

**TURKEY AND BRAIN MIGRATION: POLICIES FORMED FROM
PUSH AND PULL PERSPECTIVES AND EFFECTS ON BRAIN DRAIN**



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PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

12. 10. 2022

Nurdan SÖNMEZ

ÖZET

İyi eğitim almış beşerî sermayenin başka bir coğrafyaya gidişi olarak tanımlanan beyin göçü, 1945’lerde nitelikli gücünü başka ülkelere kaybeden İngiltere tarafından fark edilmiş, küreselleşmenin de etkisiyle 1960’lardan sonra hızla artmıştır. ABD, İngiltere, Almanya gibi, ülkeler, itme ve çekme perspektifinden önemli beyin göçü politikaları geliştirmişlerdir. Türkiye ise TÜBİTAK Tersine Beyin Göçü ve Turkuaz Kart Yabancı Beyin Göçü çekme politikaları da dâhil, beyin göçünün mağduru olmamak açısından, birtakım politikalar geliştirdiyse de etkili bir atak oluşturamamış beyin göçü sorununu politik gündemine bir problem olarak almakta geç kalmıştır. Ayrıca, Türkiye’nin beyin göçü politikalarını tarihsel olarak ortaya koyan bütünlük, düzenli bir çalışma olmadığı gibi, elde edilen veriler, daha çok beyin sermayesinin kaybının incelenmesi gibi çalışmalar olarak öne çıkmaktadır. Bu çalışmada, beyin göçü politikalarının itme ve çekme etkisini anlamak açısından beyin göçü çekme konusunda dünyada önde gelen ABD Green Kart, Almanya Mavi Kart ve Türkiye’nin geliştirdiği Turkuaz Kartın benzer özellikleri karşılaştırılmıştır. Çalışmanın odağını oluşturan Türkiye’nin itme ve çekme perspektifinden oluşturduğu, beyin göçü politikaları ise tarihsel dönemleri bağlamında incelenerek ortaya konulmuş, “beyin göçü politikası” ise kavramsallaştırılmıştır. Kalkınma Planlamaları kapsamında geliştirilen son güncel, Turkuaz Kart ve TÜBİTAK 2232 tersine beyin göçü politikaları analiz edilmiş, Türkiye’nin beyin göçü politikalarının beyin göçüne etkisini itme ve çekme perspektifinden değerlendiren bir SWOT analizi yapılmıştır.

Anahtar Kelimeler: Göç, Beyin Göçü, İtme ve Çekme, Kalkınma Planlamaları, Beyin Göçü Politikası, Turkuaz Kart, TÜBİTAK Kart

ABSTRACT

Brain drain, which is defined as the departure of well-educated human capital to another geography, was noticed by England, which lost its qualified power to other countries in 1945. When the problem of brain drain increased rapidly after the 1960s with the effect of globalization, countries such as the USA, England and Germany developed important brain drain policies from the perspective of push and pull. Turkey, on the other hand, has developed some policies, including TÜBİTAK Reverse Brain Drain and Turquoise Card Foreign Brain migration pull policies, in order not to be a victim of brain drain, but it was late to include brain drain as a problem on its political agenda, although it could not develop an effective attack. In addition, there is no integrated, regular study that reveals Turkey's brain drain policies historically, and the data obtained stand out as studies such as examining the loss of brain capital. In this study, the brain drain policies of the USA and Germany, which are the leading brain drains in the world, were examined to understand the push and pull effect of brain drain policies, and similar features of the US Green Card, Germany Blue Card and Turquoise Card developed by Turkey were compared and the brain drain policy has also been conceptualized. The brain drain policies of Turkey, which is the focus of this study, formed from the perspectives of push and pull, have been put forward in the context of their historical periods. TÜBİTAK 2232 and Turquoise Card policies within the scope of development plans were analyzed. A SWOT analysis was conducted to evaluate the effects of Turkey's brain migration policies on brain drain.

Keywords: *Migration, Brain Drain, Push and Pull, Development Planning, Brain Drain Policy, Turquoise Card, TÜBİTAK Card*

Dedicate

To my beloved father and brother whose passed away

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CHAPTER 1

1. INTRODUCTION

Migration is an objective process that has left its mark on all life and history, starting with the contact of the first human communities with each other. It is a trigger for mutual interaction of different societies with their social, cultural and economic characteristics. Also, if the relations and interactions between different human communities and civilizations - who are on the move - can be accepted as a way of globalization, migration may well be counted as an important dynamic for globalization. With its lexical meaning, migration is defined as "the movement of individuals or communities from one country to another, or from one settlement to another, due to economic, social or political reasons" (Türk Dil Kurumu, 2020).

Referring to the temporary or permanent settlement of people in a place different than their home country or geography, migration took place as voluntary or forced movements from one geography to another until the 19th century. However, the nature of migration changed over time due to global developments such as transportation, communication and technological advancements. This change in nature also led to variation of migration types. Variation is a multifaceted concept. The migration phenomenon became exposed to this variation as observed in the constantly changing production patterns, commerce, culture, ideas, opinions, aesthetic criteria, religions, arts and artisanship. In the academic world, variation of migration is categorized differently according to its reason of formation. The basic variation includes one marked by the purpose of migration: economic and non-economic migrations. There are other categorizations of migration: voluntary and forced

migration (according to factors triggering migration); temporary and permanent migration (according to the time of migration movement); transit and settlement migration (according to last settlement); legal and illegal migration (according to legal status) and qualified and unqualified migration/brain drain (according to migrants' characteristics). Among several migration types, specifically brain drain continues to change shape in the international field depending on the conditions of this age. Brain drain refers to losing part of qualified human resources to migration along with their social and economic benefits to society. Everett S. Lee, an influential migration theorist, put forward a theoretical framework for push and attraction causes of migration. Lee argues that "The places of emigration have push and pull social, economic, cultural, climatic or geographical characteristics. Pushing causes refer to obstacles and opportunities between two places that have positive or negative effects on migration" (Piche, 2013:141).

In addition, social history does not present a regular flow; it proceeds by changing quality and transformation through leaps and major breaks. Migrations are also part of social history. Therefore, migrations have various consequences besides various reasons depending on the relative conditions of their age. The decision to emigrate is also a cause and effect. Individual preferences or other relative variables affect the decision to emigrate. This has led to significant changes and transformations in the geographical boundaries of migration depending on the labor force or brain power of migrants. According to Portes, one of the strongest triggering factors of those transformations was the Cold War. "With the effect of post-Cold War globalization and knowledge intensive technological transformation, brain power - also called brain capital - became vital in the phenomenon of migration" (Portes, 1995:1-40).

As Portes notes, towards the end of 1960-1989 and particularly with globalization in the post-Cold War era, states started to become interdependent in their financial, capital and knowledge-based relations. This interdependency can be defined as financial, economic, social and communicational interaction and adaptation process between societies, human communities, states or companies. As in any transformation, those post-Cold War paradigms of global change also influenced the nature of migration. In this vein, advancing means of transportation and communication made every corner of the world more easily accessible, and social relations around the world reached a much more advanced level than in previous eras. The globalization of social activity manifested itself in the development of global connections and international division of labor. The phenomenon of globalization also led to vital transformations in qualified human resource movements, i.e. it emerged as an important factor in growing migration waves to developed countries. Thus, it is not surprising that brain drain continues to increase and change shape due to several reasons in the 21st century - referred to as the digital transformation age in global terms.

Indeed, data on the number of migrants throughout years demonstrates that the amount of international migrants increased by 51 million from 2010 to 2019, totaling 272 million. In 2020, international migrants constituted 3.5% of the global population in contrast to 2.8% in 2000. 74% of international migrants are of working age; their age ranges between 20 and 64. 52% are male and 48% female (IOM, 2020: 3).

United Nations Department of Economic and Social Affairs (UN-DESA) stated in its 2020 survey that there were close to 272 million international migrants. The United States of America (USA) is the most attractive country with nearly 58 million immigrants compared to other countries across the world in terms of brain drain. The

United States is followed by Saudi Arabia and Germany with an immigrant population of more than 17 million (UN, 2020). As a result, this situation has required nations to renew their migration policies in a facilitating way. "Especially the countries of the Organization for Economic Development and Cooperation (OECD), where brain drain is intense, follow policies that fully facilitate brain drain to foreign countries. Among them, 2/3 of the brain drain is to North America. For example, the share of the USA is 51%" (Bakırtaş & Kandemir, 2010:18).

Considering the Turkish example, "Between 1980-2010, and particularly after 2010, Turkey's total migration increased by over 2 million. In this number, the rate of brain drain was between 12 to 15%" (Karaduman & Çoban, 2019: 7). Another data on the brain drain in Turkey is a study conducted by the Ankara Chamber of Commerce (ATO). According to this study, Turkey is the 11th largest sending country among the 32 countries that experience brain drain. It loses about 60% of its well-trained brains (ATO, 2008). This is the overall picture of Turkey in terms of "Brain Capital". "In another study focusing on the main dynamics of the brain drain in Turkey, it is stated that brain drain started in the 1960s in Turkey with doctors, engineers and scientists, making Turkey 24th among 34 countries experiencing the largest wave of brain drain" (Kaya M. , 2009: 40).

It is observed that in brain drain, not only academicians but also businesspeople and entrepreneurs in the private sector want to benefit from high life standards abroad and move their companies to foreign countries. As a matter of fact, the World Wealth Report Institute's (HNWI) "Millionaire Migration 2018" suggests that Turkey is the country with the highest rate of emigration after China, Russia and India compared according to population and the number of millionaires. As the table below shows,

China ranks first with losing 15,000 wealthy investors in 2018; Russia ranks second with 7,000 emigrants and India ranks third with 5,000. Turkey, on the other hand, lost 4000 millionaires totaling 10%, compared to its population (Gonçalves, 2018: 3).

Table 1

HNWI Millionaire Report

China	15,000 2%
Russia	7,000 6%
India	5,000 2%
Turkey	4,000 10%
France	3,000 1%
United Kingdom	3,000 0%
Brazil	2,000 1%
Saudi Arabia	1,000 2%
Indonesia	1,000 2%

Based on the HNWI Millionaire Report (Gonçalves, a.g.e, 2019).

This increase in migration waves and the changing nature of migrations evolving into brain drain have affected both individuals and various disciplines and fields of social sciences. In this regard, migration has brought certain social, economic and political issues for both source and target countries, in addition to the pursuit of political solutions in the international scale. While the world has been undergoing a historical process with digital transformation based on information, this has also been forming new capital elements. A determining factor in this process is brain drain, as stated in Meyers and Harbison's study, "Manpower and Economic Growth". They underline that "Information becomes the most important capital and 'Brain Capital'

comes forward in competition". Therefore, high-quality human power is referred to as "strategic human capital" (Harbison & Myers, 1964: 22). As brain capital became a competition element for countries' development, brain power movement was inevitable. Thus, there was a need to produce reasonable policies to attract this power. "To take a share from this competition in the light of these developments, some countries started to apply the "push and pull" approach to attract qualified people, increase brain capital through brain drain from other countries by means of alternative policies and resources" (Poros, 2011 :198).

Considering these developments in a global sense, Turkey also needed to produce compliance policies and projects. Erichsen and Öztürk reiterated the importance of this need in their study, "Turkey as a Place of Refuge" as follows:

"For developing countries such as Turkey, the need for brain capital has become urgent in terms of adapting to global competition and innovation. However, Turkey was late to take action in pulling and pushing brain drain in order not to suffer from brain drain. Nevertheless, Turkey managed to create a pull factor by asylum policies implemented in 1933 by accepting scientist who had been forced to migrate to various countries. These scientists were supported in producing scientific works in Turkey" (ERICHSEN & Öztürk, 1999: 34).

On July 6, 1933, Minister of National Education of the time, Dr. Reşit Galip emphasized the importance of migrant brainpower for countries as follows:

"Considering Istanbul 500 years ago, the leading scientists and artists of Byzantium left the country. Most of them went to Italy and started the Renaissance there. Now is the time for Europe to give back what it took from us. We hope that you will bring innovations to our homeland, so that we will

keep up with the modern age and show the new generations the way to progress with modern science. On this occasion, we express our thanks and respects in the name of all our nation" (Hirsch, 2005: 167).

Despite not recorded in history as brain drain or attracting brain power, this demonstrates that in its founding years, Turkey managed to become an attraction center for German, Hungarian or other scientists fleeing Nazism from 1933 to 1945 thanks to its facilitating policies for asylum seekers. In the study known as "University Reform and German Scientists Migrating to Turkey: Pull and Push Factors in the context of International Migration" (2019), Görgün comprehensively explains the pull policies of Turkey in its foundation years:

"Many scientists of Jewish origin who left Germany and are outside Turkey are facing the fear of having their work permits revoked or being deported. This has indirectly created an impetus for them to come to Turkey. Indeed, Turkey provided these immigrants with important opportunities in terms of bureaucratic, legal procedures, official permits and university reforms in those years" (Görgün, 2019: 789).

Aside from to these pull policies, Turkey developed a number of policies to attract brain power during the early republican period and after 1960. "Turkey started to set various policies to have qualified personnel in 1960" (Tayanç, 1999: 243).

Brain drain phenomenon started in the 1945s - the beginning of the Industrial Revolution. With the onset of the Cold War, it turned into a major problem for countries in the global scale. After 1960, Turkey started to lose its qualified human resources to several countries being mainly the United States, Germany and the United Kingdom. During those times, countries including the USA and Germany overcame this issue

more easily by noticing it in theoretical sense between 1960 and 1970. As a matter of fact, these countries had developed various policies and projects on brain drain from a push-and-pull perspective. As will be seen later in the study, it is possible to argue that migration and brain drain policies are important factors affecting migration. On the other hand, it is not possible to rule out systematizing the data and information on brain power migration in accordance with global changes. The aforementioned countries rank first among the countries attracting the highest amount of qualified labor force today's world. Yet, Turkey has been late in putting brain drain on its political agenda as a crucial problem. As mentioned before, Turkey is the largest sender of migrants among the 32 countries experiencing brain drain in the world. In fact, it is the 11th largest country in brain drain in the world, as it loses about 60% of its well-trained people.

Considering the current state in the 21st century, it can be observed that migrations have been increasing exponentially given the political, economic, climatic and geographical changes. For example, millions of Syrians have been subjected to forced international migration due to internal conflicts in countries including Syria, Iraq and Lebanon beginning in 2011. According to the data of the UNCHR (United Nations High Commissioner for Refugees), the number of Syrian refugees is 5,626,914, including 3,574,800 who have taken refuge and registered in only five neighboring countries as of August 2019. When about 1 million Syrians who have taken refuge in Europe and countries such as Canada and the United States are added to this number, it is understood that the number of Syrians who have fled their country after 2011 is at least 6.6 million (UNCHR, 2021).

Likewise, hundreds of Afghans have tragically been forced to migrate when Taliban, an international terrorist group (Radical Islamist) according to the United

Nations (UN), toppled the Afghan government on August 16, 2021 and declared the sharia regime, while the whole world witnessed. According to a report by the UNCHR Afghanistan data platform, there are 2.6 million registered Afghan refugees in the world, and 2.2 million of them are registered in Iran and Pakistan. Another 3.5 million people who fled their homes to seek refuge in the country were internally displaced. The number of those fleeing in 2021 is likely to continue to increase (UNCHR/Afghanistan, 2021). In addition, according to the Data Platform of the Mid-2020 Statistical Report of the UNCHR, about 116,400 Afghans came to Turkey (UNCHR, 2020).

Furthermore, migrations and the flow of qualified human resources continue in today's world. As a matter of fact, the first quarter of 22.02.2022 started with Russia's intervention in Ukraine, leading to global repercussions. This intervention of the Russian Federation has been condemned by the European Union as an attitude that undermines the sovereignty and territorial integrity of Ukraine (Council of EU/Declaration, 2022). This intervention has soon turned into a conflict between the two countries, leading millions of Ukrainian citizens to forcefully leave their country. In addition, thousands of qualified foreigners (students, academicians, software developers, businesspeople, etc.) working and studying in Ukraine left the country. On 25.02.2022, the United States and Europe declared that they recognize flexibility in asylum policies for refugees coming from Ukraine and that their doors are open. What is the difference between the attitudes of the United States and Europe towards refugees from Afghanistan, Syria, Iraq, etc. and Ukraine? Is this discrimination or not? These questions come to mind in this case. It is possible to say that this phenomenon will necessarily be the subject of other research.

Such mass migrations and social problems, indeed, impose countries the obligation to produce suitable policies in some way. As such, there emerges a need for certain alternatives to solve problems. For example, European countries have adopted the trend of prohibiting illegal immigration in their migration policies. However, in order to attract qualified migrants to their borders, they have also developed various policies aimed at attracting brain drain from other countries. It should be noted that, although there is no comprehensive international data on brain drain among forced migrations yet, it is known that not only unskilled labor, but also qualified brain migrations take place around the world.

Thus, the world is witnessing different triggers that change the nature of brain drain and shift its structure beyond push-pull factors such as wars, conflicts, natural disasters, political, cultural and technological developments. In the light of this assumption, it can be said that one of these triggers is the accelerating effect of COVID-19 (Corona), which began in 2019 and continues to have a global impact by changing variants to the present day¹.

Along with this effect, humanity is witnessing another era called "digital transformation" marked by radical changes in which production, forms of relationships, the nature of brain drain, and country policies. Indeed, the process of digital transformation has changed people's lives, businesses, production and social and communal relations. As stated in the main theme of the Economic Summit of the

¹ In this regard, it is also notable to mention the Corona-virus Disease (COVID-19) that first broke out in China's Wuhan and Hubei states on December 31, 2019 with respiratory tract symptoms (fever, cough, shortness of breath) and first reported to the WHO on January 13, 2020. It is a lethal pandemic defined by a series of research on a group of patients (WHO- COVID-19, 2020: 1).

Turkish Industrialists' and Businessmen's Association (TÜSİAD), "digital transformation leads to a change not in the rules of the game, but in itself and even in its structures" (KobiEfor, 2021: 14).

The need to adapt to this transformation has further increased the importance of brain power or brain capital. For countries, the need to reconsider their policies and projects has been apparent in order to ensure attracting brainpower. In the face of these phenomena, it was inevitable that the migration factors would also undergo a relative change in terms of time and space. As a matter of fact, countries such as the United Kingdom, the United States, and Germany, tackled the issue of brain drain on their political agenda early, and they are now the first choice of qualified people from other countries experiencing brain drain. The United States and Germany developed and systematized a policy of brain drain, and thus, they are the first-choice countries today for people to go and settle. This still applies today. In this context, surveys conducted with qualified human resources (25-29 age group) who want to go abroad showed that 70% of them stated that the United States and Germany were the first choice as the target country (Baran, 2021). According to another fact, "Germany is the top country that parents prefer for themselves or their children" (Kaya, Rottman N, Gökalp Aras, & Mencüte, 2021: 151).

Turkey, on the other hand, is developing policies that provide various opportunities to attract brainpower to adapt to this situation. For example;

"Turkey started to provide returnee support and incentives with Turquoise Card policy for the labor force migrating to Turkey in accordance with the latest Law No. 6735 on International Labor Force adopted on July 28, 2016 to ensure benefitting from international qualified labor and facilitate qualified people's stay in Turkey. An

opportunity has been created for qualified foreign workforce with a high level of education, professional experience that benefits science and technology" (Sirkeci, İ. & Yüceşahin, 2014: 5).

As mentioned above, Turkey ranks 11. in losing brain power across all the countries of the world, thus in the 1960s, it developed policies to attract qualified brains to the country as part of its development plans. This can be evaluated from the perspective of pull and push factors affecting brain drain.

However, Turkey was late to take the problem of brain drain into its political agenda from the perspective of push and pull factors. Despite the latest TÜBİTAK policies and Turquoise Card application in Turkey's political agenda, there is not any holistic effort to reveal Turkey's brain drain policies and their effects. Moreover, statistical data of Turkey in this regard seems complicated (printed or electronic), confusing in terms of history, unmapped and confusing. In this context, data are available only through surveys, analysis of surveys and the loss of brain capital, as well as policy development to prevent this loss. Another problem is that there are almost no studies evaluating the effect of TÜBİTAK's Reverse Brain Drain Policies on attracting brain drain as well as its Turquoise Card policy.

In summary, it can be seen that countries that realized brain drain as a problem early on and developed policies from a push-and-pull perspective on this issue, started to record and systematize immigrant movements according to the conditions of their age, managed to attract brain migration to their lands. Hence, it can be uttered that brain drain policies created according to pull and push factors have a tremendous effect on qualified labor force migration based on whether they are systematized or not. In

another sense, brain drain policies of countries are also one of the important factors affecting migration.

1.1.Research Objective and Problematique

Literature has many theoretical studies on the phenomenon of brain drain and push-pull factors. However, especially after the 1970s, developed countries and their governments have turned to the practice of the phenomenon of brain drain, that is, to develop push-and-pull policies. Countries such as the USA, United Kingdom and Germany developed and systematized brain drain policies and they have become successful in managing this movement. Despite this, there is no integrated study in the international literature on the correlation of brain drain policies developed in terms of push and pull factors. Turkey, on the other hand, has been late in putting brain drain on its political agenda as a problem. Although Turkey developed a number of policies related to pulling brain drain during the Early Republic period between 1923 and 1950 and within the scope of development plans after the 1960s, the recorded data could not form a systematic information infrastructure with integrated maps. There is no study that reveals the consequences and effects of brain drain in Turkey, either.

These deficiencies create a gap in the literature as well as a problem for Turkey. Therefore, in terms of contribution to the literature, the brain drain policies formed from the perspective of push and pull, including the latest Turquoise Card created by Turkey and the Reverse Brain Drain Policies of TUBITAK, should be revealed from their own historical depths. In addition, in the context of understanding the internationally developed brain drain policies, it is necessary to examine the countries that pulling and gaining the most brain drain, such as the USA and Germany. Because

the brain drain policies of these countries are systematized policies according to the conditions of the age. Examining the brain drain policies of the USA and Germany together with their historical process will also give a vision to the countries that have lost brain drain in terms of systematizing the brain drain policies and producing sustainable new innovative brain drain policies.

In addition, an integrated study, carried out with a SWOT analysis on the effect of the brain drain policies that Turkey has formed in terms of push and pull, needs to be put forward. On the other hand, it is necessary to put the brain drain policy in a solid conceptual framework and contribute to the international literature.

The aim of this study; First of all, it is to understand the international brain drain policies and the brain drain policies of countries such as the USA and Germany (such as the Green Card and the Blue Card) that have pulled the most brain drain from Turkey. Later, within the scope of the late Ottoman Empire and Turkey's early Republican period (1923-1950) and the Development Plans (1960-2022), the brain drain policies formed from push and pull perspectives, including Turkey's recent TÜBİTAK and Turquoise brain drain policies to present it chronologically with its historical depth. It is also to evaluate the effects of these policies on Turkey's brain drain with a SWOT analysis. Secondly, to contribute to the reconsideration of these historical experiences of Turkey, both in the literature and in the eyes of the public and the administration, through practical and theoretical discussions on brain drain policies that need to be developed in terms of pushing and pulling the originality, effects and main problems of these experiences.

1.2.The Importance of the Study

This research is important in that it is the first study that analyzes the most recent brain drain policies of Turkey in terms of push and pull factors in their historical context, primarily including TÜBİTAK's 2232 pulling reverse brain drain and foreign qualified brain power and the Turquoise Card policies (mainly within the scope of development plans of Turkey). In addition, the study attempts to reveal the role of Turkey in the international brain drain systems, and its effect from the perspective of brain drain policies and compares the consequences. Furthermore, it is important that the study features an in-depth analysis of the US and Germany's brain drain policies and their effects and compares Turkey's Turquoise Card to the US Green Card and German Blue Card applications in terms of common characteristics of policies to pull brain migration. In addition, a SWOT analysis will be conducted to understand the strengths, weaknesses, opportunities and threats of brain drain policies of Turkey in the perspective of push and pull factors. "SWOT analysis is an evaluation method, also called a matrix, aimed at determining the political, economic, social, technological and competitive environment of an organization, as well as opportunities and threats, weaknesses and strengths" (Dyson, 2002: 2).

The study is considered important as it will be the first integrated contribution to the literature in terms of push and pull factors in the context of brain drain policies. Furthermore, tackling a subject that has not been studied in Turkish academia indicates the originality of our thesis.

1.3. Reliability of the Study

For Turkey's brain migration policies formed in the context of pull and push factors, the study is including scanning parliamentary decisions of the period, official newspapers and legislative archives. In addition, local and foreign sources related to the Ottoman strategies for attracting qualified brain migration is examined. Further, studies by German, Jewish and Hungarian scientists, Russian Diaspora, Azerbaijani and Caucasian Diaspora will shed light on the Ottoman and early republican period in the field of brain drain. Consecutively, it is noteworthy that efforts to develop policies regarding the push and pull factors of brain drain started in 1960. In this line, the US and German brain drain policies attract attention as they are the leading countries in this field. Therefore, a comparative case study is performed with an analysis of the US and German brain drain policies to understand how they systematized their policies according to the conditions of the age. In this context, this study is included evaluation of primary and secondary sources regarding the US and German brain drain policies and their historical background as well as literature reviews and scanning US and German parliamentary decisions and brain drain legislations.

Moreover, focus is laid on Turkey's brain drain policies created according to push and pull factors as part of the country's development plans. Thus, particularly the 1. and 11. Five-Year Development Plans made in the early republican period and after 1960 will be examined as official documents. Brain drain policies is differentiated from the migration studies conducted during these periods. The goals, strategies and concrete policies determined by Turkey from the perspective of attracting and pushing brain drain will be developed within the scope of Five-Year Development Plans created after 1960. On the other hand, TÜBİTAK/BİDEB Application and Monitoring system data

reviewed to analyze the effect of TÜBİTAK's 2232 reverse brain drain pull policy from the perspective of push and pull factors.

This analysis, because it researched the brain drain policies of the USA and Germany, which are at the forefront of the international brain drain development policies and compared the Green Card and Blue Card policies they developed to pull foreign Brain Drain with the Turquoise Card policy developed by Turkey to pull foreigners. It is qualitative as it develops a conceptual framework for brain drain policy. On the other hand, starting from the migration policies developed by the Ottoman Empire in the last period to attract qualified workforce and brain power, which constitute the focus of this study, the university reforms formed in 1938 in the early republican period of Turkey and the following republican period formed within the scope of development plans from the 1960s. The research of brain drain policies is qualitative as it is based on Turkey's official archives and domestic and foreign literature review. It is also quantitative as it examines the reverse brain drain policies of TUBİTAK 2232-A developed within the scope of development plans and the foreign brain migration policies of Turquoise Card together with the historical process and reveals the people who applied this policy. To draw valid and reliable inferences from the text, procedures are a SWOT of data consistently and systematically not only on the qualitative but also in terms of strengths, opportunities, weaknesses and dangers to understand the success/failure of the policies developed. From a push and pull perspective in Turkey. It is qualitative and quantitative as it is evaluated in depth through analysis.

1.4.Limitation of the Study

There is no regular registration system for compiling international migration data in Turkey. Moreover, there is no record differentiating brain drain among other types of migration. In addition, neither Turkey nor the international literature has an integrated study of the policies and effects of brain drain of any country. On the other hand, data sources on both Turkey's brain drain policies and international migration statistics are confusing with no categorization of census, border statistics, administrative records or research. In particular, there is not any holistic study that reveals Turkey's brain drain policies in their historical context. As a result, Several studies had to be accessed from separate official archives of different institutions. In addition, it was difficult to access studies and sources on the policies to attract qualified human resources belonging to the late Ottoman Empire period and the early republican period of Turkey as those sources are old dated. Therefore, it has been tried to reach many old sources from documents sold in second-hand booksellers. Another limitation was the COVID-19 pandemic, which had a negative impact on lives globally during this study process.

Other limitations contain: As Selin Dülger and Hakan Yalçınkaya stated in their study (2017),

“The General Directorate of Security compiles administrative records including residence permits, asylum seeker and refugee records, passports and illegal immigration information. On the other hand, the Ministry of Labor and Social Security stores work permits and information of Turkish citizens living abroad, and the General Directorate of Population and Citizenship Affairs

compiles citizenship data. The Presidency of TUIK or the Turkish Statistical Institute conducts censuses and these data are used to compile information about the size and nature of the population migrating to Turkey from abroad" (Yalçınkaya & Dülger, 2017: 1646).

Analysis demonstrates that Turkey's brain drain policies started to be tackled as "targets" and "strategies" under the title of "Qualified Human Resources" of the Fifth Five-Year Development Plan created after 1960. It is seen that by the time of the Ninth Development Plan of 2010, the concept of brain drain started to be used. For example, the latest TÜBİTAK 2232 reverse brain drain policy developed in 2010 in terms of push and pull factors and the Turquoise Card policies developed in 2016 are included under the title of pulling and reversing brain drain.

Another limitation is that studies on brain drain in Turkey follow "a general method on interviews with scientists from abroad". This, in turn, constitutes a general restriction of access to registered data throughout the country. This particular consequence is due to the low number of people who notified the country selected for the production of a scientific project. For example, in Turkey, people who come to the country by being entitled to a TÜBİTAK incentive are announced and registered as attracting brain power, a specialist doctor coming to Turkey to work at a hospital is not registered under the category of "brain drain", but these people are treated as part of the general concept of migrant. For this reason, it is very difficult to filter the phenomenon of brain drain from within the general concept of migration. Even if people are evaluated within the scope of brain drain, there is no categorization according to their qualifications. In addition, there is no official unit dedicated to the field of brain drain policies in Turkey.

1.5.Academic Views on Turkey's Brain Drain Policy Problems

As mentioned above, Turkey was late to consider the push and pull factors of brain drain in its political agenda and failed to make brain drain policies regular, mapped and systematic. Considering that this has led to gaps in the literature, foreign sources can be well integrated into this research for better comprehension. For instance, Erichsen worked on brain drain from Turkey to Germany in the study referred to as 'Turkey as a Place of Refuge' and argued that, for developing countries such as Turkey, the need for brain capital has become urgent in terms of adapting to global competition and innovation.

“However, Turkey was late to consider the pull and push factors in attracting human capital in order not to suffer from brain drain. Nevertheless, Turkey managed to create a pull factor by asylum policies implemented in 1933 by accepting scientist who had been forced to migrate to various countries. These scientists were supported in producing scientific works in Turkey” (ERICHSEN & Öztürk, 1999:33).

It is another pushing force for the failure of considering qualified labor force that the government of the period did not take brain drain as a problem on its political agenda issue, but instead, focused on foreign exchange revenues. Abadan Unat also underlines this fact: "Although qualified labor migration was criticized by the State Planning Organization and the Union of Chambers of Commerce of Turkey at that time, it was still encouraged in order to generate foreign exchange income" (Abadan Unat, 2017: 80).

Having significant academic research on Turkey's brain drain policy development issues, Fatma Başaran stated the following regarding the lack of mapping records and statistics of brain drain and the lack of literature with scientific research in this field:

"It is understood that there are no records or statistics on brain drain. Systematic information collection activities should be started on this issue. Issues related to brain drain should be the subject of scientific research as soon as possible. The activity initiated by TÜBİTAK with the State Planning Organization in this regard is worth appreciation, however it is not enough. There is a need, for instance, to identify the extent to which qualified people work in their area of expertise (for the country's development) and the regional distribution of specialized labor force as well as the balance of expertise, etc."
(Başaran, 1972: 151).

There is a shortage of studies on the concept of brain drain policies in Turkey and even in the international literature, as there is no comprehensive and integrated research. However, there are opinions about solving the problem of migration and brain drain policies. For example, the following opinion underlines that creating and systematizing brain drain policies is related to push and pull factors affecting brain drain "A general policy should be drawn up on migration from Turkey to other countries, and this policy should be integrated with the national development strategy. The main principle of the anti-brain drain policy to be determined should be to provide scientists with 'encouraging' conditions and opportunities to study and develop here freely without harming their foreign contacts" (Kurtulmuş, 1992: 220).

Another opinion draws attention to the problem as follows: "It is essentially known that those who decide to emigrate usually have professional qualifications to safely lead their lives in the country they go. In this regard, particularly academicians should be evaluated according to a different legal framework as they constitute a "new type" of migration, and they should be discussed as part of a different scope" (Ünver, 2015: 180).

Although Turkey provided various initiatives to attract scientists to the country as part of its development plan policies, there are other views arguing that no effective pull or attraction policies are developed: "As for the brainpower attraction policy implemented by Turkey, it is worth noting that: The "Attraction Center Program for Qualified Labor Force", which is included in the Tenth Development Plan 2014-2018, indicates public sensitivity to the problem of brain drain" (Bayraktutan & Bıdırdı, 2015: 33). The Turkish Economic Policy Research Foundation (TEPAV), on the other hand, emphasizes the importance of taking steps in brain drain policy by developing attraction centers such as Technology Centers in Turkey. There are also developments that can be referred to as important cornerstones in attracting brain migration and developing brain capital in Turkey. One of such developments is the ongoing legislative work. Enacted in 2001 and now debated for extension until 2023, the Law No. 4691 on Technology Development Zones (TDC) and the Law No. 5746 on the Support of Research and Development Activities are important legislative efforts when it comes to brain drain policies" (TEPAV, 2017).

In this regard, there is a lack of qualified labor force in Turkey in the following fields: information technologies, manufacturing industry, space and aviation, defense industry and R&D. As a concrete step towards brain drain policies, on the other hand,

Turkey prepared development plans to stop brain drain from the country and become an ‘attractive’ center and target country for brain migration. For this purpose, on 14.03.2017, it amended article 11 of the International Labour Law Convention, and put into effect the Turquoise Card application in order to increase the qualified workforce in the country. Article 5 of the relevant law specifies who will receive the Turquoise Card.

Moreover, since 2010, various policies have been implemented to contribute to science and provide support for science projects in Turkey. One of these policies is the Turquoise Card policy, as stated, and the other is TÜBİTAK's policy no. 2232 for returnees to prevent brain drain. The Turquoise Card is a policy implemented to benefit from international qualified labor force and ensure that they stay in Turkey within the framework of the International Labour Code No. 6735 accepted on July 28, 2016 to manage labor force coming to Turkey through migration.

1.6. The Research Questions and Hypothesis

This study frames the research question and the focus hypothesis as follows:

Research Question:

What is the effect of brain migration policies formed from push and pull factors in Turkey on brain drain?

The Hypothesis:

The main argument of this thesis is that the historically regular mapping and to recorder and systematization of the brain drain policies created from the perspective of

push and pull has become one of the important factors that have an effect in terms of pulling brain drain. In the opposite sense, it is creating pushing effects.

In this study, the following sub-questions were asked in order to answer the main question and argument of the thesis and to contribute to the gap in the literature.

Sub-questions:

1. What do the common features of international brain drain policies? How effective have these policies been in their potential to attract brain power?
 - What are the push-and-pull brain drain policies of developed countries such as the United States and Germany that attract the most brain power in the world? How have they shaped the data and information about brain drain according to global shifts? What are the processes of the US Green Card, Germany's Blue Card as brain drain projects and policies, and how have they been developed?
 - What are the similarities between the US Green Card and the German (EU) Blue Card and the Turkish Turquoise Card developed to attract foreign brain migration to Turkey?
2. What did the brain drain policies that Turkey developed during the pre-republican Ottoman state and the early republican era? What were the brain drain policies developed within the scope of Turkey's first Five-Year Development Plan developed after 1960 (1963-1968) and eleventh Five-Year Development Plan (2018-2023)? How have Turkey's brain migration policies been formed from a push-and-pull perspective?

- What is the Turquoise Card, the latest foreign brain power pulling policy that Turkey published in 2017 and started to implement in 2021 and what is TÜBİTAK's return-to-home policy first published in 2010 according to the law no. 2232?
 - How many people have benefited from this policy over the years? What is the proportion of scientists placed in a center to contribute to science within the scope of the TÜBİTAK Call?
3. Are there any issues for which Turkey needs to develop policies to address brain drain from the perspective of push and pull factors? What are the strengths, opportunities, weaknesses and threats of these policies?

1.7.Methodology

Under the headings of research objective, the importance of the study, the study design, reliability and limitations, theoretical and empirical insights are taken into consideration and, it is planned to conduct a mixed type of study with both qualitative and quantitative characteristics to investigate the relationship of Turkey's latest brain migration policies and the push and pull factors of brain drain in general.

Planned as six chapters, the introduction part of the study (1.2.) explores the objective and the Problematique of the study; 1.3. explains the importance of the study; 1.4. refers to the reliability of the study; 1.5. reveals the limitations; 1.6. includes definitions, literature review and the conceptual framework; 1.7. gives the hypothesis of the study and questions; finally, 1.8. explores the methodology.

In the 2. chapter of the study, 2.1. refers to the concept of migration, types of migration, its categories, and 2.2. gives space to theories of migration, early and new

migration waves. In addition, 2.4. of the study gives space to a detailed analysis of migration through International Analysis Studies on Migration Theories. The sub-heading 1.4. It briefly explains the classification of migrations.

In the 3. chapter of the study, and under the title of Brain Drain, 3.1. explores the Definition and Characteristics of Brain Drain and 3.2. gives details about the historical background of brain drain; 3.3. investigates the reasons of brain drain approaches to tackle this issue. 3.3.1. analyzes Lee's migration approach from a conceptual framework based on the push and pull factors and thus form the theoretical frame of the study. 3.4 of the study. Brain Drain Types will be included in the title. The concept and formation of Migration and Brain Drain Policy will be included in 3.5 of the study. In 3.5.1., the Common features of the Policies for Attracting and Pushing Brain Drain in the international arena will be included. In the 3.6 part of the study, the countries that receive the most immigration from Turkey and their immigration policies, and in the study 3.6.1, the brain drain policies of the USA and Germany, which are among the countries with the most brain drain, will be examined. Current migration examples such as Turquoise Card and similar application examples of Green Card and Blue Card applied in these countries will be included. In 3.7.1, the common features of the US Green Card and German (EU-oriented) Blue Card brain drain policies will be examined. 3.7 of the study. And in 3.8, there will be Common Characteristics of USA Green Card, EU Oriented Germany Blue Card and Turkey's Turquoise Card policies in terms of attracting.

In chapter 4 of the study, brain drain and Turkey analyzed, while 4.1. elaborate on the brain migration policies implemented in Turkey so far. 4.1. tackle the brain migration policies of Turkey from the early pre-republican period to the late Ottoman.

4.1.2. explain the early republican period, the university reforms under the leadership of Mustafa Kemal Atatürk (1923-1960) and the brain migration policies implemented during those periods. In addition, the effects of the brain migration policies after 1960 examine with reference to their historical depth by benefitting from the I. (1963-1968) and the last (2018-2023) Development Plans of Turkey. 4.2. Turkuaz Kart and TÜBİTAK 2232 Reverse Brain Drain Pulling Policy examines Turkey's latest brain drain pushing policies. Chapter 5 analyzes the strengths and weaknesses, opportunities and threats of the brain drain policies that Turkey has created from a push and pull perspective, through a SWOT analysis. In 6. Chapter, An overall outcome assessment is presented.

CHAPTER 2

2. MIGRATION

2.1. The Concept of Migration

Migration movements are an important determinant of globalization due to the fact that they are intertwined with cultural exchanges, trade and geopolitics. According to the Turkish Language Society and many common definitions, migration is "the movement of individuals or communities from one country to another, or from one settlement to another, due to economic, social or political reasons" (Türk Dil Kurumu, 2020).

A leading migration theorist, E. G. Ravenstein attaches importance to "environmental factors, educational opportunities and the cost of living at the destination, in addition to economic reasons for migration" as a reference to push and pull factors affecting migration (Topbaş, 2007: 12).

In his article "Theory of Migration", Lee took Ravenstein's approach forward in the sense of relativism and defined migration as "a permanent or semi-permanent change in the place of life in general". In Theory of Migration, Lee discusses the push and pull factors of the places that have been or will be migrated, revealing the following four factors affecting the decision to migrate: Factors related to the current place of resident, obstacles involved in this place, factors related to the potential destination country and individual factors.

According to Lee's migration theory, "a good climate is defined as a 'pull' factor and a bad climate is defined as a 'push' factor for migration". Moreover, a place with good educational opportunities is a pull (+) effect for people who have young children,

while for a landlord without children it is a push (-) factor due to the high property tax rates. On the other hand, the idea of living in the same place will not create a push or pull effect on the perception of a single individual who does not have a property as they will not be subject to tax payment, and the place that is planned to be lived will have a neutral value in the eyes of this individual (Lee E. S., 1966: 48). Besides the individual perception in the equation that constitutes the driving factors of migrations, the pull factor in mass perception is explained in Lee's theory as follows: "the poverty of the sending country, the economic, sociological and political situation of the cities at that time creates the mass perception". Similarly, better perception of the economic, sociological and political factors in the receiving country or city compared to the source country or city will lead to the formation of a mass pull factor.

Lee emphasizes the need to take into account the obstacles between the two places that decisively affect migration. In this theory, there are several factors that trigger migration: "push"/negative (negative perception (-)), "pull"/positive (positive perception (+)) and "neutral/no negative or positive contribution to the decision (ineffective perception (0)) (Piche, 2013:145).

In addition, according to Lee's theory, "high population density, low wages and economic instability in underdeveloped regions push individuals living in this region to move away from the region, while individuals perceive developed regions with high wages and job opportunities as pull factors for migration" (İslamoğlu, Yıldırımalt, & Benli, 2013:46, 66). Under this theory, "international migration" is the temporary or permanent movement of people from one country to another and their settlement, while brain drain refers to the movement of individuals with specialized education from one country to another. In this regard, there are many studies in the literature focusing on

the negative effects of brain drain on sending countries. It is seen that these migrations are basically due to poor salary and compensation rights, family issues, political instability, problematic country ruling, poor economic conditions and unemployment.

However, Lee argues that international migration should be understood more as a permanent situation than a temporary one: "The association of the phenomenon of migration with the conditions of the age, beyond the geographical context, started only after migration became a subject of analysis for multiple scientific fields following the economic and social changes triggered by the First Industrial Revolution in the 1800s. As a result, each branch of science developed a different definition for their purpose leading to assigning different meanings to the phenomenon of migration" (Durmaz, 2018: 33).

Until the 19. century, the phenomenon of migration had been a subject of interest only to the science of geography. Later, however, it was observed that a demographic meaning was added to the geographical meaning of migration. "While anthropogeography deals only with spatial change of place, demography also deals with the qualitative characteristics of people who migrate" (Sağbaş, 2009). Like any definition and concept, the concept of migration develops according to the needs of its age or within the framework of its context. According to Castles, migration is a process that "affects every dimension of social existence and develops its own complex dynamics" (Castles, 2008:30). From an academic point of view, it can also be seen that the phenomenon of migration is defined from different angles in the context of human movement, as the main driving force of globalization. Ortaylı defines migration as "an individual or collective action of people, and this action will continue for ever and ever" (Ortaylı, 2006: 19).

Since migrations are essentially a human action, they vary based on social, political, economic, climatic conditions and forms of social relations in their context. At the same time, these changes and transformations can also be the reasons that trigger migrations. Furthermore, it is possible to categorize migrations according to many factors: economic and non-economic migrations according to purpose are the first category of migrations. There are other categorizations of migration: voluntary and forced migration (according to factors triggering migration); temporary and permanent migration (according to the time of migration movement); transit and settlement migration (according to last settlement); legal and illegal migration (according to legal status) and qualified and unqualified migration/brain drain (according to migrants' characteristics).

Among types of migration, forced migrations refer to primitive, instinct-based migrations in which the survival instinct plays an active role against threats such as bad weather conditions, wars, or feuds. Voluntary Migrations:

“These are types of migration that people prefer for various personal reasons such as to see new places, to have better life conditions, to find a new space as they do not like their place of residence, to improve economic conditions with job and financial opportunities or to obtain greater opportunities. The most obvious example of voluntary migrations is economic migrations and brain drains. Those who emigrate in order to find a better job lead to international labor migration. Migrations within this group are not related to political, but to economic or social reasons” (Adıgüzel, 2016: 21).

The phenomenon of migration ultimately involves being able to afford the risk of the unknown. There must be an important internal or external motive, that is, push

and pull factors, that will mobilize individuals or communities to take this risk. For example, in the study "Guest Workers in Europe", Castles evaluates the push and pull factors of forced and voluntary migration within the framework of country policies and central environmental theory:

"In forced migration, country policies are rather effective, while in voluntary migration, there is a need to take action with a determined behavior, taking into account the country policies, as well as individual or household well-being. Germany's demand for labor force from many countries and Turkey alike can be considered voluntary migration according to the center-periphery theory. Although it was thought that it came to an end in the 1980s, the idea of "migrant workers", which is seen as the supply of cheap labor to developed countries, continues to influence politicians in rich" (Castels S. , 2006: 748).

To date, many countries have scientifically studied the fact that these kinds of voluntary migrations have such repercussions as contributing to the target country and depriving the source country of the contribution offered. Various scholars draw attention to this scientific reflection as follows: "although there is little focus on this type of migration in the corporate sense, this argument has a 70-year history in our country and it has now taken its place among the new national policies after the theoretical ground started to take shape in 2010" (Şenses, 2020: 52). In this vein, the phenomenon of migration is not independent of the evolutionary characteristics of its era. Indeed, globalization has made the economic, sociological, technological and political variables in the international area more dynamic, and as the conjuncture is constantly changing, "external migrations", especially those caused by technology, have been increasing greatly. In order to understand this international phenomenon of

multivariate migration and the pace of its increase, one must take its evolutionary stages into account. Douglas S. Massey's work "International Migration at the Dawn of the Twenty-First Century", divides these stages into the following four periods with various peculiar characteristics in their historical context:

- The Commercial Period (1500-1800): This period was marked by flows from Europe under Mercantilist economic systems and the processes of colonization and economic growth.
- Industrial Period (1800-1925): About 50 million people migrated from Europe to the New World. 85% of them arrived at their destination: Argentina, Australia, Canada, New Zealand and the USA.
- Limited Migration Period (1925-1960): Countries went into war and depression. Migration, in particular, flowed into the United States.
- Post-industrial migration after 1960: The number and variety of sending and receiving countries gradually increased and differentiated (Donato & Massey, 2016: 7-26).

Although the phenomenon of migration is a social reality dating back to ancient history of humanity, the history of the activities of studying migration as a scientific issue, treating it as a social problem, and trying to create scientific solutions does not go back that far. As migration movements increase, scholars develop many new migration theories to understand and make sense of the reasons why people decide to leave their homes and go to new destinations, starting with early migration studies, as can be seen below.

2.2.Theories of Migration

Theories of migration are usually developed based on the reasons of people to decide to move from the source country to another geography. In addition, different disciplines have different conceptualizations of the theoretical infrastructure of migration phenomena. Most theories of migration tackle the distance of the migrated place, the time spent in this destination, and its economic conditions. In addition, there are macro, medium or micro approaches towards migration depending on several factors such as the administrative status of the place of emigration, kinship relations and social networks at the destination, personal characteristics of emigrants, and their cultural and ethnic identity, gender, etc.

These approaches have also changed according to the evolution of migration. In addition, the effort to make sense of these changes has led to the emergence of many other migration moves with various root causes. As the main classical studies of these new approaches, the early stages of population and migration movements are as follows:

2.3.Early Theories of Migration

E. G. Ravenstein is one of the leading figures who made an important contribution to the theory and analysis of the first period by creating laws related to migration flows. With the First Industrial Revolution from the second half of the 19th century, the emergence of factories increased the opportunities for work and transportation. Many people started to flock to cities for job opportunities. With this development, the living conditions and working patterns of individuals and communities started to change radically. For example, in the second half of the 19th

century, 4 million people emigrated from rural England and Wales alone, 3 million of them to cities (Long, 2005: 65).

Ravenstein's migration laws emerged during this period when mobility was quite high. "In his two articles of 1885 and 1889, Ravenstein tried to explain and predict the basic mechanisms of the internal migration waves in the UK during these periods, and he used the expressions of 'principle and rule' in his work, as well as 'laws' in an attempt to coin the necessary terms" (Grigg, 1977: 142). In addition to economic reasons, Ravenstein also attributed importance to environmental these factors: "educational opportunities and the cost of living at the migrants' destination as factors affecting migration. Yet, it can be purported that the desire to achieve better economic conditions is one of the main reasons causing migration" (Ravenstein, 1885:186).

Many early studies of migration suggested that migrants often prefer short distance, however in later years, studies started to evaluate the mobility of populations on the basis of not only distance but also other opportunities and particularly labor force. For example, P.A. Stouffer mentioned in the study, *Intervening Opportunities: A Theory Relating Mobility and Distance*, "stated that most scientists were previously interested only in the close relationship between migration movements and distance in terms of opportunities granted by migration. In addition, Stouffer stated that the concepts of distance, work and life are important to require more explicit/precise studies" (Stouffer, 1940: 845-867).

Motivations, positive or negative causes of migration mentioned by several scientists in previous years were first theoretically formulated by E. Lee in his work, *A Theory of Migration*, as part of the push-pull concept in 1965. He also emphasized the importance of personal relativism in the phenomenon of migration. "Noting that each

migration process can be characterized by a departure and a destination, Lee identified the factors influencing the migration decision and the migration process as follows: factors related to the point of departure, the factors related to the destination, obstacles and individual factors” (Lee E. S., 1966: 47-57).

Petersen, another researcher who made extensive assessments on migration and especially on the sociology of migration, (1958) stated that the reasons that push individuals to make a migration decision can be identified as individual and social factors. In this context, Petersen investigated the main individual and social reasons underlying the push-pull factors in general.

Petersen regards migrations as the output of the capitalist system, and in from this perspective, he argued that migration is associated with political and colonial connections. Thus, he categorized migration according to the innovative or conservative features of the push-pull polarization of the migration movement. Further, Petersen shaped this categorization by also including individuals' desire for migration. Within this framework, he defined the following five migration typologies, which have a very important place in the sociology of migration based on individual and class differences:

- Primitive migration
 - Forced migration
 - Impelled migration
 - Free migration
 - Mass migration
- (Petersen & Jansen, 1970: 55-65).

Petersen also emphasized that "the most general expressions that can be used in relation to migration with reference to Ravenstein's work can only be put forward in the form of a typification rather than a law" (Petersen & Jansen, a.g.e. 1970).

2.4.New Movements of Migration Theories

Since migration is considered a global phenomenon in migration studies, it can be said that modern theories of migration are more focused on international migration. Also, there are more extensive and innovative tools to use in the analysis of this field today. For example, Portes noted that in the study called *Economic Sociology of Immigration* that instead of the theories of multiple migration analyses "today, scholars generally focus on four different questions. These are related to migration origins, the direction and continuity of migration flows, the use of migrant labor and the socio-cultural adaptation of migrants" (Portes, 1995: 1-41).

Based on Portes' four different questions, there is another approach that supports the multiple migration analyses but underlines the need to form a unified theory consisting of these multifaceted theories. "Each of these areas can be examined at different levels according to individual interest, with different tools. However, the ultimate goal of the theory migration is to explain all four different aspects of migration holistically" (Massey, Durand, & Pren, 2018: 283-296).

Instead of the theories of multiple migration analyses proposed by Portes, it can be seen that neo-classical theoreticians, especially Massey, often focuses on four different questions: migration origins, the direction and continuity of migration flows, the use of migrant labor, and the socio-cultural adaptation of migrants. However, the search for a single theory proposed by Massey that can explain these four different

aspects of migration continued in studies of the new movement or contemporary theories of migration, as can be seen below:

2.4.1. Neo-Classical Theory

It can be observed that the neo-Classical theory approaches the phenomenon of migration from both a macro and micro framework. The starting point of contemporary migration theories, neo-classical theory suggests that migration arises due to differences in revenues faced by the workforce in various markets. The main studies on this issue were developed to explain the migration process that first arose during the economic development of a society. Todaro, Lewis and Smith, the predecessors of the theory, treat migration from various market perspectives (Todaro & Smith, 2000: 200-864).

These approaches are the Cost-Benefit Approach and the Classical approach arguing that an individual will migrate to a place where they will receive maximum income as a result of their cost-benefit analysis. “Neo Classics, on the other hand, take this approach from two different perspectives, macro and micro a) Macro Theory: This theory focuses on the structural determinants of migration and argues that migration is due to the geographical distribution of labor supply and demand” (Massey, Hugo, Kouaci, & Pellegrino, 1993: 331-466). b) Micro-Theory: “This approach, unlike macroeconomic theory, allows individuals to decide to migrate as a result of micro-logical explanations” (Sjaastad, 1962: 70-93). This approach suggests that people will want to go to places where they can use the abilities they have more efficiently.

It can be said that this approach is somehow based on the idea that international migration is a kind of investment in human capital. It can also be determined that the

neo-classical macro and micro theories in a sense include the argument that there is an important relationship between the migration decision in the context of push and pull factors and the migration and brain drain policies of countries.

2.4.2. Zelinsky's Mobility Transition Hypothesis

In his work "The Hypothesis of the Mobility Transition", Zelinsky put forward a "framework that allows interpreting the relationship between migration movements and social change over an extensive period of time" (Lewis, 1954: 22-191). In this theory, the focus is on the relationship of the migration movement with social interactions. Indeed, Zelinsky suggested that in the recent past, there has been a clear pattern in the development of individual mobility in the context of space and time, and that this regularity forms a fundamental component of the modernization process. Zelinsky considered the nature of migrations within the framework of the regularity of patterns according to the levels of development of societies and suggested that there are five stages of these qualities. These are:

Stage one: migration in the traditional society before modernity. At this stage, there is no migration for the purpose of settling in the real sense.

Stage two: migration in an early transition society. There is a mass movement from rural to urban areas.

Stage three: Migration in the late transition society. Migration is still ongoing from rural to urban areas, but there is a slowing movement. Migration flows towards the colonization zones and external migration also began to decrease. Urban-urban migration exceeds rural-urban migration.

Stage four: migration in advanced society. Migration for settlement purposes fluctuates at a high level. Migration of unskilled and semi-skilled labor from relatively underdeveloped regions is evident.

Stage five: Migration in the future super advanced society: There may be a decrease in migration for settlement purposes or a decrease in some forms of circulation due to the emergence of better communication and transportation systems. Almost all migrations for settlement occur almost all within the city or between cities (Zelinsky, 1971: 19-249).

2.4.3. Dual Labor Market Theory

In the Dual Labor Market approach, it is suggested that there is a stratified occupational structure and a dual pattern of economic organization in economies. According to Piore, one of the leading figures of this approach, "In economies where skilled and unskilled labor is employed, there are two types of duality (duality) between the two types of organizational boundaries, namely labor-intensive, where capital-intensive and only unskilled labor is employed" (Piore, 1979: 100). He points out that the chronic low-wage labor force in receiving countries may be the driving force in the increasing demand of qualified people as well.

In their study "Why Do People Migrate", Hagen and Zanker also state that the Dual Labor Market approach is important since it explains the migration trends that emerged after the war in Europe and the United States (Hagen Zanker , 2008: 7). As an example of this approach, the phenomenon of labor migration from Turkey to Europe after 1960 became widespread with more qualified people.

2.4.4. World System Theory

Based on Wallerstein's 1974 study of world systems, many social scientists believe that the cause of international migration is not the dual structure of national labor markets, but the world market developing and expanding since the 16th century. According to Wallerstein, "dependence on the strong causes the countries at the center develop by exploiting the periphery countries, and the development of the periphery countries is prevented by the asymmetric dependency relations that arise" (Wallerstein, 2004: 97).

It can be argued that the center-periphery approach absolutizes Marxism's approach to dialectical materialism. Looking at the "Dialectic Materialism" across this approach, there might be the view that the relationship of the exploiter and the exploited will not continue in the same constant cycle, they will change and transform each other not by chance, but in mutual interaction and dependence, and that there will also be leaps and bounds. As a matter of fact, Robinson & Carey suggested in their study, *Peopling Skilled International Migration* opinions similar to our argument that interactive bonds can lead to mutual change:

"Waves of capitalist investment create groups of uprooted populations in periphery countries, while at the same time causing them to establish material and cultural ties with countries that cause international movement. In particular, the fact that migration from developing countries to developed countries is directed at former colonial states with bilateral relations in the past is not an accidental result in the context of this theory. The ties established with these countries in the field of culture, education, management, investment,

transportation and communication led to the formation of specific transnational markets and cultural systems" (Robinson & Carey, 2000: 108).

Concomitantly, the ecosystem of globalization consists of social, economic, cultural, technological and political dynamics leading to the transformation of interdependence into interconnectedness.

2.4.5. Theory of Migration Systems

In a sense, this theory claims that distances are not a hindering factor in the decision to migrate. India, Asia and even Turkey can be cited as the countries that experience the highest brain drain to countries such as the USA and Canada today, as concrete examples of this approach.

In essence, this theory suggests that migration movements are within a static international migration system, and that these systems express the relative intensity of the movement of goods, capital and people between certain countries. However, theoreticians of this approach also draw attention to the decisiveness of economic and political conditions between countries. For example, according to Castles and Miller, "When economic and political conditions between countries change, new countries will be included in the migration system, as well as exits from the system may be encountered" (Castels & Miller, 2008: 30).

2.4.6. Network Theory

The network of relations between migrants is formed thanks to the connections based on common origin, ancestry and friendship they establish with migrants and non-migrants in newly settled countries. The existence of this network of relations is one of

the factors that encourage international migration. "The functions of these networks are analyzed in the literature as part of the concept of transnational community. The international activities that occur within this framework take place regularly and continuously between national borders" (Gökbayrak, 2006: 99). This network of relationships theory helps explain why migration continues despite wage differences or employment policies. "When wage differences lose their importance and when the costs caused by migration and the risks it entails decrease in this system, and the existence of a network of relationships will affect the decisions of migrants and their choice of location" (Vertovec, 2002: 3-12).

Another academic opinion suggests that the network approach can be defined as the premise of migrants' "bond followers" as a model transformed from a live guide to a "user's manual": "While the other mentioned approaches mostly create a benchmarking and preference options, the migrant networks approach exhibits a different structure. The bonds founded through pioneer migrants can be interpreted as a preliminary model or a "user's manual" for individuals who will later migrate" (Görgün, 2017: 1323).

The concept of network theory, in essence, can be associated with the concept of "diaspora" referring to people displaced throughout ages for many reasons, as well as the concept of "social capital" in terms of building or developing relationships.

2.4.7. Social Capital Theory

This theory, put forward by Faist, combines rational individual migration decision models with structural macro migration models (1997, 2000). According to this theory, social relations and social capital in households, neighborhoods,

communities and other organizations have auxiliary qualities in making the decision to migrate or in the process of adaptation of immigrants. In this context, social capital is a kind of tool that has the function of both resourcing and integrating.

According to Putnam, "networks that facilitate action and cooperation for mutual benefit refer to the characteristics of social organizations, such as norms and trust, and can also be transformed into a capital of other kinds" (Putnam R. , 1993: 35). Putnam also found that social capital has permanent effects at all stages of human life and, accordingly, is effective in reducing crime rates, working more efficiently with governments and reducing corruption (Putnam R. , 1995: 65-78).

Interpreting Putnam's this point of view, it can be uttered that this is, in essence, an act of building relationships. It is also possible to call this theory an investment in effective relationships that can be converted into capital or social relationships.

2.4.8. Corporate Theory

This theory focuses on the institutions, organizations or individuals trying to ensure the entry of potential immigrants to the countries they want to go to by legal or illegal means. According to this theory, migrant networks perpetuate themselves through institutionalization. In this case, The corporate part of a migrant network represents the rules and norms that govern that network and reduce the processing and migration costs of immigrants. The organizational face of the network, on the other hand, represents the practical assistance provided to the pioneer migrants in that network (Guilomoto, 2001:135-164). However, migrant networks are also affected by external factors (such as changes in the labor market). External factors can be both a chance and a threat from the point of view of a potential immigrant. In particular, in

terms of threats, external institutions and persons organizing migrant networks extend to human traffickers, employment agencies or humanitarian organizations (Hagen Zanker , 2008: 5-25).

An example to external factors posing a threat can be the fact that the whole world has witnessed the death of Syrian Refugees as a result of sinking their boats in forced migration starting with Arab revolts in 2011, and that many people got lost at the hands of smugglers. Another example is a baby girl, Aylan, who lost her life in the Aegean Sea when her family was attempting to escape by a boat. Her body came ashore on Turkey's coastal city, Bodrum on September 2, 2015. The following inference can be made from here: the rapid increase in the number of refugees ensures that international migration movements take place institutionally, while these processes reflect the weakness of nations, governments and the international system regarding policies on migration movements.

2.4.9. The Theory of Cumulative (Cyclic) Causation

This theory involves the ever-increasing growth of international migration movements by repetition. In the study Rich Lands and Poor, New York, Harper and Row, Myrdal (1957) refers to this situation as cumulative causation. Myrdal suggests that "migrant networks are the most important factor affecting migration" (Myrdal , 1957: 32). Massey et al., on the other hand, adds that it is also important that the migration culture, the persistent distribution of human capital, and the labeling of some jobs to be done only by immigrants are important (Massey, Hugo, Kouaci, & Pellegrino, 1993: 331-466).

In this context, it is inevitable that migration movements will increase and repeat themselves over time. According to this assumption, as migration increases, it is likely that these movements of people will increase exponentially in the future. One of the early migration theorists, E. G. Ravenstein also purports that migration attracts other migration waves and places vacated due to emigration are usually filled with immigration of people from other regions. Yet, of course, the accumulation of migration does not last forever. At some point, migrant networks will become saturated and there will be a shortage of labor in the sending country.

2.4.10. The New Economy of Labor Migration (NELM)

Although this theory is based on the neoclassical tradition, it contradicts some assumptions of the neoclassical approach, revealing a new level of analysis of migration determinants. This theory "somehow places migration at the center of collaborative research, advocates for interdependence instead of individual independence, and takes into account the role of the immigrant's family in the process that brings about migration. Theoreticians of this school suggest that migration decisions are not made by isolated individual actors, but by the family or household in general (Stark & Helmenstein, 1997: 227-234).

Regardless of what factors, positive or negative, affect migration, they suggest that movements of people are dynamic in their dialectic context. As per the basic reasons, migrations were considered voluntary or forced movement from one geography to another until the 19th century. Over time, however, the nature of migrations have shifted. The change of this attribute of migration has led to various types of migrations including voluntary-forced migrations, temporary-permanent

migrations, transit-settlement migrations, legal or illegal migrations, and qualified (brain drain) or unqualified people's migration. Furthermore, there can be another distinction among theories of migration including micro, medium and macro level analyses of migration waves.

As suggested in the migration approaches, migration is a long-term globally spreading phenomenon affected by numerous push and pull factors. Although its main element is the individual, it is also the phenomenon of migration that leads to the emergence of other human communities and to identity changes. For example, Turkish and Ottoman migration historian and scholar, Karpaz presents an academic overview of Turkey emphasizes the effect of migration on the identity formation as follows: "it is migration that paves the way for the formation of tribes, clans, groups, nations, and other human societies as well as the acceptance of new political and cultural identities. Today's countries such as North and South America, Australia were formed and are still being formed thanks to migrations" (Karpaz K. , 2015: 18).

The phenomenon of migration also leads to identity, cultural homogeneity. Indeed, migration is an act of people where they carry their genes with them. In this regard, there is also research examining the effect of migration on genes, identity and cultural formations within the scope of natural sciences. For example, a study was conducted by a group of scholars including Turkish scientist Sevil Atasoy to compare genes in Europe and reveal the effect of migrations on genes. The Department of Genetics at Stanford University School of Medicine and Geneva officials suggest that migration itself is an important variable that leads to the differentiation of identities through "genes". In order to prove these arguments, they conducted gene studies in Anatolian Turkey, the cradle of immigration and emigration for centuries. "When the

genetic structure of people living in Turkey is examined, they reached scientific findings that bear traces of eight different genes including *Turkish, Berber, Greek, German, Slavic, Arab, Jewish and Balkan*".²

However, there is no integrated approach to migration that clarifies the prominent causes and factors of migration in the discipline of international migration studies from a conceptual point of view in a classical and contemporary sense. This requires revisiting theories of migration. Although theories of migration tackle different categories of migration such as micro-macro level, socially-economically driven migrations or qualified (brain drain) and unqualified people's migration movements, a certain typological distinction is difficult since the phenomenon of migration is an interdisciplinary field in terms of culture and identity. On the other hand, it is also possible to assume that beyond forced or voluntary migration, there has been sacred or religious migrations throughout history as well. These migrations aimed to realize an ideal, build a society based on that ideal or create a nation.

As mentioned above, this study aims to analyze international theories of migration from traditional, socio-economic, historical and technological perspectives to find a methodology to progress in theories and to address the lack of a holistic and integrated approach towards migration among other weak points. Among the analyses of theories of migration the highlights include:

² Cinnioglu, Cengiz; King, Roy; Kivisild, Tomas; Kalfoglu, Ersi; Atasoy, Sevil; Cavalleri, Gianpiero L. Lillie, Anita S.; Roseman, Charles C.; Lin, Alice A.; Prince, Kristina; Oefner, Peter J.; Shen, Peidong; Semino, Ornella; Cavalli-Sforza, L. Luca; Underhill, Peter A. (Cinnioglu, 2004).

2.5. International Analysis on Theories of Migration

In the study of migration flows from the East to Western Europe and the conceptual evaluation of theories of migration, Kurekova examined the neoclassical migration theory with an empirical test model and revealed its weaknesses as a widespread approach to migration. In addition to finding the weak spots of theories of migration, the author also tried to demonstrate how to make progress in these theories by determining that there is an expansion in the real data on the labor movement of the eight member states of the European Union towards the United Kingdom and Ireland. To introduce new analytical approaches to migration processes, Kurekova proposes the study of institutional and structural variables specific to countries. In this context, Kurekova reminds the need for developing new theories of migration specifically fit for a country and further underlines the importance of sending countries. In addition, this scholar draws attention to the importance of outlining new analytical approaches that consider migration as part of broader global processes and socio-economic changes (Kurekova, 2018: 687-717).

Ekberg (1994), another scholar analyzing theories of migration, first of all examined the data sets obtained from the 1970, 1975, 1980, 1985 and 1990 censuses on the adaptation of immigrants to the Swedish labor market. In the review based on these data, Ekberg stated that there are large differences in both socio-economic trends and income levels of immigrants compared to native-born Swedish groups in the evaluation of economic success. Also, the need to address the economic progress among immigrants in a broader perspective is underlined in this study. Based on this emphasis, the researcher proposes that the economic and political conditions in both

sending and receiving countries be added to the traditional human capital model (Ekberg, 1994: 48-157).

In a study of natives in countries receiving mostly refugee migrants, Bovi (1994) stated regarding theories of migration that more emphasis must be placed on social issues such as crime rates rather than the effects of employment as suggested in theories of migration. The author noted that migrants have wider economic concerns and fear of losing their jobs than local communities in countries. However, the results indicated that if immigrants were selected according to the needs of the labor markets, local people could welcome immigration more positively. It is deduced in this study that the possible benefits of such a policy can moderate social tensions regarding migration and contribute to the better economic performance of the countries concerned (Bovi, 2003: 60-70).

In his research (2010), De Haas suggested that theories of migration and development debates swung back and forth like a pendulum from developmental optimism in the 1950s and 1960s to Neo-Marxist pessimism in the 1970s and 1980s and to more optimistic views in the 1990s and 2000s. The researcher pointed out to the heterogeneity of the migration effects on the classical opposition between pessimistic and optimistic views. In his perspective, Haas asserted the gullibility of all theories that present migration as a self-help development. He argued that previous theories were designed largely to ideologically direct people and distract them from structural limitations. He claimed that these theory-based views distract from the vital role of states in shaping favorable conditions for the development of migration (Haas, 2010: 227-264).

Nawyn notes that there are studies with aspects that involve female migrants or divide the genders, but there is not yet a full feminist migration analysis and theory in the sense of the broader field of migration studies. Nawyn conducted a nearly thirty-year literature review on immigration scholarships, studying the gender impact. In her research, she discussed the development and theoretical foundations of gender and migration studies Nawyn, (2010). It was based on information of feminist migrants about labor migration, migrant families and social networks, national extremism and citizenship, sex trafficking and sexuality. She suggested that access to information on gender-based migration movements is possible to a large extent beyond the mainstream migration research, and that clearer data will be obtained if the feminist effect is integrated with research (Nawyn, 2010: 749-765).

Dustmann and Weiss, on the other hand, studied the extensions allowing migrant heterogeneity as a reason for returning, and put forward suggestions for selective migration and theories of migration. They developed a simple model that rationalizes the decision of an immigrant to return to their home country, despite the fact that a consistently higher wage is earned in the host country. The researchers also took into account three motives for a temporary migration.

These three motives are:

- Differences in relative prices in the host country and the motherland,
- The supplements between consumption and the place of consumption
- And the possibility of accumulating human capital abroad.

(Dustmann & Weiss , 2007: 236-256).

Beine, Docquier and Rapoport (2001) distinguished migration expectations by identifying old and new effects. They investigated the impact of migration expectations on qualified migration and human capital formation and growth in a small, open developing economy. As part of their study, they assumed that sample representatives were heterogeneous in terms of skills and that they would make their educational decisions in the context of uncertainty about future migration. Furthermore, the researchers defined the case of qualified brain migration as a new term as the time when the average level of human capital is higher in economies open to migration. In this context, the researchers analyzed the expected qualified migration and demonstrated that such a possibility can predict real results beyond a theoretical curiosity (Beine, Docquier, & Rapoport, 2001: 275-289).

Mountford (1997) analyzes the interaction between income distribution, brain drain, human capital accumulation and migration put forward in theories of migration. It is shown that when migration is not certain, although average productivity is a positive function of past average human capital, brain drain can increase average productivity and equity in the economy. In this context, the author also manifests how the possibility of temporary migration can permanently increase the average level of productivity of an economy (Mountford, 1997: 287-303).

Carr, Inkson and Thorn (2005) demonstrated in a study that international personnel flows in global organizations are an important factor in the global career impact. The researchers rejected the term brain drain used in theories of migration as they found it too restrictive. They also focused on the psychology of migration, in particular, on the economic, political, cultural, family and career factors that motivate such a movement. They defined qualified people's migration as individual cases where

the global career of valuable individuals is combined with international influences at the macro level (Carr, K. & Thorn, 2005: 386-398).

Now we are living in a digital era when even the structures themselves have changed and replaced. It can be argued that this is an age when what is real and what is virtual began to go parallel, and this affects all of humanity globally. “Against what is concrete material in time, now there are parallel virtual variables. Thus, it is an age also called the *Metaverse*” (Dionisio, Burns III, & Gilbert, 2013: 34). fit into bytes rather than tangible energy or molecules, or atom pieces. In this line, it may well be uttered that this age has also changed the nature of the phenomenon of migration. For example, virtual brain drain has been added to the types of brainpower migrations.

On the other hand, the phenomenon of migration, which is a global problem in this era, is not taken seriously on the political agenda of the international system, while immigrants are gaining a universal citizen identity in virtual worlds. Even if some migration and brain drain policies are produced in the international system, policies that will educate and harmonize immigrants as common universal citizens of this world in the context of sustainability are not produced in some way. On the contrary, it seems that states have turned a blind eye to both migration and brain drain policies in the rules that they set. In addition, other states than the USA, UK, Germany, etc. are observed not to go far in developing systematic policies on the problem of migration and brain drain. In summary, as the seen in the arguments of the analysts of migration theories suggested above, it is difficult to explain the elements that affect migration by reducing it to several dimensions, such as communal, social, or economic, etc. However, there are very few studies in the literature demonstrating that migration and brain drain policies have a significant impact on the phenomenon of migration.

On the other hand, it can be said that analysts of migration including Carr, Inkson and Thorn reduce international migration to individual factors based on a narrow scope of push and pull factors affecting qualified and non-qualified (brain drain) migration. In turn, it can be argued that this perspective leads to ignoring the global importance of brain drain.

Consecutively, as stated by leading migration theorists and analysts, global developments have led to a significant problem in the 21st century: loss or gain of qualified human resources for all nations. Although nations have begun to look for ways to develop various projects and policy strategies with push and pull factors of brain drain, it seems that states are left with the right to decide on the political solutions of this issue in the international system. In the context of this study's objective and subject, the second chapter below will explain the conceptualization, definition and types of brain drain in terms of push and pull factors and its historical background.

CHAPTER 3

3. BRAIN DRAIN

3.1. The Concept of Brain Drain: Definition and General Characteristics

It can be uttered that brain drain is a phenomenon that has been around since the moment humanity started to produce information. However, this phenomenon began to be the subject of research only during the Cold War in the 1960s, when information began to be processed. According to Kagermann, the third Industrial Revolution in the 1970s is the successor to the Cold War era. "The Third Industrial Revolution is also called the information technology era, beginning after World War II and developing rapidly after the 1970s, when production was digitalized" (Kagermann, Helbing, Hellinger, & Whilst, 2013:13).

In this line, the Third Industrial Revolution triggered and increased the need for qualified labor force. In this transitional stage, capitalist production modes were restructured and this increased the need for qualified work force. This, in turn, led to the emergence of the brain drain issue, which later became theoretically noticeable for developing and developed countries. Since part of qualified human resources was lost by migration, the concept also refers to losing social and economic benefits. Thus, the term was coined in the literature of international migration with reference to movement of highly qualified people. After 1960, when brain drain began to flow from especially underdeveloped countries to developed countries, scholars intensified their theoretical studies on its push and pull factors.

According to some opinions in the brain drain discipline, the definition of qualified human resources is as follows:

"In addition to highly qualified people who have a college degree or extensive knowledge in a field, highly qualified specialists, independent managers, senior operators, technical experts in the field, traders, investors, physicists, and businesspeople are also considered within the scope of brain drain due to the effect of circular differentiation". In addition, academicians and scientists engaged in scientific research and development activities are also considered in this scope" (Öztürk, Türkoğlu, & E. ve Yıldırım, 2009:12).

In the international migration literature, brain drain is also referred to as the migration of talents. On the other hand, "This type of migration is also regarded as trading cheap labor, while the addition of individual talents expertise lead to gains in the target country. This, in turn, increases the personal sphere of influence and when associated with educational background, this corresponds to the emergence of the concept of 'brain power' in the UK in 1950s" (Kirişçi, 2007: 95).

Since the issue of brain drain is discussed in the international literature, it is defined in studies as follows: "Since brain drain is the act of moving to attraction centers outside one's country borders, there is the probability of going and not coming back". Another definition includes the following aspects: "Brain drain is a condition in which well-educated, thinking, producing, qualified people move to another country when they are most productive for the purpose of research or work and they do not have the intention to come back" (Kaya M. , 2009: 35). According to another academic opinion, brain drain is not only the movement qualified labor force to another geography, but also choosing more developed countries where people can benefit from their talents:

"Brain drain is generally defined as the movement of well-educated human capital from developing to developed countries by external migration" (Görgün, 2019: 36).

3.2. Historical Background of the Concept of Brain Drain

The Institution of the British Royal Society first used the concept of brain drain in the United Kingdom when brain capital drew attention with its size on an economic basis. The discourse of brain drain put forward in the 1945s was adopted after the press showed an interest in the term in the 1960s. It also turned into an image of concern for the future. This made it possible to realize that migration was not only from developing to developed countries, but also from developed countries to developing countries. These movements became continuous in the 1945s and 1950s, and their effects on the UK were felt in the early 1960s. "This trend continued until the 1970s. Although this effect lied in the arguments of senior reports in the 1945s, interviews with scientists who had interest in the US and Canada found large repercussions on the media under the title of the British people's concern for the future in the 1960s. This led to the formation of government policies in this direction" (Krige & Pestre , 1997: 172).

News on the concept of brain drain resonated with science journalism, especially in the United Kingdom in a short time. "This new mood in science journalism became the subject of elections, and this new image gained momentum with anti-American criticism and campaigns" (Ackers, 2004: 141). Here, it can be understood that they presented brain drain as a problem to the attention of the public through media and policy makers included this issue in their campaigns, putting the brain drain problem on the political agenda as early as they could.

Regarding the phenomenon of brain drain, Krige evaluates both the UK's media and the scientific community and politics as follows: "It is important to note that improving political discourse has a consistent relationship between news published through the media and the need for the UK to take measures to retain scientists. With the departure of scientists from the United Kingdom, it has become controversial in the media that this has led to a risk of decline and fragility in the UK economy on the world stage" (Krige & Pestre , 1997: 170).

The following assessments are also significant as a foresight to prevent or attract brain migration: Public concern about the phenomenon of brain drain, which grew with the attention of the press in the 1960s, led to various controversies. For this, a small grant program covering a 12-month period was funded by the Economic and Social Research Council (ESRC) with a modest incentive from the 1950s to the early 1970s. The aim of this grant program policy was to prevent scientists from heading to Canada and the US. However, the factor that caused migration to stop in the 1970s was not the success of this grant program, but the beginning of the Cold War (Ackers, 2004: 141).

Although Ackers claimed that the factor leading to the cease of brain drain was the Cold War, it is necessary to point out to the importance of envisioning the future by observing that policy makers took the responsibility to take brain drain in the political agenda for improving and attracting solutions and led in taking tangible steps against losing qualified human resources.

By the 1970s, the definition of brain drain was expanded as the influx of qualified individuals from developing countries to Western Europe and North America:

"In the 1960s, the phenomenon of brain drain with its echo in the media was defined as the movement of highly skilled manpower such as scientists,

physicians, engineers, etc., who require a lot of resources to raise, to a more developed country due to indifference or lack of financial means. The phenomenon of brain drain was again defined in the 1970s, this time as the settlement of qualified workers from any country and came to the agenda once again with the departure of Jewish scientists from the Soviet Union (USSR). Job seekers threatened with brain drain, triggering the perception that Israel was "brain sucking" this time with a referral placed with personal" (Adir, 1993: 1).

When it comes to Turkey, it can be said that the country met brain drain, which conceptualized as the migration of qualified people, at an early period. As a matter of fact, Germany, which emerged from World War I with a major defeat and had to sign the Versailles Peace Treaty in 1919, fell into a major economic and political crisis. In those years, the German Nazi Party was founded on a nationalist-socialist philosophy and made xenophobia and particularly anti-Semitism a pressure on masses to promote pure German race. The party committed genocide against the races and people it alienated by establishing dozens of concentration camps. During that period of repression and dictatorship, many expert academicians, artists, writers, engineers, lawyers, laboratory experts, etc., had to migrate to Turkey and to different parts of the world on a mandatory basis.

From 1933 to 1945, German-speaking immigrant scientists including Albert Einstein, Max Born and James Franck in the US and UK conducted innovative research. According to Erichsen;

"Immigrants in developing countries, on the other hand, had a different impact. About 200 scientists, 64 of whom are physicians, emigrated to Turkey after 1933. These immigrants represented the schools of Berlin, Breslau, Vienna

and Prague in Turkey, which at that time held a leading position in research. Their joint work in medical education and research brought Turkish medicine to an international level and led to the introduction of a European standard in Turkish health studies" (ERICHSEN & Öztürk, 1999:2).

Moreover, "the Association of German Scientists founded by Philipp Schwartz employed a total of 82 professors at Istanbul University, and many of these scholars provided consultancy services in different areas of the state apparatus" (Hirsch, 2005: 167).

On the other hand, despite the loss of many qualified people, German Nationalism was brought to the forefront by the pressure of Nazism, and Germany did not give a break in science and technology production during that period. For example,

"Enigma", the cryptographic telegraph system developed in the military intelligence services, was strengthened by German engineers during this period. Advances in Nazi Germany were not only in engineering and war craft, but also in health, biology and genetics, building a new Germany. However, all urbanization and industrial facilities turned upside down in Germany after World War II, and the country needed migration to attract labor capital rather than brain drain to re-strengthen its industry during this period" (Faist, 2013: 1637).

3.3.Approaches to the Causes of Brain Drain

Why do people migrate in general, and what are the reasons for the change in the nature of migration? To respond to these questions, there is a rich literature on migration approaches that historically date back many centuries. The phenomenon of

migration is also the story of ordinary people who are in search of better conditions, who want to build a new life, or who have to forcefully leave their country. However, what are the causes of the phenomenon of brain drain in particular? Why do people, and especially scientists, engineers, doctors, graduate students, academicians, businesspeople, highly qualified people, etc. prefer to work in a foreign country by emigrating instead of working in the country where they were born and raised? After all, it is a difficult option for qualified people to decide to leave the geography they are used to. In this context, there are certain basic theoretical approaches that seek answers with regard to the questions on the causes of the push and pull factors affecting migration waves.

Considering the periodic differentiation of migration, it is necessary to elaborate on the individual and mass 'brain drain' after 1960 and the causality of the push and pull factors leading to such migrations. While the biggest reasons for the push factors are lack of employment and low income, the most important elements of pull factors are large employment areas and, in parallel, the multiplicity of opportunities for obtaining high income. In addition, education and health opportunities, diversity and wealth are also important pull elements for brain drain. Although the push and pull approach was developed by Everett. S. Lee, "this approach is based on the work of German Geographer Ernst George Ravenstein called 'Laws of Migration' (1885, 1889)" (Obera1, 1987: 108). These laws (or generalizations) put forward by Ravenstein are:

- Migrants mostly move for short distances; those who travel longer distances tend to go to large industrial and commercial centers.
- Most of the migration is from agricultural to industrial areas.
- Large cities grow more by migration than by natural increase.

- With the development of industry, trade and transport, migration increases.
- Each migration flow produces a counterflow.
- Women migrate more often (Ravenstein, 1885: 184-199).

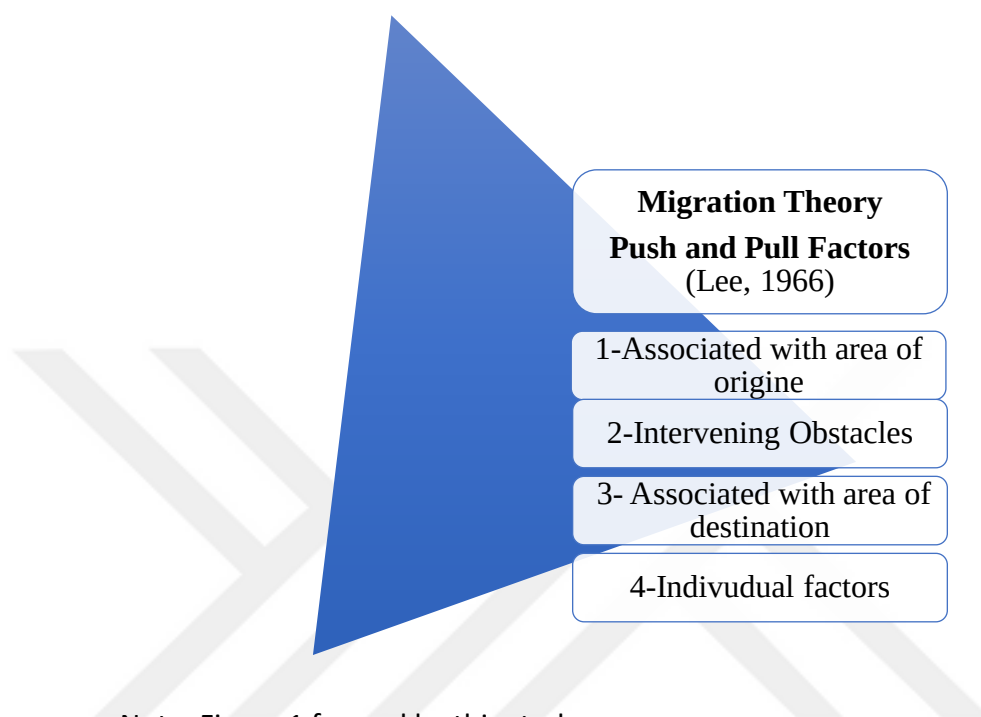
In this regard, it is essential to recognize the contribution of Everett S. Lee's "Push-Pull Theory" and Ravenstein's 'Law of Migration' to the discipline of population studies. Ravenstein's work was first presented to the Royal Statistical Society on March 17, 1885. His original article was based on the 1881 Census of Great Britain. In 1889, Ravenstein examined the subject in more detail with data from more than twenty countries (Samers & Bauder, 2011: 55-56). However, "Ravenstein's laws are, in reality, experimental generalizations based on his calculations from British censuses and other censuses of his time. They did not refer to international migration, but rather to internal migration" (King, 2013: 12).

3.3.1. Conceptual Framework in the Context of Everett Lee's Push and Pull Theory

In his article "Theory of Migration", Lee took Ravenstein's approach forward in the sense of relativism and defined migration as "a permanent or semi-permanent change in the place of life in general". Lee puts the following four factors as the basis for his analysis:

Figure 1

Lee's theory of Push and Pull Factors



Note. Figure 1 formed by this study.

In this definition by Lee, there is no mention of the distances of the places to migrate, whether migration is mandatory, and whether migration is internal or external. Instead, Lee's Theory of Migration addresses the push and pull specifications of the places to migrate to, and also emphasizes the need to consider the barriers between the two places that negatively affect migration. In this theory, there are several factors that trigger migration: "push"/negative (negative perception (-)), "pull"/positive (positive perception (+)) and "neutral/no negative or positive contribution to the decision (ineffective perception (0)) (Piche, 2013:141-164).

According to Lee's migration theory, "a good climate is defined as a 'pull' factor and a bad climate is defined as a 'push' factor for migration".

Moreover, a place with good educational opportunities is a pull (+) effect for people who have young children, while for a landlord without children it is a push (-) factor due to the high property tax rates. On the other hand, the idea of living in the same place will not create a push or pull effect on the perception of a single individual who does not have a property as they will not be subject to tax payment, and the place that is planned to be lived will have a neutral value in the eyes of this individual” (Lee E. S., 1966: 48).

Besides the individual perception in the equation that constitutes the pushing factors of migrations, the pull factor in mass perception is explained in Lee's theory as follows: the poverty of the sending country, the economic, sociological and political situation of the cities at that time creates the mass perception. Similarly, better perception of the economic, sociological and political factors in the receiving country or city compared to the source country or city will lead to the formation of a mass pull factors (Lee E. S., 1966: 47-57).

In terms of the masses, beyond the pulling factors such as geographical and regime style of the country to which one is going or to be settle of course, the economic conditions such as salary and income are among the first determinants. Lee explains this actor as follows; “high population density, low wages and economic instability in underdeveloped regions push individuals living in this region to move away from the region, while individuals perceive developed regions with high wages and job opportunities as pull factors for migration” (Lee E. S., 1966: 47-57).

Another type of migration, which is the movement of people from one geography to another geography, is the brain drain, which is the outflow of qualified human resources. “Brain drain” is defined as the migration of experts after completing

their education to a country different from their country of origin” (Bakırtaş & Kandemir , 2010: 18). The literature features many studies analyzing the negative effects of brain drain. Considering the factors contributing to brain drain, it is seen that these migrations are basically due to poor salary and compensation rights, family issues, political instability, problematic country ruling, poor economic conditions and unemployment.

Coined and conceptualized in the 1960s, the concept of brain drain has attributed global importance to brain migration and related policies from the perspective of push and pull. In addition, as will be seen in the migration analysis in the second chapter of this study, Castles, Miller and De Haas stated that the phenomenon of migration will continue to evolve in terms of the negative or positive, macro and micro dimension of the push and pull factors in the context of globalization. Furthermore, they underlined that migration is circular and it is reflected on the fundamental economic, social and political transformations today. They also attributed mass migrations to colonialism, industrialization, the emergence of nation-states and the development of the capitalist world market over the past five hundred years.

While emphasizing the importance of putting the phenomenon of migration on the agenda of politics, Castles and Miller put forward the following predictions that can also be considered as a vision that fits the accelerating and differentiating effect of today's information-based digital transformation:

“Politicians have never prioritized immigration issues in this way before. International migration has never been associated to this degree neither with national security nor with conflict and disorder in a global sense. Following the "Age of Migration", the current era introduced the concept of the

"information age". The era has enabled the development of communication and transportation resources under the influence of globalization" (Castels & Miller, 2009:30).

Castles and Miller suggested that migrations have existed for a long time in the world and will continue to exist in new forms in response to changes, economic and political struggles and conflicts, noting that five main trends are becoming increasingly important marking the main characteristics of modern migrations today. These trends are:

- Globalization of migration,
- Acceleration of migration,
- Differentiation of migration
- Feminization of migration,
- And increasingly politicization of migration (Castels & Miller, 2009: 30).

An example of the findings of Castles and Miller suggesting that the epochs have revealed new concepts, is the changes caused by the COVID-19 pandemic, starting in the early 2019 and becoming a deadly threat to the world. Another opinion supports this as follows: "During the current COVID-19 Pandemic, brain drain has come to the surface as a vital shock due to a mismatch of interest between target and source countries, especially in the fields of information, science and technology" (Khadria, 2020: 1).

This mismatch put forward by Khadria was also observed in the statements of UN Secretary-General Antonio Guterres, constantly reminding of the need to base international relations on global solidarity. For example, Guterres repeated this

reminder at the "World Economic Forum" held online in January 2021 and called for social economic sustainable solidarity and cooperation on a global scale, saying that the COVID-19 case is not a situation that can be solved alone. He stated that it is vital that this is overcome by creating global social interactions between the environment and the international area" (Guterres, 2021).

Considering all these comments and analyses, it can be deduced that during the COVID-19 pandemic, distances between boundaries and geographies have become more ambiguous along with the spread of internet technologies, as digital transformation is accelerating the social and cultural transformations. This new social geography has also changed the paradigm of social development, which has been theorized within the framework of the transformations taking place today. This situation reminds the need to revisit systems by creating sustainable solidarity and social interactions with cooperation against the climate change as well as environmental, social and economic issues.

In addition, if there is a relationship between COVID-19 and the ecosystem of healthy living, it also has a relationship with migration. In addition to these structural analyses, there are also the following opinions about how this condition affects reverse brain drain: For example, "as a sign of reverse development, it can be seen that supply chains have increasingly been dependent on local sources, economic crisis and unemployment is taking place in many developed countries due to the decreasing demand for qualified employees and these are similar dynamics in various regions from Indonesia to India with the effect of the Covid-19 pandemic, and this has manifested itself as the tendency to return to the hometown" (Goyal, 2021).

All these developments show that in the case of migration, structures will be re-questioned, and new types of migration will be defined. This situation requires the development of a multi-functional migration logic and policies with good communication (using knowledge, information and digital technology). In addition, the current developments can be read as a new dimension to the concept of migration, a new analytical assessment of brain drain approaches, or an important warning about the production of new brain drain policies.

3.4.Types of Brain Drain

As stated in migration approaches and their analyses, it is inevitable at the international level that migration will lead to a qualitative/type transformation in terms of cause/effect in essence, which varies according to the epochs. For example, by 2019, the concept of brain drain was generally divided in the literature as brain export, virtual brain migration and covert brain drain. In 2020, the world entered the digital transformation with the acceleration of COVID-19, affecting the entire globe. Concrete fields (schools, shopping malls, etc.) turned into independent on-line areas. Now comes the remote revolution.

It was inevitable that this transformation would also change the nature of migrations. In short, migration, which is defined as the act of going from one geography to another concretely, is now becoming a spatial, temporal and even material phenomenon (Metaverse). Brain power is carried to these multivariate, multidimensional and multi-verse beings that we are witnessing. Now comes the remote revolution.

These concepts can be briefly summarized as follows: Brain Export: It means the export of intelligent and qualified minds to another country than the country of origin. Brain export is "a type of migration in which the country of origin submits to the receiving country voluntarily and obtains financial gains in return" (Berber, 1998: 97).

Virtual Brain Drain: "It is referred to as a qualified individual living in an underdeveloped/developing country to use his brain power for the purpose of serving a developed country by physically staying in the country of his residence, that is, without being geographically displaced" (Kaya, 2009:15). Countries and international companies are trying not to lose their brain power through digital-based and social networks, as this will be a loss for their own countries. Therefore, "they hire people for their projects. With virtual brain migration, developed countries aim to achieve maximum efficiency/profit by investing minimally, and therefore they do not spend social security for their employees" (Kaya M. , 2009: 16).

Covert Brain Drain: "It is the service of qualified labor force for the benefit of other states or international companies from the country where they are based, even they are not engaged in migration moves" (Görgün, 2019: 42). Qualified Turkish human resources working in foreign companies such as Google, Microsoft, DHL, Apple, etc. can be given as an example to covert brain drain. According to Kaya's study, "The rate of covert brain drain seen in the world is 2.5 times higher than that of known brain drain" (Kaya M. , 2009: 28). In this context, qualified people employed in foreign companies in the country of origin are given lower wages and social rights than foreign companies in developed countries.

Online Brain Drain: This type of migration emerged due to the COVID-19 effect, which swept the whole world in February 2020. During this period, all educational institutions, shopping centers and universities at the national and international levels moved their programs to online platforms. It is possible to define online brain drain as the ways of doing concrete work without displacement in the national or international area as witnessed now, and the transfer of concrete spaces to virtual spaces.

In the academic literature, there is not yet any comprehensive definition of online brain drain. However, the quantum effect is recognized in the sense of time and space. These practices are intertwined with intellectual, cultural, social and historical fields. In this sense, Özdemir defines online brain drain in reference to Gordon and Silva as "Network Location implies the simultaneous and ubiquitous presence of network-based information without time and space limits" (Özdemir Ö. , 2020: 26).

Digital Brain Drain: The physical boundaries drawn by nation-states in the past have been replaced by virtual spaces where the Internet and computer technologies have drawn their boundaries today. The first sign to show that this tendency can be a new type of migration came with Prensky's (2014) work, distinguishing "Digital Natives-Digital Immigrants" or in other words, people born into digital technologies and those who learn internet and computer technologies later. Prensky noticed a similarity between the alienation that those who later got acquainted with Internet technologies in virtual environments and what immigrants experience in the target country. Departing from this point of view, he defined these people as "digital immigrants (Prensky , 2001: 1-6). He called the young people who were born into technology and grew up using

digital media tools such as the Internet, computers and mobile phones as "digital natives".

As mentioned previously, people are switching from the concrete, objective realm to the virtual world and this is explained by the phenomenon of digital migration. This also means that migration can no longer be considered a movement between physical geographies, but it marks a transition to an unlimited virtual world era. On the other hand, should the pioneers who developed computer, Internet, or smart phone technologies and inventors and users who advanced these technologies be considered "digital immigrants" as opposed to "digital natives" just because they were not born into these technologies? This is a significant question that can be added here. As a result, digital working life, digital brain drain, quantum, artificial intelligence, artificial company, and the oncoming humanoid artificial robots are bringing an "autonomous immigration" into light.

Evaluating technologies of the future related to autonomous immigrants, the Softech 2021 technological report also suggests that the age of digital immigrants with a mixture of humans and robots is coming soon. In the report, the period between 2020 and 2023 is called as the mobile device period, and in this period, "5G, end artificial intelligence, voice assistants, virtual workspaces, remote working, monitoring technologies, instant on-target delivery, sustainability and environmental issues will stand out, while in the period between 2023-2028, artificial intelligence colleagues, digital immigrants, and autonomous vehicles will come to the agenda. Between 2028 and 2036, smart cities, digital working life, quantum, artificial intelligence and basic income will be on the radar, while between 2036 and 2080, artificial companies,

humanoid artificial intelligence, digital reality, augmented human and human life will come to the fore" (KobiEfor, 2021:103).

When this report is analyzed, it can be understood that robots called semi-humanoid "Cobot" will also be added to the migration variables, the main determinant of which is human movement. Will this change be a threat or an opportunity for source countries? How will this new type of migration be reflected in the political agenda of countries? There are opinions that the COVID-19 pandemic has increased the use of digital tools, but this will benefit the source countries. For example, according to Lindenstrauss of the Israeli Institute for National Security Studies, "The increase in the use of digital tools may result in a reduced need to travel abroad for the purposes of education and relationship development. Thus, this can help reduce problems such as "brain drain" in some countries" (Lindenstrauss, 2020: 6).

On the other hand, by Prensky's definition, are those who join the virtual environment later, "digital immigrants", or forced immigrants? What are the push and pull factors of the virtual environment for them? This is an inquiry outside the scope of this study. However, the phenomenon of brain power, which was realized and conceptualized in the 1960s, has given global importance to brain drain. In addition, Castles, Miller and De Haas indicate that the phenomenon of migration will continue to be cyclical in terms of the negative or positive, macro- and micro dimensions of the push and pull factors in the context of globalization. "In turn, this will be reflected on the fundamental economic, social and political transformations that shape today's world" (Castels, Haas, & Miller, 2014: 96).

The change in the nature of migration, especially after the 1960s, forced countries to include qualified brain drain as an issue in their political agendas. At this

point, global changes impose a knowledge-based era on all nations, while they have begun to lead to their leaping transformations, such as future virtual migrations. Consequently, this has led to questioning and seeking a way to understand the relationship between migration movements in the context of the push and pull factors of brain drain policies. This has also reminded of the importance of developing and organizing policies according to the conditions of the age. Therefore, migration and brain drain policies, concepts and formations are revealed in the following chapters of the study as part of its scope.

3.5. Migration and Brain Drain Policy Concepts and Formations

Migration policies are shaped around the main interests of states in the fields of economy, politics and security all over the world. The migration policies of countries are changing according to social and economic conditions such as natural disasters, the problem of livelihood, the climate crisis, regime systems, wars, etc. and changes seen in migration trends and influencing factors. So much so that these push factors can cause people to leave the regions where they live in the country, and even their country. The best examples of this are the crises after World War I and II, the Cold War period, the global financial crisis in 2008, Syrian refugees' crisis after the Arab revolt and the seizure of power by Taliban in Afghanistan on August 15, 2021. Hence, millions of asylum seekers, especially brainpower, have fled to all parts of the world, including Turkey. Countries that experienced such problems first lost their brain power. On the other hand, the countries preferred by qualified human resources had difficulty developing policies to adapt these immigrants urgently, and thus, the problem of brain drain has become an international problem. The global prevalence and the impact of

COVID-19 and Digital Transformation have also been one of the factors triggering brain drain. It is certain that the problem of brain drain, which somehow seems unmanageable for these reasons, will be put on the urgent political agenda internationally.

Looking at the historical development of the concepts and formations of migration policies, it can be seen that brain drain policies are factorial variabilities that constitute the contents of the global system with the political will and determination of nation states. Therefore, migration policies are a global phenomenon requiring flexible re-evaluation and renewal in accordance with the current conditions over time.

3.5.1. Concept and Formation of Migration Policy in the World

The formation of nation-states or the changes brought about by modernization changed the means and ways of production and touched human life, as well as transformed the causes, qualities and structure of migration. Human mobility shortened distances thanks to mutual integrations in commercial, social, cultural, economic and political fields. These interdependent relations, on the other hand, have found expression in the definition of globalization in a formal sense. Globalization has somehow become the beginning of changes. Later, with the effects of the Industrial Revolution, many countries have become unable to meet their needs with their own resources only. This have marked the beginning of the liberalization of world trade, low tariffs, the removal/minimization of trade restrictions. Over time, especially after World War II, the different levels of development between countries, trained workforce, technological and innovative development, the differences between the impact of individual preferences, telecommunications, and transportation developments in the

field of information technology that have an impact on the course of history have led to large waves of global migrations.

Considering the historical background of global mass migrations, these are the "Indo-European migrations to Europe, the Middle East and South Asia during the Bronze Age, migrations in Africa known as sub-Saharan (Bantu) migrations, Barbarian Invasions of the Roman Empire period or the mass migration to Europe between 350-800 A.D" (Brown, 1995: 23). Barbaric Migrations of the Roman Period were "a great relocation movement that would change the fate of many peoples and almost the entire world and referred to in the pages of history as the "Migration of Tribes", which included the Hun Turks, the Germanic Slavs and Muslim societies" (Çapan & Güvenç, 2017: 633). Another mass migration largely with Turks was the Anatolian Migrations. "They were the Turkish migrations to Anatolia from Asia for two hundred years, after Turks defeated the Byzantines in 1071. Turkish migrations changed the demographic structure of the region in favor of Turks" (Özdemir M. , 2017: 66).

On the other hand, the first major waves of mass migration in history began in the 1840s. "It was the Great Atlantic migration from Europe to North America that began with the mass movements from Ireland and Germany in the 1840s" (Geary, 2022). In the 1880s, a second and larger wave developed from Eastern and Southern Europe. "Between 1880 and 1910, about 17 million Europeans moved to the United States. The total number of Europeans who reached the United States between 1820 and 1980 was 37 million"(Britannica, 2016).

After all, migration is the act of moving people from one geography to other geographies permanently or temporarily. It was inevitable that people would use brain power or intellectual labor as capital instead of human power. In this context, with the

movement of qualified brainpowers or the phenomenon of brain drain gaining an international and transnational dimension, in addition to migration, the need for global migration policy, in a sense, has emerged. The fact that actors such as brain drain diasporas gain an international dimension, and on the other hand, the evolution of globalism into a multi-variable and multi-component structure due to its nature, has increased the need to apply global governance to the phenomenon of migration.

Global governance encompasses the principles of consistent and clear implementation of institutions, policies, norms, procedures and initiatives that states and their citizens seek to bring greater predictability, stability and order to their responses to transnational challenges (UN, 2014: 15). Evaluating from the perspective of global governance, the lack of joint structuring of migration policies is a major problem in the world. The reason for this is that when global governance or immigration policies are generally perceived as part of the internal legislation of various states, there are opinions that the policies of individual countries cannot guarantee the right to immigration for each individual. In the same vein, some scholars suggested that the policies developed for international migration management should be based on a common structure aimed at solving problems. For example, according to Kara and Kara;

"There has been no structuring to solve problems in international migration management. This is largely affected by the fact that states avoid making regulations and international migration movements are largely handled within the scope of the national public order. In this context, common solutions become impossible since states act independently in international migration

management rather than realizing an understanding of governance by acting jointly on issues related to migrants” (Kara & Dönmez Kara, 2016: 20).

There is an urging need for global governance of migration policy at both the international and national level in order to solve irregularity: "... When migration is properly regulated and managed, it can potentially increase productivity and the well-being of the international economic system" (O'Rourke, Williamson, & Hatton, 1999-2005: 88). Another opinion is that global migration policies are in some sense just on paper, and that not everyone is interested in taking responsibility to solve this problem jointly. "In this context, current practices of migration governance do not include much effort to regulate, but rather address issues and solve individual problems related to migration. A coordinated solution to identified migration problems can be the result of exchanging information, disseminating good practices and forming non-binding formulations" (Slaughter, 2004: 15).

After the global governance search for the migration issue, the 1951 Geneva Convention can be cited as an important step towards the legal embodiment of the developed migration policies. The Geneva convention was signed in 1951 to provide the most comprehensive implementation of the rights of refugees at the international level. This convention is the protection of persons from political or other forms of persecution (UNHCR, 2010: 2). Another opinion expresses the importance of issues related to the problem of implementation of migration policies as follows:

"The concept of refugees was not included in the migration policies created after World War II, but with the 1951 Geneva Convention, this concept entered into migration policies. Asylum-seeking countries establish their regulations on refugee issues within the legal limits set out in this international

convention. Preventing irregular migration flows and taking measures to prevent illegal employment of foreigners constitute a policy area that is of great importance, especially in today's migration policies” (Somuncu, 2006: 21).

Considering the early development periods of international migration policies, there was usually a focus on mass and forced migrations. However, today's focus is rather on voluntary migrations, especially brain drain. In the opinion of Torpey the delay in the policies related to the regulation of exit resulting in the following consequences:

“Since the end of World War II, Western liberal democracies have developed migration policies focused on regulating entries. This was a clear contrast to the long-standing historical tradition: the regulation of exits was the first migration policy in history and was implemented in all states that were sufficiently developed to ensure administrative control of their nationality for many centuries” (Torpey, 2018: 200).

However, after the end of the Cold War, it is seen that immigration policies began to be developed in such a way as to prioritize qualification instead of nationality: *According to Martin et al., “Since the 1990s, countries have started to open their doors to especially skilled immigrants. Despite the growing anti-immigration climate, many European countries are opening their doors to especially to skilled and professional immigrants. They developed the Schengen Treaty to create a database accessible to border control officers” (Martin, Abella, & Kuptsch, 2006: 25).*

To draw a conceptual framework for migration policies, it can be said that migration policies are the totality of the principles of organizing and realizing the activities of the state as a goal, method and content in the field of migration (Türk Dil

Kurumu, 2020). A new definition of migration policies suggests that there are principles of transition: "these are statements about what a government wants to do or not to do about the selection of foreign nationals who will live in the country, their acceptance, settlement or deportation (through laws, regulations, decisions or orders)" (Bjerre, Römer, & Helpling, 2018: 57). According to another opinion, "Migration policies are applied in different ways and weights, but migration policies in generally cover entry, exit and foreigners inside the country and citizens outside the country. Countries can shape their policies by granting or not granting the right to immigration, allowing free movement, or granting immigration by lot or issuing visas" (Somuncu, 2006: 22).

Although there is no definition of migration policy, the following opinion of the World Bank Group is important in terms of specifying the elements of migration policy:

"Migration policy covers a large number of areas, including the reception of migrants, reunification of migrants with family members, access to local labor markets in target countries, opportunities for migrants to obtain permanent residence and citizenship, and migrants' rights to political participation and access to social services. Three routes are followed for entry into a target country, and each of them corresponds to a different set of policies. The first route, legal migration, includes three categories. One of them is economic migration, which requires addressing labor market needs" (World Bank Group, 2019: 52).

Since there is no original definition of migration policies in the literature, several of such policies can be conceptualized in the context of public policies, administration, local country practices, supply and demand, governance of migration in

the international system and global governance, economic, social and cultural procedures for migration and all other related practices.

In this context, international migration policy can be defined as "a set of regulations (policies) covering both the regulations of countries regarding foreigners entering the country and the regulations related to sending migrants abroad and their citizens abroad. Since two dimensions of migration policy are regulated differently, all policies developed by governments are referred to as immigration policies and emigration policies in the literature" (Somuncu, 2006: 22).

Yet, there are also major studies criticizing the fact that migration policies are developed predominantly to attract brain migration and human capital in the international field. Accordingly, "One of the two migration policy studies valid for years is criticism of migration policy as the right of a totalitarian state, and the other is migration policy that is considered the economic policy of developing states. In both cases, the concepts of "brain drain" and "human capital" seemed very important". (WEINAR, 2014: 1).

In addition to the opinions suggesting that migration policies were developed with a focus on attracting human capital and brain migration, there were also criticisms about the focal point of brain drain policies. For example, according to Adams and Douglas (1968), "Brain drain policies have been developed in the field of development studies and focus on the impact of brain drain on the development prospects of low-income countries" (Adams & Douglas, 1968: 35).

As a result; In the context of the above definitions, *migration policy* can be conceptualized as all of the procedures and practices on migration, including the public,

administration, practices within countries, the international system and global governance of migration.

On the other hand, although there is no unique definition or conceptual framework of brain drain policies, and the factors in its discourse are debatable, brain drain policy can be conceptualized as follows: *Brain Drain Policy*: This can be conceptualized in the context of international migration governance as all attractive political factors and procedures implemented by states to attract and train qualified human resources and attract foreign brainpower and eliminate push factors, regardless of color, class or identity. According to the observations and definitions given in this study.

3.5.2. Policies and Practices Aimed at Pushing and Pulling Brain Drain in the World

The technology-based development of the Industrial Revolution after World War II increased the importance of qualified human resources to raise the levels of innovation and productivity of all countries. "This situation became continuous in the 1945s and 1950s. Moreover, qualified human resources started to flow to developed countries. Although qualified people started to settle in the United Kingdom, there, the country first understood the importance of the need to raise brain power in 1960, when the social and economic vulnerabilities caused by brain drain were most reflected as a risk to the United Kingdom" (Krige & Agar, 1997:172).

The fact that the United Kingdom realized the problem of brain drain and put it on its political agenda, that the US made its brain drain policies sustainable, and the transition to an information economy after the 1970s prompted other developing and

developed countries to seek policies for attracting qualified human resources. On the other hand, considering the fact that the process of transformation into an information economy began in parallel with technological transformations after the 1970s, this had significant reflections on policies facilitating brain migration in the search for qualified human resources at the international level. As an example of this reflection, the following determination of the OECD is important: "Especially developed countries provide facilities for high-skilled labor force through immigration policies in order to meet the need for high-skilled labor force" (Bassols , 2002: 2).

As Bassol emphasizes, especially developed countries are offering facilitating policies for qualified workforce. Some country examples are as follows:

- Easing of restrictions on the number of migrants to be admitted to the country. (US)
- Special migrant programs for professions with a shortage (Germany, Canada, Australia),
- Visas for highly skilled labor, facilitation of working conditions (Australia, Canada, France, Japan, the United Kingdom, Norway, New Zealand), granting incentives for skilled workers in addition to wage (Australia),
- Giving foreign students the opportunity to change their status at the end of their education (Germany, Switzerland, Australia, US) (Kelleci, 2003: 48).

In fact, the migration policies implemented by developed countries to attract brain drain are another important reason for the international influx of expert workforce in the world. For example, the basis of the migration policies for highly skilled labor in the OECD countries can be summarized as follows:

- Meeting market shortages

- Meeting the human capital stock needs
- Promoting information exchange by expert workforce

Increasing innovation and inventions in the economy (Dumont & Lemaitre , 2005: 17)

On the other hand, policies related to the circulations of migration in terms of brain power are an issue that is on the agenda of many countries internationally today.

These are:

1. Support for highly qualified labor migration, in particular, facilitating the entry and stay of investors, entrepreneurs and successful international graduate students.

2. Limitation of low- and middle-skilled migrants' entry to the country by a scoring system of admission etc.; reducing the number of migrants working in non-qualified sectors by introducing the obligation of a foreign language, higher education and a minimum salary requirement; ensuring short-term entry of low- and middle-skilled migrants into the country through bilateral agreements and programs.

3. Taking strict measures against irregular migration; supervision of intermediary organizations that facilitate the entry of irregular migrants into the country and increasing penalties against employers who employ irregular migrants.

4. Restriction of family reunification by raising income conditions and creating language and other adaptation tests for family members (European Migration Network, 2011: 12-17).

3.6. The Countries that Receive the Highest Number of Immigrants from Turkey and Brain Drain Policies

Even though brain drain tended to reduce in the UK by the effect of small incentives and the Cold War, the migration laws enacted by the American government in 1965 started to pull brain migration from the UK, larger Europe and other developing countries to the US (Chishti, Hipsman, & Ball, 2015). It is also necessary to take into account the fact that during those periods, Germany was rapidly recovering and developing its economy. Over time, migration of skilled workers increasingly involved shorter and helical routes, thanks to increasing global adaptation, decreasing transportation and communication costs, and rising living standards outside of traditional developed countries. The US is still the number one country in pulling brain drain from Turkey and the world. In an analysis of developed countries' brain drain policies, it is found that "70% of Turkey's qualified human resources (aged between 25 and 29) prefer the US and Germany as the first target country of choice" (Baran, 2021).

In this review by Ersin Tolunay in the Journal of Electrical Engineering in January 1973, attention is drawn to the fact that Turkey was greatly affected by the loss of brain drain during these periods, and that urgent prevents should be taken in this regard and policies should be developed in terms of pushing. "According to the information compiled by the United States, between 1962 and 1966, over 500 scientists, engineers and doctors flowed to America from Turkey. A report in the London Times a few years ago stated that Turkey was the first in losing the brain drain. That year, Turkey was the country that lost the most employees to America" (Tolunay, 1973: 2).

As mentioned throughout the study, the US is one of the countries that attracts the highest wave of brain drain from Turkey. Furthermore, the US 's brain drain policies

are a phenomenon that social scientists in the international area are also focusing heavily on. In this regard, the US Green Card system is an exemplary project in terms of the policy of attracting brain drain. Another country pulling a large wave of brain drain from Turkey is Germany. Germany's Blue Card policy, developed in the EU directive, is based on the example of a Green Card. In addition, the brain drain policies developed by Germany are also of interest to social scientists internationally. In this context, in order to understand the policies and practices aimed at pulling and pushing brain drain in the world, it is important to examine the brain drain policies of the United States and Germany and to compare the success or failure of Turkey's brain drain policies. In addition, it can be uttered that there are similarities between the Green Card developed by the US, the Blue Card policy developed by Germany based on an EU directive and Turkey's Turquoise Card to attract brain power. It is also necessary to take into account these similarities.

3.6.1. US Brain Drain Policies

The US is the country where today's employment opportunities and technological developments are the most advanced in the world. United Nations Department of Economic and Social Affairs (UN-DESA) stated in its 2020 and 2022 surveys that there were close to 272 million international migrants. The United States of America (USA) is the most attractive country with nearly 58 million immigrants compared to other countries across the world in terms of brain drain. The US is followed by Saudi Arabia and Germany with an immigrant population of more than 17 million (UN, 2020). "Especially the countries of the OECD, where brain drain is intense, follow

policies that fully facilitate brain drain to foreign countries. Among them, 2/3 of the brain drain is to North America.

The United States is one of the leading countries hosting highly qualified brainpower in the world, including but not limited to academicians, students, technologists, engineers, technocrats and businesspeople. Also, "it has attracted significant brain migrations in the fields of science, cultural, literature and art". For example, the US has attracted award holders in many fields, including 375 Nobel prize winners such as Aziz Sancar of Turkish origin - winner of the 2015 Nobel Prize in Chemistry - and one-third of the scientists who shared this award are immigrants in the United States (Jinfo, 2021). Another example that indicates this ratio is as follows: "historically, immigrants have made a huge contribution to American science and technology, and Albert Einstein is perhaps the most important example. One-third of the winners of the US Nobel prizes in medicine and physiology were born in other countries (West, 2021: 2).

This table is undoubtedly not formed as a result of the central US migration policies. The US also followed supportive and systematic socio-cultural and economic strategies according to historical conditions and the needs of the age as part of its efforts to pull brain migration.

3.6.2. Historical Development of US Migration and Brain Drain Policies

The US is a country that has formed its national identity mainly with immigrants from different geographies. It is a country of attraction for those who want to change their geography with this feature. In addition, it is one of the leading countries in developing migration policies and systematizing them with the liberal understanding.

Until the 19th century, the US implemented an open-door policy that did not impose any restrictions on immigrants. In the mid-19th century, although a national quota system was applied to immigrants, these laws did not constitute a strict immigration policy.

As much as the US, the New World countries also received immigration in the 19th century with their liberal migration policies. Towards the beginning of the 20th century, economic conditions deteriorated and the nationalist movement rose. Due to such global reasons, the laws passed on migration issues concerned only the restrictions that would apply to people of Asian origin. For example, in the first two decades of the 19th and 20th century, there were no restrictions on immigration, with the exception of excluding Chinese nationals for racist reasons. The New Immigration Law adopted in the United States in 1917 required a literacy test for immigrants, the national quota system was introduced in 1921 to restrict immigration, and this regulation remained in force until 1965, when the immigration law was amended. "After World War II, there emerged the need for qualified/non-qualified labor force during the second industrialization period as in the first industrialization movements in the 19th century. This paved the way for passing migration policies in the US as well" (Solimano, 2001: 13).

The below table briefly explains the global reasons and consequences of the US brain drain policies:

Table 2

1934-2021 Global Causes of the US Policies on Brain

YEARS	REASON	CONCLUSION
1934-1945	The German Nazi and Italian Mussolini's Fascist Repressions and World War II	Jewish scientists and anti-fascist intellectuals fled Europe for the United States.
Early 1960-1970	The economic level of developed countries was high, yet their professionals were insufficient, and thus these countries accepted professional immigrants only by selection mechanisms.	About 2/3 of 300,000 professionals (doctors and engineers) migrated from III. World Countries to industrialized countries (US, UK, Canada, Australia, etc.).
1974-1975	There was stagnation in developed countries, and excessive need for specialists emerged in oil-producing countries. Highly qualified labor increased in developed countries	The demand for qualified professionals decreased. Strict immigration policies began.
1975-1980	The annual migration of qualified labor reached 100,000 people	Most of migrants left Europe for the United States.
After 1980	Of the 50.5 million university students in the world, 19 million emigrated from III. World Countries. Brain drain increased by 7%.	Most of the migration took place from III. World Countries to the US and Europe.
After 1990	Russia and the Eastern Bloc dissolved. Civil wars began. The US hosted 25% of the world's university students.	Eastern Bloc scientists and many qualified people left their countries. 65-70% of the 300 thousand Indians and Koreans, 730 thousand Filipinos and 400 thousand Chinese in the United States are graduates of universities and colleges. 15% of immigrants only from

From 2000 to 2021	The US received 54% of the brain drain from the countries around the world. 3% of Indian and Chinese college graduates went to the US. 12% of scientists and engineers, 23% of doctors and more than 40% of computer scientists were born in foreign countries. 1 out of 3 people in African universities were exported to the world. Among about 272 million international migrants today, 58 million immigrants are in the US, demonstrating that it is the most attractive country for immigrants across the world.	Iran, North Korea and Taiwan are college graduates. Colombia's annual loss from brain drain is \$2.37 billion, India's is around \$2 billion. Of those sent abroad from Mexico, 79% do not return. Following the 2001 9/11 attacks in the US, the global financial crisis in 2008, the Arab Spring after 2011, the disintegration of Syria, 2019 COVID-19 Pandemic, digital transformation, and the transition of Afghanistan to the sharia regime under the guarantee of the US on August 16, 2021, migration waves incremented to a great extent around the globe.
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Note. From "The Effect of Globalization on Brain Drain: Turkey "by (JSHSR) (Yalçinkaya & Dülger, 2017:1654).

Analyzing the table above, it can be seen that the US was one of the main areas for economic migration before World War I, and therefore, its population increased rapidly and the country experienced social problems. For these reasons, preventing the migration of Latinos and Slavs began to be raised, and after 1921, legal regulations began to be made on this issue.

According to Gökbayrak, the most notable of these was:

"The Law on Limiting Immigration dated May 26, 1924". Thus, the open-door policy in the country was ended. Due to the impact of the 1929 global economic crisis, migration to the country had come to a standstill. The Second Particularly the Marshall Plan implemented by the US within the framework of its Development Program, and military assistance reversed the direction of the labor movement, and excessive migration to the continent stopped. The US did

not try to maintain its open-door policy by going back to 1920, but this directional freedom was maintained in some categories of skilled labor. In consequence, "the proportion of professional and technical personnel in the total number of migrant workers increased to 16.2% in 1950 and 17.9% in 1960" (Gökbayrak, 2006: 99).

The Second migration movements essentially accelerated from the mid-1960s. The reason for this, according to the US Department of State Bulletin, was that "The immigration policy of the US, published in 1965, played an accelerating role in attracting highly qualified brainpower" (MPI, 1965:387). With the immigration policy in question, the migration movement of highly qualified professionals to the US greatly increased. According to the report of the Trade and Development Conference organized by the United Nations in Geneva in 1975, a total of 53,616 high qualified people, 39,071 of whom were engineers and 14,545 of whom were doctors, migrated from developing countries to the US between the years 1961 and 1970. Another source states that in 1965, the rate of professional persons among total immigrants in the US and Canada was 22% and it increased to 30% in 1967, which was due to the Internal Migration Law that entered into force in 1965 in the US (Aktaş, 2015: 41-42).

In addition, it can be seen in table 3 above that these policies prioritized qualified manpower and skill levels rather than immigrants' place of birth or nationality. Considering the attractiveness of the American immigration policy, it can be said that these policies evolved into pull policies to attract qualified brain power. This was because the US early recognized the importance of brain drain and it took the issue on its political agenda quite early.

Another view underlines the importance of the effect of pull factors in attracting qualified people through migration policies. "The US immigration policy is also shifting over time from accepting all immigrants to accepting qualified people only." In 1965, the US adopted the principle of "quality instead of skin color" via its Immigration Law (Sağırlı, 2006: 41). Also, there are recent examples of brain drain. "The US aimed to employ qualified educated individuals with the H-1B visa introduced by the US in 1990. This application provides a maximum of three years of visa and work permit, yet these periods can be extended. they are limited to a maximum of three years but can be renewed by extending for another three years" (Aktaş, 2015: 42).

According to the needs of the age, the US also introduced attraction centers to pull brain drain. For instance, "more than a quarter of the US technology and engineering companies founded between 1995 and 2005 had a foreign-born founder. In Silicon Valley, more than half of new technology start-up companies were founded by foreign-born owners" (West, 2021: 2).

In addition, the US also granted important privileges to highly qualified employees in the Immigration Law formed in 1990 and divided immigrants into categories for admission. Due to their qualifications, work permits are not required for employees who fall into the first three categories. These are:

- Persons who have demonstrated outstanding abilities in science, art, education, administration or athletics,
- Distinguished academicians,
- Senior managers of multinational companies (Sağırlı, 2006: 41-42).

262,569 people in the US were eligible for an H-1B visa in the fiscal year of 2012. "Analysis of professions benefitting from this visa shows that 154,869 people

were computer engineers, 26,329 people were engineers, architects and map makers, 18,204 people had administrative expertise and 17,420 people were engaged in educational professions" (DHS, 2012: 21). In this context, the extensive growth in the information technology business helped to increase the demand for temporary "H-1B" visas. The US Congress responded to this demand by increasing the upper limit from 65,000 in 1992 to 115,000 in 1998 and 195,000 in 2000. Employers should sponsor qualified people who stay for up to 6 years to receive a Green Card (Fulponi, 2020: 483).

Considering the statistics of those who applied for a Green Card from Turkey to the US between 2008-2021 and were accepted by the US, the distribution by the years is as follows: between 2008 and 2021, that is, in 13 years, 1,524,352 people applied for a Green Card in the US. As a result of these applications, 28,011 people were granted the right to go to the US, and 9,239 people were granted immigration visas. (Green Card Ist, 2020).

3.6.3. The US Green Card Policy

As mentioned previously, the US is considered to be founded by immigrants, and it has an immigration management approach aimed at attracting qualified foreigners through the Green Card program implemented since 1990. Another feature of the Green Card program is that it is an example of the Blue Card system implemented by the European Union to attract qualified foreign labor and most commonly implemented by Germany. Green Card and Blue Card policies are programs that Turkey took as examples to attract foreign qualified labor force and formed the Turquoise Card policy.

Green Card is basically divided into four categories. There are:

- Green Card for working purpose
- Green Card for family reunification purpose

- Green Card by drawing
- Green Card for refugees and asylum seekers.

In general, 40 thousand people a year are granted a green card for working purposes. In accordance with the law adopted in 1990, the green card for work purposes is issued according to five preference groups, and a different quota is applied for each group.

The First Preference Group: this group features a total of 40 thousand green card quota for highly qualified people with special abilities in the fields of art, science, education, sports and for senior researchers, managers and administrative staff in multinational companies. People who have outstanding abilities in the fields of art, science, education or sports can be granted a green card by the US when they document these talents without the need for a job offer in the US. People in this group can get a green card within 6-8 months from the date of their application.

The Second Preference Group: to apply for a green card from this group, one must have at least a master's degree or university graduates must have 5 years of work experience. The quota here is also limited to 40 thousand people, and before issuing a green card to people in this group, an employment market test is conducted within the country, and this process can take 2-3 years.

The Third Preference Group: this group was created for professionals who have received a university-level education, as well as for people who have professions that require at least two years of education, professional training and experience. The annual quota is limited to 40 thousand people. A quota of 10 thousand people is allocated for those who receive a job offer but cannot meet the minimum requirement of education and experience. The period of obtaining a green card for people in this group varies

between 8 to 10 years. Immigrant workers in the second and third groups are required to receive a job offer in the US and meet conditions such as lacking a second person with the same professional qualifications in the US, and the employment of an immigrant worker should not have a negative impact on the labor market.

The Fourth Preference Group: “ this is reserved only for religious officials, and people in this group only need to get a job offer to get a green card. The annual quota is limited to 10 thousand people” (Nakhoul, 2014: 76

The Fifth Preference Group people in this group are expected to invest between 500 thousand and 1 million US dollars in the US and create employment opportunities for at least ten people other than their family relatives. It forms the INVEST visa (Investment in a New Venture, Entrepreneurial Initiatives and Technologies). This new visa program allows immigrant entrepreneurs to come to the United States, start a business and create jobs (EuropUSA, 2022). However, “starting in approximately May of 2022, Congress plans to raise that to \$800,000 in TEA and rural locations and \$1,050,000 for other locations” (Knapp, 2022: 1).

Also called American qualified brain drain (employer) E-Policies, the "E-Verify system is an online system that allows businesses to determine the eligibility of foreign employees to work in the United States." The Law on Border Security, Economic Opportunities and Immigration Modernization requires that all employees use the E-Verify system and show a photo ID such as a "biometric work authorization card" or a "biometric green card" to be applied gradually for five years depending on the size of the company. Potential employers need to search for potential employees in the E-Verify database (E-Verify USA, 2022).

An important development in the world in terms of international labor migration and highly skilled labor movements since the 1970s has been that these migrations have acquired a temporary character. Migrations related to projects have gained weight mainly in the Middle East since the mid-1970s, and they have gradually become widespread in Western European countries, especially in Germany. "In the 1980s, Germany employed 20.000, and 30.000 Central and Eastern Europeans per year respectively within this framework. In recent years, this quota has been increased to a maximum of 100,000". While these developments in the Middle East and Western Europe are reflected in the internal migration policies of these countries, The US is still an exception in terms of encouraging migrants to settle. As a matter of fact, the Immigration Law of 1990 granted important privileges in terms of the placement of highly qualified employees with 5 new categories organized for immigrants who will be employed in the US. In particular, work permit is not required from those in the "priority workers" group who are the first choice in immigration.

As can be understood from here, there is a correlation between the US policies aimed at pulling brain power and a highly qualified workforce, and they are always encouraged by developed countries. However, there are also critical opinions that even if the United States is the most powerful country, the policies developed on brain drain are inadequate because the phenomenon of globalization does not always provide easy access to qualified brainpower. As a matter of fact, Nye said, "If the United States continues to implement wrong policies such as alienating its allies, weakening international organizations, and preventing immigration to its country, it may not fully enjoy the advantages it has. World politics, shaped by the information revolution and

globalization, does not allow even the most powerful country to achieve all its international goals alone" (Nye, 2020: 5).

Although Nye suggested that the developments regarding the US brain drain policies are insufficient, the US is still the most prominent country as the one that put the problem of brain drain on its political agenda at an early stage. Furthermore, the theoretical brain drain discussions started primarily in the US and it intensively attracted brain power from underdeveloped and developing countries throughout the 1970s and 1980s.

In the research study on Brain Drain and Brain Acquisition in Global Competitiveness, Aydemir (2011) shared the following rates:

"It is estimated that 100 thousand brains migrate annually. Large majority of brain drain (54%) is to the US, as it is in the best position with economic and social opportunities, has one fourth of the world's universities, provides good housing facilities, innovation opportunities, better professional help and individual motivation. A good example of this is immigrants in the US: the proportion of immigrants in the US in the workforce is 10%, but the proportion of scientists and engineers in the workforce is 25%. The proportion of those who have a doctoral degree is 50%. Therefore, immigrants have significant contribution to the well-educated, highly qualified workforce in the US. As a matter of fact, we can easily see the effects of this" (Aydemir, 2011: 152).

Nevertheless, Nye stressed that the US ignores joint action with its allies in its policies to pull brain drain. Thus, it is possible to infer it as an important insight suggesting that globalism will pose an obstacle to universal solidarity. Furthermore,

this will damage international cooperation as the US is claimed to have ignored the option of acting together with its allies in pulling brain drain.

Indeed, the main debate in the current century starting from 2021, as shared in the World Economic Forum, has been the transition from "shareholder capitalism" to "stakeholder capitalism" where capital spreads to the base (WEForum, 2021).

As a result, when examination the statistics in terms of attracting, developing, integrating and pulling brainpower, it is observed that the US has a competitive and innovative policy that encourages qualified work force with especially its recent Green Card policy. As a confirmation of the importance of this feature of the US Green Card policy, EU countries took it is an exemplary model for the development of a Blue Card with a competitive understanding. The aim here is as follows: "A system has been adopted that facilitates immigrants' work and life in EU member states. Thanks to this application, it is aimed to create a system that will compete with the "Green Card" system implemented in the US" (Kavlak, 2019: 356).

3.7.Germany's Brain Drain Policies

As mentioned above, Germany is the second country after the United States that attracts the highest amount of brain migration. Nonetheless, Germany was one of the countries that lost the highest number of qualified people during World War I and II. During those years, qualified people fled Nazi persecution to Turkey, constituting brain drain. On the contrary, it is observed that the highest number of highly qualified Turkish human resources moved to Federal Germany, "for the first time after 1953 in the process of Germany's reconstruction in the aftermath of the war. Indeed, among the

foreign labor force moving to Germany between 1961 and 1973, Turks were the most qualified labor force “(Abadan Unat, 1972:31).

Currently, the US and Germany are the first choice of highly qualified Turks. Surveys conducted with qualified human resources (25-29 age group) who want to go abroad from Turkey showed that 70% of them stated that the US and Germany were the first choice as the target country (Baran, 2021). Germany, the second most targeted destination for migrants, has also seen an increase over the years, from 8.9 million in 2000. By 2019, this ratio reached 13.1 million (IOM, 2020:25). “12.5% of the population of Germany, which was around 83 million in 2019, was of foreign origin. About 11.5 millions of this population are foreigners. Turks constitute the highest foreign group in Germany (13,1%), followed by Polish (7,7%) and Syrians 7,0%)” (İyi, 2020:18).

Currently, the US maintains the first place among countries that apply the policy of pulling brain drain, while Germany ranks the second. Within this framework, this chapter of the study will elaborate on the US brain drain policies and consecutively German brain drain policies. As stated in the previous chapters of the study, there is a historical connection between Germany's immigration policies and the qualified Turkish workforce in terms of attracting labor, starting in 1953. Currently, Germany is the first choice as a destination for Turkish brainpower. As a matter of fact, EU countries took the Green Card policy of the United States as a model and started to apply the Blue Card policy to attract foreign qualified workforce to their countries. One noteworthy point here is that the Green Card of the USA, the Blue Card of Germany and the Turquoise Card of Turkey (which are the most preferred countries for the Turkish brain drain), share the common goal of attracting qualified foreign labor.

All these facts make it worth briefly examining and explaining in the study the policies of pushing and pulling the brainpower by Germany and its political agenda with historical background.

3.7.1. Historical Development of Germany's Brain Drain Policies

The British Royal Society Institution recognized brain drain as a problem for the first time in the world in the 1945s. Consequently, it was adopted sociologically and became a case of concern for the future during the periods when Germany emerged from the war ruined due to Nazi policies.

For the first time in the world, brain drain was noticed as a problem by The British Royal Society, and it was adopted sociologically in the 1945s and became a case of concern for the future. Germany, on the other hand, was destroyed by the war in those years, and hundreds of thousands of qualified people were exposed to forced migration to various countries of the world due to Hitler's fascism. However, Germany continued its policy of raising a new qualified brain power instead of the one it lost. With the grimness of Nazism, German Nationalism was brought to the fore and Germany did not interrupt the production of science and technology in this period. Faist draws attention to this dilemma as follows;

"Enigma", the cryptographic telegraph system developed in the military intelligence services, was strengthened by German engineers during this period. Advances in Nazi Germany were not only in engineering and war craft, but also in health, biology and genetics, building a new Germany. However, All urbanization and industrial facilities turned upside down in Germany after World War II, and the country needed migration to attract labor capital rather

than brain drain to re-strengthen its industry during this period” (Faist, 2013:1637).

In the book, *Turkey's Emigration History* (2019), another migration academic and researcher Gitmez emphasizes that Federal Germany was most affected by labor deficiency among all European countries.

"The fact that German Jews in the service sector left their places to German workers after World War II also led to a gap in the industrial sector. In addition, labor was previously provided by immigrants from East Germany before the war, however this turned into a shortage of labor after the construction of the Berlin Wall. After World War II, and especially after 1950, the population growth in Europe remained at a rate of 2% and showed a tendency to gradually decrease. Accordingly, the working population decreased more and more, while the proportion of dependent and elderly population increased to the same extent. The falling birth rates during World War I and the 1930s depression had negative impacts on the workforce of the 1950s, while World War II effects were mostly reflected in the workforce of the 1960s" (Gitmez, 2019: 176).

Conversely, after World War II, Europe and especially Germany began to develop policies for the return of millions of forced migrants, whom they had first lost while repairing the ruins. According to different points of view below, this effort of Europe was aimed at creating a new order by gaining the qualified human resources it had lost and attracting a new workforce. "In particular, by the end of 1949, about 7.7 million German refugees or deported forced migrants had been admitted to Germany" (Eichhorst, Werner , Wozny, Florian , & Mähöne, 2016: 27). These forced migrants

included groups from the Soviet Union and the Eastern Bloc countries who faced persecution and severe discrimination. Solidarity with this group formed the policy of Article 116(1) of the constitution of Germany. According to this article, “persons who were extruded or deported as refugees of German ethnicity, or their spouse or descendant is of the said ethnicity, were defined as Germans by the Federal Deportation Law in 1953. However, the main purpose of this law was not to manage migration, but to act as a tool for dealing with the consequences of the war” (Wozny & Eichhorst, 2011: 137). “In 1950, there were about 500,000 foreigners living in Germany, which was only 1% of the total population. From the mid-1950s, other types of migration were the result of the recruitment of mainly foreign labor. Among them was the Turkish workforce” (Gitmez, 2019: 105).

Marshall Plans were instrumental in the development and transition of Europe to a new order, and this restructuring increased the need for a new workforce. Gitmez explains this as follows:

"After World War II, the United States made a significant transfer of capital under the "Marshall Plan" for the reconstruction of European countries that were devastated with their economies were deteriorating. After that, Europe entered into a rapid development process. During this rapid development process, especially Western European countries started to demand labor from Southern European countries since they could not meet the economy's demand for labor with their own resources" (Gitmez, 2019: 176).

According to researchers, among this foreign labor force was also the Turkish labor force. The Turks, who were the first to go to Federal Germany, consisted of a qualified workforce. For example, according to Unat's (1964) study called Turkish

Workers in Western Germany and their Problems, "As a result of an agreement concluded between the Turkish Ministry of Foreign Affairs and the Ministry of Labor of Schleswig-Holstein in April 1957, 12 artisans were the first trainee guests who went to Kiel with their families to be raised. However, this group of 12-person Turkish trainee craftsmen would not return to Turkey, and then another group of 150 people would follow these guests" (Abadan, 1964: 35).

It is noteworthy here that although there was an exodus of qualified workers to Germany, Germany's ethnic identity policy had an important reflection on its migration policies. Also, Gitmez expresses the reflection of this activation policy on the migration policies of Germans as follows:

"The effect of this policy, developed in 1957, on attracting labor was quite low at first. Yet, from 1955 to 1961, the number of foreigners increased by about 200,000. In these policies, Germany wanted manpower, while they considered this manpower as temporary. The incomers were first called guest workers, then they were in the status of immigrants, and permanent residency would not be considered. Families would not be accepted with those individuals. Workers would pay taxes as they were temporary, but they would not be provided with benefits. There were slogans that Germany was not a country of immigrants. It should also be taken into account that Germany was "selective" in accepting immigrants. They preferred relatively more qualified urban people with high education, while other Western labor markets would also easily accept these people as "guests" to meet the labor needs" (Gitmez, 2019: 34).

As suggested by migration theorists in the previous chapter of the study, history would often not have provided a regular flow, it would have developed in leaps and bounds. That is what happened. As the researchers noted, Federal Germany was divided into East and West. Moreover, this division was built on two opposing ideologies. As a result, the opposites were set up for the passivization of each other's power.

While West Germany was developing, East Germany was closed to itself, which also affected their migration policy. "In August 1961, the Berlin Wall was built. Federal Germany was divided into an Eastern and a Western Bloc" (CIA, 2019: 14). However, the (West) German economy continued to grow, and therefore they decided to close borders to East Germany (GDR) and to build the Berlin Wall. They cut off the flow of workers from East Germany. This, in turn, increased labor shortages. "Less working weeks and a shrinking labor force exacerbated the situation. Federal Germany, then Spain and Greece signed the labor migration agreement with Turkey on October 30, 1961" (Gitmez, 2019: 35). According to Gönel and Doğaner's research on Development Economics (2016), with this agreement;

"in 1960, about 670 thousand foreigners went to Germany. Of this number, 2,700 were Turkish citizens. In 1970, the number of foreigners in Germany approached 3 million, and the number of Turkish people approached 500 thousand. In 1975, the number of Turks exceeded 1 million, and the rate continued to be high among the foreign population, and this number gradually increased" (Gönel Doğaner, 2016: 108).

International migration flows were one of the important triggers of globalization, as well as a phenomenon influenced by positive and negative reflections of economic globalization. On the other hand, the oil crisis that affected the whole

world in 1973 also had repercussions on the migration policies of many countries. Developed countries such as the US, Great Britain and Germany started to limit immigration to their countries. They adopted regulations that prioritized more qualified labor in migration policies and restricted the admission of unqualified labor migration. Under these restrictions, "by the time the admission of foreigners was stopped in 1973, 2.6 million migrant workers had entered West Germany. In 1960, foreigners made up only 1.3% of those employed; by 1973, this figure had increased to 11.9%. Later, the most recent immigrants reunified with their families as the last phase of migrant admission" (Eichhorst, Werner , Wozny, Florian , & Mähöne, 2016: 24).

As can be seen from the work of the above academicians and researchers, the construction of the Berlin Wall in 1961 divided Germany into East and West Germany, yet it was destroyed with the effect of the oil crisis in 1973 and the collapse of the Union of Soviet Socialist Republics (USSR) in 1991. Unlike these two historical events of 1961, this time the collapse of the wall was the development that united Germany. These developments had reflections on migration and brain drain policies. In this regard, the problem of brain drain was also the subject of various public policies and legal regulations of Germany with the effect of the EU, and these policies became a focal point to attract highly qualified brainpower and labor. For example,

"in the 1980s, the Single European Act and the Dublin, Schengen and Maastricht Treaties of the 1990s set out policies to attract workforce from third countries". "Therefore, the EU signed the Treaty of Rome that officially launched the European Union single market and European Political Cooperation first in Luxembourg and then in The Hague on February 28, 1986 and made radical changes in its brain drain policies. In the Tampere Summit of

1999, it was discussed to harmonize labor force migration policies with the industries across the Union" (Dinç, 2015: 296).

From this point of view, it can also be understood that during the development of brain drain policies, the business community and industries participate in decision-making processes, and that decision-makers of brain drain policies are not limited to bureaucratic, or political authorities.

Immediately after these treaties came the Lisbon Strategy, which was put forward at the Lisbon Summit in March 2000. The Strategy in question aimed at making the EU the most competitive and dynamic knowledge-based economy, providing better job opportunities and social rights, and achieving sustainable economic growth. In this direction, The Hague Program was adopted at the Brussels Summit of November 4-5, 2004 in addition to the decisions taken at the summit held in Tampere and Lisbon. The program legally aimed at bringing labor migration to the EU to contribute to the knowledge-based economy of the EU and to close the labor deficit (EU Blue Card, 2015).

EU Justice and Interior Ministers convened in Brussels in September 2008 and agreed on an immigration law. They set new regulations on immigration policies and decisions, while turning a green light to the application of Blue Card. The EU Strategy Document for 2020 envisages a plan to pave the way for labor migration in sectors where there are deficiencies of labor and capabilities, and to attract highly qualified third-country citizens to the EU in global competition. In this context, the Blue Card Directive was adopted in the EU on May 25, 2009 and entered into force in 2011 in member states except Lithuania, Croatia and Sweden. Lithuania, Croatia and Sweden joined the practice in 2013. Within this framework, the Blue Card practice was already

qualified labor migration plan in the EU. Therefore, the application of a blue card plays an important key role in terms of pulling qualified labor migration from developing countries to developed countries. After the necessary legal arrangements were completed to implement the Blue Card application in Germany, the approval of the Federal Assembly was obtained in 2012 and thus the migration of qualified people such as engineers, doctors and IT specialists from outside the EU countries could be provided to Germany starting from August 1, 2012 (Refugees, Federal Office for Migration , 2016).

3.7.2. Blue Card Policy

It is envisaged that the opening of the EU labor market doors to foreign qualified labor force with the Blue Card will positively and negatively affect the domestic qualified labor market in the country. This can also be regarded as policymaking for attracting qualified labor, which in the literature is characterized as a "brain drain". Although the EU Commission requires the same criteria from each member state in the Blue Card application, this issue is currently under the control of the member states. In addition, the right to decide on how many migrants will be accepted rests with the member governments. Germany takes the lead in this regard.

According to the conditions set by Germany, those who want to come to Germany from third countries and work with a Blue Card shall receive an income of at least 44,800 euros per year. If they prove that they earn an annual income of 34,944 euros in professions where the labor deficit is large, that they work in a salaried job, have a college diploma and have at least 5 years of professional experience, they will be able to immigrate to Germany. On the other hand, according to the 2013 data of the

Federal Migration Service, the annual earnings of 4961 academics holding a Blue Card in Germany are over 46,400 euros. In addition, 3918 of the academicians in question are employed in the fields of engineering, medicine and information technology where there is a labor deficit (Deutsche Welle, 2016).

According to the latest 2019 data, about 28,858 thousand blue card holders from outside the EU member states live in Germany (BAMF, 2022).

The directive in question covers the following four main issues:

- Accepting highly qualified labor from third countries,
- Supporting competition and economic growth in the EU by immigrant workforce,
- Ranking first in the global competition for qualified workforce,
- Inviting member states to act together, except for national strategies, in attracting qualified labor (EU Blue Card, 2022).

The EU offers the beneficiary, who is granted a Blue Card, the opportunity to live and work in an EU country. These are people who have the right to reside in EU countries, and those who request protection. In addition, the families of EU citizens, and researchers who have applied for a residence permit in the EU, are persons who have long-term residence in a member state. Yet, persons who have been accepted as seasonal workers in a member state and third-country citizens who have a free movement agreement with the EU cannot apply for a Blue Card (Official Journal of the European Union, 2009). In addition, the "EU Blue Card Directive 2009/50 applies to non-EU citizens for the purpose of highly qualified employment. The United Kingdom, Ireland and Denmark are excluded from the scope. A Blue Card requires a valid

employment contract or a binding job offer for highly qualified employment. Holders of a Blue card for one year will be equally treated with the same rights as member country citizens. The blue card is valid for 1 - 4 years. The blue card is renewable. It gives Member States a wide discretion" (Remac, 2015: 1-9).

An important point in this policy is that Blue Card holders enjoy the same social rights and working conditions as EU citizens. In addition, during the validity period of the card, cardholders can freely enter and exit the member country in which they work, and they have the same rights as its citizens in matters such as working conditions, education and property. "In addition, the validity period of the blue card can be extended and turned into a long-term residence permit after a five-year period. Blue Card holders can reapply for another job in another EU country if they spend at least 18 months in one-member country" (Cerna, 2014:73). If cardholders lose their job, they have to find a new job within three months. If they have not found a job yet at the end of three months, the Blue Card entitlement shall be terminated. Along with all this, there is also the issue of whether Blue Card holders need a visa according to the visa regime between the country in which they have citizenship and the EU.

Another important aspect of the Blue Card is that it also covers family members. In this context, the Blue Card Directive guarantees family reunification for the relatives of the cardholders and indicates that family members will be granted a residence permit (EU Blue Card, 2015). The EU Commission requested updating the Blue Card system to facilitate the settlement of skilled labor from countries outside the European Union with a new regulation and that the same criteria be applied in practice for each member state. On June 7, 2016, it announced that it was going to revise the Blue Card system. Accordingly, the new revised application focuses on two issues: The first of these is an

acceptance process that is free from bureaucracy, more inclusive, less complicated and has more flexible conditions in order to attract highly qualified workforce. In this context, for example, the requirement to meet national salary criteria when accepting the applications mentioned above is regulated as "it is sufficient to have eighty percent of the national salary threshold". Similarly, the one-year employment contract periods that are mandatory for the application have been changed to "six months (Refugees, Federal Office for Migration , 2016).

Five years of residence in member states and the right to engage in self-employment activities as a Blue Card holder are also important regulations introduced in the recent revision. The second point that the regulation focuses on achieving a higher degree of compliance to the Blue Card across the EU. In this context, the revision expressed that the Union countries should take a more holistic approach in implementing the rules. Member states are again entitled to decide on how many immigrants that will accept to their country under the Blue Card system (European Commission, 2019).

Qualified labor force indicates people with an academic education, who has graduated from a college in Germany or graduated from a college in another country where certificate of equivalence procedures have been completed or has a college diploma in another country similar to a college diploma in Germany. Persons who do not have any qualifications or have received a low-quality education are not considered qualified labor according to the law. To become a university graduate or to be able to document their professional expertise (Certificate of mastery, etc.) there is a requirement to have at least two years of experience in some professions and more than two years in some professions and related fields (Almanya Konsolosluğu, 2022).

Germany has not only developed a Blue Card policy according to the EU directive, but also a policy to attract qualified brainpower in 2021 with the revised Qualified Immigration Act. In addition, it is possible to say that the decision-making bodies that make up the policies developed by Germany in terms of migration and brain drain are affected by the concrete requirements of life, not with the participation of some bureaucratic political elite, but with the participation industry representatives, the business world and high-tech actors. Another important point is that Germany's efforts to continuously renew its migration policies to pull brain power are not only due to external conditions and the needs of the age, but due to the fact that Germany's world of scientists and academicians trigger the pull factors as an important internal dynamic.

There is also criticism that traces of identity politics still cannot be removed in Germany's immigration laws. An example to this is the work referred to as the Experience of Legal Exclusion of Weiss, Nohl, Arnd and Michael: *The Law of Highly Skilled Migrants and Foreigners, Migration and Cultural Capital*. According to research on Highly Skilled Immigrants in Turkey, Germany, Canada and Great Britain (2011), the reason for the push in Germany's immigration policies is that there is an ethnic view in the of law of foreigners. They draw attention to this situation as follows: "More importantly, the subsequent families or spouses of third world citizens in Germany are seriously subjected to processes of "devaluation" and "de-skilling" since their diplomas and former social positions in their country of origin are not accepted" (Nohl, Schittenhelm, Schmidt, & Weiss, 2014: 173).

Again, for example, other people of German ethnicity coming from other countries do not have such a problem as their diplomas are fully accepted as equivalent in Germany. On the other hand, the law of foreigners of Germany is very complicated

and, moreover, it is revised every few years. Weiss lists the push factors caused by this problem in brain drain policies as follows:

"There is no important article about brain drain in the German law on foreigners, as well as provisions related to highly qualified immigrants. For example, the Law on Psychotherapists coming into force on January 1, 1999, established a restriction that the profession can be fully practiced only by Germans, EU citizens and stateless foreigners" (Nohl, Schittenhelm, Schmidt, & Weiss, 2014: 173).

In parallel with these findings of Weiss, Nohl, Arnd and Michael, there are other opinions that Germany's policies of devaluation and de-skilling of foreign-qualified labor force lead to push factors when it comes to brain drain. For example, according to Costant and Favell;

"German immigration policies include immigrants as guest foreigners. In addition, there is a danger that the rhetoric "Germany is not a country of immigrants", which has become a slogan in Germany, has pushed immigrants to ethnic discrimination. Against these deep discrimination policies prioritizing people of German origin over foreigners regarding citizenship rights, there is not even provisions regarding highly qualified immigrants in the law of immigrants" (Constant, Gataullina, & Zimmermann, 2009: 274).

In addition, Weiss and others suggests that the subconscious feeling of ethnicity that devalues even qualified foreign workforce in Germany is reflected in the policy of brain drain, and that a hierarchy appears in the policy of attracting labor migration as follows: "For example, university students, if they are not from the countries of the European Union, can work only ninety days a year. In fact, from the point of view of

government agencies, this should not be a problem since students must prove that they have sufficient financial opportunities when they come to Germany" (Nohl, Schittenhelm, Schmidt, & Weiss, 2014:183).

Despite the self-criticism of German researchers revealing the push factors of Germany's brain drain policies, it is possible to argue that Germany has not ignored the participation of not only the bureaucratic elite, but also the relevant sector and scientists in the field of migration discipline in developing brain drain policies. Indeed, the German federal government further developed policies to pull qualified brain in 2021 after the EU Blue Card directive in the context of the opinions of the relevant industry, business world and scientists. According to the official policy of qualified labor migration that the German Federal Government on March 1, 2021 entered into force on March 1, 2021, "The Qualified Migration Act is a new law that expands the opportunities for qualified professionals to work in Germany. This new law expands the framework that allows qualified professionals from non-EU countries to come to work in Germany" (Make It in Germany, 2020).

The main amendments to Germany's New Qualified Immigration law are:

Qualified professionals: This refers to people who have completed their professional education in Germany or obtained a professional qualification abroad that is considered equivalent to German qualified vocational education (usually at least a two-year period of study is required).

From the point of view of people with a higher education degree comparable to the degree of higher education in Germany, possible employment means that a qualified professional can perform a profession for which they are qualified. This means that employment in related professions is also possible. In addition, qualified professionals

with academic degrees can work in jobs that do not require a higher education degree, while they can also work in areas that do not require academic qualification if they have the necessary skills. This does not include auxiliary and semi-skilled professions: professions always require a qualification.

Qualified professionals with vocational skills: The employment of qualified professionals with skills, i.e. people who have a non-academic education from outside the EU is no longer limited to professions where there is a deficit of skills. If a person has a vocational education qualification recognized in Germany, a residence permit allowing this person to work in a particular profession will also grant them the opportunity to work in Germany in all professions covered by the qualification.

Coming to Germany in search of a job: Professionals with vocational qualifications can also come to Germany in search of a job. A residence permit is issued for them up to six months. A prerequisite for this is that the foreign qualification is recognized by the relevant institution in Germany and the person can earn their own living during their stay and have the necessary German language skills for the desired profession.

Duration of residence for training and skills development: There are efforts to offer opportunities to come to Germany to study. The basic prerequisite for this is the recognition of the applicant by an organization in Germany and determining that the person does not fully meet the skill requirements of competence as German professionals (a document of recognition or "Anerkennungsbescheid" is required). Another prerequisite for obtaining a visa for studying is having sufficient German language skills. They will usually be equal to the A2 level in the European Common Reference Framework for Languages. An 18-month residence permit can be extended

for this purpose, for example, from six months to a maximum of two years. A residence permit for educational, vocational or working purposes may be issued after the maximum residence permit period has expired (Make It in Germany, 2020).

Striking innovations in the Law on Immigration of Qualified Labor dated March 1, 2021 are as follows: in the past, German companies had an obligation to hire their own citizens as a priority when compared to the brain power pull strategies and the Blue Card Policy developed by Germany. If German companies could not find an employee suitable for a job position from among German citizens, they could alternatively hire citizens of the European Union. Here, another attractive feature of the Law on Immigration of Qualified Labor is that it opens the doors of Germany to university graduates, as well as those with professional education and/or experience. In addition, this law provides a six-month job search visa for people whose education and professional qualifications are recognized by Germany. Another innovation is that the job seeker visa also allows for employing people for probation period up to 10 hours a week.

Another main progress is that the principle of supplying a Blue Card in Germany and the EU only for jobs commensurate with a professional qualification that should normally be an academic degree has been expanded. However, the principle of documenting German language skills and obtaining the equivalence of a diploma obtained outside Germany has not changed. Against the push factors, conflicts and issues in Germany's policies to pull qualified brain power, another pull factor is that Germany also carefully takes into account the criticisms of its own scientific world and social scientists internationally. It is also a significant pull factor that Germany has

made its efforts to systematize high salary, good residence opportunities and permanence in order to attract qualified brain migration.

In parallel to the pull factors related to brain migration above, other attractive advance that Germany has made on the global plane can well be added. For example, as a country devastated by the economic, political, and social pressure of fascism from World War II, it has managed to become an important center of attraction with its policies developed on individual factors such as political, social, economic stability, the environment, and climate. Furthermore, Germany has an important and achievable technological appeal in terms of keeping Germany's qualified human resources where they are, pulling brain drain. Valuable pull strategies for joint and livable areas include, for example, Research and Development (R&D) laboratory opportunities in line with the Industry 4.0 technology and society 5.0, easy access to high-tech tools, Valley of Science and investment and working environments such as North Rhine-Westphalia among many others. Moreover, it is a significant pull factor that the EU leads in the international field with policies such as climate actions, environment, health care, green energy and green deal, etc. as requirements of the society 5.0.

Similar to some legal systems of the US and Germany with the card system applications that make it easier for a foreigner to live in that country and even become a citizen, there is a Turquoise Card application in Turkey as well. The Turquoise Card pull policy developed by Turkey is one of the main innovations introduced by the International Labor Code. The Turquoise Card is similar to the Green Card being applied in the US and the Blue Card applied in the European Union.

3.8. Similar Features of the US-Green Card and German-Blue Card Policies

- The applicant's educational background, professional knowledge and experience, contribution to science and technology, and the effect of their activities or investments in foreign countries on the country's economy and employment are being evaluated.
- Acceptance tendencies include highly qualified people with special talents in the fields of art, science, education, sports and those serving as senior researchers, managers and administrative staff in multinational companies.
- In addition, internationally recognized people in the academic field of science, and in the strategic areas of industry and technology, exports, employment, or provide a significant contribution to the national economy as investment capacity are within the scope of pull policies.
- Those who have at least a master's degree, university graduate professionals, people with professional education and experience are accepted as qualified workforce if they meet the specified legal conditions within the prescribed period of time, and they are granted citizenship and permanent residence with their families.

3.9. Similar Features of the Policies to Pull Brain Migration through the Green Card, the Blue Card and the Turquoise Card:

- Loosening a number of restrictions on qualified brainpower admitted to the country,
- Incentives and citizenship rights that support foreign qualified people and investors,

- Developing special applications to attract brain power in professions with a shortage,
- Supporting the opportunity to change the status of foreign students at the end of their studies,
- Facilitating procedures for visa and working conditions for highly qualified workforce and brainpower,
- Providing non-wage incentives to foreign qualified labor.

Considering the criticism of the policies developed by the US and Germany in terms of attracting qualified brainpower and the driving aspects of these policies, it is important to understand the importance of making policies registered and systematic whether it is illegal immigration, brain drain, refugees or temporary migrants. Another fact that makes the brain drain policies of the US and Germany attractive (pull factor) is that labor markets cannot be managed only by the decisions of policymakers. It is possible to argue that policymakers cannot affect the underlying factors behind migrations and thus, there is a need to quit simple and restrictive methods in brain drain policies. In this regard, it can be argued that there is public pressure to ensure that migrations are managed by the participation of stakeholders in the decisions from various fields through registered and systematic policies.

Despite these criticisms, systematic and self-renewing brain drain policies, as seen in the case of the US and Germany, usually have a positive relationship between pushing and pulling brain drain. Poor lifestyle and wages, limited opportunities for research and work, etc. in the country of origin constitute push factors in brain drain. In this context, the fact that these countries do not produce effective policies to solve such problems benefits the countries developing brain drain policies.

In the context of Turkey, although the country did not include brain drain matter on its political agenda at an early time, it started to work on certain policies to prevent brain drain and attract qualified brain power to the country in the early republican period (1923-1945) and especially after the 1960s. While the problem of brain migration was mostly dealt with at the theoretical level in the international migration discipline until the 1970s, it turned into an act of developing practical policies on the agenda of politics, especially by developed and developing countries after the 1970s. However, Turkey did not take brain drain as an area of politics. In addition, it failed to create an integrated system in the context of the economic, political aspects of migration as well as social accountability, registration and statistical mapping

CHAPTER 4

4. BRAIN DRAIN POLICIES IN TURKEY FROM THE PERSPECTIVES OF PUSH AND PULL FACTORS

In order to comprehend the formation processes of brain drain policies in Turkey from the perspective of push and pull, it is key to consider them in the context of the pre-republican (Ottoman) migration policies and policies developed to train and to pull qualified people, as well as the early republican and post-republican period.

4.1. Formation Periods of the Brain Drain Policies Applied in Turkey

The Ottoman Empire was ripped to all kinds of migration flows from its foundation to its collapse. Starting from the reformation period with Sultan Selim III of the Ottoman Empire in 1789, certain migration policies were formed in the Ottoman Empire with the 1893 Imperial Edict of Gülhane, 1876 First Constitutional Period (the Ottoman Basic Law) and Second Constitutional Period 1908) via modernization moves. However, the policies related to international skilled or unskilled migration events were developed on the basis of ethnic, religious and ummah-based population movements. Although the migration policies developed by the Republic of Turkey in the early period of restructuring were mostly taken into account within the scope of national identity, the impact of the migration policies of the Ottoman Empire continued. While Western European countries were undergoing reconstruction after World War II and developed policies to attract labor force from countries such as Turkey to meet their

labor deficit in industries, Turkey started to develop such policies only after seeing these European examples. Turkey considered the problem and policies of brain drain not on the agenda of governments, or a political issue, but within the scope of Five-Year Development Plans implemented by the state after 1960.

Therefore, before evaluating the effects and successes of the TUBITAK No. 2232 (International Research Leaders) Reverse and Brain Drain and policies developed by Turkey in a push and pull perspective, the effects and successes of the TURKUAZ Card on pulling foreign brain power, in the context of its historical depth, will be analyzed in three stages.

These are: 1. The policies of pulling qualified manpower in Turkey before the republic, and the Ottoman Empire during the modernization and the late period, 2. the brain drain policies developed by Turkey during the Early Republic Period between 1923 and 1950 (the first years of its foundation), and 3. the brain drain policies developed within the scope of Development Plans after 1960. Since the concept of brain drain entered the international literature after the 1945s, the Ottoman period will be analyzed under the heading of qualified workforce migration.

4.2. Qualified Workforce Migration Policies during the Modernization Periods of the Ottoman Empire

The Ottoman Empire, founded on the territory of Anatolia before the Republic, had ports, pastures and strategic defense routes throughout its history, primarily due to its climate and geopolitical location. Due to these characteristics, it became a center of attraction with its economic, social and cultural identity.

The Great Balkan migrations (1773) coinciding with the last periods of the Ottoman Empire in the 18th century and the migrations resulting from World War II in the second half of the 19th century played an important role in shaping and forming the building blocks of today's Turkey. According to researchers including İnalcık, Göyönç and Lowry, the peculiarity of the migration policies of the Ottoman Empire is as follows: "The Ottoman Empire welcomed Turkish, Muslim and Non-Muslim immigrants and provided housing for those who arrived without distinction of religion and race" (İnalcık, Göyönç, Lowry, & W, 1982: 18).

There are views suggesting that the policy of training and legalizing qualified workforce in the Ottoman Empire started with the Ahi-Order (craftsman and tradesman guild system) in the 18th century:

"Until the 18th century, non-agricultural working life in the Ottoman Empire continued in the manufacturing houses called craft shops. Craft shops that produced at a level that met regional needs using manpower were included in the Ahi system. Dating back to the 13th century, the ahi system was a tradesmen organization and regulated the rules of working life. The principles of the ahi community are quite similar to the regulations of the Turkish Labor Law" (Öztürk İ. , 1993: 4).

However, the structural changes in Europe and the world, especially after the French Revolution, pushed the Ottoman Empire to search in various fields. The developments of the 19th century in the fields of trade and industry forced other states to compete, and this required qualified workforce. When these trends emerged especially in the West, the source of qualified workforce was also found mainly in the West. This situation had repercussions on the Ottoman Empire.

During these periods, when Europe was experiencing an era of industrialization, the Ottoman Empire had to step into the industrialization process with both foreign producers and foreign qualified workforce due to a major lack in these fields. In this context:

"In accordance with the trade agreements concluded by the Ottoman Empire with foreign states, foreign companies established enterprises in different business areas in different regions of the country. As of the 19th century, these foreign institutions became an important component in the economic structure of the Ottoman Empire. Thanks to these developments, enterprises preferred to bring the necessary specialized workforce from outside the country's borders and mainly from the connected territories. As the number of foreign enterprises increased, the foreign workforce in the Ottoman territories increased at the same rate" (Gürsoy, 2016: 11).

This situation led to a shortage of domestic skilled workforce until the last period of the Ottoman Empire, as foreign enterprises always preferred to bring workforce and skilled people from their country of origin. The shortage of qualified workforce, on the other hand, led to significant problems in the culture, economic structure and the production economy of the Ottoman Empire. To overcome the problems of skilled labor and brainpower, the Ottoman state "opened schools for the development of skilled labor, such as industrial schools however, they were not successful. Since the mid-19th century, workers and specialists of Italian, Croatian, Romanian, Austrian, German, British, Hungarian, French, Spanish and Iranian nationality came to Ottoman lands to work" (Yıldırım M. , 2012: 168).

On the other hand, these pursuits continued first in the military and then in the civilian field within the framework of modernization policies. In this context, the Ottoman Empire also sent students abroad to study in different fields in order to create institutions in the Western sense. "In the Ottoman Empire, students were sent abroad with scholarships beginning from the first half of the 19th century" (Erdoğan Coşkun, 2011, p. 131). The Ottoman sultanate initiated the procedure for sending successful young students abroad for the purpose of education to ensure qualified workforce comes back to the country. As a matter of fact, "The practice of sending students abroad in the Ottoman Empire started during the period of Sultan Selim III with the efforts of the French Ambassador, Ishak Bey, who was sent to France to see the innovations in place and learn French. In the following years, Mahmut II also sent 150 students to Europe for education" (Ulu, 2014: 497).

This trend continued after the Reform Edict process, which can also be referred to as the first concrete step of the Ottoman enlightenment. According to Aslan,

"After the Reform Edict (1839), the sending of students abroad continued. It is understood that the main concern in this application was to become aware of the technological developments in Europe and to provide the knowledge and science behind this development to the service of the Empire by learning. The practice of sending scholarship students abroad by the state for the purpose of investing in qualified workforce continued until the last years of the Empire" (Aslan, 2014: 14).

The efforts to pull brain migration to the Ottoman Empire and to educate qualified workforce were facilitated by the Reform moves, the Young Turks, the Yew Ottomanism movement and the declaration of the Constitutional Monarchy. In this

vein, the Ottoman Empire had migrations and migration policies in the context of pull factors during the Empire's transition to modernization and social organization as part of the enlightenment movements. According to the sources of the General Directorate of Migration Management, for example, pulling qualified workforce in the Ottoman Empire was as follows:

"Tens of thousands of Jews were rescued from Spain by ships and brought to the territory of the Ottoman Empire in 1492. After the Thököly Uprising, İbrahim Müteferrika, a pioneer of printing and Earl Széchenyi, a pioneer of firefighting, (Széchenyi Pasha) gathered, and Thököly Imre, the Hungarian King, and his wife took refuge in the Ottoman Empire in 1699. Likewise, the Swedish King Charles of 1709 took refuge in the Ottoman Empire with his accompanying group of about 2 thousand people. Furthermore, Prince Lajos Kossuth, who lost the Hungarian War of Liberation, and about 3 thousand Hungarians came to the Ottoman Empire as well" (Göç İdaresi Başkanlığı, 2022).

However, the fact that the Ottoman ulama class, which generally held knowledge of science in the Ottoman Empire, was closed to scientific innovation, forced the Ottoman Empire to seek new perspectives. As a matter of fact, despite the weight of the ulama class, the Ottoman Empire produced policies to send people abroad for education when the need for knowledge arose with Westernization. This can be considered a policy of pulling and raising qualified workforce. In Belge's work, *Turkey and Russia: Modernization and Westernization* (2004), the problems caused by this duality are explained as follows:

"Since the beginning of the Ottoman Empire, knowledge had been in the hands of the ulama class. Yet, when the developments in the West revealed the lack of knowledge of the ulama, the state sent some statesmen to centers of knowledge. For this purpose, the state first sent Mehmet Çelebi as an envoy to France, and at the same time, İbrahim Müteferrika and Humbaracı Ahmet Pasha began to put what learned abroad into practice in the Ottoman Empire. In addition, the process of bringing in foreign experts began, and they also started to train people and equip them with knowledge. In the meantime, in order to speed up the process, Mahmut II sent about a hundred Ottoman teenagers to study in the West after" 1826" (Belge, 2004: 47).

According to the research study of Görgün (2019) titled, the University Reform and German Scientists Migrating to Turkey: Push and Pull Factors in the Context of International Migration, the reasons for the push factors leading to this conflict are:

"One of the major difficulties experienced in the last decades of the Ottoman Empire and especially in the first years of the Turkish Republic was the problem of the coexistence of the concepts of "old" and "new". While there were efforts to build new institutions in the fields of education, bureaucracy and culture, the old and well-established structures and the individuals belonging to these organizations could not instantly change. In a sense, this situation can be explained as a conflict between the traditional and the modern" (Görgün, , 2019: 788).

After all, the Ottoman Empire had significant attractions for immigrants. It is also understood that especially Istanbul, the capital, was the target of qualified immigrants. Indeed, "Istanbul, the capital of the Ottoman Empire, was a center of

attraction during the Reform period. With the increase of contacts with the West during the Reform period, many foreign businesspeople, merchants, statesmen and travelers came to the country" (Karabulut, 2008: 59). Nevertheless, social-cultural breaks predominated in the Ottoman Empire during those times. As a matter of fact, the "Reform period " was the time when such breaks were experienced at the highest level. In this context, the tendency of reform efforts to spread from the military field to the social and cultural field was perceived as a threat to the ulama's field of activity" (Akça, 2010:126). Due to the influence of those push factors, some emigrated and did not return to their homeland. According to American statistics, for instance, between 1820 and 1920, close to half a million people emigrated from Ottoman Empire lands to settle in the United States (Legal Immigration Fiscal Year 1997, 1999: 12-16).

During the period of Sultan Abdülhamit II, the efforts to send students for study abroad continued in order to train them as qualified human resources. In addition, a number of institutional substructures were developed during this period to employ qualified human resources. Examining the number of students sent abroad and their professional fields during the reign of Sultan Hamid, it can be understood that "While the number of foreign students in France, Paris, Germany, Switzerland and Austria was more or less 620 in 1890, this number exceeded 3200 by World War II. These students studied in the fields of military, medicine, agriculture, engineering, law, veterinary medicine, political science, architecture, painting, music, sculpture, dentistry, law and economics, law and politics, political science and law, medicine and law, medicine and pharmacy, medical sciences, chinaware painting, etc. (Gençoğlu, 2014: 33-35).

Conversely, as several academicians and researchers mentioned above, problematic issues such as the oppression of the Ottoman ulama class and the conflict

between the new and the old turned into pull factors for the migration of qualified brainpower and the exile of intellectuals. Thus, intellectuals fled abroad during the Ottoman modernization period. Starting from the Reform Period, those conflicts continued throughout the second constitutional monarchy and even during the Republican period and beyond. The fact that the Ottoman Empire developed policies on raising and pulling qualified people while their emerged push factors caused pressure and deadlocks on intellectuals. For example, during the reign of Sultan Abdülhamit, who led the policies on raising qualified human resources in the field of Education and Training, Abdülhamit's despotic policies after the proclamation of the Second Constitutional Monarchy in 1876 caused many intellectuals and students to flee abroad.

Later, it was seen that these forcefully exiled students and intellectuals had an impact on the formation of the economic, political and social life of the Republic. For example, in Kieser's statement, "Since the mid-1890s, Geneva and soon all of French Switzerland became favorite spots for a large number of students like Mahmut Esat Bozkurt and other Muslim Ottomans fleeing Istanbul for political reasons" (Kieser, 2008: 67). Kieser also argues that there were also connections with important brain powers, especially in Switzerland, and this situation continued until the early Republican period. "Genevan anthropologist Pittard affected Atatürk's view of history and Afet İnan was sent to Pittard for educational purposes" (Kieser, 2008: 72).

On the other hand, large waves of migration of qualified and non-qualified people to the Ottoman Empire increased exponentially. The first major migration took place in 1783, when Tsarist Russia seized the Crimea. In the 1850s, migration waves continued with the Crimean Tatars, and then with the peoples living in the Caucasus

including the Daghestani, Chechen, Laz, especially Georgians and Circassians. Some of them constituted brain drain. For example, although there are different statistical data for the migration waves between 1856 and 1864, it is stated that approximately 1.500.000 Caucasians fled the Russian army and accepted in the territory of the Ottoman Empire, the Balkans and in various parts of Anatolia. Another wave of migration over a million people moving was the "Georgian" migration. The Georgian migrations first started after the Ottoman–Russian War in 1828 – 1829 and continued until 1921 (Göç İdaresi Başkanlığı, 2022).

Especially when it is considered in the context of attracting qualified brainpower, 10,000 Polish people who constituted the intellectual part of the country emigrated from Poland after the accession of the Kingdom of Poland to the Russian territory in 1830 in the 19th century, and some of the emigrating people arrived in the Ottoman territory. These immigrants later founded Polonezköy in Beykoz district of Istanbul. "Polonezköy was founded in 1842 by Prince Adam Czartoryski, who was the head of the government during the Polish Uprising of 1830 and later the political leader of the Polish exiles. The name of the village is derived as Adamköy (Polish: Adampol) because of the name of its founder, Adam" (Latka, 1967: 16).

Among these immigrants, many highly qualified Polish engineers, physicians and, mainly, military officers made outstanding efforts in the Europeanization and modernization of the Ottoman Empire. In addition, among them were a large number of qualified people who served in high positions in the Ottoman Empire "Among them is a special name: Konstanty Borzecki or otherwise known Mustafa Celaledin Pasha, the grandfather of Nazım Hikmet, a soldier, artist, author and world-renown Turkish

poet leading the Turkist movement who lived for 27 years in the Ottoman territory, gave his life for modern Turkey” (Latka, 1967: 2).

It is noteworthy that the Ottoman Empire adopted an immigration management policy where it was important to find the best way to meet immigrants' needs in life such as with employment opportunities. On the other hand, it is understood from the opinions and analyses within the study that state officials endeavored to make use of the qualifications of immigrants in the best way possible. In this regard, the Immigrants' Commission was founded after the Crimean War in 1860 to employ immigrants in the Ottoman Empire.

"The establishment of the Immigrants' Commission in 1860 after the Crimean War was aimed at accommodating and meeting the needs of immigrants who arrived en masse in the post-war Ottoman state. The Commission performed tasks such as welcoming immigrants, locating places of residence and placing them in these areas, giving houses, animals and seeds, granting them remuneration and providing other assistance such as firewood in winter. The Commission continued its activities quite effectively until 1864" (Demirtaş, 2010: 212).

Looking at the form of migration management of the Ottoman Empire, the following analyses are important indicating that migration was managed more locally than centrally. "In the Ottoman Empire, constabularies in Istanbul and municipalities in other provinces served as migrant management authorities. Performing their duty with the assistance received from the people and the treasury, their service to cities continued until 1859" (Eren, 1966: 50).

Although there is no official article or a distinctive record or written data on the distinction between qualified and unqualified immigrants in Ottoman Empire's migration policies, it is possible to claim that qualified workforce migration was common among asylum seekers during this period. In addition, the Ottoman Empire took the path of benefiting from the qualified elite. For example, among such immigrants were "Commander Wrangel, a Russian elite and about 135 thousand people fleeing Russia after the Bolshevik Revolution in 1917 and asking protection from the Ottoman Empire " (Göç İdaresi Başkanlığı, 2022). Another example can be found in Jack Deleon's study, *White Russians in Beyoğlu* (1996), which draws attention to the fact that Russians who took refuge in the Ottoman Empire constituted qualified brain power and they contributed significantly to the Ottoman Empire. "A significant part of the White Russians, among whom were princes, generals, princesses and officers, were qualified people who had educational degrees and professions. Among them, doctors and masters of crafts managed to hold on to life in a short period of time and added a lot of value to the social and economic life of Turkey" (Deleon, 1996: 16).

Certainly, there were overt and covert qualified brainpower migrations to the Ottoman Empire. One of the most well-known figures from such immigrants is Trotsky, one from the think tank of the socialist movement in Russia. Trotsky arrived in Turkey 12 years after the Bolshevik Revolt. "Trotsky, the leader of the Left Opposition to Stalin in Russia, was sent to Istanbul in 1929 after no European State accepted him, losing the power struggle he had initiated against Stalin" (Coşar, 2010: 18).

Since the beginning of the 19th century, a large number of immigrants also came from Azerbaijan. "Especially between 1877 and 1878, it is observed that migration waves intensified. In addition, about 10,000 more people emigrated to Anatolia during

World War I alone” (Sakal, 1999: 200). Important brain power emerged from those migrating Central Asian groups. As mentioned above, Agayev, known as Ahmet Ağaoğlu by the Turkish public, is considered a national hero in Azerbaijan and he made an important contribution to the formation of the intellectual foundations of the Republic of Turkey today. “Thanks to Agayev's efforts, European style departments were opened in the first university of Turkey, professors were brought in from Germany, and other significant steps were taken to ensure autonomous, European-style and secular university education” (Sakal, 1999: 97).

Among the Central Asian groups migrating to Turkish lands, there was also a political scientist, Yusuf Akçura, one of the important intellectuals and brainpower of the time who contributed to the sprouting of the idea of a Democratic Republicanism. Akçura is a "theorist of Three Styles of Politics who first emigrated to the Ottoman lands with his family at an early age and then took refuge in Paris due to the political pressures faced by the Ottoman Empire, and later returned to the Ottoman lands" (Koşay, 1977:390).

It is also worth noting that the Ottoman Empire, on the one hand, attracted immigration and tried to pull brainpower, developed policies for the training of qualified workforce, but then, with the political pressure of the state, qualified people fled abroad. This, in turn, led to the vulnerability of the Ottoman system. Kemal Karpat assesses the push factors of this loss of brain power as follow:

"Most of the intellectuals in the Ottoman lands are those who have returned to the country as a reverse brain drain movement. This might be interpreted as the motive of intellectuals to save the Ottoman Empire, free it from the oppressive rulers and to fulfill the ideal of restructuring the Ottoman

Empire in a more modern way. After the Austria-Hungarian Empire invaded Bosnia, the Ottoman Empire received four major waves of migration from Bosnia until 1918. The first major migration took place immediately after the Austria-Hungarian Empire's invasion of Bosnia in 1878. The second migration took place in 1882. The third wave of migration took place in 1900 with the 'Dzabic movement', and the fourth wave took place in 1908" (Karpát K. H., 2010: 58).

As a result, the Ottoman Empire started to collapse after World War I and some part of the lands were recovered after the War of Independence leading to the establishment of the Republic of Turkey (October 29, 1923). In every period of its history, Turkey has been exposed to large migration waves due to its geographical and strategic location. Therefore, both the Ottoman Empire and Turkey, in a broad sense, became the final stop of migration movements, while hosting millions of immigrants throughout their history. The point that should not be ignored here is that, although it was not yet known at that time, the state developed policies for attracting qualified people in terms of push and pull factors of brain drain. With the proclamation of the Reform era, the Ottomans had various pull policies such as bringing military equipment from abroad, establishing hospitals and schools, sending students abroad to study, reforming institutions with qualified foreign workforce and raising specialization of labor. Another opinion suggesting the same argument is as follows: "it is noteworthy and urgently applicable in today's Turkey is that the Ottoman Empire selected qualified immigrants and employed them according to their qualifications in related business areas when compared to all migration movements to the country" (Çavuşoğlu, 2007: 123).

It should also be noted that the Ottoman Empire policy of gaining qualified human resources and allocating areas according to their qualifications gave the Ottoman Empire important values in its reconstruction and renewal process. So much so that these values made an important contribution to the sprouting and formation of the idea of the Modern Republic of Turkey today. However, although the migration policies of the Ottoman Empire had the flexibility to provide asylum seekers with the opportunity to work in areas according to the qualifications, there are almost no records or statistics to manifest the characteristics of the brain drain or reverse brain drain movements of the time. Although this partially continued in the Republic of Turkey, the new republic started to keep records and statistics of brain drain. Yet, there is no distinction of lost and gained brain power with push and pull factors. There has been no effort to keep a holistic record of statistical information in this field.

However, although the Republic of Turkey, which is in a sense the successor of the Ottoman Empire, did not put the problem of brain drain on its political agenda, officials adopted a number of pull policies with university reforms, student scholarships, etc. in the early republican period. In particular, brain drain was taken within the scope of Five-Year Development Plans after 1960 to develop goals and policies in this direction.

4.3.Brain Drain Policies of the Early Republican Period (1923-1950)

Turkey's migration policies aimed at creating a national identity and belonging during the time of building a nation-state from 1923 to 1950. Within the framework of building a national identity and belonging, the aim was to place immigrants who had Turkish ancestry and culture in the country:

“Turkish Citizens in Turkey was enacted to regulate the performance of certain professions only by Turkish citizens. In addition, in the Settlement Law No. 2510 of 1934, it was stipulated that the right to immigrate to Turkey should only be granted to "settled or nomad Turkish descendants. In this context; the Law dated 1932 and numbered 2007 on Arts and Services Allocated” (KAİSER, 2014: 76).

According to Article 17 of the Housing Code No. 2510 of 1934, the definition of housing is as follows: "It is a house or place of residence for a family or a shop or store that will also provide livelihood to artists and merchants according to the number of individuals and their needs. Or it can also be referred to as circulating capital, or sufficient land, farm animals, tools and equipment, seeds, a barn and a haystack or place given to farmers” (Şakacı , 2020: 38). Looking at the migration policies of the Republic, it can be seen that "they are different from the immigration policies of the Ottoman Period with consistent and must-have features. The transformation from the perception of ummah based on religious and sectarian partnership to the perception of nation based on cultural partnership became decisive in policy making" (Çavuşoğlu, 2007: 132). Furthermore, “Turkey’s migration policies are compatible with international migration policies. For example, the League of Nations, established in 1920, is the name of the first institution to produce "migration" policy on the international protection of refugees “ (Kaya, Rottman N, Gökalp Aras, & Mencüte, 2021:151).

Considering the immigration policies of the United Nations, the successor of the League of Nations, it can be observed that legal essence of International protection is defined by the United Nations High Commissioner for Refugees (UNHCR) “as all activities aimed at ensuring full respect for the rights of individuals in accordance with

the text and spirit of the human rights law, international humanitarian law and refugee law" (UNHCR, Global Trends, 2011: 7). If the international migration policies of the League of Nations are considered from the legal perspective, it can be said that the first migration movement of the Republic of Turkey after its foundation took place in 1923 with the Turkish–Greek exchange, the mutual principles of which were determined by the Lausanne peace treaty. "It is known that 384 thousand people came from Greece between 1922 and 1938" (Çavuşoğlu, 2007: 154). In the context of Turkey's first migration policy, Zürcher shares the rates of population exchange between Turkey and Greece, arguing that "1.2 million Greek population migrating from Anatolia were resettled in Greece" (Zürcher, 2003: 4).

The migration policy here was an international forced migration policy according to the Lausanne Peace Treaty. Considering the qualifications of outgoing and incoming migrants and their contribution to the country's economy, it can be seen that "Turkey lost a significant amount of qualified human resources during that time. Indeed, the Greeks who migrated to Greece from Turkey mainly constituted the qualified urban population engaged in trade, while the Turks who migrated to Turkey from Greece were peasant population engaged in agriculture" (Tepealtı, 2019: 97). Assessing the migration policies in the early republican period, it is important to note that "After the Eastern Block dissolved, the Power of Attorney for Exchange, Reconstruction and Settlement was established on October 13, 1923, and on November 8, 1923, the Law on Exchange, Reconstruction and Settlement was adopted" (Çapa, 1990: 49).

On the other hand, Turkey also developed policies for raising and attracting qualified human resources. "Despite the limited opportunities to train qualified

workforce to realize the development of the country in the aftermath of the War of Independence from the first years of the Republic on, students were sent abroad to study in different fields" (Erdoğan & Coşkun, 2011: 130).

Moreover, administrative arrangements were made to send students abroad between 1923 and 1929. For example, in 1925, a decree prepared by the Commercial Power of Attorney for students to be sent to Europe for educational purposes was approved by the Council of Ministers. Students to be sent to Europe were selected depending on the institutions' own powers, without common rules, until the law No. 1416 was passed in 1929.

During the Tanzimat and First Constitutional Periods of the Ottoman Empire, students who were mostly sent to France for education abroad were also sent to countries such as Germany in the Republican period. For example, according to Yıldırım;

"it can be seen that students were initially sent to France, and then to Germany in the early periods of the Constitutional Republic and the Republic. After the enactment of Law No. 1416, students were mostly sent to Europe by different Ministries. "The Ministries of Education, Trade, Economics, Public Works, Agriculture, Finance, and also governorates, municipalities, the Department of Mapping, Department of Military Factories and government business enterprises sent students abroad to study as well" (Yıldırım S. , 2005: 12).

In the early periods of the Republic, "Etibank, MKE, MTA, SEKA, Sümerbank and Turkey Cement Factories Inc. and Turkey Cement Factories Inc. (established during the industrialization movement initiated by the state in 1925) sent students

abroad to train the workforce and managers they needed" (Ulu, 2014: 520). As stated in Ulu's research, it is noteworthy that official private and academic institutions and organizations were established or refurbished to employ these students and academics when they returned home. For example:

"There were significant increases in the number of universities due to the university reform that began in 1933, and those who completed Graduate Studies abroad started to work at these new universities under the Law No. 1416. With the increase in the number of universities, however, the number of academicians to serve at universities fell short, and in order to meet this need, Law No. 1416 was adopted to provide trained faculty members to universities" (Gümüş, Gökbil, & Öçal, 2012: 16).

Mass migrations to Turkey from Yugoslavia – Macedonia were another important migration movement. The first influx of Turks living in Macedonia to the Republic of Turkey occurred at an early age in 1924. This was followed by the second wave of migration in 1936. Then followed the Balkan Migrations, and the Jewish Migration Fleeing the German Nazis between 1914 and 1945. In addition, these periods were recorded down in history as the times of forced migrations with push factors due to several reasons such as racism or assimilation according to nation state and ethnic identity.

Another of the major migration waves that took place to Anatolia during the Early Republic period was the migration movements from Bulgaria. "Migrations from Bulgaria are important in that they formed a mass migration movement. According to the Turkish-Bulgarian residence agreement of 1925, 218,998 people emigrated to

Turkey by 1949. Migrations from Bulgaria continued at intervals until 1989” (Doğanay , 1996: 14).

Observing at the policies of the Early Republic of Turkey on the admission of immigrants from outside, it can be seen that Turkey aimed at developing qualified human resources to secure the main dynamics of rapid economic development by not only in quality and quantity. As a matter of fact, Arı İnan emphasizes that Mustafa Kemal acted in a study on Eskişehir and İzmit speeches of Mustafa Kemal as follows:

"In the continuation of his speech, Mustafa Kemal Pasha explained the principles of the policy that will be applied to solve the population problem as follows: "... it is necessary to take medical and social measures. If necessary and if there are no experts among us, we will bring experts. But at the same time, it is necessary to bring individuals of the same race and the same tribute who remain outside the border and ... to protect our population ... if it is possible to bring them from Russia, we will bring them from there. However, I think it is a must have to transport the Turks who were sent from Western Thrace" (İnan, 1982: 54).

It is also necessary to admit the following fact: from the point of view of Mustafa Kemal Atatürk, the idea of West or Western Thrace is not to be a refuge in Europe:

"The idea of Westernism or Europeanism in the Ottoman era would change with Mustafa Kemal Atatürk, the situation and the idea of Europeanism" would acquire a different and deeper content. Western admiration would be eliminated and replaced by "Westernization" as the state philosophy of the

Republic. Also, problems would be dealt with foresight and wisdom" (Sönmez N., 2019: 92).

In essence, although the ideological-based bipolar world system in the hegemony of the US and USSR was not yet visible, migrations increased due to other factors such as the regime change in Russia, economic, financial and technological power conversion in the US and UK, and the sprouting of fascism in countries such as Germany and Italy. Those who had been subjected to pressure in their countries gradually started to request admission of immigration to Turkey "The Turkish Government did not turn down these requests in principle, but only granted immigration permits to those who accepted the condition of not requesting assistance in any way, in other words, the status of free immigration, due to the country's limited financial means" (Solak, 1998: 23). With this regulation, it seems that Turkey was developing policies to pull migrants who could bring with them financial opportunities to both sustain their lives and invest in the country. "As a matter of fact, it is determined that those who immigrated up to 1928 were mostly "individual farmers" engaged in agriculture and used the money they earned from land sales to enter Turkey with a significant amount of cash" (Duman, 2008: 28).

In the early period of the Republic of Turkey, while trying to create attraction policies for the migration of qualified Turks, it seems the country sustained the push factors such as discrimination against religion and sect as left over from the Ottoman Empire and Turkey made these items superior even to the quality. For example, in his study, Hamdullah Suphi and Gagauz Turks, Anzerlioğlu cites this contradiction as follows: Yesterday, Ambassador of Bucharest, Hamdullah Suphi Tanöver, in his report dated October 24, 1934, said that the Gagauz Turks are the main group that will

accelerate our qualified human resources with their reverse and training, and bring joy, prosperity and hope to desolate Anatolia" (Anzerlioğlu, 2006: 35).

However, it is understood that is not stretched much for the Christian Turks, who are known as a more qualified workforce, although there are influx of immigrants from outside and especially the return of former Ottoman subjects is encouraged. Anzerlioğlu implies this fact as follows: The fact that Gagauz villages also wanted to immigrate to Anatolia at that time when migration to Turkey was taking place and that they hoped that the gates of Anatolia would be opened to these Christian Turks also brings to mind the question of why the Orthodox Turks of Karaman were subjected to population exchange a short time ago" (Anzerlioğlu, 2006: 40).

To this question Anzerlioğlu asked in her article, the following statement by Tevfik Kamil, the Madrid Ambassador of the time, can be an answer to the point of view of that period:

"...It is to bring an Orthodox community back to our hometown, which seems to celebrate national unity thanks to the exchange and the connected national movement. It would be to destroy what we have built ourselves, to accumulate the elements of sedition and provocations in the coming centuries". However, the Government of the Republic of Turkey did not respect them and did not allow the migration of Gagauz Turks based on the fact that Orthodox Karaman Turks were sent to Greece in 1923" (Anzerlioğlu, 2006: 39).

From these statements, it becomes clear that Turkey's immigration policy was based primarily on the population and qualified workforce. Therefore, despite this determination, a struggle for unified and identical religion and identity still continued in the process of nation-state building in Turkey, and this was reflected in immigration

policies, as well. Moreover, immigration to Turkey continued during World War II. Among these immigrations were those from the Eastern Legions and those who fled Nazi persecution:

"Between 1939 and 1945, Turkey became the new homeland of some people in the Eastern Legions. During World War II, Eastern Legions consisted of Eastern peoples who fought in the Nazi Germany ranks. They were formed by "Muslim peoples, including Uzbeks, Kazakhs, Kyrgyz, Turkmens, Karakalpaks, Balkars, Karachais, Azerbaijanis, Dagestanis, Ingushetians and Chechens" (Göç İdaresi, 1996: 2).

The striking contrast at this stage is that mass migrations from the Eastern Legions fighting in the ranks of Nazi Germany, scientists fleeing Nazi persecution, and other qualified brains also came to Turkey almost at the same time.

On the other hand, while some including former subjects of the Ottoman Empire moved out of Turkey with mass migrations and exodus with settlement policies, Mustafa Kemal Atatürk's modernization moves were still ongoing. New policies were being developed to attract brain power and particularly scientists. As a matter of fact, successful scientists were needed to make scientific contribution in Turkey. It can be clearly seen here that Mustafa Kemal Atatürk's forward-thinking came into play.

"Mustafa Kemal Atatürk initiated the university reform in 1938 due to the need to raise the country's educational standards and increase quality as fast as possible. For this education reform aimed at increasing the quality of higher education, Albert Malche, a professor of pedagogy at the University of Geneva was invited to Turkey. The effect of this invitation became rather decisive" (Namal & Karakök, 2011: 30).

The findings and recommendations in the report were taken into account, and "Malche was given the position of advisor to the University Reform Commission on May 2, 1933. Malche stayed in Turkey until April 4, 1934 and carried out the task of establishing new universities in accordance with the needs identified in his report. Malche also stated that there was a need for professors to create a new spirit for a new system" (Çelebi, 2003: 261). "Malche started his works on January 24, 1932 and submitted his completed report on "Istanbul University" to the Minister of National Education on June 1, 1932. Atatürk personally examined Malche's report in detail and made evaluations" (Namal & Karakök, 2011: 32).

However, the early Republic of Turkey's universities could not yet achieve the cultural advancement that European universities had. Turkey eliminated this deficiency with a rational strategy implemented due to the situation of Europe, which was turned upside down by World War II. Professors, associate professors, lecturers who were outstandingly successful in their field, were left unemployed because of Germany's racist political views, and thus, they were invited to Turkey to be employed:

"The invitation of Turkey was welcomed, and many scientists emigrated to Turkey through the aid society founded by Professor Philipp Schawartz, who was also of Jewish descent in Switzerland and who was a Hitler victim himself. In October 1933, he went to Turkey with the call he received for the first negotiations and in the process, he ensured the arrival of about 200 scientists and immigrants who were experts in various branches of art in Turkey" (Keser, 2020: 80).

According to the archives of the migration register of the German National Library, the number of people who emigrated from Germany to Turkey due to fleeing

the Nazi regime was about 1,000, the majority of whom were Jews. 400 of them lived in Turkey and 80 of them were scientists (Şen, 2019: 9). Some of them included:

"The Mayor of Berlin Ernest Reuter. Edzard Reuter, the son of Ernst Reuter, is a highly qualified person guiding Mercedes Benz. Also, the first names that immediately come to mind are the jurist Ernst Hirsch and the economist Fritz Neumark. The traces left by both of them can be found in the legislation of the Turkish state as well as in the financial structures prevailing the country. Likewise, Carl Ebert and Ernst Praetorius contributed greatly to Turkey's modern stage and music life, while Eduard Zuckmayer shaped Turkish state politics as remarkable figures creating added value as much as Ernst Reuter" (Fritz , 2019: 102).

Prof. Malche recommended modern universities. Thus, the recommendation for modern universities by Prof. Malche were taken into account by officials. "The Law No. 2252 on the Abolition of Istanbul University by the Ministry of Education and the Establishment of a New University were published on May 31, 1933. It came into force on August 1, 1933. Of the 157 faculty members working at Istanbul University that had been abolished on July 31, 1933, only 83 continued their studies, while others were dismissed from the new institution" (Çelebi, 2003: 261).

All these brainpower-attracting reforms were being carried out under the leadership of Mustafa Kemal Atatürk, the founder of the Republic of Turkey, while internal and external blocking efforts continued. For example, according to a citation by the newspaper Şalom;

"Hitler, who learned that the Turkish government had contacted those whom he had expelled, angrily came to his office in Berlin on May 8, 1933 and

said, "Mustafa Kemal cannot protect this Jewish regiment that I want to eliminate. I won't allow it." He thus threatened and sent a message to Atatürk: "Do not let these communist professors into your country." When this information was conveyed to him, Mustafa Kemal instructed Tevfik Rüştü (Aras), the Deputy Minister of Foreign Affairs, and Minister of Education, Dr. Reşit Galip to take action to protect German professors who wanted to take refuge in Turkey and serve in Turkish universities by saying that "A corporal cannot use me for his murders" (*Şalom Gazetesi*, 2008).

Academicians were the first of those people coming to Turkey as immigrants between 1933 and 1945. They were invited taking into account their contribution to university reform in Turkey, and they became European foreign scientists assigned to newly established universities and faculties of Turkey. "In addition to their families, the scientists in question also brought their assistants, technicians, and assistant lecturers with them" (ERİCHSEN, Kubaseck, Günter, & Seufert, 2016: 21).

When German, Hungarian, etc. brain power started to flee Nazi persecution between 1933 and 1945 and when economic migration came to the agenda to address labor market needs, Turkey then realized the importance of not losing qualified workforce and started to develop a series of policies. Previously, the Ottoman Empire also developed a number of policies for the purpose of attracting qualified people with the Edict of Reform. These policies had been effective. Turkey, on the other hand, developed pull policies during the Atatürk era, but fell short and generated push policies afterwards. However, it was not possible to identify or specify this issue back then. An example of such push policies is:

"As per article 4 of the second law No. 3519, foreign nationals who come to Turkey as a transit country and do not have a visa for their target country without enough money or means to travel, shall be prohibited from entering Turkey despite aiming at passing by Turkey as a transit route". This article also prohibited the entry of persons who were formerly citizens of Turkey and they were stripped of their citizenship or expelled from the country. According to article 20 of the same law, Turkish citizens who live abroad and do not register regularly at consulates can obtain a passport or a visa in Ankara only by the permission to be issued by the Ministry of Internal Affairs in advance" (Corry , 2012: 183).

The second push factor in Turkey's early republican era migration policies was the emphasis on national and religious identity homogeneity consolidated by the Law No. 3529 on the residence and travel of foreigners in Turkey:

"On June 29, 1938, foreigners living in Turkey without a valid passport or identity document were prohibited from continuing their residence. This law required the decision on the deportation of foreign nationals according to the criterion of "belonging to the Turkish race or not". While the deportation of those belonging to the Turkish race depended on a decision taken by the Council of Ministers, "only the Ministry of Internal Affairs was authorized to deport Romani and foreign nomads who were not related to Turkish culture". According to the above laws, people who did not have a valid passport or other citizenship document were prohibited from entering and residing in Turkey. Jews without any citizenship, called "stateless" would not be able to enter Turkey, and some of the Jews who had come to Turkey after 1933 were expelled

from the country. Although mainly Jews were harmed by the above two laws, all foreign nationals were mentioned in the text of the laws and the word Jew was not used at all" (Corry , 2012. 183).

In this context, during these periods, migrations crossed the borders of the country and turned into an international problem. Thus, conventions were started to be held in order to define the legal status of refugees within the framework of the League of Nations (MC) on the international migration problem in the world. In this sense, the League of Nations paved the way for the formation of many supranational structures to address the issue of international migration. Many other organizations, especially the United Nations High Commissioner for Refugees (UNHCR), influenced the formation of national migration policies.

The migration and brainpower pull policies of the early Republican era were basically shaped by the settlement policy in Turkey, as in the international system from World War I to the end of World War II. Although Turkey tried to shape its migration and qualified workforce policies in the early Republican period by the cultural and national perception rather than the concept of ummah, the settlement policy that it took over had a historical heritage covering a risk and threat perception in terms of security.

For example, when looking at the migration policies of the republic in the early period (1923-1950), it can be observed that those efforts were in line with the aim of creating a national identity and belonging as part of the notion of nation-state. Within the framework of building a national identity and belonging, the aim was to place immigrants with Turkish origin and culture in the country. In this context, the Law dated 1932 and numbered 2007 on Arts and Services Allocated to Turkish Citizens in Turkey was enacted to regulate the performance of certain professions only by Turkish

citizens. Also the Settlement Law No. 2510 dated 1934 stipulated that the right to immigrate to Turkey is granted only to "Turkish descendants or nomads (Mevzuat, 2003).

One of the push factors attracting attention in migration and brain drain policies during these periods of the republic, on the other hand, was the art rights allocated only to Turkish Citizens in Turkey, leading to obstacles to attracting brain power from different identities. With the subsequent repeal of this law, which allowed such services to be performed only by Turkish citizens, the opportunities for foreigners to work in Turkey were expanded. In this law, as a rule, foreigners' ability to work in Turkey is subject to the condition of obtaining a "work permit", and in this context, the types and conditions of work permits have been regulated. Those regulations introduced the possibility of granting exceptional work permits to foreigners who met certain conditions, especially citizens of European Union member states.

While all these policies were being developed, Turkey was continuing its efforts to improve its social welfare by developing a democratic order and taking up a developmental move to take its place in international competition. For this purpose, policies on raising and attracting qualified brainpower were also being developed in Turkey. The University Reforms in 1934 and sending students abroad for education by law No. 1416 in 1929 can be given as tangible examples of those efforts. These policies have been continuing to the present day, partly by renewals. For example:

"Various amendments and additions have been made to Law No. 1416 from the beginning to the present day. In recent years, the main changes were made in 1988, 1990, 2006 and 2014. In order to regulate the application of Law No. 1416, additions and amendments were made in 1994, 1996, 2001, 2013,

2014 and 2016 to the "Regulation on the Study of Turkish Students in Foreign Countries" issued in 1993. In 2014 and 2016, fundamental changes were made to the Law No. 1416 in addition to many improvements in other legislation" (Aktekin & Tekben, 2019: 127).

In addition, the Republic of Turkey has attached importance to the compliance with the international law of the League of Nations, the United Nations and the Geneva conventions since its establishment. However, its general tendency is still within the framework of the settlement policies developed in 1932. Indeed, "The general trend of the settlement policy from the establishment of the Republic to the 1960s has been aimed at increasing the population. This trend has changed with the rise of urbanization, industrialization and democracy culture of Turkey after reaching a certain level of satisfaction in the population" (Emek İnan, 2016: 21).

Nonetheless, the policies produced by Turkey to attract qualified people sometimes contradicted and led to push factors. For example, Faist also asserts the contradictory repulsiveness of these policies as follows:

"The University reform laws developed by Atatürk for scientists fleeing Nazi persecution were significant policies to pull brain power and had very important implications for the scientific structuring of the new republic. As a matter of fact, even though Turkey embraced Jewish scientists during the Hitler era and received brain power from the Turkic Republics, especially with the collapse of the Soviet Union, it would not be correct to say that Turkey made good use of this brain power" (Faist, 2013: 1646).

When Turkey's migration and brain drain policies are evaluated in their historical depth, it can be noted that they vary according to the conditions of the period.

For example, Kazgan explains how the change of political power in Turkey in 1950 was reflected in this phenomenon as follows:

"Those who have just come to power have adopted the liberal view by accepting the OECD's offer of 70% foreign trade freedom in trade to implement liberal policies to shift from the current statehood policy." During these periods, domestic migrations from rural to urban areas intensified. On the one hand, Turkey became a member of NATO in 1952, and on the other hand, it was participating in the Korean war. In the sense of attracting foreign brain drain, it seems that Turkey produced more policies to attract foreign investors. As a matter of fact, "1950-51 and 1954 were the years when Foreign Capital Incentive Laws encouraged foreign capital, economic, political and all other kinds of assurances" (Kazgan, 2004: 76).

On the other hand, consideration of the external conditions especially after the 1950s will manifest the bipolar new world swinging between the US and USSR. In this regard, the new world order was being built in the form of imposition on two superpower axes: the US and the USSR. In this bipolar new world order, Europe was divided into East and West, while political maps changed in Asia. Another phenomenon that developed in the conditions of that day was the transformation of the existing, economic, commercial, political and social structure of the international system. New financial dynamics such as the IMF and World Bank were added to the system, while a security organization, NATO, was being founded. The League of Nations, on the other hand, was being restructured. In this context, both poles of the international system were developing support for the reconstruction and development of countries whose economy and social life had become fragile after the war. In particular, the US provided

Marshall aid to Western European countries, especially Germany, that were devastated by the war, transferring capital.

Also, after the second half of the 20th century, the Geneva Convention on the Legal Status of Refugees was held and it became the first international migration policy in 1951, when the migration problem crossed borders and became an international problem. (Resmi Gazete, 1961) Geneva Convention: The United Nations High Commissioner for Refugees (UNHCR) defines international protection as follows: "all activities aimed at ensuring full respect for the rights of the individuals according to the letters and spirit of the human rights law, refugee law and international humanitarian" (UNHCR, Global Trends, 2011: 7). With certain reservations, Turkey signed the Geneva Convention in 1961 (by law No. 359). With certain reservations, Turkey signed the Geneva Convention in 1961 (by law No. 359). In other sense, coinciding with the Geneva Convention signed by Turkey and NATO membership in the same period is an important development that also affected the shaping of Turkey's migration policies.

Until the beginning of the Cold War (1947), international migration movements to Turkey occurred in the form of ethnic and religion-based population movements until the 1960s, and after 1960 they continued in the form of labor migration. After the Second World War, especially the restructuring process of European countries and the encouragement of industrial investments with supports such as the Marshall Plan, it turned to meet the workforce needed for a second industrial transformation from countries such as Turkey. It can be observed that migrants can settle in a country individually with a document indicating their identity, religious faith and subject. Although the phenomenon of migration acquired an international character with the Geneva convention on refugees in 1951, forced migration movements have not been

the subject of interstate agreements. After the end of World War II, countries needed an external workforce as they entered into rapid development processes. Due to this need and the abundance of employment opportunities, skilled and unskilled labor migration began to flow across countries. This labor migration was different from the characteristics of the migrations in the previous century, as this had been predominantly voluntary migration. Another difference is that migration movements were somehow becoming the subject of agreements signed between countries by means of labor exchange, when compared to the past forced migration waves. In other words, labor migration became almost a labor import and export policy for countries.

As stated before, international migration waves in Turkey took place in the form of ethnic and religion-based population movements until the 1960s, and after 1960 in the form of labor migration. However, with the rapid development of European countries, the nature of their migration changed, and the need for brainpower capital increased at that time. Countries started to take loss of brain power as an issue on their agenda, while the Turkish government did not take it to the agenda of politics until 1960. Brain drain only became an issue of the state development planning policies and goals within the scope of push and pull factors affecting brain drain.

Turkey developed its brain drain pull policies mainly in the field of development efforts and focused on the impact of brain drain on developmental prospects. For this reason, Turkey's brain drain policies will be examined within the scope of Five-Year Development plans developed after 1960.

4.4.Brain Drain Policies Formed in Turkey's Post-1960 Development Plans

At a time when the negotiations on the Lausanne Peace Treaty were interrupted between February 17 - March 4, 1923, the Republic of Turkey began development moves with the Izmir Economic Congress as a symbol of liberation from economic dependence after the War of independence and the transition to a national economy. Yet, the country entered this period by accepting the heavy burden of the Ottoman Empire's debts. The obligation to pay debts continued until 1954. In order to invigorate the economy permanently, it was necessary to use the means of production of the era more intensively and to organize in a way that was appropriate to the structure of the new world. It was also important to raise workforce, which was the most important factor of this organization, to prevent the brain drain of qualified workforce, to set goals for attracting brain drain, and to develop policies. "For this purpose, the first five-year economic development plan was prepared in 1934" (Kazgan, 2004: 67). The first plan in Turkey was made under the influence of the 1929 world economic depression and with the aim of rapid industrialization. The First and Second Industrial Plans were prepared in the 1930s with the goals of rapidly achieving economic independence and becoming a respected country in the international area. "After the First Five-Year Industrial Plan (1934) was successfully implemented, a Second Five-Year Industrial Plan was prepared for implementation starting from 1939. However, with the outbreak of World War II, this plan could not be put into effect and the country had to apply the war economy" (Ergün , 1997: 257).

During the planned economic period of the early republican period, the Law No. 2007 on the Allocation of Arts and Services to Turkish Citizens in Turkey, first issued in 1932, provided an extensive list of professions prohibited to foreigners. The main

purpose of this law adopted during this period was considered to offer job opportunities to Turkish Citizens, while the content of the law was criticized for the lack of clarity.

This law:

" It is limited by the 7th article of Foreign Capital Incentive No. 6224 published in 1954. The conditions and stipulations established by the laws no. 2007 and 2818 remained valid for the establishing and running an enterprise in accordance with the law. Accordingly, foreigners who invest money in such an enterprise, foreigners who are representatives of the depositors, in particular, foremen and other adult personnel can be granted the right by the Committee to efficiently establish, expand, reactivate or operate such an enterprise. With this provision of the law, the prohibitions have been softened for qualified foreign workers and investors. After the interruption to development plans due to the start of World War II, the Urgent Industrial Plan was prepared in 1946. Since the plans made could not be compatible with the changing times, they were out of practice. In 1947, the Vaner Plan was prepared according to changing conditions, though. In the 1950s, however, no new plans were prepared. In the 1960s, the planning contained in the Constitution was resumed and has been brought to the present day" (Erat & Arap, 2017: 155).

In Turkey, the first Five-Year Development Plan was drafted in order to increase national savings, direct investments for the benefit of society, and to realize economic, social and cultural development in democratic ways. It was discussed in the Joint Commission of the Grand National Assembly of Turkey, the Senate of the Republic and the National Assembly. It was rectified on November 21, 1962 and published in the Official Gazette no. 11272 on December 3, 1962 and entered into force. This first

five-year development plan initiated the planned period from then on. From the First Five-Year Development Plan to the Tenth the Development Plan, the main issues discussed were labor and qualified labor, labor supply and brain drain. The focus was on the issues of labor, employment and education.

4.4.1. The First Five-Year Development Plan (1963-1968)

Brain Drain Policies

From the First Five-Year Development Plan to the subsequent ones, the issue of qualified labor was raised as follows: "Another aspect of employment policy is the export of surplus labor to Western European countries suffering from labor shortages. However, Turkey is a country with a surplus of labor force but suffering from a shortage of highly qualified labor. If high-quality labor is exported, this can increase this shortage. It is a must to take the necessary measures to prevent this drawback" (I.Beş Yıllık Kalkınma Planı, 1963: 473-474).

By the nature of these concerns weighing heavily, the breakthrough in creating the most important attraction for brain power in the First Five-Year Development Plan was to establish Organized Industrial Zones. "Today, Organized Industrial Zones (OIZ), starting in 1962, are organizations featuring technology parks, high-tech factories, and data centers where most qualified human resources are employed. "Since 1962, 351 OIZ projects have been put into service" (OSBÜK, 2021).

Another important step was the establishment of the Turkish Academy of Sciences Institution (TÜBİTAK), which would become the main attraction base for brain drain pull programs. Therefore, the idea of determining Turkey's science and technology policies and raising basic brain power, the issue of attracting brain migration

was a fundamental problem. With the establishment of the "State Planning Organization" (SPO) and the transition to a planned economy, TÜBİTAK was established in 1963 in order to debut scientific activities and direct these activities to proliferation. In the First Five-Year Development Plan (1963-1967), research in basic sciences was adopted as the main policy" (Kazgan, 2004: 71).

In the First Five-Year Development Plan of Turkey, the problem of brain drain was included in the program while the following developments took place during this period:

"Western European countries have embarked on a rapid development process, they have gone on a path to meet their labor needs by employing foreign workers for cheaper wages. In 1955, Germany started to recruit workers from Mediterranean countries such as Italy, Greece and Portugal in order to address the growing labor deficit in the country like an avalanche. On October 31, 1961, the "Turkish Labor Agreement" was signed between the State of the Republic of Turkey and the State of the Federal Republic of Germany, and thus the first official labor migration began. A significant part of the workers (60%) were qualified employees" (Şen, 2019: 9).

From the First Five-Year Development Plan to the end of this program, it was necessary to take measures until the end of the 1967 program and investigate the reasons why professionals in the fields of engineering, medicine, etc. worked abroad. This also entailed taking measures to ensure their stay in the country. Furthermore, in the First Five-Year Development Plan, it was envisaged that the issue of training research assistants should be decided quickly and with importance. To meet the need for faculty members and staff at higher education institutions during the five-year plan

period, 3,000 personnel were selected by competition to study abroad (I.Beş Yıllık Kalkınma Planı, 1963: 473-474).

4.4.2. The Second Five-Year Development Plan (1968-1972)

Brain Drain Policies

The Second Five-Year Development Plan was prepared with a new perspective, taking into account Turkey's relations with the European Economic Community and the changing world conditions of the period. The Second Five-Year Development Plan (1968-1972) stated that "a policy will be pursued to prevent the skilled manpower needed by Turkey from going to work abroad and attractions will be created to return qualified people home to work" (II.Beş Yıllık Kalkınma Planı, 1968: 167-171).

The Second Five-Year Development Plan had tangible policy suggestions aimed at reversing and keeping brain power in place, and it is notable that restrictive and advisory measures were also included in the said program. In order not to disrupt development efforts due to lack of manpower in these plans, it was aimed to establish a system that would limit Turkish scientists, technical and medical personnel working in foreign countries continuously. In this direction, it was aimed that the Ministry of National Education and universities would work together to address the issue of requiring all university graduates to work in Turkey for a certain period of time with legal and social aspects. In these objectives, the Ministry of Foreign Affairs stated that it would examine the state of issuing passports for a certain period of time to these employees and not extending the period afterwards from a legal and social point of view and focused on limiting the work permit of Turkish employees in other countries to a certain period of time. It was also aimed to look for opportunities to conclude

agreements on issues such as not granting a work permit or granting only a certain period of stay to Turkish employees who completed their training and specialization period in another country. In addition, it was stated that the Ministry of National Education and universities would take measures to ensure that Turkish scientists with the title of professor and associate professor at foreign universities would be assigned to Turkish universities with the same titles, taking into account the length of service in a different country (II.Beş Yıllık Kalkınma Planı, 1968: 167-171).

The Second Five-Year Development Plan also aimed to develop solutions and policies to attract foreign brainpower and further improve the quality of human resources. Indeed, it was stated that Turkish scientists would be encouraged to participate in the work of international research organizations and international joint research, and to constantly contact with the outside world in an attempt to contribute to the Turkish research capacity by the help of international scientists. Cooperation was to be made on science and research with advanced and developing principles. It would be important to investigate the opportunities of international research organizations with relatively small participation shares to benefit from all research results, to raise our workforce for technical and scientific research in the best way and to stay up to date with the latest developments (II.Beş Yıllık Kalkınma Planı, 1968: 167-171).

In paragraph g) of the same item, pull policies to prevent brain drain to foreign countries are discussed, and for example, it was decided to establish National Productivity Centers to ensure participation to trainings of qualifications. In the Second Development Plan, it was decided that 3000 students would be sent abroad for a doctoral degree in order to raise academicians with higher education degrees. Thus, during the two ten-year development plan periods between 1963 and 1972, the number

of students to be sent abroad in order to close the faculty member deficits was planned to be 6,000, with a total of 600 in each program year (II.Beş Yıllık Kalkınma Planı, 1968: 167-171).

In terms of raising university and graduate students to multiply brain power as drafted in the Second Development Plan, it was decided to cooperate with the Turkish Scientific Research Council as another important pull policy.

According to this policy, Universities will provide training capacity in the branches of industry, nuclear, energy, electronics, textile, sanitary installations and business economics, as the current education system does not produce enough experts in these fields and it is necessary to meet manpower needs in these areas. In order to train employees in these fields, 2 000 scholarships will be awarded domestically in the period of 1968-1972, the Scientific and Technical Research Council of Turkey will cooperate with universities on this issue and monitor the use of scholarships (II. Beş Yıllık Kalkınma Planı, 1968:694-698). In order to conduct research in applied sciences in this direction, the multidisciplinary TÜBİTAK Marmara Research Center (TÜBİTAK MAM) was established in Gebze in 1972 (Kazgan, 2004: 71).

4.4.3. The Third Five-Year Development Plan (1973-1977)

Brain Drain Policies

The Third Five-Year Development Plan was prepared in the conditions of the global economic crisis, which began due to the "oil crisis in 1973. Between 1973 and 1980, its repercussions in the economy were 40% worsening" (Tekeli, 2002: 78). In addition, Turkey entered this period under the conditions of the war with Cyprus in 1974.

The Third Five-Year Development Plan drew attention to the fact that despite previous policy of Turkey, it continued to lose qualified brains to developed countries and the migration of highly skilled people increased exponentially, indicating the urgent need for measures.

The Third Five-Year Development Plan noted the qualifications of those who left were determined as follows: By 1970, 7% of architects, 5.3% of mechanical engineers, 8.2% of specialist doctors and 21.4% of general practitioners went abroad for work. Similarly, it was noted that the departure of adult workers, that is, artists, to foreign countries was accelerating, and it was emphasized that this situation led to the growth of labor shortages. According to the plan, "in the period of 1965-70, the migration of 88,000 artists abroad increased the needs in this area by 26%. The number of engineers needed increased from 15,500 in 1960 to 17,700 in 1965 and to 31,400 in 1970. Accordingly, the number of engineers needed increased by 13.5% compared to 1965 and by 77.4% in 1970 compared to 1965. The number of technicians needed increased from 27,100 in 1960 to 37,400 in 1965 and 54,800 in 1970. It increased by 38% in 1960-1965 and by 45% in 1965-70." Significant increases were also detected in the number of qualified manpower related to agriculture in the period 1960-1970. The number of adult workers increased from 998,900 in 1960 to 1,235,400 in 1965 and to 1,831,000 in 1970. The number of doctors' need increased from 900 in 1962 to 11,900 in 1967 and to 15,800 in 1970 and increased by 75.1% between 1962 and 1971. The number of auxiliary health personnel, which was 8,700 in 1962, increased by 244% during this period to reach 30,000 in 1971 (III. Beş Yıllık Kalkınma Planı, 1973: 81-82).

Unat also states that Turkey particularly suffers from brain drain in the study on emigration from Turkey. It is observed that the highest number of highly qualified Turkish human resources moved to Federal Germany, “for the first time after 1953 in the process of Germany's reconstruction in the aftermath of the war. Indeed, among the foreign labor force moving to Germany between 1961 and 1973, Turks were the most qualified labor force” (Abadan Unat, 1972: 31).

It is also seen in the Foreign Migration study of Unat (1964) that during these periods, the migration of qualified labor force of Turkey did not lose pace, and they were a much more elite group compared to immigrants from other countries in terms of education and profession. According to research by Unat benefitting from German resources;

"Qualified workforce formed 35% of Turkish workers who entered the country in 1965, 31% in 1966, 31% in 1967, 26% in 1968, 33% in 1969, 34% in 1970, 46.3% in 1972, and 30.3% in 1972. In fact, it is observed that about 1/3 of the total Turkish immigrants were all qualified" (Unat, 1972:31). On the other hand, due to the increase in qualified labor in the outbound workforce, it created bottlenecks in production in Turkey and, in particular, led to technical workforce gaps. In 1971, it was determined that the proportion of qualified workers among all workers emigrating was about 35%" (Yıldırımoglu, 2005: 2).

The Third Five-Year Development Plan often reminded that policies and targets aimed at preventing drain were not successful. That is why some restrictions were mentioned to eliminate push factors of brain drain in Turkey. For example, the principle has been adopted that the graduate students who will be sent to foreign countries first

will study in areas where there is no or little teaching space in Turkey, and the main focus will be on domestic graduate education. Secondly, the number of students who will be sent abroad for a doctoral degree in the 1973-1974 academic year was reduced from 600 to 200 in anticipation of limiting the number of students going abroad. The Third Development Plan also explained the rationale for this decision: The cost of an international doctoral program aimed at training faculty members is extremely high compared to domestic programs. According to a rough calculation, this cost exceeds TL 200,000 for European countries during an average five-year doctoral study and TL 300,000 for the United States due to higher education costs. According to the 1416 program, the amount of commitment and surety bonds issued by the Ministry of National Education for students who go abroad for education was 230,000 TL for European countries in 1973-1974. For the United States, it was 335,000 (III. Beş Yıllık Kalkınma Planı, 1973: 81-82).

It is possible to argue that the poor economic conditions were the reason for the difficulty in fitting the term's budget. There was a lack of policies to prevent losing qualified brains such as engineers, doctors and specialists due to economic insufficiency.

The Third Five-Year Development Plan also featured the first "Information Transfer Abroad via Employees" (TOKTEN) in Turkey on October 21, 1976. Similar projects were later implemented by the United Nations Development Programme (UNDP) in other developing countries. "Turkey implemented a project called the TOKTEN project through TÜBİTAK in order to bring back the trained manpower that has gone abroad or, if not, to bring them to Turkey from time to time within the framework of a program and to benefit from these experts. However, this project has

failed to go beyond bringing specialist only to conferences and communiqués" (Yücel, 1992: 80).

The aim of the project was to benefit from scientists, technicians and experts who live abroad for various reasons and have made a name for themselves in various fields of expertise. These projects were implemented by about 40 developing countries in the world in 1992. Although TOKTEN is a not program that deals with the problem of brain drain in a very complex manner, highly skilled professionals who live abroad, it is an organization that presents new opportunities so that highly qualified professionals living abroad contribute to the development of their own country, and to mitigate the negative effects of brain drain.

As Yücel (1992) notes, however, the push factor here is not the weakness of the reverse brain drain policy, but the fact that highly qualified professionals cannot go beyond presenting communiqués or delivering speeches at conferences rather than taking scientific responsibility in practice. As a result, as with the First and Second Development Plans, the Third Five-Year Development Plan also featured definitions related to the problem of brain drain, even criticisms as well as efforts to produce policies aimed at pulling brain drain while preventing it in the country. Efforts continued in the form of developing attraction centers such as OIZ or TÜBİTAK, attracting reverse brain drain with TOKTEN, sending doctoral students abroad for study, etc. Intensive migration movements also negatively affected economic outputs, as a significant shortage of qualified labor appeared. In this line, there have been many social, economic, and political periodic factors that make it hard to implement the policies and objectives developed in this regard.

Contrary to pull policies, Turkey has also experienced the formation of push factors causing the loss of qualified workforce in the country. The most important of these reasons is that the governments of the period took the financial and political agendas of foreign exchange revenues into their political agendas, and not the problem of brain drain. Abadan Unat also underlines this fact: "Although qualified labor migration was criticized by the State Planning Organization and the Union of Chambers of Commerce of Turkey at that time, it was still encouraged in order to generate foreign exchange income" (Abadan Unat, 2017: 80).

4.4.4 The Fourth Five-Year Development Plan (1979-1983)

Brain Drain Policies

The Fourth Five-Year Development Plan period coincided with the January 24 resolutions and September 12 Military coup d'état considering the transition from a closed economy to an open economy based on information technology.

The Fourth Five-Year Development Plan (1979-1983) included expressions to provide support, encouragement, etc. to prevent brain drain. In the Fourth Five-Year Development Plan (1979-1983), technology policies were mentioned for the first time. After this plan, Turkey began to attach more importance to science and technology policies in each of its Five-Year Development Plan" It also aimed at setting strategic policies to prevent the loss of qualified human resources. Here, there was a tendency to increase brainpower in the fields of electrical engineering, mining, mechanical and map engineering, taking advantage of the knowledge of private organizations or companies. For this purpose, it was mentioned that the necessary steps should be taken to establish relations with technological information centers belonging to international

organizations in different countries. It was stated that the support of the Ministry of Industry and Trade and the TÜBİTAK-Turkey Scientific and Technical Documentation Center (TÜRDOK) should also be obtained in order to realize these developments (IV. Beş Yıllık Kalkınma Planı, 1979: 252-253).

In the Fourth Development Plan, the push factors caused by irregularities in fields of duties were also discussed to initiate reverse brain drain of highly educated professionals living abroad. The problems were elaborated in detail as in the previous development plans. For example, the following determinations are important: On the other hand, the problem of the shortage of faculty members in the newly opened faculties, academies and colleges has reached serious dimensions. The fact that doctoral assistants are not employed regularly and that there is not any efficient and solid system to regulate the return of the staff sent abroad by the Ministry of Education in accordance with the Law No. 1416 for the purpose of education negatively affect the problem of the shortage of faculty members in our country. Higher education institutions that are not sufficiently tackling the problem have not developed a valid system for training faculty members (IV. Beş Yıllık Kalkınma Planı, 1979:252-253).

On the other hand, the plan covers the cultural field with importance in terms of acquiring and increasing qualified special talents, and the inadequacy in this field is emphasized with the following statements: The State Conservatories responsible for conducting education and research in the field of music are insufficient in quantity and quality to meet the artist and performer requirements of the country with their current situation (IV. Beş Yıllık Kalkınma Planı, 1979:252-253).

The Fourth Five-Year Development Plan had certain push factors in the relevant years, though. Especially due to the pressures of the 12 September coup regime in the

1980s, many qualified brains of Turkey including academics, scientists, university students, businesspeople, artists, etc. left the country. Due to political pressure, they were lost to European countries, especially France, Germany and the United Kingdom by means of asylum. For example, "The citizenship of 14,000 people was revoked and 30,000 people fled abroad as political asylum seekers" (Candansayar, 2010: 2).

4.4.5. The Fifth Five-Year Development Plan (1985-1989)

Brain Drain Policies

The Fifth Five-Year Development Plan aimed to increase the qualified workforce based on technological development in accordance with the decisions of January 24, 1980. According to this goal, the necessary measures would be taken to ensure raising and employing skilled workforce. Also, it was decided in the plan to accelerate economic and social development, to improve productivity and the development of Information Processing Technology, Electronic Data Processing and information delivery systems hardware, software, etc. Furthermore, emphasis was placed on the transfer, implementation and means of production primarily based on internal resources.

The concrete step of this period was as follows: "Technology areas to prioritize were determined and the Supreme Council of Science and Technology was officially established with the Science Technology Policy (1983-2003 document)" (Yücel, 1992:80). On the other hand, in order to reach the target number of academic staff in higher education, "By using the laws numbered 1416 and 4489, doctoral scholarships abroad would be delivered to a sufficient number to train faculty members" (V. Beş Yıllık Kalkınma Planı, 1985: 204). The Fifth Development Plan used this statement to

denote that the efforts to provide opportunities for the sending of personnel from Turkey to be trained abroad would continue.

One of the concrete steps taken by Turkey to attract qualified foreign brainpower in the Fifth Five-Year Development Planning was adopting the Law on Free Zones to create attraction centers. According to article 10 of the Law on Free Zones, issued in 1985, foreign managers and qualified personnel may be employed in companies located in free zones. The principles ruling this case are determined by the regulation." With its provision, the way for qualified foreign employees to be employed in the Free Zones was opened" (Resmi Gazete, 1954).

4.4.6. The Sixth Five-Year Development Plan (1990-1994)

Brain Drain Policies

The Sixth Five-Year Plan featured the traces of the transition from a bipolar world system shaped by the ideological polarization to globalism emerging based on technology and the information economy after the dissolution of the Soviet Union. Moreover, as in the international community back then, Turkey also focused on the countries dissolving from the Soviet Union. Thus, Turkey tried to prevent the loss of qualified labor migration in the fields of economy and academic research, to increase qualifications and to set goals that would create international cooperation in addition to its efforts to build technology-oriented attraction centers to pull brain power.

In the context of the rapid achievement of these goals, the definitions and recommendations are listed as follows: The high council of science and technology would be put into operation. In order to close the information gap between Turkey and developed countries, research would be focused on ways and means of accessing

information as well as conducting research. To this end, projects would be joined to place scientists in organizations that can be called information centers around the world. Necessary measures would be taken to monitor science and technology activities, connect them to information centers, establish an environment that will allow benefitting from Turkish scientists based in foreign countries, and establish a system of experts for various activities (VI. Beş Yıllık Kalkınma Planı, 1990: 297-311).

The Sixth Five-Year Plan also stated that computer literacy would be expanded at all educational levels. In addition, the plan underlined the importance of carrying out the necessary studies in order for the software sector in Turkey to compete on international platforms. This further emphasized the importance and need for trained workforce in this regard.

It is noteworthy that in the Sixth Five-Year Development Plan (1990-1994), attraction centers were decided to be built with the aim to pull brain migration and brain power to Turkey as given in the previous plans. In this context, the plan can be qualified as a resolution to develop and improve strategies of institutions and organizations. Important steps in this regard included: supporting public and private sector organizations who have engaged in the research and development, contributing to university-industry cooperation by decisions to make the necessary amendments to the legislation, and building techno-parks to promote conditions to attract qualified people living abroad. In addition, these steps included the establishment of a semi-autonomous patent institution to apply for technologies at home and abroad through an information bank and to disseminate the technologies developed here. Furthermore, the plan envisioned directing R&D studies to areas of need, supporting projects offering new ideas and inventions developed in the field of science and technology to contribute to

the country's economy. For this purpose, concrete strategies for pulling and gaining brain power were to find a Research and Development Fund and decide on how to focus on the training of the experts needed in the field of information technologies.

The Sixth Five-Year Development Plan period also featured another development affecting brain drain policies. “With the transition to the convertibility of TL in the second half of 1989, the practice of full liberalization of financial markets was initiated. Turkey later signed the General Agreement on Tariffs and Trade (GATT). In 1995, Turkey also signed the Customs Union agreement (Yücel, 1992: 80).

The concrete policy of the Sixth Five-Year Development Planning period for attracting migration to Turkey was a communiqué on the Foreign Capital Framework Decision adopted in 1995. According to this Communiqué, foreign administrative and technical personnel who will be employed by private sector organizations in Turkey shall be granted work permits if the staff has sufficient technical and administrative knowledge. (Article 7) By this provision, Turkey again made an arrangement for qualified foreign personnel to obtain a work permit in the country (VI. Beş Yıllık Kalkınma Planı, 1990: 297-311).

4.4.7. The Seventh Five-Year Development Plan (1996-2000)

Brain Drain Policies

The Seventh Five-Year Planning period was entered under the conditions imposed by the United States on being the only power in a unipolar world system. On the other hand, at the Helsinki summit held on December 10-11, 1999 Turkey's EU candidacy was officially confirmed, while the E-memorandum process starting on

February 28, 1997, the earthquake on August 17, 1999 and the severe social and economic pressures had their negative reflections in the practice.

The Seventh Five-Year Development Plan featured a period (1996-2000), when the transition to the information society began with fundamental changes in the social, economic and political dynamics and the global market started to be shaped by technology, as well as social, economic and political dynamics. In addition to developments in information technology, the scientific breakthrough of the European Center for Nuclear Research (CERN), established in Switzerland on particle accelerators particularly forced Turkey to establish national accelerator laboratory facilities. This further pushed Turkey to create policies that would quickly create attractions and pull n effects on brain drain and reverse brain drain in the global competition.

These effects created by global changes were clearly reflected to the Seventh Five-Year Development Plan. These determinations and policy pursuits are as follows: the flow of international capital and the nature of developments in production activity were changing. The importance of such elements as unqualified cheap labor and the abundance of raw materials as traditional determinants was gradually decreasing. In addition, it was becoming increasingly important to ensure the presence of a well-trained workforce, a developed technological and commercial infrastructure, an effective functioning market mechanism, and the ability to closely monitor the changing and evolving preferences of the market and easily access these markets. During this period, it was aimed to "send 5,000 students abroad to study for a bachelor's degree in order to raise faculty members in the 2001-2005 Work Program of the Ministry of National Education. The Seventh Five-Year Development Plan included

projections of highly educated manpower supply, health care, education, supply and demand in the field of security personnel, technical personnel and the picture of the current situation revealing the needs of the year 2000 (VII. Beş Yıllık Kalkınma Planı, 1996: 21-33).

The Seventh Five-Year Development Plan also compared Turkey's attraction centers to those of the US and Japan in the context of pulling brain drain via technological development. However, the results of this comparison revealed the ineffectiveness of the policies developed by Turkey in terms of attracting brainpower. These findings are as follows: "The share of resources allocated to R&D activities in GDP is 2.0% in EU countries, 2.8% in the USA, 3.0% in Japan. In Turkey, however, this rate is about 0.5%". In order to become internationally competitive in information technology and especially in the field of software, there is a need for studies and programs to raise the needed workforce. In this context, it was decided to support the software industry. To enable the transition to Information Society, the State Planning Organization would coordinate activities to increase media awareness of the program, and to conduct international multilateral and bilateral technical cooperation activities (VII. Beş Yıllık Kalkınma Planı, 1996: 21-33).

The Seventh Five-Year Development Plan included some concrete steps to attract brain drain and develop pull policies: it became the milestone for the adoption of the Law no. 4691 on Technology Development Zones (TDZ) enacted in 2001 and considered to be extended until 2023.

4.4.8. The Eighth Five-Year Development Plan (2001-2005)

Brain Drain Policies

When the Eighth Five-Year Planning period started, an official meeting was held on February 21, 2001 and the 10th President of the Republic of Turkey, A. Necdet Sezer threw the constitutional booklet to Bülent Ecevit, the Chairman of the Democratic Left Party (DSP) of the time and the Prime Minister of the Republic of Turkey, turning into a crisis. Immediately after this incident, Turkey entered a severe economic crisis with an overnight decline of 18.1% in the Istanbul Stock Exchange. On August 14, 2001, early elections were held at the request of Devlet Bahçeli, the then minority government partner and MHP/Nationalist Movement Party Leader. The minority government, also called ANASOL- M, consisting of the DSP-Motherland Party (ANAP) and the Nationalist Movement Party coalition of the time and led by Bülent Ecevit lost the election. The Justice and Development Party (AK-Party) won the general election with 34.3% of the votes and 363 seats as right-wing conservative wing party. The AK Party obtained the opportunity to govern the country alone. In terms of global financial governance, on the other hand, neo-liberal economic policies gained weight in the world. Yet, the world started the year 2001 with a four-pronged terrorist attack by the radical Islamist armed group al-Qaeda on September 11, 2001, Tuesday, often referred to as 9/11, against the United States on the verge of a global surge of crisis while the world witnessed live. This led to the need by the US and other countries to revisit their brain drain policies in the international area. As a result of this global crisis, the eighth five-year development plan was a repetition of the objectives of previous plans in terms of pulling brain power, qualified human resources and a set of workforce policies given in the previous plan targets.

During the Eighth Five-Year Development Plan period (2001-2005), various definitions and objectives related to the subject were included in the chapters of human resources development, increasing social welfare and developing scientific and technological capability. The most important of these was that Turkey put forward its Long-Term Strategy covering the period 2001-2023 and defined its 2023 Vision while setting out the following strategic objectives in its 8th development plan:

- To ensure economic stability,
- To implement structural and institutional changes,
- To increase competitiveness as the main goal,
- To create the infrastructure of adaptation to the EU and the transition to the information age,
- And to prioritize reducing differences in income distribution.

In this plan, the following statements were common: "The qualified workforce participating in brain migration due to globalization and the economic crisis has a significant effect in our citizens abroad" (VIII. Beş Yıllık Kalkınma, 2000: 123).

In the Eighth Development Plan, it was stated that studies should be carried out to raise highly qualified workforce and for this, the importance of establishing educational units of foundations was underscored. In addition, in the Eighth Five-Year Development Plan again touched upon the lack of High-Tech talent and the need for pulling brain drain. For this, the plan referred to the failure in building R&D and P&D centers needed to raise qualified people.

In the plan, therefore, it was decided to develop policies to raise and pulling brainpower. These decisions were stated as follows: The development potential of employment will be strengthened by increasing the quality of the workforce in parallel

with technological development within the framework of EU compliance. We will support R&D and technological development, information and communication technologies, raising qualified labor and creating employment opportunities. In this line, the main goal was to ensure technological development to increase the competitiveness of our country and accelerate its transformation into an information society. State assistance for R&D would be increased, and techno-parks would be supported. It was also aimed to ensure rapid development in the field of information and communication technologies, as this became a key economic and social dynamic in the world. Importance would be attached to R&D and it would be targeted to increase the share of R&D activities in GDP to 1.5% at the end of the plan period. In order to prevent brain drain, measures would be taken to ensure the employment of qualified workforce at home. The Law on Work Permits of Foreigners (LWPF) No. 4817 issued in 2003 was enacted during the Eighth Five-Year Development Plan in addition to the Regulation on the Implementation of 28 Laws on Work Permits of Foreigners" issued in accordance with this law. The purpose of this law and regulation was to ensure the registration of foreigners working informally in Turkey and to comply with the EU *acquis* in this regard (VIII. Beş Yıllık Kalkınma Planı, 200: 89-222).

In other words, the Law on Work Permits of Foreigners (Law No. 4817 dated March 15, 2003) made it possible for foreign employees to have any profession in Turkey by invalidating the Law on Arts and Services Allocated Only to Turkish Citizens in Turkey. In addition, it was ensured that work permits were issued to foreigners personally, not to employers, and the Ministry of Labor and Social Security was designated as the only authorized institution issuing work permits. The importance of this law was that it allowed separate categorization of qualified labor force from

among unregistered foreigners and asylum seekers. As can be understood, Turkey is a country that has received large waves of immigration. How much does this law separate brain drain from mass migrations? How many are recorded? Are there any studies or projects related to this situation? These questions are also critical in this regard.

Thus, in the Eighth Five-Year Development Plan, it was aimed to create a registration system for determining the social and economic characteristics of immigrants from abroad. In this context, it was decided to make legal arrangements for the establishment of the Central Population Administration System (MERNIS) in order to make public services effective and to monitor population movements. In this plan, it was aimed to direct migration movements to regions with commercial ties and potential for development instead of large cities and to provide domestic employment in order to prevent brain drain (DPT, 2001: 30-229).

In summary, the Eighth Five-Year Development Plan was prepared within the scope of Turkey's 2023 Vision. The remarkable development during the tenure of this plan in terms of brainpower acquisition and pulling brain drain was that it featured the formation of a long-term strategy to be achieved by 2023, the 100th year of the republic's establishment. Accordingly, a science and technology plan was to be prepared with the participation of relevant organizations under the coordination of TÜBİTAK until 2023. More importantly, it was decided to create the Central Population Administration System (MERNIS) to register, categorize and track foreign immigrants according to their qualifications. The Law on Work Permits of Foreigners (Law No. 4817 dated March 15, 2003) made it possible for foreign employees to have any profession in Turkey by invalidating the Law on Arts and Services Allocated Only

to Turkish Citizens in Turkey, which was also a significant development during the period of this plan.

4.4.9. The Ninth Five-Year Development Plan (2007-2013)

Brain Drain Policies

The Ninth Five-Year Development Plan aimed at sustaining a stable growth.

- Furthermore, it was aimed to ensure fair income distribution.
- There was a vision to obtain competitive power on a global scale.
- It was stated that qualified foreign brainpower pull policies would be developed and, targets were set to conduct reverse brain drain.
- This was a plan prepared for the purpose of becoming an information society, as underlined before.

Under the heading of "Economic and Social Developments in Turkey" of the Ninth Development Plan, it is seen that the goals of transforming investments into attractions outweigh with the aim to attract qualified foreign investors and brainpower to Turkey. These goals are stated as follows: Within the framework of the Reform Program for the Improvement of the Investment Climate, many regulations have been implemented to eliminate administrative obstacles encountered during the investment and operating periods. Within this framework, it has become possible to establish a company in one day, and the threshold capital required for foreign direct investment is abolished. Turkey has switched from the permit system to the information system and the difference between foreign and domestic investments has been eliminated in the transactions prior to the establishment of a company. In addition, Turkey has

determined the principles regarding work permits to foreigners who will work in Turkey and the Ministry of Labor and Social Security has become the only authorized organization to grant these permits (DPT, 2006: 30).

This plan again mentions the structural problems in the manufacturing industry, the failure in the production of technology, informal labor, import substitution, and unfair competition, lack of skilled labor and qualified workforce. Underlining the importance of R&D, the plan also promises to develop policies to pull qualified foreign brainpower and sets targets to conduct reverse brain drain. A remarkable element of the plan is that it emphasizes the fact that not only the areas of scientific research, but also other areas that scientific research is integrated in life should be made attractive for the purpose of attracting qualified brain migration. This emphasis is expressed as follows: "The plan suggests in detail that giving momentum to urbanization, and building sustainable environment are pivotal to attract qualified workforce to the country (IX. Beş Yıllık Kalkınma Planı, 2006: 117).

In the light of this development plan, TÜBİTAK has been implementing cut of the edge and significant policies since 2010 to attract reverse brain drain and returning home as per the Law No. 2232 with the aim to support scientific projects in Turkey.

4.4.10. The Tenth Five-Year Development Plan (2014-2018)

Brain Drain Policies

The Tenth Five-Year Development Plan period started under the global influence of the Arab Spring or the Arab Uprising. In 2011, the Arab mass uprising began in Tunisia after the unemployed Muhammed Buazizi, a university graduate, burned himself to death. The riots led to internal conflicts and divisions, and the

incidents in Tunisia spread to Iraq, Egypt and Libya, Yemen. Consequently, the regimes of Saddam in Iraq, Mubarak in Egypt and Gaddafi in Libya were terminated. As the internal conflicts and riots spread to Syria, the influx of millions of qualified and unqualified migrants from these countries became a global issue. Most of the qualified migrants were attracted by developed Western countries, such as the US, Germany and Great Britain.

As for Turkey, the Tenth Five-Year Development Plan period coincided with what is known as the Gezi Protests or Gezi Riot today, triggered by the pedestrianization project to move the trees at Gezi Park in Taksim to somewhere else in Istanbul on May 27, 2013, and the incidents spread across Turkey. On the other hand, Turkey also witnessed an attempted military coup on July 15, 2016. Another significant development was the transition to the presidential system, also referred to as the semi-presidential system, adopted by the referendum on April 16, 2017 and started to be implemented on July 9, 2018.

Evaluating the historical background of the Tenth Development Plan, therefore, an important fact is that Turkey started to receive immigration due to the Arab Spring, while the country also lost significant brain power due to the Gezi Protests and the attempted coup on July 15, 2016. There is not yet any clear statistical data of those seeking asylum in Turkey among these migration flows. Moreover, although Turkey attempted to raise brain power from among immigrants by means of several projects and policies, there has not been sufficient resources yet to achieve this goal. However, in today's world, many developed and developing countries attach importance to developing various projects and policies to attract brain power.

One of the most important attractive factors for pulling brain power migration is technology and laboratories, etc. Also, building attraction centers to facilitate scientific research is a must have in this regard. These centers can be regarded as integrated living spaces designed to improve environmental, political, economic, social and cultural infrastructure. Examples of such attraction centers can be the Silicon Valley in the US, North Westphalia Investments in Germany to attract investors, Silicon Allie in Berlin, Bengaluru in India, Kuala Lumpur in Malaysia, Campinas in Brazil, Gauteng in South Africa and Daejeon Technology City in South Korea.

The Tenth Five-Year Development Plan stated that Turkey was not able to make enough use of international qualified labor force compared to developed countries, emphasizing the importance of increasing knowledge-based competitiveness, and that Turkey still took steps towards becoming an attraction center for foreigners abroad and qualified workforce. In this regard, the Attraction Center Program for Qualified Workforce focuses on the need for research centers, incubation centers, technology transfer centers in certain areas as well as the necessary incentives for these centers to function.

The Tenth Development Plan manifests the purpose of this policy as follows: There is a need for developing our country's economic and regional distinction in the political field with international potential and competitive advantages through monitoring and evaluating the activities of skilled labor. Additionally, efforts have been undertaken to ease gaining qualified workforce endowed with a high level of education, professional experience in order to contribute to any scientific field or technology, that are of strategic importance for our country. To meet the need for a new work permit system, the country adopted a strong administrative structure and determined policies

with regard to international workforce. Therefore, the Law No. 6735 was prepared to implement and monitor these policies, and to organize work permits and exemptions for foreigners. This Law on International Labor Act was adopted by the Grand National Assembly of Turkey on 28/7/2016 and put into force by being published on the Official Gazette on 13/8/2016. With the seventh paragraph of article 27 of the aforementioned Law, the Law No. 487 on Work Permits of Foreigners (which entered into force in 2003) was repealed (Çalışma ve Sosyal Güvenlik Bakanlığı, 2021).

According to this law, which aims to eliminate the factors that trigger brain drain and to pull brain migration, the policies are determined as follows:

- Under the heading "Qualified People, Strong Society", there are policies to be implemented in order to develop the country and disseminate this development to different segments of society.
- Under the heading "Innovative Production, Stable and High Growth", authorities set targets and policies aimed at structural transformation to increase welfare and production.
- "Livable Spaces, Sustainable Environment" gives space to the goals and policies within the scope of increasing the social and economic benefits of environmentally sensitive approaches, decisively improving the quality of life of our people in cities and rural areas and reducing the differences in development between regions.
- Furthermore, medium-term programs (MTP), annual programs, corporate strategic plans, regional development and sector strategies were adopted for the effective implementation of the Tenth Development Plan. These programs were all prepared on the basis of the Tenth Development Plan.

The concrete policy developed within the scope of the International Relations Council (ICC) is the Turquoise Card System, which is among the primary research topics of this study. This system is compatible with the Tenth Development Plan and Priority Transformation Programs implemented as part of qualified labor policies. The turquoise card system covers regulations to attract qualified foreign labor including scientists and researchers, R&D specialists, etc. It also includes exceptional arrangements for investors and qualified international students, architects and engineers with facilitation of granting equivalent diplomas (Resmi Gazete, 2017).

The Tenth Five-Year Development Plan, therefore, is a concrete step in the transformation programs, and the coordination of the action plan related to the components of the program is provided to TÜBİTAK. In addition, institutions such as the Turkish Employment Agency, the Higher Education Council, Ministry of Development and Presidency of Turks Abroad and Related Communities are also held responsible for implementing policies and actions aimed at meeting the need for qualified labor from abroad. Yet, as discussed as one of the main problems in the study, the plan often referred to the lack of systematic records and statistics on qualified brainpower in Turkey. The existing data are scattered and there is no integrated data set, which is cited as a structural problem in the migration literature.

The Tenth Five-Year Development Plan also covered attraction or pull policies and transformation programs that can address the structural problems stated in the literature of migration as part of the Qualified Labor Plan. For this purpose, the General Directorate of International Labor Force was established in Turkey. Under the Ministry of Labor and Social Security (which was later abolished) a new general directorate was established with the Law no. 6735 and named as the General Directorate of

International Labor Force. Before the Law no. 6735 was enacted, work permits were regulated by the Department of Work Permits of Foreigners, General Directorate of Labor operating under the then-Ministry of Labor and Social Security. Thus, the department head office unit transformed into a directorate general.

The rationale for the transformation of the department into a directorate general was explicated as follows: The Ministry of Labor and Social Security will be given tasks such as monitoring international labor mobility, determining employment policy, issuing exemption certificates, centralizing work permits issued by other institutions, and so the Ministry's workload and responsibility will increase. In addition, since the Ministry will need to work effectively in the process of creating migration policies, the need has arisen to create a specialized unit to fulfill the said tasks, responsibilities and ensure representation within the scope of the Bill. In this direction, it is deemed essential to establish the Directorate General of International Labor as one of the main service units of the Ministry (T.C Başbakanlık, 2016).

The duties of the new Directorate General established in accordance with the Decree Law No. 6735 and article 77 of the Presidium No. 1: "The duties of the Directorate General of International Labor are as follows:

(1) The duties and powers of the Directorate General of International Labor are:

a) To carry out activities at the national and international levels related to foreign employment and labor migration, to perform operations related to work permit and work permit exemptions,

b) To conduct necessary studies for the purpose of determining the policy on the international workforce

and to carry out activities at the national and international level to implement the determined policies,

c) To contribute to the negotiations, preparation and amendment of labor agreements and social security contracts to be signed with foreign countries,

d) To carry out works and transactions related to international labor migration,

e) To prepare and implement national and international projects on issues related to the international workforce,

f) To collect, analyze and report data on the qualifications of foreign employees and Turkish citizens living abroad using the Foreign Application, Evaluation and Monitoring System,

g) To carry out studies on issues related to the field of responsibility in creating national migration policies,

h) To monitor international trends, labor potential and mobility with the aim to ensure competitive advantage for our country and to carry out the necessary studies to develop policies,

ı) To carry out promotional activities abroad aimed at bringing highly qualified workforce to our country, to participate in national and international fairs and organizations, to open promotional offices, when necessary,

j) To carry out activities aimed at bringing qualified workforce in any field of strategic importance with a high educational level and professional experience to ensure contribution to Turkey's science and technology,

k) To carry out activities with the aim of bringing foreign brain drain trained in the fields of science, technology, R&D and innovation to our country,

l) To perform other duties assigned by the Minister". In addition to managing the work permit evaluation processes of foreigners who will come to Turkey according to the Law No. 6735 on International Labor Force, the Directorate General of International Labor Force is also responsible for the management of international labor migration as per the needs of the country in order to maintain a balance with the domestic labor force (Mevzuat, 2018: 3).

On October 29, 2021, the Presidential Decree No. 31643 and No. 85, changed the status of the "Directorate General of Migration Management" (Göç İdaresi, 2022). and started to operate under the Ministry of Environment, Urbanization and Climate Change as the 'Directorate of Migration Administration (Resmi Gazete, 2021: 5).

4.4.11. The Eleventh Five-Year Development Plan (2019-2023)

Brain Drain Policies

The Eleventh Five-Year Development Plan aimed to prevent brain drain from Turkey and increase returns, develop research on foreign brain drain and attract investors. The Eleventh Five-Year Development Plan also underlined the need to take concrete steps towards the goals of creating attractions, including living spaces, pulling targeted brain drain, as frequently emphasized within the scope of the Tenth Five-Year Development Plans. It can also be observed that the aim was to create international networks for qualified labor force located abroad and to issue a migration strategy document.

The Eleventh Five-Year Development Plan listed these goals and policies as follows: An international qualified workforce network will be created for our citizens living abroad to facilitate their potential return to the homeland and to prevent further

brain drain. A Migration Strategy Document will be issued. We will consolidate the institutional structure of the migration management body for the purpose of integrating foreigners living in our country into economic and social life. We will create medium and long-term strategies to make our high international development cooperation a center of attraction for other countries. We will place students in undergraduate and graduate programs in Turkey from priority countries to increase development cooperation. We will create a special program of Turkish Scholarships and identify qualified workforce so that it is easier for selected students to obtain a work permit in Turkey (XI. Beş Yıllık Kalkınma Planı, 2019: 67-143).

As in the previous plans, R&D was in the forefront during this plan period. R&D policies were taken under the title of Science, Technology and Innovation. In this chapter, it was stated that the quality of R&D activities, and specialists should be increased in order to create high value-added products. For this purpose, it was aimed to increase the employment of postdoctoral contracted researchers in research universities of Turkey (TÜBİTAK, 2018:2).

In the context of attracting foreign brainpower, the plan also stated that International Leading Researchers would be supported to come to Turkey and train researchers, that the number of R&D personnel would be increased in research organizations as covered by the Law No. 6550, and policies would be developed to facilitate the employment of foreign personnel. In addition, it was stated that in order to meet this need, there was an urging need to increase the quality of human life and attract qualified workforce and the "Producing Cities Program" explained under the heading of Business and Investment Environment would contribute to meeting this need (XI. Beş Yıllık Kalkınma Planı, 2019: 67-143).

4.5. Recent Brain Drain Policies of Turkey

The most important and concrete policies developed as part of development plans from the perspective of pull and pull factors are the Turquoise Card and the Return-to-Home policies adopted by TÜBİTAK in 2010 as per the Law No. 2232 to support scientific projects in Turkey.

4.5.1. Turquoise Card Policy of Turkey

The Turquoise Card policy to attract foreign brain power was developed by taking advantage of the examples of the US-Green Card and the EU and German- Blue Card Policies, which are discussed extensively in the third chapter of this study.

In this regard, there is a lack of qualified labor force in Turkey in the following fields: information technologies, manufacturing industry, space and aviation, defense industry and R&D. As a concrete step towards brain drain policies, Turkey prepared development plans to stop brain drain from the country and become an 'attractive' center and target country for brain migration. In line with the "Tenth Development Plan and Action Plan of the Attraction Center Program for Qualified Workforce" covering the years 2014-2018, Turkey started to work on the "Turquoise Card" and made an amendment to Article 11 of the Contract No. 4735 on International Labor Force on 14.03.2017. By amending this article, it put into effect the application of 'Turquoise Card' for foreigners in order to increase the qualified labor force in the country. Article 5 of the relevant law specifies individuals to whom the Turquoise card can be issued as follows:

- Highly qualified workforce with a high education level, salary, professional knowledge and experience, contribution to science and technology, and similar qualifications,
- Highly qualified investors with a high level of investment or export, providing a high number of employment opportunities, contribution to scientific and technological development, and similar qualifications,
- Researchers and scientists contributing to scientific or technological developments, or science, industry and technology in strategic fields, serving to interests of the country at the international level,
- Successful people in cultural, artistic or sports activities,
- Foreigners contributing to the international recognition or promotion of Turkey or Turkish culture and engaged in activities at the international level in matters related to Turkey's national interests (Resmi Gazete, 2017).

The Turquoise Card regulation was published in 2017, but its implementation began in 2021. It was awarded to two person in 2021 and 2022³.

³ Turquoise Card was given to two people in 2021 and 2022. Turquoise Card was given to two people in 2021 and 2022. One of the foreign brainpowers given the Turquoise Card is Steven Young and the other is David Joseph Cuthbert JOHNSTON. Steven Young took office at Mannesmann Rexroth's headquarters in Germany in 1994. In 1995, he was transferred to Turkey as a general manager within the same company. After a 25-year career, Young was appointed the Chairman of the Turkey-Germany Business Council under the Foreign Economic Relations Board (DEIK) in November 2015 and he is now also a Founding Board Member of the (TÜSİAD/TCCI) (Bakanlığı, 2021).

The foreign brainpower given the second Turquoise Card is David Joseph Cuthbert Johnston. Johnston's wife, Rebecca Sewell Johnston, was also given a "Turquoise Card Relative Card". Johnston, who started his career as a finance and cost analyst at Ford UK in 1995-2003, has been the Executive Vice President and Member of the Board of Directors at Ford Otosan since 2019 (Çalışma ve Sosyal Güvenlik Bakanlığı, 2022).

The Return-to-Home (Reverse Brain Drain) Program No. 2232 initiated by TÜBİTAK in 2010 has been developed and continued, and between 2010 and 2021, 576 people returned home with this reverse brain drain policy. TÜBİTAK's Return-to-Home policy No. 2232, starting in 2010, is the last updated and systematically developed policy of Turkey.

4.5.2. History of TÜBİTAK

The Scientific and Technological Research Council of Turkey (TÜBİTAK) (1963-1967) was established after the initiatives of the State Planning Organization (SPO) and the transition to a planned economy. "Aim was to start and extend scientific research activities. Research in basic sciences was adopted as the main policy in the First Five-Year Development Plan" (Kazgan, 2004: 71). In 1968, the National Research Institute of Electronics and Cryptology-TÜBİTAK-UEKAE (which now operates in Ankara) was turned into the Electronic Research Unit now in Gebze. In 1971, it was transformed into a research group by the decision of the Yapı Research Institute (TÜBİTAK Scientific Council in 1989). In 1972, it became the Center of Marmara Scientific and Industrial Research Institute, now Marmara Research Center-TÜBİTAK-MAM in Gebze, and in 1973 it was restructured as the Center of Guided Vehicle Technology and Measurement. Then it became the Defense Industry Research and Development Institute-TÜBİTAK-SAGE. It started to operate in Ankara as the Electronics Research and Development Institute in 1984 and in 1995, it turned into the Information Technologies and Electronics Research Institute (BİLTEN, and now the Space Technologies Research Institute of TÜBİTAK-SPACE). In 1986, the National Metrology Institute (TÜBİTAK-UME) was established in partnership with the Ministry

of National Education in 1983 and in 2002, it became affiliated with TÜBİTAK. With the establishment of the Turkish Industrial Dispatch and Management Institute (TÜSSİDE), research activities began, which are among the tasks of the institution.

Furthermore, TÜBİTAK established its Documentation and Information Center in 1967 and undertook the task of providing documentation services to researchers in the field of R&D. After the establishment of the academic computer network in 1996, this center was transformed into the National Academic Network and Information Center-TÜBİTAK-ULAKBİM. In addition to this center, the National Observatory (TÜBİTAK-TUG) was established in 1995 and the Laboratory of Instrumental Analysis was founded in 1995. The Ankara Test and Analysis Laboratory (TÜBİTAK-ATAL), Basic Sciences Research Institute (FEZA GÜRSEY) established in 1996, Bursa Test and Analysis Laboratory (TÜBİTAK-BUTAL) founded in 2001 provide various scientific and technological infrastructure services to researchers in different fields (TÜBİTAK, 2021).

In addition, during the First Five-Year Development Plan period, one of the goals of the establishment of TÜBİTAK was to create an organization that would be the main attraction center for policies of pulling brain drain. Therefore, the idea of determining Turkey's science and technology policies and raising basic brain power, the issue of attracting brain migration was adopted as a fundamental issue.

Considering the background of TÜBİTAK's policies on raising qualified human resources from the perspective of push and pull framework, Legislative Decree No. 77, published in the Official Gazette No. 18181 dated October 4, 1983, is an important step. This legislative decree established the Supreme Council of Science and Technology (BTKY) and its founding purposes include determining the necessary measures for the

training and effective use of researchers and putting these measures into practice. The legislative decree in question consists of nine articles, and the main headings are: purpose, scope, organization and work, tasks, implementation of decisions, expenses, regulations, execution and enforcement. This document prepared by TÜBİTAK was presented and approved at the last meeting of the said Board. The summary of the decisions taken at the Supreme Council was published in the annex of the Prime Ministry Circular dated October 13, 1993 and numbered 1993/13 (TÜBİTAK/BTYPD, 2022).

As the main principles of the Board's science policies, the resolutions included attracting foreign brainpower migration by means of concrete measures. This was also one of the nine articles set to achieve the main goals of science policy. As a matter of fact, one aim was to build computer engineering departments (or IT institutes) by industrial cooperation. Indeed, it is essential to create a strong infrastructure by bringing very successful, active and internationally recognized Turkish or foreign scientists and employ them for a long period of time, such as five years. The most important article (which was put into action) in the decisions taken in this context was as follows: “TÜBİTAK started to implement the decision to expand and maintain the scope of the program to bring scientists from the former Soviet Union of Socialist Republic in 1992 “ (TÜBİTAK/BTYPD, 2022).

In this line, the Ministry of Finance and Customs provided TÜBİTAK additional funds in the fall of 1991. In 1992, the program to bring scientists from the former Soviet Union to be employed to bring in Turkish universities started to be applied. Thus, approximately 50 scientists, the majority of whom were of Turkish origin were invited to Turkey. Most of these scientists came to Turkey and conducted fruitful

studies. As part of the decision to expand the scope of this program, the number of invitation calls were increased as well. "This number reached 190 people. The distribution of these scientists by fields of science is as follows: 190 people were placed in 19 universities; 99 in basic sciences- 62 in engineering, 19 in health sciences, and 10 in other fields of science" (TÜBİTAK, 1993: 38).

TÜBİTAK also initiated efforts in 2007 to encourage the return of Turkish researchers abroad to Turkey. For this purpose, they conducted many programs within the scope of the reverse brain drain project. Some of these programs are the Marie Curie Scholarship Support Program, national funds run by BİDEB and the European Research Council Program. However, the TÜBİTAK 2232 Return-to-Home Project (which is the main subject of this research) launched in 2010 is the most recent registered brain drain pull policy created by Turkey.

4.5.3. TÜBİTAK 2232 Return-to-Home and Reverse Brain Drain Policy

TÜBİTAK's Return-to-Home Project No. 2232, aka the reverse brain drain program launched in 2010, is Turkey's latest brain drain policy. This program was transformed into the "2232- International Leading Researchers Program" in 2018.

The purpose of the program is to encourage qualified individuals, primarily Turkish scientists with experience of working abroad, to come to Turkey.

TÜBİTAK Directorate of Application and Monitoring System (BİDEB) defines the objective of the programs under the policy no. 2232 as follows:

"Under this program, which is of strategic importance for our country to contribute to projects in the fields of research in high-level scientific and/or technological studies and work abroad, it is aimed to attract scientists who have

distinguished themselves as qualified researchers in foreign countries to Turkey. This is to ensure benefitting from their experience in Turkey's leading higher education institutions and to encourage them by incentives and on-site support to work at public or private organizations as per the law no. 6550 on qualified workforce in the research infrastructure, public research institutes, R&D or design centers, private sector organizations, or techno-parks via the capital of entrenched companies" (TÜBİTAK, 2018).

This program is designed to support researchers with a monthly scholarship for a maximum of 24 months. The conditions for benefitting this program are as follows: To be a Turkish citizen, To have doctoral degree or expertise in medicine to return to university in the fields of Oriental Sciences, Engineering and Technology, Agricultural Sciences, Social Sciences and Humanities, as well as Medical Sciences, To have at least a bachelor's or master's degree for those who want to return to public or private sector and serve in R&D units, and to have resided abroad for at least 30 months within the last 36 months from the date of application, In addition, in order to apply for this program, it is necessary to provide at least one of the following work experiences: As of the date of application, the applicant must hold a bachelor's degree and at least 6 years of experience abroad in the field of research. In addition, the applicant must hold a graduate degree and have at least 4 years' experience in the field of overseas research experience, and after receiving a PhD degree, they must have at least 2 years of postdoctoral research experience overseas. The applicant should not be supported by multiple scholarships from any TÜBİTAK program at the same time, and they should not have been supported by this program in the past.

Researchers with the above-mentioned work experience are also required to meet one of the following conditions:

- To be included in the "List of Most Cited Researchers" published by Thomson Reuters in any year of the last three years from the date of application
- To have been working for at least 12 months without interruption in an organization in one of the following rankings in the last 5 years from the date of application:

-QS (QuacquarelliSymonds) or THE (Times Higher Education): The top 100 universities in field-by-field rankings as part of the World University Ranking study published by the Joint Research Center of the European Commission (European Commission, 2019). The first 250 institutions in the sub-fields of health - higher education - public - private in the ranking of institutions -Successful Start-Ups with the Highest Amount of Investments and being a Unicorn company (TÜBİTAK/BİDEB, 2021).

4.5.4. The Opportunities Provided by TÜBİTAK 2232 Reverse Brain Drain Pull Policy

Within the Scope of Scholarship/Support, opportunities include

- Executive scholarship, Family living expenses scholarship for the spouse or child of the scholarship holder, if any,
- Research start-up package allowance, Research project support, Support for the creation of a research team, (scholarship expenses covered for up to five scholarship holders in total, consisting of graduate students and postdoctoral researchers who will participate in the research team in Turkey)

- Project incentive premiums to researchers who will be involved in the research. Corporate shares to the host institution/organization

- Health insurance support for the scholarship holder including their spouse and children. In this line, 2232 Project Executors will be able to apply for the Turquoise Card.

- Mentoring support will also be provided (BİDEB/İstatistik, 2021).

Scope and Amount of Support:

- Executive scholarship (24.000 TL/month)
- Family living expenses scholarship for the spouse or child of the executor, if any (2250 TL/month)

- Research start-up package allowance (1.000.000 TL), Research project support (720.000 TL)

- Scholarship support for up to five scholarship holders (Graduate student: 3500 TL/month, PhD student: 4500 TL/month, post-PhD researcher: 6000 TL/month)

- Project incentive premium (750 TL/month) to be given to the researchers in the project

- Transportation and health insurance support for the executor and their family (100 TL/person, month). Mentoring support, Corporate Shares (3750 TL/month)

- Support Period: At least 24, at most 36 months (Erdursun, 2022).

According to the TÜBİTAK/BİDEB statistical data, 579 scientists returned Turkey as a result of TÜBİTAK's Return-to-Home policy No. 2232 between 2010-2018, and the 2232 A-International Leading Researchers Program between 2018-2021. As stated in the BİDEB announcement, there was no application call for 2020 (BİDEB/İstatistik, 2021).

Table 3

The Number of Applicants and Holders of Support by the Program No. 2232

YEARS	APPLICANTS	NUMBER OF SUPPORTED INDIVIDUALS
2010	15	12
2011	25	34
2012	31	57
2013	172	169
2014	287	278
2015	178	398
2016	115	442
2017	75	274
2018	34	258
2019	243	305
2020		
2021	108	27 ⁴

This table was prepared using TÜBİTAK/BİDEB 2010 and 2021 data (BİDEB/İstatistik, 2021).

The institutions hosting the returnees within the scope of this program (2010-2017) are designated as R&D Centers and universities in Turkey (168 Universities). TÜBİTAK has built centers for returnee researchers to facilitate their work. The institution hosts R&D centers in the fields of natural sciences (22), engineering and health sciences (48), medical and health sciences (12), agricultural sciences (3), social

⁴ https://www.TUBITAK.gov.tr/sites/default/files/4000/2232-a_web.pdf Accessed: 22.03.2022

sciences and humanities (25) and techno-parks (15). 99 of these institutes are organizations within universities, while the others are research centers of TÜBİTAK and other institutions. Universities are in the first place in preferences for returnees (88%). The distribution of the applicants by country is ranked as the US, Germany, Canada, Austria, UK, Italy, Australia, Japan, China, South Korea, Denmark, Netherlands, Spain, Bosnia and Herzegovina and Israel. Between December 2018 and March 2019, the application announcement was made, and 242 applications were received from 21 different countries. Among them, 127 scientists - 98 Turkish and 29 foreigners - met the application requirements and won support. Application was possible between December 2018 and March 2019, and 242 applications were received from 21 different countries. As underlined, it is pivotal that 98 people of Turkish origin and 29 foreigners were awarded funds under this program (BİDEB/İstatistik, 2021).

"As a result of these applications, 127 leading researchers from 21 different countries, including 74 in technical sciences, 18 in life sciences, 16 in basic sciences, 12 in social and humanities and 7 in health sciences, were brought to the country (Varank, 2021).

According to the table above; TÜBİTAK 2232 (International Leading Researchers Reverse Brain Drain 2021) announced on March 22, 2022, 27 out of 108 applications were entitled to receive support. People called within the scope of TÜBİTAK 2232 graduated from leading research universities of the world such as Harvard, Stanford, Oxford, Cambridge or Columbia with experience in global R&D companies including Amazon, Apple, Bosch and Volvo so that they contribute to transfer these experiences to Turkey.

4.5.5. Examples of Experienced People Returning Turkey by Reverse Brain Policies

Analyzing at the qualifications and experience transfers of scientists who have undergone a reverse brain drain within the scope of the TÜBİTAK 2232 call for return to home, the following are important examples in terms of both innovation and new inventions:

To continue his research on 'new chemical transformation processes for clean and safe energy', Prof. Dr. İskender Gökalp moved together with his team at CNRS in France to METU Mechanical Engineering Department. Dr. Betül Uralcan, a young scientist working on energy storage, protein modeling and chiral molecules at Princeton University came to Boğaziçi University, Department of Chemical Engineering. Dr. Hasan Demirci moved his laboratory at Stanford University to Koç University and made efforts to locally produce many materials and machines otherwise imported from abroad with his studies in the fields of structural biophysics, enzyme engineering, molecular biochemistry and protein engineering. Dr. Mahmut Akşit carried his work at 3M, one of companies conducting the highest amount of R&D in the world, in the field of thermoelectric materials and modules to the Physics Department of Gebze Technical University. And Dr. Emrah Eroğlu previously working at Harvard University now continues his studies in the field of health at Sabancı University. In this regard, TÜBİTAK is working to produce an Artificial Cardiopulmonary Pump for Children in our country within the framework of the International Leading Researchers Program. Prof. Dr. Kerem Pekkan was awarded four times over 3 million euros in funding and bringing this to our country thanks to his work in the fields of screen display systems, sensors and micro-technology with the support of the European Research Council. Dr.

Hakan Urey and Prof. Seza Özendir managed to enter the top 10 in the list of '100 Turks Who Lead Medical Science'. Dr. Seza Özendir (Varank, 2021) is also an influential name in the field.

In addition, within the scope of the TÜBİTAK 2232 International Leading Researchers Program, Dr. Faculty Member Ahmet Cemal Durgun started his story at the department of electrical engineering at METU, then life dragged him to the United States. He completed his doctoral studies at Arizona State University in the US. Later, he conducted research on signal accuracy issues in the packaging and assembly unit of the technology company Intel.

Durgun had a successful career, he did a lot of research at Intel, yet he always had in mind to return to his homeland. After working there for about 6.5 years, he ultimately returned to Turkey. His homesickness ended with the research budget offered by TÜBİTAK. His return accelerated thanks to this support, and now he continues his research at the university where he started his educational life.

Fatih İnci studied at two well-established universities in Australia. He continued both his doctoral studies and postdoctoral studies at Harvard Medical School, Harvard MIT. İnci wanted to continue his life, which he dedicated to science, in Turkey. He aimed to adapt easy-to-use medical innovations to everyday life by producing microchips at the Bilkent National Nano-technology Research Center. Nobel prize-winning scientist Prof. Dr. Erik Jeppesen, who partially settled in Turkey with his family in 2014, thinks that this place has a very important place for his research. Thanks to the studies conducted together with Turkish scientists at METU, he is working to find answers to the scientific world's questions about global warming and lakes (TRT Haber, 2021).

Others who came with the reverse brain drain policy under the International Leaders program include: Dr. Mehmet Turan coming from Germany: (ETH Zurich University-Boğaziçi University): In a project he is conducting jointly with the Presidential Digital Transformation Office, he is working on the early diagnosis of brain cancer and breast cancer. Dr. Çiğdem Toparlı (Massachusetts Institute of Technology (MIT)-Middle East Technical University (METU): She has been doing academic research abroad since 2013 after graduating from ITU Metallurgy and Materials Engineering. Dr. Faculty Member, Erol Yıldırım (Singapore High Performance Computing Center-METU): After graduating from the Department of Chemistry at Bilkent University, he received a master's degree and a doctoral degree in the Department of Chemistry at ITU. He worked on the properties of polyelectrolytes at Aalto University of Finland, on the degradation and stability of plastics at North Carolina State University in the USA, and on the modeling of flexible thermoelectric composites at the Singapore Center for High Performance Computing (Kaplan , 2020).

As a result, as can be seen from the examples of experience shared above, it is possible to state that an effective brain drain pull policy can have a significant impact when it is developed and systematized according to the conditions of the age. In addition, as mentioned previously when explaining the early republican period, there are many examples of people with work experience abroad contributing more productively when they return to their home countries. These examples are evaluated with a SWOT analysis in the fifth part of the study, with the strengths, weaknesses, opportunities and dangers of the brain drain policies formed by Turkey from the perspective of push and pull.

CHAPTER 5

5. SWOT ANALYSIS OF BRAIN DRAIN POLICIES OF TURKEY FORMED FROM THE PERSPECTIVE OF PUSH AND PULL FACTORS

5.1. Theoretical Description of SWOT Analysis

SWOT is a technique used as an analysis and planning tool and it is estimated that it will be used more commonly in the upcoming years. "The aim of SWOT analysis is to identify the political, economic, social, technological and competitive environment of an organization, as well as opportunities and threats, weaknesses and strengths, and identifying the factors affecting it" (Dyson, 2002: 2).

SWOT Analysis (abbreviation for strong, weak, opportunity, threats) is a business strategy tool for assessing how an organization compares to its competition. It is suggested that Harvard University Professors Learned, Christensen, Andrews and Guth developed the SWOT analysis between 1960 and 1970. However, "This strategy is historically attributed to Albert Humphrey in the 1960s, but this attribution is still debatable. There is no universally accepted developer of this technique" (Klein, Schmuck RB, Malinka, & Felsenst, 2019: 498).

Mainly used to measure the strengths and weaknesses of enterprises against their competition, SWOT analysis has become applicable in different fields and at different levels. From this perspective, SWOT analysis considers both internal and external factors:

"Strengths and weaknesses are associated with internal situations. "It can be first argued that it represents the direction of a strategy of an

organization/enterprise or a policy that provides an advantage over competition. The latter is the characteristic of the same entity, which leads to a relative disadvantage against competition. Externally, "opportunities" are realities that can be exploited in a larger environment. On the other hand, "threats" are realities in a larger environment, which can lead to problems for that entity" (Klein, Schmuck RB, Malinka, & Felsenst, 2019: 498).

In many periods of its history, Turkey has sometimes been a center of attraction in terms of migration and brain drain, and sometimes it has been a geographical center where pulling factors have played a role. Turkey has produced a number of pull policies in terms of attracting brain drain. However, Turkey has been late in putting brain drain on its political agenda and in systematizing its policies. Brain drain policies are often created (based on push or pull factors) taking into account the conditions of the country where qualified human resources are going. In this regard, qualified people must have an environment of prosperity with economic, social and political stability. In addition, in the global information market, the most powerful pull factors such as economic welfare are also taken into account, as rich research environments will allow qualified people to look positively at developed countries.

When brain drain policies are analyzed thoroughly from the perspective of all push and pull factors as well as strengths, weaknesses, opportunities and threats, and when measures are taken against possible threats, it will be inevitable for Turkey to adopt policies to minimize loss of brain power. On the other hand, in terms of benefiting from immigrants, it also seems inevitable to put on the agenda the development of policies that can have a positive impact on the growth and development of Turkey.

For this reason, it will be tried to explain with the help of SWOT analysis how important it is to evaluate the brain drain policies formed in Turkey in terms of pushing and pulling, starting from the Ottoman Empire, in the context of their own periods.

In the SWOT Analysis, since the phenomenon of brain drain was not known at that time, the immigration policies of the Ottoman Empire period will be filtered under the title of "Strengths" and Weaknesses, including the breaking periods of the Ottoman Empire.

Since the phenomenon of brain drain in the pre-Republican 1945 period was not yet discovered worldwide, it will be evaluated in the "Strengths" and "Weaknesses" section, and the Brain Migration Policies developed from the Push and Pull perspective in Turkey will be evaluated in the Opportunities and Threats section of the SWOT analysis since they were developed within the scope of the Development Planning period.

Therefore, SWOT analysis will be used to explain why it is important to evaluate the brain drain policies of Turkey in terms of push and pull factors.

SWOT ANALYSIS

Table 4

SWOT Analysis of Brain Drain Policies of Turkey from the Perspective of Push and Pull Factors

Strengths	Weaknesses
It is an essential know-how that Turkey gained from its past, that the Ottoman Empire developed policies to pull qualified human resources until the reform movements of the Ottoman Sultan Selim III in 1789, together with the 1839 Tanzimat Edict, the 1876 First Constitutional Monarchy and the 1908 Second Constitutional Monarchy.	However, the formation of immigration policies based on the identity and religion are pushing reasons. With the effect of these push factors, many qualified human resources of the Ottoman Empire, including students, had refueged in other countries.
"Immigrant Commission" established in 1860, which was developed by the Ottoman Empire to settle immigrants, and under the management of "Şehremaneti", and being a center of attraction for many qualified human resource in the world. In addition, it is noteworthy to have historical experience in the application of open-door policies in terms of receiving or giving immigration.	Considering the qualifications of fleeing and incoming migrants and their contribution to the country's economy, it can be seen that "Turkey lost a significant number of qualified human resources during that time. Indeed, the Greeks who migrated to Greece from Turkey mainly constituted the qualified urban population engaged in trade, while the Turks who migrated to Turkey from Greece were peasant population engaged in agriculture" (Tepealtı, 2019: 97).
When the first period of the Republic is analyzed in terms of immigration	Turkish Citizens in Turkey was enacted to regulate the performance of certain

policies, it is stated that “After the disintegration of the Eastern Bloc, the Ministry of Exchange, Reconstruction and Settlement was established on 13 October 1923 and the Exchange, Reconstruction and Settlement Law was accepted on 8 November 1923” (Çapa, 1990:55).	professions only by Turkish citizens. In addition, in the Settlement Law No. 2510 of 1934, it was stipulated that the right to immigrate to Turkey should only be granted to "settled or nomad Turkish descendants" "In this context; the Law dated 1932 and numbered 2007 on Arts and Services Allocated to (KAİSER, 2014: 76).This was a push immigration policy.
According to law no. 1416, students were sent abroad to be educated between 1923-1929, as well as representatives from the public sector going abroad to gain experience. They all returned and when they did, they were offered employment opportunities at MKE, MTA, SEKA, Sümerbank, Cement, Sugar factories of Turkey as well as university hospitals, etc. They were also presented employment opportunities in public institutions (Ulu, 2014: 2).	On the other hand, although pull policies were produced during the Atatürk period, especially between 1929 and 1937, push policies were also developed. How and why were pull policies converted to push policies, as will be seen in the following lines? How were the goals of pulling qualified human resources focused on national identity, religion and belonging? These questions are also not fully named.
There has been a significant increase in the number of universities due to the university reform that started in 1933, where postgraduate students also work within the scope of the Law No. 1416 (Gümüş, Gökbel, & Öçal, 2012: 25) The University Reforms developed in 1934, the policies of sending students abroad with the law numbered 1416 in 1929, were able to continue until today by renewing themselves, albeit partially. For example, in 1994, 1996, 2001, 2013, 2014 and 2016, additions	“As per article 4 of the second law No. 3519, foreign nationals who come to Turkey as a transit country and do not have a visa for their target country without enough money or means to travel, shall be prohibited from entering Turkey despite aiming at passing by Turkey as a transit route" (Corry , 2012: 183)

and changes were made in the "Regulation on the Education of Turkish Students in Foreign Countries". In the Law No. 1416 and the relevant regulation, fundamental changes were made in 2014 and 2016 and many improvements were made" (Aktekin & Tekben, 2019: 127). The phenomenon of brain drain in the world was noticed in 1945, and only in the 1960s, policies started to be developed to pull brain drain. Although this concept was not known in Turkey at the time, the country has experience in pulling brain drain policies by regulations such as the University Reform enacted by Mustafa Kemal Atatürk in 1932-33. made these items superior even to the quality.	However, despite the influx of immigrants from abroad and the encouragement of the return of the former Ottoman subjects, the repulsive immigration policies, which were subjected to emigration because they were Turkish but with a different religion, led to the elimination of even qualified human resources. "The efforts to prevent the migration of Christian Gagauz villages to Anatolia, as well as the recent exchange of Karaman Orthodox Turks" (Anzerlioğlu, 2006: 40). After the 1934 Development Plan, which included attracting qualified manpower, which was interrupted by the start of the Second World War, an emergency Industrial Plan was prepared in 1946. However, these Plans could not be implemented because they could not be adapted to changing periods.
Turkey organized policies in accordance with the Helsinki Summit of the EU in 1999 for the adaptation and implementation of software, technology, R&D and information infrastructure development, and in this context, set the goals of 2023. In addition, in order to prevent qualified labor migration and to pull scientists abroad to Turkey TÜBİTAK has launched another program, called "Vision 2023".	In 1947, the Vaner Plan was prepared according to changing conditions. Despite this, no new plans were prepared in the 1950s. This situation led to 10 clarifications. However, the planning in the Constitution in the 1960s was restarted and brought to the present day" (Erat and Arap, 2017: 155).

In 2010, TÜBİTAK developed its 2232 Reverse Brain Drain programs and projects in accordance with R&D and defense industry organizations. The organization has been working to ensure the sustainability of this policy. It developed the Turquoise Card Policy for pulling qualified foreigners to Turkey in 2016.	The Brain Drain Strategy Document has not yet been issued. There is a lack of significant work on strengthening the institutional structure of migration management aimed at integrating foreigners living in Turkey into economic and social life.
In addition, it has been held responsible for implementing policies and actions for the need for qualified labor from abroad by institutions such as the former Ministry of Labor and Social Security, İŞKUR, YÖK, Ministry of Development, Presidency for Turks Abroad and Related Communities.	Yet, Turkey was late effectively using the Turquoise Card application and granted citizenship only two persons in 2021-2022
2232 Reverse Brain Drain (With the Return to Homeland policy, 579 brain drains were reversed. Turquoise Card Policy started to be implemented rapidly as of 2021. Two alien Brain Powers have been withdrawn. Studies are continuing rapidly.	Turkey is one of the countries that loss to the most brain drain to developed countries in the world. Therefore, it is the country with the largest brain drain diaspora in the world. However, it has not been able to make use of the qualifications of these diasporas and has been weak in forming a lobby.

Opportunities	Threats
Türkiye'nin in the form of an integrated data set and to produce policies that give priority to qualified labor force attracting policies and transformation programs.	Continuing Turkey's brain drain loss Turkey, on the other hand, was late in putting the brain drain as a problem on its political agenda. As stated in the previous lines, while Turkey ranks 11th among 32 brain draining countries in the world, it loses about 60% of its well-trained brain (ATO, 2008). On the other hand, as of August 2019, the number of Syrian refugees who took refuge and registered in only five neighboring countries is 3,574,800 in Turkey. (UNCHR, 2021).
Digitization has led the phenomenon of brain drain to move beyond the changing physical space, from its real spatial, temporal and even material dimension to the virtual dimension. This development can be turned into an opportunity by using information, informatics and digital technology, by developing a multifunctional brain drain that attracts effective communication and logic and politics.	It should also be noted that the number of qualified brain drains is low among immigrants who took refuge in Turkey, especially from Afghanistan, Pakistan, Russia and Ukraine. However, there are almost no integrated statistics and studies distinguishing the qualified and unqualified qualifications of asylum seekers in Turkey. This situation is also valid for the qualified human resources that Turkey has lost. Delay in strengthening the institutional structure of migration management for the integration of foreigners in Turkey into economic and social life poses a threat both in the near and long term. Turkey's failure to take concrete steps to include the brain drain policy as a problem on its political agenda, this issue should be addressed by

On the other hand, Turkey has the world's largest brain drain diaspora. This phenomenon is a potential force that needs to be turned into an opportunity for Turkey.	the public, the media, etc. by not making it controversial. However, the success of brain drain policies can be affected by economic, cultural, social, climatic, administrative and so on. How much it eliminates the repulsion factors is measured by the discussion and the effects of scientific and free research on how much it increases the pull factors. This situation delays the implementation of brain drain policies according to the needs of the age and makes it visible as a threat.
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CHAPTER 6

6. CONCLUSION

Currently, brain drain in the form of movement by qualified workforce from one geography to another has many reasons and consequences according to the age they take place. The decision to emigrate is also a cause and effect. In addition, the globalization of social activity has manifested itself in the development of global connections and international division of labor. On the other hand, this phenomenon has also led to gaining or losing some of national brainpower capital. As a result, this situation has required nations to renew their migration policies in a facilitating way. Especially the countries of the Organization for Economic Development and Cooperation (OECD), where brain drain is intense, follow policies that fully facilitate pulling brain power.

As brain capital has become a competition element for countries' development, brain power movement has also become inevitable. Thus, certain countries have started to produce reasonable policies to attract this power and apply the "push and pull" approach to attract qualified people, increase brain capital through pulling people from other countries by means of alternative policies and resources. In Turkey, policies have been developed in the context of pushing and pulling brain drain in order not to be a victim of this development. Nevertheless, Turkey has not been able to create an effective move as it was late to put the problem of brain drain on its political agenda.

It can be seen that countries such as the US, Germany and the UK that realized brain drain as a problem early on and developed policies from a push-and-pull

perspective on this issue, started to record and systematize immigrant movements according to the conditions of their age, managed to attract brain migration to their lands. Hence, it can be uttered that brain drain policies created according to pull and push factors have a tremendous effect on qualified labor force migration based on whether they are systematized or not. In another sense, brain drain policies of countries are also one of the important factors affecting migration. Literature has many theoretical studies on the phenomenon of brain drain and push-pull factors. However, especially after the 1970s, developed countries and their governments have turned to the practice of the phenomenon of brain drain, that is, to develop push-and-pull policies. Countries such as the USA, United Kingdom and Germany developed and systematized brain drain policies and they have become successful in managing this movement. Despite this, there is no integrated study in the international literature on the correlation of brain drain policies developed in terms of push and pull factors. Turkey, on the other hand, developed a number of policies related to pull brain drain during the Early Republic period between 1923 and 1950 and within the scope of development plans after the 1960s, yet it failed to form a systematic information infrastructure with integrated maps to record data. Moreover, there is no study that reveals the consequences and effects of brain drain in Turkey, either

In the context of periodic differentiation of brain drain, this study elaborated on individual and mass brain drain movements after 1960 and the causality of the push and pull factors affecting those movements. While the major reasons for the push factors are lack of employment and low income, the most important pull factors are large employment areas and, in parallel, the multiplicity of opportunities for obtaining high income. In addition, education and health opportunities, diversity and wealth are also

important pull elements for brain drain. In this regard, Everett S. Lee identified four main factors as push and pull factors. These are: “*Factors related to the current place of resident, obstacles involved in this place, factors related to the potential destination country and individual*” (Lee, 1966:48).

To draw a conceptual framework for migration policies, it can be said that migration policies are the totality of the principles of organizing and realizing the activities of the state as a goal, method and content in the field of migration (Turkish Language Institution, 2020). A new definition of migration policies suggests that there are principles of transition: “these are statements about what a government wants to do or not to do about the selection of foreign nationals who will live in the country, their acceptance, settlement or deportation (through laws, regulations, decisions or orders)” (Bjerre, Römer, & Helpling, 2018:57).

The Politics of Brain Drain: this can be conceptualized as all the pull political factors and procedures applied by states to attract and raise qualified human resources without discrimination against color, class, or identity and to pull foreign brain power also to eliminate pushing factors in the context of international migration governance as per the observations and definitions given in this study.

Analyzing at the policies and practices aimed at pushing and pulling brain drain in the world, it can be argued that technology-based development of the Industrial Revolution after World War II increased the importance of qualified human resources to raise the levels of innovation and productivity of all countries. “This situation became continuous in the 1945s and 1950s. Moreover, qualified human resources started to flow to developed countries. When this continuity also had an impact on development, it led countries to seek to develop brain drain policies in terms of pushing and pulling.

When it comes to Turkey, it can be said that the country met brain drain problem which conceptualized as the migration of qualified people, at an early period. As a matter of fact, from 1933 to 1945, many expert academicians, artists, writers, engineers, lawyers and laboratory experts fleeing Nazi repression in Germany, had to forcefully migrate to different parts of the world. These qualified scientists were attracted to Turkey in 1934 by the help of University Reforms produced with the deep vision of Mustafa Kemal Atatürk, and they provided significant benefits to the country. In the following periods, however, Turkey began to lose its brain power due to several reasons. Despite the success of the University Reforms in attracting brain power, Turkey was still late in putting the problem of brain drain on its political agenda. As part of its development plans, Turkey developed policies on attracting foreign brain power by TÜBİTAK's Reverse Brain Drain and Turquoise Card application, which is similar to the US Green Card and German Blue Card practices in terms of pushing and pulling brain drain. In 2021, Turkey issued the first Turquoise Card.

Evaluating the brain drain policies of the US and Germany comparatively, it can be seen that the brain drain policies developed in terms of push and pull factors are systematic and sustainable according to the needs of the age. Among the migration policies developed by the United States and Germany from a push-and-pull perspective, the Green Card policies developed by the United States and the Blue Card policies developed by Germany in the (EU) directive can be deemed significant in shaping the movement of qualified people across the world. Additionally, it can be clearly seen that the US Green Card, the German (EU) Blue Card and the Turkish Turquoise Card have common characteristics such as granting incentives and citizenship rights to foreign

qualified people, visa for high-quality workforce and brain power, easier working conditions, and providing foreign qualified labor with non-salary incentives.

Analysis of the US brain drain policies suggests that the US is the country where today's employment opportunities and technological developments are the most advanced in the world. United Nations Department of Economic and Social Affairs (UN-DESA) stated in its 2020 survey that there were close to 272 million international migrants. The United States of America (USA) is the most attractive country with nearly 58 million immigrants compared to other countries across the world in terms of brain drain. The USA is followed by Germany (UN, 2020).

The United States is one of the leading countries hosting highly qualified brainpower in the world, including but not limited to academicians, students, technologists, engineers, technocrats and businesspeople. H-1B, Green Card are the most important brain drain policies of the United States.

Germany is the second country after the US to attract the highest waves of brain drain. However, Germany was one of the countries that lost the most qualified people in the First and Second World Wars. In those years, Turkey became a center of attraction that attracted many qualified people, including scientists, as a brain drain after the Nazi persecution. However, Germany, First and Second and II. It has been one of the countries that lost the most qualified people in the World Wars. In those years, Turkey became a center of attraction that attracted many qualified people, including scientists, as a brain drain after the Nazi persecution.

Although Turkey is among the countries that lost its brain power, it has developed some brain drain policies starting from the Ottoman Empire, which it is the continuation of. In addition, Turkey is a country that has gained experience in how these

policies can be turned into push policies. The migration and brain drain policies of the Republic of Turkey are also influenced by the policies of the Ottoman Empire as its predecessor. The Great Balkan migrations (1773) coinciding with the last periods of the Ottoman Empire in the 18th century and the migrations resulting from World War II in the second half of the 19th century played an important role in shaping and forming the building blocks of today's Turkey. "In addition, the process of bringing in foreign experts began, and they also started to train people and equip them with knowledge. In the meantime, in order to speed up the process, Mahmut II sent about a hundred Ottoman teenagers to study in the West after 1826" (Belge, 2004: 47).

After the Reform Edict (1839), the act of sending students abroad was reinforced by various programs. However, there were also push factors negatively affecting brain drain during that time. For instance, the tendency of reform efforts to spread from the military field to the social and cultural field was perceived as a threat to the ulama's field of activity in the Ottoman Empire. In this vein, during the modernization period of the Ottoman Empire, there were various turning points in the processes of modernization and transition to social organization such as the Reform Edict, the Young Turks movement, the New Ottomanism movement, and the Constitutional declarations. However, "Reform period " was the time when such breaks were experienced at the highest level. In this context, the tendency of reform efforts to spread from the military field to the social and cultural field was perceived as a threat to the ulama's field of activity" (Akça, 2010: 126). Meanly, the Reform period was marked by the clearest intellectual breakdown.

It is noteworthy that the Ottoman Empire's immigration management policy was shaped by the Immigrants' Commission developed to safely resettle immigrants.

Among the migrations during this period, qualified people among the Russian Nobles who took refuge in the Ottoman Empire were accepted. "A significant part of the White Russians included princes, generals, princesses and officers, and they were qualified people with educational degrees and various professions. Among them, doctors and masters of crafts managed to hold on to life in a short period of time and added a lot of value to the social and economic life of Turkey" (Deleon, 1996: 16).

Since the beginning of the 19th century, a large number of immigrants also came from Azerbaijan. Especially between 1877 and 1878, it is observed that migration waves intensified. *The migration policies of the Early Republican Period* in the period between 1923 and 1950, on the one hand, aimed to create a nation-state with a scientifically based construction process, and on the other hand, to create a national identity and belonging. For this purpose, Turkey tried to make maximum use of Balkan and Jewish scientists in order to benefit from the cultural values of Europe in the construction of a scientific-based nation-state.

However, within the framework of the understanding of creating a national identity and belonging, push policies were also developed by Turkey. As a matter of fact, a push policy was shaped by granting the right to emigrate to Turkey only to "people or nomads of Turkish origin. However, from the first years of the Republic of Turkey, after the War of Independence, policies have been developed to train and to pull qualified workforce in order to realize the development of the country. For example, "Industrialization was initiated by the state in 1925, until the law numbered 1416 was enacted in 1929, Etibank, MKE, MTA, SEKA, Sümerbank, Türkiye Çimento Fabrikaları A.Ş. and Türkiye Şeker Fabrikaları A.Ş. were opened during the industrial move. and they sent students abroad to train the workforce and managers they needed"

(Ulu, 2014: 2). This development indicates that scholarship students sent abroad would be offered employment opportunities in the branch they studied when they returned home after completing their studies, and this may be well considered a pull factor in terms of brain drain policies.

The most important policy of the Republic in terms of attracting qualified brain power and obtaining concrete data was the University Reform Laws. It can be clearly seen here that Mustafa Kemal Atatürk's forward-thinking came into play. "Mustafa Kemal Atatürk initiated the university reform in 1934 due to the need to raise the country's educational standards and increase quality as fast as possible. For this education reform aimed at increasing the quality of higher education, Albert Malche, a professor of pedagogy at the University of Geneva was invited to Turkey. The effect of this invitation became rather decisive" (Namal & Karakök, 2011: 30).

Academics were the first of those people coming to Turkey as immigrants between 1933 and 1945. They were invited taking into account their contribution to university reform in Turkey, and they became European foreign scientists assigned to newly established universities and faculties of Turkey. In addition to their families, the scientists in question also brought their assistants, technicians, and assistant lecturers with them (ERİCHSEN, Kubaseck, Günter, & Seufert, 2016: 21).

Turkey, on the other hand, developed pull policies during the Atatürk era, but fell short and generated push policies afterwards. An example of this is "the push factors caused by the passport law no. 3519 imposing strict measures against Jews fleeing the Nazi regime and limiting their entry into Turkey with other two laws that the Turkish State passed in 1938 consecutively..." (Corry, 2012:183).

In addition, Turkey's migration policies of 1923-1950 again aimed at creating a national identity and belonging for efforts to create a nation-state. Within the framework of building a national identity and belonging, it is aimed to resettle immigrants bearing Turkish ancestry and culture in the country. In this context, the Law dated 1932 and numbered 2007 on Arts and Services Allocated to Turkish Citizens in Turkey was enacted to regulate the performance of certain professions only by Turkish citizens. Also the Settlement Law No. 2510 dated 1934 stipulated that the right to immigrate to Turkey is granted only to "Turkish descendants or nomads (Ulu, 2014:29)

The policies of the young republic to pull migration and brain power during those times indicate a striking factor: The law granting the performance of certain arts and services to Turkish citizens was later abolished to expand the opportunities for foreigners to work in Turkey.

As a result, the Republic of Turkey has implemented policies of sending students abroad, attracting students and qualified workforce since 1929. These policies have continued to the present day, partly by renewing themselves. For example, "The general trend of the settlement policy from the establishment of the Republic to the 1960s aimed at increasing the population. This trend changed with the rise of urbanization, industrialization and democracy culture of Turkey after reaching a certain level of satisfaction in the number of population."

During these periods, domestic migration from rural to urban areas intensified as well. In the sense of pulling foreign brain drain, in some years, only investors were tried to be attracted: "There have been years when all economic and political guarantees have been given to encourage the arrival of foreign capital by the Foreign Capital Incentive Laws enacted in 1950-51 and 1954" (Kazgan, 1987: 79). Also, after the

second half of the 20th century, the Geneva Convention on the Legal Status of Refugees was held and it became the first international migration policy in 1951, when the migration problem crossed borders and became an international problem. With certain reservations, Turkey signed the Geneva Convention in 1961 (by law No. 359). "The Geneva convention is an important development shaping Turkey's migration policies. Despite these developments, international migration waves in Turkey took place in the form of ethnic and religion-based population movements until the 1960s, and after 1960 in the form of labor migration.

In addition, Turkey was continuing its efforts to improve its social welfare by developing a democratic order and taking up a developmental move to take its place in international competition. Since 1963, Turkey has made some determinations about brain drain within the scope of its five-year development plans and has tried to develop targets and policies. From 1963 to the present day, eleven development plans have been put into effect. In this regard, the problem of brain drain has been generally addressed in the process from the First Five-Year Development Plan to the Eleventh Development Plan. Efforts and concrete steps have also been taken to produce and develop strategies and policies on developing attraction centers for both attracting brain drain and qualified workforce.

Starting from the First Five-Year Development Period, the most important breakthrough in terms of pulling brain power has been the establishment of Organized Industrial Zones. Another important step has been the establishment of the Turkish Academy of Sciences Institution (TÜBİTAK) that has become the basic attraction center for pulling qualified workforce to Turkey. In addition, Turkey has developed policies to send students abroad in order to close both faculty member deficits and to

produce scientific works in other institutions. "In order to conduct research in applied sciences in this direction, the multidisciplinary TÜBİTAK Marmara Research Center (TÜBİTAK MAM) was established in Gebze in 1972.

On the other hand, the Third Five-Year Development Plan was remarkable in the sense that "for the first time on October 21, 1976, TÜBİTAK started its efforts to bring back those who went abroad or if not, to bring them temporarily for certain programs through the TOKTEN project..." (Yücel, 1992: 80). Yet, it was a push factor that the governments of the period took foreign exchange revenues on their political agenda instead of the issue of brain drain. Abadan Unat also underlines this fact: "Although qualified labor migration was criticized by the State Planning Organization and the Union of Chambers of Commerce of Turkey at that time, it was still encouraged in order to generate foreign exchange income" (Abadan Unat, 2017: 80).

The Third Five-Year Development Plan envisioned enactment of the law no. 4817 in 2003 to register foreign immigrants according to their qualifications. Thus, it was aimed to create a registration system for determining the social and economic characteristics of immigrants from abroad. In this context, it was decided to make legal arrangements for the establishment of the "Central Population Administration System (MERNIS)" in order to make public services effective and to monitor population movements (DPT, 2000: 80- 229).

Concrete steps that include the implementation of policies to attract brain drain as part of the Fourth and Fifth Development Plans were to establish relations with technological information centers of international organizations in different countries with the support of TÜBİTAK-TÜRDOK. Another concrete step during this period was to determine the areas of technology to give priority, as well as to legalize the

establishment of the Higher Council of Science and Technology with the Science Technology Policy document (1983-2003). In addition, the law on Free Zones in 1985 was adopted to create a center of attraction for qualified foreign brain power to Turkey.

In the Sixth Five-Year Development Planning period for attracting migration to Turkey was a communiqué on the Foreign Capital Framework Decision adopted in 1995. According to this Communiqué, "Foreign administrative and technical personnel who will be employed by private sector organizations in Turkey shall be granted work permits if they have sufficient technical and administrative knowledge" (VI. Beş Yıllık Kalkınma Planı, 1990:311).

The Seventh Five-Year Development Plan regulated efforts to attract qualified brain power to become internationally competitive in information technology and especially in the field of software, and it was decided in the plan to develop educational program policies for the needed brain power.

In the Ninth Five-Year Development Plan, the most concrete step developed since 2010 in accordance with law no. 2232 was TÜBİTAK's return-to-home policy as part of its efforts to support science projects in Turkey.

The Tenth Five-Year Development Plan, therefore, is a concrete step in the transformation programs, and the coordination of the action plan related to the components of the program is provided to TÜBİTAK. In addition, institutions such as the Turkish Employment Agency, the Higher Education Council, Ministry of Development and Presidency of Turks Abroad and Related Communities are also held responsible for implementing policies and actions aimed at meeting the need for qualified labor from abroad. In line with Turkey's push and pull policies affecting brain drain, the Eleventh Five-Year Development Plan covered the Turquoise Card

regulation published in 2017 and TÜBİTAK Reverse Brain Drain Policy generated to pull foreign qualified human resources.

Turquoise Card started to be applied in September 2021 and two foreign brain power was given to citizens, the first in 2021 and the second in 2022.

TÜBİTAK's Return-to-Home Project No. 2232, aka the reverse brain drain program launched in 2010, is Turkey's latest brain drain policy. This program was transformed into the "2232- International Leading Researchers Program" in 2018. The purpose of the program is to encourage qualified individuals, primarily Turkish scientists with experience of working abroad, to come to Turkey. According to the information from the statistical data of TÜBİTAK BİDEB within the scope of TÜBİTAK's 2232 – A- International Leading Researchers Program, so far 579 scientists returned home as a result of these efforts.

As a result, this study is important as it will be the first step as a contribution to the effects of brain drain policies on countries and international literature. Because, in the study, in order to understand the impact and importance of developing brain drain policies in the context of push and pull, and to develop the definition of "brain drain policy", which is lacking in the literature, the brain drain policies of the USA and Germany, which have suffered the most brain drain in the world, were examined together with their historical developments. The similarities between the US Green Card, the EU-directed German Blue Card, and the Turquoise Card developed by Turkey, which are the most important brain drain policies developed in the world, were compared. Turquoise Card and TÜBİTAK Reverse Brain Drain policies, which are the latest current brain drain policies of Turkey, which were developed to pull foreign brain

drain, were examined, the number of people gained as brain drain and their results were revealed.

The University reforms developed in 1934 in terms of creating Brain Drain goals and policies were examined. Five-year development plans of Turkey, which has made important studies and contributions in developing goals and policies for brain drain from a push and pull perspective, were analyzed comprehensively. In the context of the contribution of the concept of brain drain policy in the literature, a definition of "Brain Drain policy" was developed in this study. Most importantly, the brain migration policies formed by the Republic of Turkey, which is the focal point of this study, from the perspective of push and pull factors are presented with their historical (including the Ottoman Empire) periods and a SWOT analysis has been analyzed in this study.

Turkey is a country with significant experience of brain drain policies such as the university reforms developed in 1938 under the leadership of Kemal Atatürk. In addition, as revealed in the study, the goals developed by the fifth Five-Year Development Plans after 1960 in terms of raising and pulling brain power and the policies of Turquoise Card and TÜBİTAK Reverse brain drain are successful examples of attracting qualified human resources in Turkey. Besides the brain drain policies developed in terms of pull, there are also valuable historical examples of how they turned into push factors. In addition, Turkey's historical experiences need to be reconsidered through practical and theoretical discussions on brain migration policies, which should be developed in terms of pushing and pulling the originality, effects and main problems of these experiences, both in the literature and in the eyes of the public and administrations.

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