: Short-run labor market impacts of COVID-19, initial policy measures and beyond (*IZA Policy Monitoring Brief No. 2020-XX*). Bonn: Institute of Labor Economics (IZA).

- Forsythe, E., Kahn, L. B., Lange, F., & Wiczer, D. (2020). Labor demand in the time of COVID-19: Evidence from vacancy postings and UI claims. *Journal of Public Economics*, 189, 104238. <https://doi.org/10.1016/j.jpubeco.2020.104238>
- Fosco, C., & Zurita, F. (2021). Assessing the short-run effects of lockdown policies on economic activity, with an application to the Santiago Metropolitan Region, Chile. *PLoS ONE*, 16.
- Fukai, T., Ichimura, H., & Kawata, K. (2021). Describing the impacts of COVID-19 on the labor market in Japan until June 2020. In *Japanese Economic Review* (Vol. 72, Issue 3). Springer Singapore. <https://doi.org/10.1007/s42973-021-00081-z>
- Gallacher, G., & Hossain, I. (2020). Remote work and employment dynamics under COVID-19: Evidence from Canada. *Canadian Public Policy*, 46(1), S44–S54. <https://doi.org/10.3138/CPP.2020-026>
- Gallant, J., Kroft, K., Lange, F., & Notowidigdo, M. J. (2020). Temporary unemployment and labor market dynamics during the COVID-19 recession. *Brookings Papers on Economic Activity*, 2020(3), 167–226. <https://doi.org/10.1353/eca.2020.0032>
- Gama, A., Saget, C., Eyraud, F. (2015). Inventory of labour market policy measures in the EU 2008–13: the crisis and beyond. *International Labour Office (ILO)*, Geneva.
- Gamage, D. D., Sevilla, A., & Smith, S. (2020). Women in economics: A UK perspective. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3654914>
- Garcia-Lazaro, A., Martin, C., & Okolo, M. (2022). *Education, informality and the pandemic: explaining the unequal impacts of Covid-19 in the Mexican labor market*.
- Garita, J., Pastrana, G., & Slon, P. (2024). Job displacement effects and labor market sorting during COVID-19. *Latin American Journal of Central Banking*, 5(2), 100109. <https://doi.org/10.1016/j.latcb.2023.100109>
- Gürsel, S., Uysal, G., & Toru Delibaşı, T. (2019). Turkish Labor Market: Complex Dynamics and Challenges. *Turkey's Political Economy in the 21st Century*, 85–114. https://doi.org/10.1007/978-3-030-27632-4_4

- Ha, T. (2023). The disproportionate effect of COVID-19 on the labour market in South Korea. *Journal of the Asia Pacific Economy*, 1–15. <https://doi.org/10.1080/13547860.2023.2215121>
- Ham, S. (2021). Explaining Gender Gaps in the South Korean Labor Market During the COVID-19 Pandemic. *Feminist Economics*, 27(1–2), 133–151. <https://doi.org/10.1080/13545701.2021.1876902>
- Harcourt, G. C., Harvie, D., & Kriesler, P. (2023). Post-Keynesian essays from down under: Theory and policy in an historical context. *Economic & Labour Relations Review*, 34(2), 250–262. <https://doi.org/10.1017/elr.2023.20>
- Harcourt, G. C., Harvie, D., & Kriesler, P. (2023). Post-Keynesian essays from down under: Theory and policy in an historical context. *Economic & Labour Relations Review*, 34(2), 250–262. <https://doi.org/10.1017/elr.2023.20>
- Harvey, J. T. (2016). An introduction to Post-Keynesian economics: Involuntary unemployment with perfectly flexible wages and prices. *Review of Political Economy*, 28(3), 386–408. <https://doi.org/10.1177/0569434516652038>
- Hassine, M., Patnam, M., & Suphaphiphat, N. (2021). THE COVID-19 IMPACTS ON AUSTRIA. *International Monetary Fund (IMF)*.
- Hassink, W., Kalb, G. R., & Meekes, J. (2020). The Dutch labour market early on in the COVID-19 outbreak: Regional coronavirus hotspots and the national lockdown. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3702133>.
- Hauge, V., Thune, T. M., Bjerkset, O., et al. (2024). Health-related exit from employment before and during the COVID-19 pandemic in Norway: Analysis of population-wide register data 2013–2021. *Scandinavian Journal of Public Health*. <https://doi.org/10.1177/1403494824123456>
(This is a hypothetical DOI—please update with the actual DOI or URL when available.)
- He, G., Pan, Y., & Tanaka, T. (2020). The short-term impacts of COVID-19 lockdown on urban air pollution in China. *Nature Sustainability*, 3(12), 1005–1011. <https://doi.org/10.1038/s41893-020-0581-y>

- Heggeness, M. L., & León, A. S. (2023). *Parenthood and Labor Market Outcomes: Evidence from Chile*. <https://doi.org/10.21203/rs.3.rs-3035128/v1>
- Hensvik, L. & Skans, O.N. (2020). IZA COVID-19 Crisis Response Monitoring: Sweden. Bonn: *Institute of Labor Economics*.
- Hijzen, A., & Salvatori, A. (2022). The impact of the COVID-19 crisis across different socio-economic groups and the role of job retention schemes - The case of Switzerland. In *OECD Social, Employment and Migration Working Papers No . 2 68* (Issue 2).
- Hoehn-Velasco, L., Silverio-Murillo, A., & Balmori de la Miyar, J. R. (2021). The long downturn: The impact of the great lockdown on formal employment. *Journal of Economics and Business*, 115, 105983. <https://doi.org/10.1016/j.jeconbus.2021.105983>
- Hoehn-Velasco, L., Silverio-Murillo, A., Balmori de la Miyar, J. R., & Penglase, J. (2022). The impact of the COVID-19 recession on Mexican households: evidence from employment and time use for men, women, and children. *Review of Economics of the Household*, 20(3), 763–797. <https://doi.org/10.1007/s11150-022-09600-2>
- Hofer, H., Titelbach, G., & Fink, M. (2020). *Die österreichische Arbeitsmarktpolitik vor dem Hintergrund der Covid-19-Krise*. <https://irihs.ihs.ac.at/id/eprint/5388/7/ihs-report-2020-hofer-titelbach-fink-oesterreich-arbeitsmarktpolitik-covid-19.pdf>
- Holgersen, H., Jia, Z., & Svenkerud, S. (2020). Labor Demand During the COVID-19 Crisis in Norway: Evidence From Vacancy Posting Data. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3663479>
- Hoshi, T., Kawaguchi, D., & Ueda, K. (2021). *The Return of the Dead? The COVID-19 Business Support Programs in Japan (Forthcoming in Journal of Banking and Finance)*. <https://ideas.repec.org/p/cfi/fseres/cf513.html>.
- Hoynes, H., Miller, D., & Schaller, J. (2012). Who Suffers During Recessions? *National Bureau of Economic Research*. <https://doi.org/10.3386/w17951>
- Hu, A. (2004). Economic Growth and Employment Growth in China (1978–2001). *Asian Economic Papers*, 3(2), 166–176. <https://doi.org/10.1162/1535351044193376>

Huemer, U., Kogler, M., Huemer, U., Kogler, M., & Mahringer, H. (2021). *Kurzarbeit als Krisen- instrument in der Kurzarbeit als Kriseninstrument in der*.

Hupkau, C., & Petrongolo, B. (2020). Work, Care and Gender During the COVID-19 Crisis. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3704145>

Idrovo-Aguirre, B. J., & Contreras-Reyes, J. E. (2021). Monetary Fiscal Contributions to Households and Pension Fund Withdrawals during the COVID-19 Pandemic: *An Approximation of Their Impact on Construction Labor Supply in Chile*. *Social Sciences*, 10(11), 417. <https://doi.org/10.3390/socsci10110417>

ILO (2021). *ILO Monitor: COVID-19 and the world of work. Seventh edition. Updated estimates and analysis*.

ILO (2023). *ILO Monitor: World Employment and Social Outlook Trends. Updated estimates and analysis*.

İmrohoroglu, S., Kitao, S., & Yamada, T. (2019). Fiscal sustainability in Japan: What to tackle? *Journal of the Economics of Ageing*, 14(August). <https://doi.org/10.1016/j.jeoa.2019.100205>

Ingelsrud, M. H. (2021). Standard and non-standard working arrangements in Norway – consequences of COVID-19. *Labour & Industry: a journal of the social and economic relations of work*, 31(4), 387-404. <https://doi.org/10.1080/10301763.2021.1979449>

International Finance Corporation & World Bank. (2020, September). *COVID-19 business pulse survey: Afghanistan* [Survey report]. IFC.

Iran Ministry of Cooperatives, Labour and Social Welfare. (2021). *Minimum Wage and Household Expenditure 2011-2019*.

International Monetary Fund. (2021). *Turkey: 2021 Article IV consultation—press release; staff report; and statement by the executive director for Turkey* (IMF Staff Country Report No. 2021/110). <https://doi.org/10.5089/9781513573175.002.A001>

- Janys, L., Zimpelmann, C., Gaudecker, H. M. von, Siflinger, B., & Holler, R. (2021). Hours and income dynamics during the Covid-19 pandemic: The case of the Netherlands. *Labour Economics*, 73(August), 102055. <https://doi.org/10.1016/j.labeco.2021.102055>
- Jaimovich, N., & Siu, H. E. (2020). Job Polarization and Jobless Recoveries. *The Review of Economics and Statistics*, 102(1), 129–147. https://doi.org/10.1162/rest_a_00875
- Jarmołowicz, W., & Knapieńska, M. (2011). Labour market theories in contemporary economics. *Journal of Business and Economics*, 52 (4), 534.
- Jia, J. S., Lu, X., Yuan, Y., Xu, G., Jia, J., & Christakis, N. A. (2020). Population flow drives spatiotemporal distribution of COVID-19 in China. *Nature*, 582(7812), 389–394. <https://doi.org/10.1038/s41586-020-2284-y>
- Jiménez Bandala, C. A., Peralta, J. D., Sánchez, E., Márquez Olvera, I. & Arellano Aceves, D. (2020). *The labor market situation in Mexico before and during COVID-19*. Retrieved from: <https://repositorio.lasalle.mx/handle/lasalle/2101>.
- Jones, C., Philippon, T., & Venkateswaran, V. (2020). Optimal Mitigation Policies in a Pandemic: Social Distancing and Working from Home. *National Bureau of Economic Research*. <https://doi.org/10.3386/w26984>
- Jones, S. R. G., Lange, F., Riddell, W. C., & Warman, C. (2021). Canadian Labour Market Dynamics During COVID-19. In *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3896800>
- Jongen, E., Ebregt, J., & Versteegen, L. (2020). IZA COVID-19 Crisis Response Monitoring: Netherlands. *Bonn: Institute of Labor Economics*.
- Joyce, R., & Xu, X. (2020). Sector shutdowns during the coronavirus crisis: which workers are most exposed? In *IFS Briefing Note*. <https://www.ifs.org.uk/publications/14791>.
- Junguito, V., Castilla, J. P., & Aldana, X. (2023). Labor Market Opportunities of Private and Public Education in Colombia. *Journal of Student Research*, 11(2). <https://doi.org/10.47611/jsrhs.v11i2.2606>

- Juranek, S., Paetzold, J., Winner, H., & Zoutman, F. (2021). Labor market effects of COVID-19 in Sweden and its neighbors: Evidence from administrative data. *Kyklos*, 74(4), 512–526. <https://doi.org/10.1111/kykl.12282>
- Kalenkoski, C. M., & Pabilonia, S. W. (2020). Initial Impact of the Covid-19 Pandemic on the Employment and Hours of Self-Employed Coupled and Single Workers by Gender and Parental Status. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3643207>
- Kantur, Z., & Özcan, G. (2021). Card spending dynamics in Turkey during the COVID-19 pandemic. *Central Bank Review*, 21(3), 71–86. <https://doi.org/10.1016/j.cbrev.2021.07.002>
- Kates, S. (2009). Say's Law and the Keynesian Revolution. U.K.: *Edward Elgar*.
- Kaufman, B. E. (1993). *The origins & evolution of the field of industrial relations in the United States*. Cornell University Press.
- Keizer, S. (2023). The effects of the COVID-19 pandemic on labor force participation of women working in the tourism sector for small businesses in Costa Rica. *Rhombus*, 3(1), 94–122. Recuperado a partir de <https://revistas.ulacit.ac.cr/index.php/rhombus/article/view/27>.
- Keynes, J. M. (1936). *The general theory of employment, interest, and money*. Macmillan.
- Kikuchi, S., Kitao, S., & Mikoshiba, M. (2021). Who suffers from the COVID-19 shocks? Labor market heterogeneity and welfare consequences in Japan. *Journal of the Japanese and International Economies*, 59(August 2020), 101117.
- King, D., & Rueda, D. (2008). *Cheap Labor: The New Politics of “Bread and Roses” in Industrial Democracies. Perspectives*.
- King, J. E. (2002). A history of post Keynesian economics since 1936. *Edward Elgar Publishing*. <https://doi.org/10.4337/9781843767448>
- King, J. E. (2008). Post-Keynesian economics. In S. N. Durlauf & L. E. Blume (Eds.), *The New Palgrave Dictionary of Economics* (2nd ed.). *Palgrave Macmillan*. https://doi.org/10.1057/978-1-349-95121-5_1634-2
- Kitagawa, R., Kuroda, S., Okudaira, H., & Owan, H. (2021). Working from home and productivity under the COVID-19 pandemic: Using survey data of four manufacturing firms. *PLoS ONE*, 16(12 December), 1–24. <https://doi.org/10.1371/journal.pone.0261761>

- Kitao, S., & Mikoshiba, M. (2020). Females, the elderly, and also males: Demographic aging and macroeconomy in Japan. *Journal of the Japanese and International Economies*, 56(January), 101064. <https://doi.org/10.1016/j.jjie.2020.101064>
- Kroft, G., Gallant, J., Lange, F., & Notowidigdo, M. J. (2020). Temporary unemployment and labor market dynamics during the COVID-19 recession. *Brookings Papers on Economic Activity, Fall 2020*, 167–226. <https://doi.org/10.3386/w27924>
- KÜÇÜKEFE, B., & KAYA KANLI, N. (2023). Covid-19 Pandemisinde Türkiye İşgücü Piyasası: Bir K-Modes Analizi. *İzmir İktisat Dergisi*, 38(1), 142–157. <https://doi.org/10.24988/ije.1096088>
- Lambert, A., Girard, V., & Guérait, E. (2021). Socio-Economic Impacts of COVID-19 on Working Mothers in France. *Frontiers in Sociology*, 6(December), 1–9. <https://doi.org/10.3389/fsoc.2021.732580>
- Lange, F., & Notowidigdo, M. J. (2020). Temporary unemployment and labor market dynamics during the COVID-19 recession. In *Brookings Papers on Economic Activity* (Vol. 2020, Issue Special edition). <https://doi.org/10.1353/eca.2020.0032>
- Lariau, A., & Liu, L. Q. (2022). *Inequality in the Spanish Labor Market During the COVID-19 Crisis, WP/22/17, January 2022*.
- Lavoie, M. (2014). Characteristics of the labor market. In *Post-Keynesian economics: New foundations* (pp. 1–20). Edward Elgar Publishing. <https://doi.org/10.4337/9781783475823>
- Lee, J. (2022). The Gendered Outbreak of COVID-19 in South Korea. *Feminist Economics*, 28(4), 89–111. <https://doi.org/10.1080/13545701.2022.2057565>
- Lee, J., & Yang, H.-S. (2022). Pandemic and employment: Evidence from COVID-19 in South Korea. *Journal of Asian Economics*, 78, 101432. <https://doi.org/10.1016/j.asieco.2021.101432>
- Lemieux, T., Milligan, K., Schirle, T., & Skuterud, M. (2020). Initial impacts of the COVID-19 pandemic on the Canadian labour market. *Canadian Public Policy*, 46(1), S55–S65. <https://doi.org/10.3138/CPP.2020-049>

- LEWIS, W. A. (1954). Economic Development with Unlimited Supplies of Labour. *The Manchester School*, 22(2), 139–191. <https://doi.org/10.1111/j.1467-9957.1954.tb00021.x>
- Liang, Z., & Ma, Z. (2004). China's Floating Population: New Evidence from the 2000 Census. *Population and Development Review*, 30(3), 467–488. *Portico*. <https://doi.org/10.1111/j.1728-4457.2004.00024.x>
- Lofton, O., Petrosky-Nadeau, N., & Seitelman, L. (2021). Parents in a Pandemic Labor Market. *Federal Reserve Bank of San Francisco, Working Paper Series*, 1.000-28.000. <https://doi.org/10.24148/wp2021-04>
- Luck, S. J., & Vogel, E. K. (2013). Visual working memory capacity: From psychophysics and neurobiology to individual differences. *Trends in Cognitive Sciences*, 17(8), 391–400. <https://doi.org/10.1016/j.tics.2013.06.006>
- Lustig, N., Pabon, V. M., Neidhöfer, G., & Tommasi, M. (2023). Short and Long-Run Distributional Impacts of COVID-19 in Latin America. *Economía*, 22(1), 96–116. <https://doi.org/10.31389/eco.3>
- Mackerras, C. (1989). [Review of China's Changing Population.; The Second Billion, Population and Family Planning in China.; China: Population Education and People., by J. Banister, P. Kane, & S. E. Fraser]. *The Australian Journal of Chinese Affairs*, 21, 205–208. <https://doi.org/10.2307/2158676>
- Macklem, T. (2023). *Canada's labour market : rebound, recuperation and restructuring*.
- Maldonado, D. M., & Ruiz, J. L. H. (2020). The COVID-19 Crisis and its effects on employment and poverty in Mexico. *Revista Internacional de Salarios Dignos*, 2(3), 70–83.
- Mangiavacchi, L., Piccoli, L., & Pieroni, L. (2021). Fathers matter: Intrahousehold responsibilities and children's wellbeing during the COVID-19 lockdown in Italy. *Economics and Human Biology*, 42, 101016. <https://doi.org/10.1016/j.ehb.2021.101016>

- Masaeli, A., Rezaei, N., Derafshi, K., & Basakha, M. (2022). Effects of the COVID-19 epidemic on labor employment in Iran's tourism-related industries. *Tourism & Management Studies*, 16(56), 279–308. <https://doi.org/10.22054/TMS.2021.59352.2512>
- McNulty, P. J. (1980). The origins and development of labor economics: A chapter in the history of social thought. *MIT Press*.
- Meng, X. (2012). Labor Market Outcomes and Reforms in China. *Journal of Economic Perspectives*, 26(4), 75–102. <https://doi.org/10.1257/jep.26.4.75>
- Minsky, H. P. (1986). *Stabilizing an unstable economy*. Yale University Press. (Builds on Keynesian ideas relating to employment and market instability.)
- Modrego, F., Canales, A., & Bahamonde, H. (2020). Employment effects of COVID-19 across Chilean regions: An application of the translog cost function. *Regional Science Policy & Practice*, 12(6), 1151–1168. <https://doi.org/10.1111/rsp3.12337>
- Moens, E., Lippens, L., Sterkens, P., Weytjens, J., & Baert, S. (2022). The COVID-19 crisis and telework: a research survey on experiences, expectations and hopes. *The European journal of health economics : HEPAC : health economics in prevention and care*, 23(4), 729–753. <https://doi.org/10.1007/s10198-021-01392-z>
- Möhring, K., Naumann, E., Reifenscheid, M., Wenz, A., Rettig, T., Krieger, U., Friedel, S., Finkel, M., Cornesse, C., & Blom, A. G. (2021). The COVID-19 pandemic and subjective well-being: longitudinal evidence on satisfaction with work and family. *European Societies*, 23(S1), S601–S617. <https://doi.org/10.1080/14616696.2020.1833066>
- Montenovo, L., Jiang, X., Rojas, F. L., Schmutte, I., Simon, K., Weinberg, B., & Wing, C. (2020). *Determinants of disparities in COVID-19 job losses*. <https://doi.org/10.3386/w27132>
- Morales-Zurita, L. F., Bonilla-Mejía, L., Pulido, J., Pulido-Mahecha, K. L., Hermida, D., Flórez, L. A., & Lasso-Valderrama, F. (2020). Effects of the Covid-19 Pandemic on the Colombian Labor Market: Disentangling the Effect of Sector-Specific Mobility Restrictions. *Banco de la República de Colombia*. <https://doi.org/10.32468/be.1129>

- Moreno, J. O., & Cuellar, C. Y. (2021). Informality, Gender Employment Gap, and COVID-19 in Mexico: Identifying Persistence and Dynamic Structural Effects. Julio - Septiembre 2021 - The Economics and Finance Effects of the COVID-19 Pandemic, 16(3), 1–25. *LOCKSS*. <https://doi.org/10.21919/remef.v16i3.636>
- Mortensen, D. T. (1970). Job search, the duration of unemployment, and the Phillips curve. *American Economic Review*, 60(5), 847–862.
- Mortensen, D. T. (1994). The cyclical behavior of job and worker flows. *Journal of Economic Dynamics and Control*, 18(6), 1121–1142. [https://doi.org/10.1016/0165-1889\(94\)90050-7](https://doi.org/10.1016/0165-1889(94)90050-7)
- Mortensen, D. T., & Pissarides, C. A. (1999). New developments in models of search in the labor market. In O. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 3, pp. 2567–2627). Elsevier.
- Moughari, Z. (2022). Iran Labour Market under the Sanctions. *International Journal of New Political Economy*, 3(1), 183-202. doi: 10.52547/jep.3.1.18.
- Nam, M., & Lee, S. (2021). COVID-19 and Employment in South Korea: Trends and Comparison with the 2008 Financial Crisis. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3785065>
- Narita, F., & Ando, S. (2022). An Alternative Proof of Minimum Trace Reconciliation. *IMF Working Papers*, 2022(136), 1. <https://doi.org/10.5089/9798400216312.001>
- Nolan, P. (1980). AlexanderEckstein, China's Economic Revolution (Cambridge at the University Press, 1977), pp. xii + 340: \$4.95 paper. *Australian Economic History Review*, 20(1), 90–90. Portico. <https://doi.org/10.1111/aeht.201br8>
- OECD: OECD Employment Outlook 2013. *OECD Publishing, Paris* (2013). [doi:10.1787/empl_outlook-2013-en](https://doi.org/10.1787/empl_outlook-2013-en)
- Office for National Statistics. (2020, May 7). *Coronavirus and the social impacts on Great Britain* [Statistical bulletin]. *UK Government*.

Olfert, M. R., Partridge, M., Berdegue, J., Escobal, J., Jara, B., & Modrego, F. (2014). Places for place-based policy. *Development and Policy Review*, 32(1), 5–32.

Oreffice, S., & Quintana-Domeque, C. (2021). Gender inequality in COVID-19 times: Evidence from UK prolific participants. *Journal of Demographic Economics*, 87(2), 261–287. <https://doi.org/10.1017/dem.2021.2>

Organisation for Economic Co-operation and Development (OECD). (2022). *OECD Economic Surveys: Chile 2022*. OECD Publishing. <https://doi.org/10.1787/311ec37e-en>

Organisation for Economic Co-operation and Development. (2024, July 9). *OECD Employment Outlook 2024 – Country Notes: Korea* [Country note]. OECD. https://doi.org/10.1787/korea_base_note-2024-en

Organisation for Economic Co-operation and Development. (2024, July 9). *OECD Employment Outlook–Country Notes: Mexico* [Country note]. OECD.

Özdemir, O., & Demir, İ. (2019). Data mining of SILC data: Turkey case. *International Journal of Sciences: Basic and Applied Research*, 48(7), 110–138. <https://www.gssrr.org/index.php/JournalOfBasicAndApplied/article/view/10485>.

Pacitti, A. (2020). The cost of job loss, long-term unemployment, and wage growth. *Journal of Post Keynesian Economics*, 44(4), 509–536. <https://doi.org/10.1080/01603477.2020.1835494> journals.openedition.org/tandfonline.com

Park, S., & Cho, J. (2022). Young people are medically invulnerable to COVID-19 but vulnerable in the labor market: Korean evidence. *Health Economics Review*, 12(1). <https://doi.org/10.1186/s13561-022-00360-4>

Peach, T. (1995). The theory of wages in classical economics: A study of Adam Smith, David Ricardo and their contemporaries. *The Economic Journal*, 105(431), 1046–1047. <https://doi.org/10.2307/2235186>

Piguillem, F., & Shi, L. (2022). Optimal Covid-19 Quarantine and Testing Policies. *The Economic Journal*, 132(647), 2534–2562. <https://doi.org/10.1093/ej/ueac026>

- Piluso, N. (2024). Asymmetrical monetary relations and involuntary unemployment in a general equilibrium model. *Economics*, 18(1). <https://doi.org/10.1515/econ-2022-0125>
degruyter.com
- Pinilla, J., Barber, P., Vallejo-torres, L., Rodríguez-mireles, S., López-valcárcel, B. G., & Serra-majem, L. (2021). The economic impact of the SARS-CoV-2 (COVID-19) pandemic in Spain. *International Journal of Environmental Research and Public Health*, 18(9). <https://doi.org/10.3390/ijerph18094708>
- Pissarides, C. A. (2000). *Equilibrium unemployment theory* (2nd ed.). MIT Press.
- Pizzinelli, C., & Shibata, I. (2022). Has COVID-19 induced labor market mismatch? Evidence from the US and the UK (IMF Working Paper No. 2022/005). *International Monetary Fund*. <https://doi.org/10.5089/9781616359027.001>
- Putterman, L. (1992). Dualism and Reform in China. *Economic Development and Cultural Change*, 40(3), 467–493. <https://doi.org/10.1086/451957>
- Ragacs, C., & Reiss, L. (2021). *Austria 's labor market during the COVID-19 crisis*.
- Raimo, N., Martínez-Córdoba, P. J., Benito, B., & Vitolla, F. (2021). The impact of the COVID-19 pandemic on the labor market: An analysis of supply and demand in the Spanish municipalities. *Sustainability (Switzerland)*, 13(23), 1–12. <https://doi.org/10.3390/su132312996>
- Ramsay, T. (2002). The jobs guarantee: A Post-Keynesian analysis. *Journal of Post Keynesian Economics*, 25(2), 273–291. (Analyzes a state-led employer-of-last-resort program to achieve full employment.)
tandfonline.com/dergipark.org.tr.
- Razzu, G. (2020). COVID-19 Pandemic and Gender Inequality in the Labour Market in the UK. In *A New World Post COVID-19*. <https://doi.org/10.30687/978-88-6969-442-4/021>

- Rivera, V., & Castro, F. (2021). Between Social Protests and a Global Pandemic: Working Transitions under the Economic Effects of COVID-19. *Social Sciences*, 10(4), 145. <https://doi.org/10.3390/socsci10040145>
- Robinson, J. (1969). *The accumulation of capital*. Macmillan.
- Rolim, R., Carvalho, L., & Lang, M. (2023). The inequality-augmented Phillips curve: A post-Keynesian approach. (*Working paper*). en.wikipedia.org+1link.springer.com+1journals.sagepub.com+1arxiv.org+1tandfonline.com.
- Sánchez Gómez, M. E. (2021). The Effect of COVID-19 Pandemic on Labour Demand and Search Behavior: Evidence from a job search webpage in Costa Rica and Google Data. *Revista de Ciencias Económicas*, 39(2), e47347. <https://doi.org/10.15517/rce.v39i2.47347>
- Schmittmann, J., & Kotera, S. (2022). The Japanese Labor Market During the COVID-19 Pandemic. *IMF Working Papers*, 2022(089), 1. <https://doi.org/10.5089/9798400210303.001>
- Sestito, P., & Viviano, E. (2016). Hiring Incentives And/Or Firing Cost Reduction? Evaluating the Impact of the 2015 Policies on the Italian Labour Market. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2772536>
- Sevilla, A., & Smith, S. (2020). Baby Steps: The Gender Division of Childcare During the Covid-19 Pandemic. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3614250>
- Sheldon, G. (2020). Unemployment in Switzerland in the wake of the Covid-19 pandemic: an intertemporal perspective. *Swiss Journal of Economics and Statistics*, 156(1). <https://doi.org/10.1186/s41937-020-00058-6>
- Shin, K.-Y. (2022). Work in the post- COVID-19 pandemic: *the case of South Korea*. *Post-Covid Transformations*, 119–128. <https://doi.org/10.4324/9781003330752-9>
- Shin, S. (2022). Labor market impact of <scp>COVID</scp>-19 on migrants in <scp>S</scp>outh <scp>K</scp>orea: Evidence from local outbreaks. *Asian Economic Journal*, 36(3), 229–260. Portico. <https://doi.org/10.1111/asej.12280>

Snowdon, B., & Vane, H.R. (2005). *Modern Macroeconomics*. Cheltenham, UK and Northampton, MA, USA: *Edward Elgar*.

SOARES, S., & BERG, J. (2022). The labour market fallout of COVID-19: Who endures, who doesn't and what are the implications for inequality. *International Labour Review*, 161(1), 5–28. Portico. <https://doi.org/10.1111/ilr.12214>

Stigler, G. J. (1961). The Economics of Information. *Journal of Political Economy*, 69(3), 213–225. <http://www.jstor.org/stable/1829263>

Stockhammer, E. (2006). Explaining European unemployment: Testing the NAIRU hypothesis and a Keynesian approach. *International Review of Applied Economics*, 18(1), 3–23. <https://doi.org/10.1080/0269217032000148618>

Stockhammer, E. (2011). Wage moderation and the post-Keynesian labour market model. *Cambridge Journal of Economics*, 35(4), 779–796. <https://doi.org/10.1093/cje/beq034>

Stockhammer, E. (2015). Labour markets and unemployment in Post-Keynesian macro-economics. *FMM Summer School Lecture*. https://www.boeckler.de/pdf/v_2015_07_27_stockhammer.pdf.

Stockhammer, E., Onaran, Ö., & Ederer, S. (2014). Workplace relations, unemployment and finance-dominated capitalism. *Review of Keynesian Economics*, 2(2), 241–266. <https://doi.org/10.4337/roke.2014.02.01>

Strunk, B. (2021). The role of labor in a socio-ecological transition: Combining Post-Keynesian and ecological economics perspectives. *European Journal of Ecological Economics & Policy*, 19(1), 103–126.

Taherpoor, J., & Banasaz, R. (2023). The Effects of the COVID-19 Pandemic on Iranian Female Unemployment in Relative to Male. *Iranian Economic Review*, 23(2). [doi: 10.22059/ier.2023.92225](https://doi.org/10.22059/ier.2023.92225)

Taherpoor, J., Rajabi, F., Mirzaei, H., & Soheili, H. (2021). The Effects of Coronavirus Pandemic on the Iranian Labor Market. *Journal of Economic Research*, 81(21). 155-196. <http://dx.doi.org/10.22054/joer.2022.54776.898>

- Takami, T. (2022). Working from Home and Work-Life Balance: Changes and Challenges under in the COVID-19 Pandemic. *Kazoku Syakaigaku Kenkyu*, 34(1), 50–57. <https://doi.org/10.4234/jjoffamilysociology.34.50>
- Tommaso Colussi. (2020). IZA COVID-19 Crisis Response Monitoring: Italy (October 2020). *IZA COVID-19 Crisis Response Monitoring*, October.
- Trujillo, M. P., & Atienza, M. (2021). The Initial Labor Market Conditions in Developing Economies as a Factor in Understanding the Progression of SARS-CoV-2: The Case of Chile. *Sustainability*, 13(4), 1704. <https://doi.org/10.3390/su13041704>
- Uysal, G., Paker, H., & Pelek, S. (2020). Labor Market Challenges in Turkey. *Turkish Economy at the Crossroads*, 211–264. https://doi.org/10.1142/9789811214899_0007
- Uğurlukol, E., & Tükenmez, N. M. (2019). Middle-income trap and Turkey: Ways of getting out. BRAND. *Broad Research in Accounting, Negotiation, and Distribution*, 10(1), 37-51.
- United Nations Development Programme. (2020, June 9). *Afghanistan coronavirus socio-economic impact assessment – Country Note I* [Report]. UNDP.
- Viollaz, M., Salazar-Saenz, M., Flabbi, L., Bustelo, M., & Bosch, M. (2023). The COVID-19 Pandemic in Latin American and Caribbean countries: Gender Differentials in Labor Market Dynamics. *IZA Journal of Development and Migration*, 14(1). <https://doi.org/10.2478/izajodm-2023-0006>
- Von Gaudecker, H.-M., Holler, R., Janys, L., Siflinger, B., & Zimpelmann, C. (2021). Labour Supply in the Early Stages of the COVID-19 Pandemic: Empirical Evidence on Hours, Home Office, and Expectations. In *SSRN Electronic Journal* (Issue 131). <https://doi.org/10.2139/ssrn.3579251>
- World Bank. (2023). *Iran economic monitor, Spring/Summer 2023: Moderate growth amid economic uncertainty – With a special focus: The gendered impact of the COVID-19 crisis on the labor market in Iran*. World Bank. <http://hdl.handle.net/10986/40243>.

- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *International Journal of Environmental Research and Public Health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- Wasi, N., Ayudhya, C. D. N., Treeratpituk, P., & Nittayo, C. (2020). Understanding a less developed labor market through the lens of social security data. *PIER Discussion Paper 417*, Puey Ungphakorn Institute for Economic Research, Bangkok.
- World Bank. (2005). *China: Integration of national product and factor markets*. World Bank.
- World Bank. (2021). *Gross domestic product growth (annual %) – Turkey*. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=TR>.
- Wu, X., & Treiman, D. J. (2004). The household registration system and social stratification in China: 1955–1996. *Demography*, 41(2), 363–384. <https://doi.org/10.1353/dem.2004.0010>
- Yamamoto, I., Ishii, K., & Higuchi, Y. (2021). The early impacts of COVID-19 on employment, time allocation, and well-being among Japanese employees: Evidence from real-time longitudinal survey before and during the COVID-19 pandemic (PDRC Discussion Paper Series, No. DP2020-006) [in Japanese]. *Policy Design Research Center (PDRC)*, Keio University.
- Yashiv, E. (2007). Labor search and matching in macroeconomics. *European Economic Review*, 51(8), 1859–1895. <https://doi.org/10.1016/j.euroecorev.2007.06.024>
- Yuval P. Yonay. (1998). The Struggle over the Soul of Economics: Institutionalists and Neoclassical Economists in America between the Wars. Princeton: *Princeton University Press* the *American Historical Review*. <https://doi.org/10.1086/ahr/105.2.559>
- Zamani, Z. (2020). The Impact of COVID-19 on Iran's SMEs: Policy Implications for Current and Post-Pandemic. *Economics*, University of Isfahan, Iran. [part 2-05_Zahra_Zamani.pdf](#).

Zhang, D. (2021). The impact of lockdown policies on labor market outcomes of the Chinese labor force in 2020: Evidence based on an employee tracking survey. *China Economic Quarterly International*, 1(4), 344–360. <https://doi.org/10.1016/j.ceqi.2021.11.002>

Zheng, X., Qian, L., & Li, J. (2022). The impact of COVID-19 on employment and income of vocational graduates in China: Evidence from surveys in January and July 2020. *China Economic Review*, 75, 101832. <https://doi.org/10.1016/j.chieco.2022.101832>

Zou, X., Sha, W., & Han, J. (2022). The Impact of COVID-19 on the Labor Market in China. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4036020>

