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MASTER’S THESIS

**AN ANALYSIS OF BILATERAL TRADE RELATION
BETWEEN TURKEY AND RUSSIA:
THE CHALLENGES AND OPPORTUNITIES OF
RUSSIA-UKRAINE WAR**

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APPROVAL PAPER



DECLARATION

I hereby declare that this master's thesis titled as "An Analysis of Bilateral Trade Relation between Turkey and Russia: The Challenges and Opportunities of Russia-Ukraine War" has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honour.

.../.../2022

Marina KRAMSKOVA

ABSTRACT

Master's Thesis

An Analysis of Bilateral Trade Relation between Turkey and Russia:

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This research work examines Turkey's bilateral trade intercourse with Russia in order to identify potentialities and problems for Turkey caused by the Russia-Ukraine War. In the course of the study, with help of descriptive statistics and calculations of trade indices, the current state of Russian-Turkish trade has been analysed. Afterwards, commodity sectors in which supply is expected to fall due to international companies' suspension of businesses were identified. Next, Revealed Comparative Advantage Index and its dynamic form were calculated to assess Turkey's potentialities to export commodities of the identified sectors and to highlight commodities groups where export policy should be improved.

Keywords: Bilateral Trade, Trade Intensity, Trade Complementarity, Revealed Comparative Advantage

ÖZET

Yüksek Lisans Tezi

**Türkiye-Rusya İkili Ticaret İlişkisinin Analizi:
Rusya-Ukrayna Savaşının Zorlukları ve Fırsatları
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Bu araştırma, Rusya-Ukrayna Savaşı'nın Türkiye için yarattığı potansiyelleri ve sorunları tespit etmek için Türkiye'nin Rusya ile ikili ticari ilişkilerini incelemektedir. Çalışma kapsamında, tanımlayıcı istatistikler ve ticaret endekslerinin hesaplamaları yardımıyla Rusya-Türkiye ticaretinin mevcut durumu analiz edilmiştir. Ardından, uluslararası şirketlerin faaliyetlerini durdurması nedeniyle arzın düşmesinin beklendiği emtia sektörleri belirlendi. Ardından, Türkiye'nin belirlenen sektörlerin emtia ihracat potansiyelini değerlendirmek ve ihracat politikasının iyileştirilmesi gereken emtia gruplarını vurgulamak için Açıklanmış Karşılaştırmalı Üstünlük Endeksi ve dinamik formu hesaplandı.

Anahtar Kelimeler: İkili Ticaret, Ticaret Yoğunluğu, Ticari Tamamlayıcılık, Açıklanmış Karşılaştırmalı Üstünlük

**AN ANALYSIS OF BILATERAL TRADE RELATION BETWEEN TURKEY
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ABBREVIATIONS

app.	appendix
BRICS	Brazil, Russia, India, China. South Africa
BSEC	Black Sea Economic Cooperation
CEP	Comparative Export Performance
CIG	Capital-Intensive Goods
CIS	Commonwealth of Independent States
EIRG	Easy-to-Intimate Research-Intensive Goods
EU	European Union
DIRG	Difficult-to-Intimate Research-Intensive Goods
LIG	Labour-Intensive Goods
NATO	North Atlantic Treaty Organization
n.e.s.	not elsewhere specified
p.	page number
pp.	from page to page
PKK	Kurdistan Workers' Party
RCA	Revealed Comparative Advantage
Rev. 3	Revision 3
RMIG	Raw-Material Intensive Goods
SITC	Standard International Trade Classification
UN	United Nations
UN COMTRADE	United Nations Commodity Trade
USA	United States of America
USD	United States Dollar
USSR	Union of Soviet Socialist Republics

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INTRODUCTION

Evolving relations between Russia and Turkey, countries that share a maritime border in the Black Sea and have a lot more in common, have always been an interest for research objective. Over its long-standing history, Russian-Turkish trade relations have experienced significant fluctuations from bans and confrontation to promising trade agreements and mutual investments. From the economic point of view Russia has remained a more favourable position as a net exporter and a leading energy supplier for Turkey due to its large reserves of mineral resources. However, Turkey aiming to balance its export-import values and gain influence on global market has been increasing trade in services and has started to emerge as a vital energy storage and an international transport hub (Hamilton and Mikulska, 2021: 2).

Current relations between Russia and Turkey are described as ‘cooperative rivalry’ (Bechev, 2021) ‘adversarial collaboration’ (Yildiz, 2021: 3) so the countries are “frenemies” to each other (Pearson, 2022). As NATO's key south-eastern flank and window into the Middle East, Turkey is viewed suspiciously in Moscow as a backbone of an expanding western alliance bent on encircling Russia. However, despite competing regional interests, deep differences and political rivalry, Russian-Turkish geopolitical cooperation has deepened significantly over the last decades to some degree due to their dissatisfaction with Western policies resulting in alienation from other influential actors in the global arena (Balta, 2019: 69). Besides, there is a bilateral dependency in the energy sector: Turkey needs Russian energy supply but at the same time acts a strategic energy corridor to the West. On top of that, there are two more milestones deepening Russian-Turkish cooperation which are tourism sector and large investments in common projects.

The year of 2022 was marked by an event greatly affecting international relations and the world economy: on February 24th Russia invaded Ukraine and started military actions in the middle of Europe, provoking unprecedented condemnation expressed by various sanctions from the world community and exposing itself to a financial crisis. Over 1,000 international businesses have expressed their solidarity with Ukraine by withdrawing, suspending, or limiting their operations in Russian market forcing Russia to reconsider its supply chains by implementing import substitution policy or looking for new exporters.

Despite the fact that like the leading economies Turkey has criticized Russia's invasion and Ankara is helping Ukraine to stand against Russian invasion, the Presidents of Russia and Turkey have maintained communications with each other. On March 17th, President of Turkey Recep Tayyip Erdoğan conducted separate phone calls with Russian President Vladimir Putin and Ukrainian President Zelenskyy. A number of high-profile negotiations between conflicting countries were hosted in Turkey since Ankara has decided to play a mediator role in order to balance close ties with both Russia and Ukraine, develop political authority and prevent war's negative effects on its economy (Diaz-Prinz and Çuhadar, 2022). Turkey has acceded only to sanctions regimes approved by the United Nations, and two specific sanctions were imposed by Ankara refer to just military sector. Indeed, there was no attempt to halt its trade connections with Russia. This fact demonstrates that while other foreign companies withdraw operations in Russia so as not to be punished by their states Turkey's firms might see opportunities to expand their businesses.

The research objective was to highlight the effect of the war on trade between Turkey and Russia, what ways are opening for Turkish traders and what kind of challenges are evolving. Given the rising importance of Russian-Turkish cooperation, this paper aims to analyse strength and nature of their deepening trading relations as well as to evaluate both Turkey's opportunities to supply commodities that were removed from Russian market and its possible related problems. Is there a chance for Turkey to get benefits from enhancing trade with Russia, a country dealing with unprecedented economic sanctions?

The remainder of the paper is organized as follows: the first chapter provides a brief historical background of Russia and Turkey from XIX century up to the present days, current economic statistic is summarized and provided with links between economic indicators and historical events. The second chapter includes reviews of the literature that covers Russia-Turkey trade relations. It is followed by empirical analysis in the third chapter which includes calculations and their interpretations of the following trade indices: Intensity Index, Complementarity Index, static and dynamic Revealed Comparative Advantage Indices. Methods of the research include comparative and theoretical analysis, graphical analysis, as well as evaluation of trade indices.

To study the intensity of trade between Turkey and Russia, the trade intensity index is employed for the period 2001-2021. Trade complementarity is used to estimate compatibility of the countries in five commodities groups over the period between 1999-2020. In further analysis commodities sectors where supply decrease is expected in Russian market are identified on order to estimate Turkey's revealed comparative advantage in these sectors. Final remarks are outlined in the conclusion part.



CHAPTER ONE

HISTORICAL BACKGROUND AND RECENT ECONOMIC DEVELOPMENTS

1.1. HISTORICAL CONTEXT OF RUSSIAN-TURKISH TRADE

The history of interaction between Russia and Turkey, dating back several centuries, not only does it include factors that strengthen trade and diplomatic relations, but also a great deal of crises. During XVI—XX centuries the Ottoman and Russian Empires had experienced a number of recurrent military disputes, mainly on religious and territorial grounds due to Russia's attempts to access the Black Sea and subsequent control of the Bosphorus and Dardanelles Straits (Khalilzad et al., 2000: 22).

Russian-Turkish bilateral relations are based on a contractual legal framework. There are more than 60 fundamental documents at present that regulate the interaction between the countries in various areas, one of the most important being the Treaty of Moscow or Treaty of Brotherhood that was a friendship declaration signed on March 16, 1921. Since neither the Republic of Turkey nor the Soviet Union was established at that time the Treaty was an agreement between the Assembly of Turkey under the leadership of Mustafa Kemal (later, Atatürk) and Bolshevik Russia led by Vladimir Lenin. The sides managed to achieve a settlement of the northern-eastern border of Turkey that still remains.

In 1920 in the middle of the Turkish War of Independence (1919-1922) Mustafa Kemal requested that V. Lenin join forces on the way to the shared goal of imperialism overthrow, as an answer Russia provided weapons, ammunition and gold. The leaders of the nations agreed on cooperation since both had similar goals such as to gain international recognition, improve territorial integrity, and ensure order in the economic and political arenas (Hamilton and Mikulska, 2021: 8)

Economic and technical cooperation was massively reinforced in the 1930s, when, with the participation of Soviet specialists, two large textile mills were built in Kayseri and Nazilli with the provision of soft loans for this purpose. Later, in the 1970s and 80s, another twelve industrial facilities were built in Turkey with the assistance of the USSR (ROSOBORONEXPORT, 2022).

A sharp deterioration in bilateral relations occurred during the Second World War due to Turkey's collaborating with Germany by supplying military and strategic raw materials and providing German ships access to the Straits. Soviet-Turkish relations continued to deteriorate after Turkey's joining NATO in 1952 and after the agreement with the US on placing nuclear weapons bases in Turkey in 1959.

Following the end of the Cold War a gradual improvement in the economic and political fields encouraged development of the bilateral relations between the two countries (Arafat and Alnuaimy, 2011: 104). The Governments of the USSR and Turkey made an agreement on a promotion of investment (1990) and on a trade, economic, scientific, and technical cooperation (February 1991).

For both countries, the 1990s was a challenging period: Russia was experiencing difficulties in its transition to market capitalism while Turkey was dealing with a series of economic and political crises in 1991, 1994, 1998 and 1999 due to a lack of legal and institutional reforms. However, during these years considerable steps were taken towards establishing sustainable partnership (Ulchenko, Shlikov, 2014: 6). After the dissolution of the Soviet Union, the Republic of Turkey and the newly established Russian Federation entered into an "Agreement on the Fundamentals of Relations Between the Russian Federation and the Republic of Turkey" (1992-1993). The sides agreed on comprehensive development of all common sectors, respecting the sovereignty and territorial integrity of each other.

Because in the regional context the bilateral relations became important for both states, a number of agreements such as "Agreement on Cooperation in the Tourism Sector" in 1995, "Agreement on Reciprocal Promotion and Protection of Agreements" and "Agreement on Avoidance of Double Taxation" in 1997 were signed that led to expansion of trade volumes, growth of investments and strengthening of humanitarian ties. In June 1992 the Organization of the Black Sea Economic Cooperation (BSEC) was established in Istanbul by eleven countries of the Black Sea region including Russia and Turkey in order to encourage partnership, peace, stability and prosperity of the members.

Moreover, on May 14, 1992, the governments agreed on developing of The Joint Intergovernmental Russian-Turkish Commission on Trade and Economic Cooperation that became and remains to be the main coordination framework for trade

and economic ties. The Commission is to analyse the state of trade and economic relations between the two countries and the opportunities for their development, as well as help organizations, firms and businesspeople of Russia and Turkey to expand trade and economic cooperation, and work on the development of the sector. At the moment there are seven working groups: on trade, investment and interregional cooperation, on energy, on transport, on manufacturing industry, on tourism, on financial and banking cooperation, and on agriculture. During 1992-1997 Turkey's export to Russia demonstrated a significant growth. To some extent this growth can be explained by the fact that Turkey with its developed textile and food industries was able to respond to a sharp increase in Russia's demand for consumer goods (Hodunov, 2016: 86).

Military-technical cooperation has been encouraged since 1992. Turkey became the first NATO member country with which Russia established ties in this area. The foundation of bilateral military-technical cooperation was laid by the meetings of Russian President Boris Yeltsin with the head of the Turkish government, Suleiman Demirel, in Moscow (May 1992) and Istanbul (June 1992). Turkey was purchasing military equipment from Russia to use it against the Kurdistan Workers' Party (PKK) which is designated as a terrorist organization by Turkey.

Between 1995-1999 Turkey made active efforts to get rid of Kurdish separatism in the country while Russia started the First Chechen war in 1994 trying to prevent separation of this region (Arafat and Alnuaimy, 2011: 106). Over this period terrorism issue became one of the most important problems in the agenda of both countries that lead to an agreement to cooperate, and "Joint Declaration on Anti-Terrorism" was signed on 5 November 1999.

The beginning of XXI century is claimed to be a "golden period" in the relationships between the countries, firstly, due to an establishment of new political systems that provided a balanced and effective foreign policy in the region, and secondly, due to a significant progress in bilateral trade and cooperation (Arafat and Alnuaimy, 2011: 104). One of the most significant agreements, the Eurasia Action Plan that was signed in 2001 by Russia's and Turkey's prime ministers, led to expansion of cooperation in the fields of energy, trade, tourism, and defence. The Plan played a considerable role in the enhancing of ties in energy relationships and allowed to

establish regular political dialogue (Kınıklıoğlu, 2006: 82).

The first official appearance of a Russian head of state in 32 years occurred in 2004 when the Russian Federation President Vladimir Putin made a work visit to Ankara, followed by a reciprocal visit of Turkish Prime Minister Recep Tayyip Erdogan to Moscow in 2005. Since then, the leaders have exchanged visits several times. During the meeting in 2004 the leaders signed the Joint Declaration on "Strengthening of Friendship and Multiplane Cooperation". The declaration refers to a wide range of common interests and specifically accentuates the increasing confidence and trust established between the sides in recent years; it calls for the diversification of actors in the quest of deepening the relationship, and notes that both countries are Eurasian powers which value security and stability.

Additionally, agreements that were signed at that period by Russia and Turkey are listed below:

- The Agreement on Mutual Protection of the Rights and the Intellectual Property, within the Framework of Military - Technological Cooperation.
- The Agreement on Mutual Protection of the Classified Information and Materials Transmitted Within the Framework of Military - Technological Cooperation.
- The Agreement on Prevention of Incidents on the Sea Outside the Territorial Waters.
- The Cooperation Agreement between Russian Vnesheconombank, Roseksimbank and Eximbank of Turkey.
- The Memorandum on Development of Cooperation in Gas Sphere between Gazprom and Botash Company.
- The Memorandum on Cooperation Between Diplomatic Academy of the Ministry of Foreign Affairs of the Russian Federation and the Center of Strategic Research in the Ministry of Foreign Affairs of Turkey.

In 2001 Turkey suffered unprecedented financial crisis, however Turkish exporting companies had a chance to benefit from devaluation of Turkish currency (Koch et al., 2001: 483). This led to growth in Turkey's export values to Russia. Later on, in 2005 Russia banned the importation of Turkish poultry products, fruits, vegetables and flowers on health safety grounds.

The annexation of Crimea in 2014 became one more stumbling-block in

Russia-Turkey relations since Turkey criticized Russian actions in Ukraine and did not recognize Crimea as a part of Russian territory. Moreover, Turkey claimed that human rights of the Turkic Tatars ethnic group were abused (Pearson, 2022). What is more, in return to large number of international sanctions, Moscow has developed imports substitution policy that led to a slight increase of competitiveness in textiles and food industries (Arafat and Alnuaimy, 2011: 119).

Military activities related to the Syrian crisis became another serious test for Russian-Turkish relations. In November 2015 a Russian Sukhoi Su-24M attack aircraft was shot down by a Turkish fighter jet near the Syria–Turkey border. According to Turkey, the pilots of the Russian jet were warned multiple times but did not respond, Ankara claimed that it was their legal right to defend their country's airspace.

Russia reacted immediately by taking various measures to make a pressure on Turkey, for instance, economic sanctions, restrictions on trade and travel, or threats to cease investment into its nuclear energy infrastructure. Bilateral relations were literally terminated for several months. Russian media referred to Turkey and anything related to it only in a negative way, and what is more, Russia's Minister of Foreign Affairs Sergey Lavrov encouraged Russians to cancel planned holidays in Turkey. Turkish tourism sector demonstrated a sharp drop by 76,26% in 2016, revealing Turkey's high dependency on Russia (Agha, 2021: 441). However, less than in one year the conflict was resolved after an official apology letter from Turkey's President Erdogan. This episode demonstrated that in that period of time Moscow had more options to hit Turkey economically and politically than vice-versa (Yildiz, 2021: 3).

In a short period of time most of the Russian sanctions were lifted as well as Russian-Turkish energy projects that had been halted earlier were relaunched. Later on, the relations between countries were resumed and, following the coup d'état attempt in 2016, Ankara purchased S-400 missile defence systems from Russia, despite strong opposition from the USA and NATO. This purchase led to a growing tension between Turkey and its Western allies but to a further convergence with Russia. With the delivery of the S-400, Turkey was removed from the F-35 program and became the target of sanctions imposed by the USA (Ozdal et al., 2021: 7). This purchase made Turkey the second country in the world after China and the only NATO member state that owns these advanced Russian strategic weapons.

Another case that jeopardized countries cooperation was an assassination of Russian Ambassador to Turkey Andrei Karlov that took place in Ankara at the photography exhibition "Russia through Turks' eyes" at the end of 2016. However, there were no subsequent crisis as both sides agreed that it was a provocation aimed to sabotage bilateral relations of the sides.

Despite all problems mentioned above both states agreed that cooperation is more beneficial than confrontation that is why an intense bilateral political dialogue has been successfully re-established in a short period of time.

1.2. TURKEY'S ROLE IN THE RUSSIA-UKRAINE WAR

After the Russian invasion of Ukraine took place on February 24, 2022, Ankara did not make attempts to cease all the contacts with Moscow as several other NATO members did. Considering its high cooperation with Russia, Turkey has acceded only to sanctions regimes approved by the United Nations and has not closed its airspace to Russian civil flights. It is clear to all sides of the conflict that if Turkey increases pressure on Russia almost the only possible communication channel between the warring sides might be shut.

However, it would be mistaken to say that Turkey is on the Russian side, the country has voted in the U.N. to condemn the invasion and closed the Dardanelles and the Bosphorus straits to military ships during wartime after Ukraine had requested to block it (Diaz-Prinz, Çuhadar, 2022). Moreover, Turkey alongside humanitarian aid is providing Ukraine with Turkish-made unmanned military combat drones called Bayraktar that are successfully used for surveillance of and attacks on Russia's troops and even became an iconic weapon for Ukrainians. Russia has always been following all communications between Turkey and Ukraine closely, threatening to reconsider its military agreements with Turkey if Ankara continues to tighten its military cooperation with Kiev.

Since the beginning of Russian invasion, the EU have approved six packages of sanctions, including a ban on imports of crude oil and refined petroleum products, a Swift ban for an additional Russian banks and suspension of broadcasting in EU for additional Russian state-owned outlets (Garashchuk, 2022: 12). As a respond to

sanctions imposed by the United States, the European Union, and other countries, Russia published an official list of “unfriendly countries” which due to the Executive Order of Russian Government are required to pay for Russian gas in roubles. This list includes all members of European Union and 21 other countries among which is Ukraine, the USA, Japan, Australia, Canada and others but not Turkey.

According to Diaz-Prinz and Çuhadar report (2022), there are a few discovered reasons behind Turkey’s government attempts to mediate the warring sides communication and stop military action. First of all, Turkey do not want Russia to seize the southern Ukraine coastline and gain more power in the Black Sea, region that historically was a subject of disputed. The second reason is that the war worsens Turkey’s existing economic crisis which is already the worst in last 20 years. Given that there are approaching presidential and parliamentary elections in 2023 the Government of President Erdogan can not afford continuation of country’s economy recession. Substantial worsening of this crisis has occurred due to Turkey's close proximity to war zones such as military conflicts in Georgia, Nagorno-Karabakh, and wars in Iraq and in Syria that also had a negative impact on Turkey's trade. That is why Ankara knows from its personal experience economic cost of a war.

Furthermore, the war poses significant threats to Turkey’s tourism sector which is still recovering after the COVID-19 pandemic which, according to Turkey’s Ministry of Culture and Tourism, resulted a dramatic drop of 72% in the number of tourists from 45,1 million people in 2019 to 12,7 million in 2020. In 2021 this number grew to 24,7 million tourists who were mostly Russians (19%), Germans (12,6%) and Ukrainians (8,5%) (Ministry of Culture and Tourism, 2021). Meanwhile, thousands of Ukrainian refugees and Russian opponents of the war fleeing their motherland who as a matter of fact were equally welcomed (Pearson, 2022) crossed Turkish border looking for support and social security. Although Turkey has extensive experience helping refugees from eastern countries, any state support now exacerbates existing economic tension in the country and irritates local residents who are tired of both foreigners who benefit from refugee status and illegal migrants increasing crime rate (Makovsky, 2019).

The next reason is that the war has disrupted agricultural exports that exposes the market to “to heightened risks of tighter availabilities, unmet import demand and

higher international prices” reports Food and Agriculture Organization of the UN (2022: 20). Russia and Ukraine account up to 30% of world wheat exports, 19% of world maize exports and about 80% of world sunflower oil exports, both countries supply these product categories to Turkey as well. In 2020 export shares of wheat, corn and sunflower in total exports of Russia and Ukraine to Turkey reached about 15% (2 billion USD) and 18% (0,5 billion USD) relatively (OEC).

To sum it up, Turkey demonstrates solidarity with the majority of the world and criticizes Russian military actions in Ukraine, but at the same time, leaders of the country have decided not to enter into a sharp confrontation with Russia and remain a communication channel between Russia and Ukraine with its supporters. No doubt Turkey pursues its own interests in ending the war some of which were mentioned above. Up to now Turkey is among sparse group of countries who eager to do business with Russia whose economy is exposed to sanctions and expected to shrink, political and social stability is disrupted, and the Russian ruble is not sustainable even demonstrating strengthening (Shakhov, 2022).

1.3. ENERGY PARTNERSHIP

International Energy Agency (IEA, 2021: 11) characterises Turkey as a country with a steady growth in energy demand that can not be met by existing domestic fossil fuel resources. That is the reason for a heavy dependency on energy import (3/4 of its total energy needs), especially oil and gas: 93% and 99%, respectively. In the early 2000s the Russian Federation was the dominant energy supplier for Turkey and, although since than Turkey has found several new suppliers and discovered new sources of energy, a position of leading supplier was preserved by Russia. Additionally, a number of projects in energy field such as the Blue Stream, the TurkStream and the Akkuyu Nuclear Power Plant has tightened the relations between two countries,

In 2004 the Blue Stream, a major trans-Black Sea gas pipeline, was launched. Afterwards the TurkStream, a gas pipeline between Russia and Turkey set up to reduce shipments via Ukraine (a route of gas transit to Europe), was placed in operation in 2020. The TurkStream pipeline directly connects the largest gas reserves in Russia to the Turkish gas transportation network, providing energy to Turkey, South and

Southeast Europe. In 2010 the countries agreed to construct Turkey's first nuclear power plant in Mersin province called Akkuyu NPP, the biggest project in the history of Russia-Turkey relationships. According to the plant's CEO, the operation is about to start after 2023 (Zoteeva. 2022).

Over the last three decades a significant share of Turkey's import from Russia has been accumulated by purchases in the energy sector mainly crude petroleum, refined petroleum and petroleum gas (included to a “Mineral Fuels, Mineral Oils and Products of their Distillation” group of products) (OEC 2022).

While staying a long-standing member of the Western bloc and intending the membership in the EU on the one hand, Turkey is willing to cooperate with Russia on the other because this trade partner is able to satisfy Turkey's interest in securing its energy supply on the regional level (Arafat and Alnuaimy, 2011: 112). Enhanced cooperation with Russia guaranteed Turkey a role of a major energy corridor from East to West (Hürriyet, 2020). This position leads to more independent Turkish policy initiatives on the way to become a regional ‘soft power’ and a regional energy hub, which provides Turkey with increasing bargaining power not just in face of Russia, but also the EU.

1.4. TRADE INDICATORS

Economic ties play a significant role in bilateral relationships between Turkey and Russia, it goes without saying that one of the main factors deepening these ties is trade. Both countries have been members of the World Trade Organization, Turkey since 26 March 1995, Russia since 22 August 2012. The basic trade indicators of Russia and Turkey are represented in the Table 1. Total Russian export in 2021 amounted to 492,3 billion USD (2,29% of total world export) which is twice as high as Turkey's export over the same time period: 225,2 billion USD (1,05% of total world export). Since Russia has demonstrated a positive trade balance of 198,8 billion USD the country can be called a net exporter, while Turkey is, on the contrary, a net importer with a negative trade balance -46,2 billion USD. Total import volumes of the countries are comparable.

Table 1: Russia-Turkey Trade Indicators, 2021

	Russia	Turkey
Total Export, million US \$	492314	225221
Share of World's Export, %	2,29	1,05
Total Import, million US \$	293502	271423
Trade Balance, million US \$	198812	-46202
	Russia to Turkey	Turkey to Russia
Export, million US \$	28959	5774
Share in country's total export, %	5,88	2,60
	Russia from Turkey	Turkey from Russia
Import, million US \$	5774	28959
Share in country's total import, %	1,97	10,70

Source: International Trade Map, <https://www.trademap.org/> , (20.05.2022)

The driving force behind Russian-Turkish relations has been primarily economic and trade interaction. For decades Russia has remained its positions as one of the top-three importers for Turkey: in 2021 the amount of import from Russia to Turkey reached 29,0 billion USD (10,7% of total Turkey's import or 5,88% of total Russia's export) while export from Turkey to Russia constituted 5,8 billion USD (1,97 % of total Russia's import or 2,6% of total Turkey's export) (International Trade Map, 2022).

As it is shown in the Table 2, over the last 30 years Turkey has demonstrated a negative trade balance with Russia and remained the position of a net importer. A closer look at the numbers of Turkey's trade relations with Russia presents that from 1997 to 2014 the trade imbalance was increasing dramatically. In fact, on average import from Russia exceeds export in 3-6 times. The Table 2 represents only trade of goods, not services since needed data was not available. In fact, Turkey demonstrates a higher level of services exports than its partner so Turkey's services such as tourism and contracting projects provided to Russia decrease trade imbalance to some extent (Hamilton and Mikulska, 2021: 54).

A sharp decrease in the amount of Russian imports to Turkey can be seen in Table 2 in 1998-1999 when Russia was hit by a severe economic crisis and Russian ruble experienced devaluation. The 2000s are called a "golden period" (Arafat and

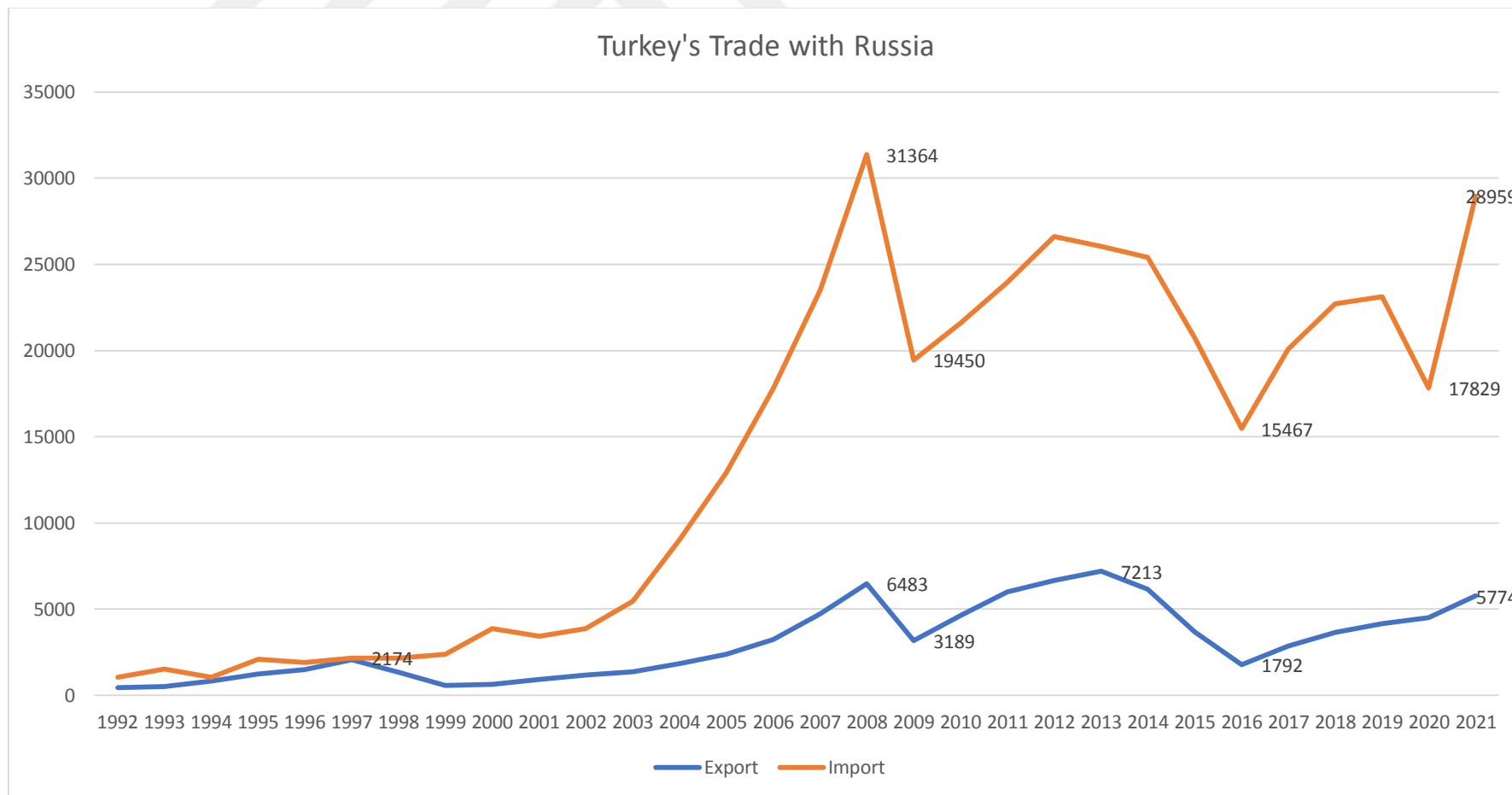
Alnuaimy, 2011: 104) in Russian-Turkish relationships what is proved by numbers demonstrated in Figure 2: over this period of time both export and import volumes demonstrated a gradual growth up to 2008 when import peaked at 31 billion USD, the highest rate over the whole studied period. In 2009 due to the global financial crisis there was a dramatic decrease in the numbers but followed by an improvement continued until 2013 when export volume reached its peak at 7 billion USD, the following decrease is related to a slowdown of economic growth occurred in Turkey (Ulchenko, Shlikov, 2014: 48).

Table 2: Turkey-Russia Bilateral Trade of Goods, 1992-2021

	Turkey to Russia, million US \$	Growth Rate, %	Turkey from Russia, million US \$	Growth Rate, %	Trade Balance, million US \$
1992	441,83		1040,81		-598,97
1993	505,28	14,36	1542,32	48,18	-1037,04
1994	820,19	62,33	1044,90	-32,25	-224,71
1995	1232,04	50,21	2082,37	99,29	-850,32
1996	1494,43	21,30	1900,22	-8,75	-405,78
1997	2056,47	5,49	2174,24	14,42	-117,77
1998	1347,47	-34,48	2154,97	-0,89	-807,50
1999	588,60	-56,32	2374,10	10,17	-1785,50
2000	639,08	8,58	3879,87	63,42	-3240,79
2001	924,11	44,60	3435,67	-11,45	-2511,57
2002	1168,31	26,43	3863,18	12,44	-2694,87
2003	1367,59	17,06	5451,32	41,11	-4083,73
2004	1859,19	35,95	9033,14	65,71	-7173,95
2005	2377,05	27,85	12905,62	42,87	-10528,57
2006	3237,61	36,20	17806,24	37,97	-14568,63
2007	4726,85	46,00	23508,49	32,02	-18781,64
2008	6483,00	37,15	31364,48	33,42	-24881,47
2009	3189,61	-50,80	19450,09	-37,99	-16260,48
2010	4628,15	45,10	21600,64	11,06	-16972,49
2011	5992,63	29,48	23952,91	10,89	-17960,28
2012	6680,78	11,48	26625,29	11,16	-19944,51
2013	7213,98	7,98	26046,54	-2,17	-18832,56
2014	6170,45	-14,47	25411,70	-2,44	-19241,25
2015	3684,26	-40,29	20744,05	-18,37	-17059,79
2016	1792,92	-51,34	15467,24	-25,44	-13674,32
2017	2869,85	60,07	20097,03	29,93	-17227,18
2018	3652,60	27,28	22710,75	13,01	-19058,15
2019	4152,14	13,68	23115,24	1,78	-18963,10
2020	4506,68	8,54	17829,31	-22,87	-13322,63
2021	5774,70	28,14	28959,36	62,43	-23184,66

Source: Uncomtrade.com, <http://comtrade.un.org/>, (20.05.2022)

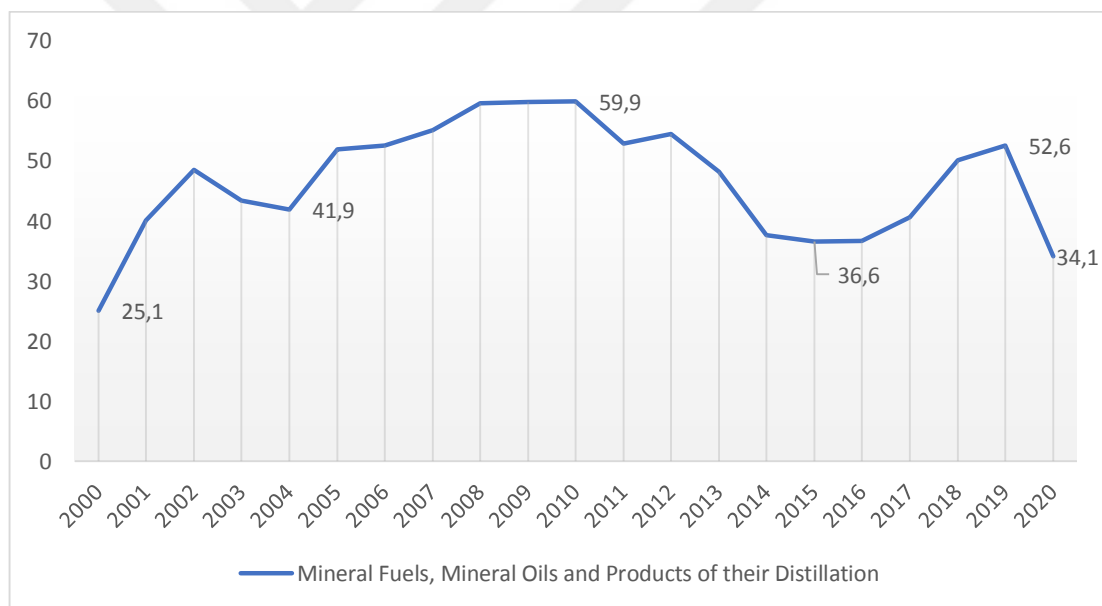
Figure 1: Turkey-Russia Bilateral Trade, 1992-2021, million USD



Source: UN Comtrade, <https://comtrade.un.org/data>, (20.05.2022).

In 2016 bilateral trade started to recover, export to Russia has been growing up to 2021 (the latest studied year) while import from Russia demonstrated a drop in 2020 (-22,87%) which to a certain degree can be explained by the Russia–Saudi Arabia oil price war when the energy market faced a sudden considerable reduction of oil price (Ng, 2020). This crisis had an effect on the structure of Turkey’s import from Russia and as indicated in the Figure 2, import share of mineral fuels, mineral oils et cetera dropped from 52,6% in 2019 to 34,1% in 2020. Apart from mineral fuels and oils, Russia exports to Turkey iron, steel and aluminium, cereals, sunflower seeds and oil, gold; in return Turkey exports vegetables, fruits and nuts, machinery, motor vehicles and their parts, textiles, plastics (OEC, 2020).

Figure 2: Share of Mineral Fuels, Mineral Oils and Products of their Distillation in Total Turkey’s import from Russia, 2000-2020



Source: The Observatory of Economic Complexity, <https://oec.world/en/profile/country/rus> , (20.05.2022)

Russia is a leading energy supplier for Turkey, share of mineral fuels, mineral oils and products of their distillation in total Turkey’s import from Russia rose rapidly from 25,1% in 2000 to 59,9% in 2010, total export in these years was 3,9 and 21,6 billion USD relatively. It should be noted that this fluctuation is related not only to the rising amounts of energy purchases but also to energy prices differing over time. These facts indicate that Russian export to Turkey is not diversified enough, and Turkey has

a high dependency on Russian energy supply. This dependency is one of the reasons behind constantly growing trade imbalance between the two countries: a growth rate of Turkey's exports value is not able to overcome a growth rate of Turkey's import value based on oil prices (Ulchenko, Shlikov, 2014: 49).

On the whole, most of the events mentioned in the historical context subsection have had an effect on trade relations between Russia and Turkey. Despite of the experienced crises that caused drops in export-import values the bilateral trade has shown a positive dynamic since the begging of studied period. To preserve this steady growth the partners are recommended to support local companies and encourage them to export, to initiate bilateral agreements and continue lowering trade barriers. As Turkey considerably dependent on Russian energy supply, in this relations Russia has a strong leverage that can be used as a bargaining tool. To lower this dependence Turkey should search for other energy suppliers as well as other energy sources. Furthermore, in current geopolitical situation it might be beneficial to reconsider structure of Turkish export to Russia and to identify sectors of Russian market facing a lack of supply due to the Russia-Ukraine War.

CHAPTER TWO

LITERATURE REVIEW

Throughout its history, the tempestuous and yet intertwined relations between Russia and Turkey have been an object of interest for scientists on both local and international levels. This chapter briefly reviews selected studies on Russian-Turkish bilateral trade. Great evidence of various literature covering mostly XX-XIX centuries has been found in the political, diplomatic and economic fields (Kınıklıoğlu, 2006; Klinov, 2010; Arafat and Alnuaimy, 2011; Ulchenko and Shlikov, 2014; Şimşek et al., 2017; Agha, 2021). Evolving bilateral trade as well has spawned the appearance of a large number of studies and research works. The focus of this research paper's literature review is studies comprising Russian-Turkish trade connections since the Soviet Union collapse and declaration of the Russian Federation in 1991 until the present moment, June 2022.

To investigate into a bilateral trade between two countries a plenty of indices was developed by researchers of different spheres, however, there is a limited number of measurements that are widely accepted, among which are trade intensity index, trade complementarity index and revealed comparative advantage (Kojima, 1965; Bowen, 1983).

A substantial literature comparing Russia and Turkey with other countries or trade blocks has been generated over the whole studied period. Turkey as a potential European Union member is analysed in relation to the UN members or other candidates (Yılmaz, 2002; Yılmaz, 2003; Utkulu and Seymen, 2004; Ekmen and Özçelik, 2013), and in comparison to Commonwealth of Independent States (CIS), where Russia is a member (Simay Karaalp, 2011).

A detailed comparison of Turkey and Russia's export performance in their common commodities sectors made by Güneş and Tan (2017) is based on a competitive analysis of Turkey and European countries by Yılmaz (2003). In both studies in order to group available trade data for further calculation Hufbauer and Chlas's sectoral classification (1974) was implemented. For data access authors used Standard International Trade Classification (SITC), then for specified groups of commodities revealed comparative advantage was found and analysed.

Revealed comparative advantage index allows to assess a country's export potential, over its history the index has been modified variously by different authors (Bowen, 1983; Edwards and Shoer, 2002). The most widely accepted approach of RCA index was presented by Balassa (1965:106), and since then, it has been used as a basic approach for trade analysis in a large number of studies, such as those by Westen (1998), Yılmaz (2003), Utkulu and Seymen (2004), Güneş and Tan (2017), et cetera. As Utkulu and Seymen underlined (2004), the very first variant of famous Balassa's index was proposed by Liesner in 1958, who calculated ratio between one country's export of a particular commodity and export of this commodity by a set of countries. Some studies refer to this index as Comparative Export Performance (CEP) (Yılmaz, 2002).

The popularity of the RCA Index is explained by its simple, relatively easy calculations at any level of aggregation, and it generates possible cross-country and cross-sector rankings (Balance et al., 1987: 158). The standard calculation of RCA measures how much a country of interest exports a particular good relative to its total trade, in comparison to the share of that good in world trade. Nonetheless, as simplicity often affects accuracy Greenaway and Miller (1993: 185) doubted the RCA index's reliability since it doesn't consider amounts of imported commodities, especially in the cases when country's degree of openness greatly affects the trade. Another reason for critics is that the RCA competitiveness measure uses post-trade data to 'reveal' a country's comparative advantage (Edwards, Schoer, 2002: 1020). However, despite of its drawbacks, RCA coefficient allows to analyse a country's comparative advantage, based on actual export performance thus it has been decided to use RCA index in this study for export analysis and further comparison of its results with findings in existing literature.

The analysis of existing research papers covering trade relations of Russia and Turkey with other countries showed that RCA approach is widely used. The Tables 3 and 4 provide information about other methods used by the authors, the conclusions made can be found below the tables.

According to Yılmaz, in 1987-1997 Turkey remained in a strong competitive position with respect to the labour-intensive goods, while it appeared to have comparative disadvantages in the "easy imitable research-intensive goods" and

"difficult imitable research-intensive goods" categories (2002: 60). During the studies period Turkey had an export pattern similar to Greece's one.

Table 3: Studies on Turkey and other countries

Authors, covered period	Comparison with	Methods used
Yılmaz, (2002) 1987-1997	Turkey and the European-Mediterranean members: Greece, Portugal, Spain, and the EU/12/15	Revealed Comparative Advantage, Comparative Export Performance, Trade Overlap, Export Similarity
Yılmaz, (2003) 1996-1999	Turkey and the five EU candidate countries Bulgaria, the Czech Republic, Hungary, Rumania, Poland, and the EU/15.	Revealed Comparative Advantage, Comparative Export Performance, Trade Overlap, Export Similarity
Utkulu and Seymen, (2004) 1990-2003	Turkey and the EU/15	Revealed Comparative Advantage
Simay Karaalp, (2011) 1996-2008	Turkey and CIS countries: Russia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova and Ukraine	Revealed Comparative Advantage, Intra-Industry Trade, Trade Intensity
Ekmen and Özçelik, (2013) 1996–2010	Turkey and the EU/15	Revealed Comparative Advantage, Dynamic Revealed Comparative Advantage
Batbaylı and Erkan, (2018) 2000-2014	The Fragile Five Economies: Brazil, India, Indonesia, South Africa, and Turkey	Export Similarity, Revealed Comparative Advantage

Source: Prepared by authors

According to Yılmaz's (2003) conclusions in 1996-1999 Turkey demonstrated a strong competitive position in raw-material and labour-intensive goods (RMIG and LIG), comparative disadvantage in easy-to-intimate and difficult-to-intimate research-intensive goods. (EIRIG and DIRG), capital-intensive goods (CIG) competitiveness level was not the strongest side of Turkey's export but demonstrated a positive dynamic. In 2003 Yılmaz concludes that in order to implement export diversification from labour-intensive to research-oriented commodities Turkey should utilize IMF-guided "Stabilization Program" enacted in 2001, enforce restructuring and

modernisation policies, and encourage foreign direct investments and capital inflows.

The analysis of Turkey's competitiveness within European context conducted by Utkulu and Seymen (2004) is based on revealed comparative advantage index. In 1990-2003 Turkey had RCA in the following categories: SITC 5 Vegetables and fruits, SITC 6 Sugar, sugar preparations, honey, SITC 12 Tobacco, SITC 22 Oil seeds and oleaginous fruits, SITC 62 Rubber manufactures, SITC 65 Textile yarn, fabrics and related products, SITC 84 Clothing and clothing accessories.

Ekmen and Özçelik (2013) have evaluated Turkey's competitiveness position towards its non-EU/15 competitors in the EU/15 market from both static and dynamic points of view. The study covers Turkey's dynamic marketing position and reveals that in the period 1996-2010 almost a half of the country's exports fell into the category of lagging retreat. The research demonstrates that 48,2% of total Turkish exports are labour-intensive goods that are mostly grouped to lagging and leading retreat categories meaning that world's export of these goods is shrinking. A considerable share of rising stars is represented by capital-intensive goods. In order to raise Turkey's international competitiveness in research-intensive goods category, it is recommended by the authors to match well-designed trade policies with science and technology policies.

The study of Batbaylı and Erkan (2018) compares export structure and determines comparative advantages of The Fragile Five Economies: Brazil, India, Indonesia, South Africa, and Turkey. These countries are grouped and called as "fragile economies" because they have similar problems: growing inflation rate, high current account rate, increasing unemployment rate, budget disbalance, rising external debt and slowing growth performances (Batbaylı and Erkan, 2018: 621). The results showed that among these five countries Turkey's main competitor were Brazil (in 2000 and in 2007) and South Africa (in 2014) since they have similar export patterns. Furthermore, the study revealed that in 2000-2014 Turkey had revealed comparative advantage in the following commodity categories: SITC 84 Articles of apparel and clothing accessories, SITC 65 Textile yarn, fabrics, made-up articles, n.e.s., and related products, SITC 05 Vegetables and fruit, and SITC 27 Crude fertilizers, other than those of Division 56, and crude minerals (excluding coal, petroleum, and precious stones). The conclusion has been made that Turkey has a comparative advantage mostly in the

raw-material-, labour-, and capital-intensive goods.

Russia's export and import capabilities, competition and complementarity are compared with other BRICS countries or with the EU (Westin, 1998; Raghuramapatruni, 2015; Maryam et al., 2018).

Table 4: Studies on Russia and other countries

Authors, covered period	Comparison with	Methods used
Westin, (1998) 1992-1995	Russia and the EU	Revealed Comparative Advantage, Intra-Industry Trade
Raghuramapatruni, (2015) 2001-2014	Brazil, Russia, India, China and South Africa (BRICS)	Trade Intensity, Revealed Comparative Advantage, Trade Dependency
Şimşek et al., (2017) 1992–2014	Russia and Turkey	Trade Intensity, Trade Complementarity, Revealed Comparative Advantage, Bilateral Revealed Comparative Advantage
Güneş and Tan, (2017) 2007-2014	Russia and Turkey	Revealed Comparative Advantage, Dynamic Revealed Comparative Advantage
Maryam et al., (2018) 2001-2015	Trade among Brazil, Russia, India, China and South Africa (BRICS) and with EU	Trade Intensity, Revealed Comparative Advantage

Source: Prepared by authors

One of the earliest studies of trade between Russia and the EU (Westin, 1998) reveals that since already in 1992 Russia had a comparative advantage in primary products and there was the lack of restructuring in its industry and foreign trade pattern. The article also underlines that mostly Russia exports labour- and raw-material-intensive goods such as non-ferrous metals like aluminium and zinc, and ferrous metals like iron and steel. Westin (1998: 22) forecasts that for a foreseeable future Russia will remain dependent on export of minerals and raw materials.

Raghuramapatruni (2014) evaluates trade intensity among Brazil, Russia, India, China and South Africa (BRICS) and concludes that Russia's main partners are

India and Brazil, mostly due to Russian gas and oil reserves. The study analyses 14 commodity categories and discovers that Russia has a greater potential in the area of Fuels and Mining, Fuels, Iron and Steel.

The research paper by Maryam et al. studying trade flows among BRICS members and with the UN covers the period 2001-2015, when Russia emerged as the main trading partner with EU in BRICS. According to the paper, in 2015 Russia had a comparative advantage in raw-material intensive goods such as mineral fuels, mineral oils and products of their distillation, nickel and articles thereof, fertilizers, arms and ammunition, wood and articles of wood, iron and steel (2018: 1195).

The presence of articles comparing Russia and Turkey in a competition perspective is evident as well (Arafat and Alnuaimy, 2011; Güneş and Tan, 2017; Şimşek et al., 2017). Güneş and Tan (2017) studied not only a static RCA but additionally investigated into its dynamic version. In this research paper authors used static and dynamic RCA to carry out a comparative analysis of 14 common goods sectors exported by both Russia and Turkey in 2007-2014 (SITC 0 Food and live animals, 7 Machinery and transport equipment, 9 Commodities and transactions not classified elsewhere in the SITC, 12, 22, 27, 54, 59, 61, 64, 66, 71, 76 Telecommunications and sound-recording and reproducing apparatus and equipment, 88 Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks, 97 Gold, non-monetary (excluding gold).

Dynamic revealed comparative advantage offered by Edwards and Schoer (2002: 1012) is supposed to take into consideration the life cycle of a product, changes in its geographical location, and other variables transforming over a period of time. The results of static RCA evaluation (Güneş and Tan, 2017) demonstrated “strong advantage of Turkey over Russia” in all of the common sectors at both bilateral and multilateral levels. The results of dynamic RCA calculation forecasted that Russia might overcome Turkey in a long-term perspective: during the studied period 2011-2014 Russia had 11 out of 14 categories falling under the rising star category, and Turkey had only 6 out of 14. The article underlines necessity to make a shift to production and exporting goods with high added value in order to improve country’s prosperity.

Seeing that the aim of this study is to estimate potentiality of Turkish export to

meet needs of Russia experiencing a significant readjustment of its international supply chains due to the invasion's consequences there is no need to carry put a comparative analysis of Russia and Turkey exports. However, it would be relevant to provide an evaluation of Turkey's export capabilities in particular sectors and compare it with the rest of the world. For this purpose, static and dynamic RCA coefficients are used in the course of further empirical analysis.

Another trade index analysing bilateral relations between two countries or regions is Trade Complementarity Index introduced in 1996 by Michaely. It shows to what extent the export pattern of one trade partner overlaps the import pattern of another partner. A higher degree of complementarity displays more favourable prospects for efficient trade relations, while too measures signal about higher dependency that gives a tool for manipulations to a superior partner. Analysis of the index in dynamic demonstrates whether the trade profiles are getting more or less compatible over a particular time period.

Simay Karaalp (2011) in his study compares Turkey's competitiveness in relation to the nine CIS (Commonwealth of Independent States) countries: Russia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova and Ukraine over 1996-2008. The revealed comparative advantage and trade intensity indices are calculated for 16 commodities groups with respect to the world market. The findings indicates that Turkey has competitive advantage in 6 out of 16 product groups: agricultural products, food and manufactures sector such as textiles, clothing, iron and steel and automotive products. The most significant products of Turkish manufacture industry in the world trade are textiles, clothing, iron and steel which have high revealed comparative advantage during the time period. Comparative disadvantage is shown in production of fuels and mining products, fuels, chemicals, pharmaceuticals, machinery and transport equipment, office and telecom equipment, electronic data processing and office equipment, telecommunications equipment and integrated circuits and electronic components in the world market.

In comparison with the rest of the world, in terms of competitiveness Turkey demonstrates a stronger position in CIS market. The article underlines that in 2008 among all CIS countries Turkey had the most intense trade relationships with Azerbaijan, Georgia and Kyrgyz Republic, while trade intensity with Russia is

worsening but remains over-unity.

Şimşek et al. (2017) carry out an analysis of Russian-Turkish bilateral trade using trade intensity index, trade complementarity index and revealed comparative advantage between 1992 and 2014. The findings present that the countries have a intense import relationship, strong complementarity of trade patterns, Turkey has a comparative advantage in labour-intensive goods and increases its export of difficult-to-intimate goods to Russia. The authors conclude that further development of bilateral relation is expected to be economically beneficial for both countries.

To conclude, there is a large number of approaches used by authors in their studies to analyse, compare and evaluate trade relations between a country and its partner or group of partners. The most common used, though, are Revealed Comparative Advantage, Trade Intensity, and variations of Trade Compatibility. Also, to classify commodities the Standard International Trade Classification is widely adopted. Thus, it has been decided to implement these approaches in this research paper as well.

CHAPTER THREE

EMPIRICAL ANALYSIS

3.1. RESEARCH OBJECTIVE AND LIMITATIONS

This study aims to examine Turkey's bilateral trade intercourse with Russia in order to identify potentialities and problems for Turkey caused by the Russia-Ukraine War. To conduct the analysis time periods must be specified. It has been decided to take as a beginning point of the study the dissolution of the Soviet Union in 1991, the declaration of the Russian Federation and its subsequent recognition by Turkey. The end of this period is June 2022, when most of data collection was completed.

Due to availability limitations of data about bilateral trade of services further analysis and calculations are based on specifically trade of commodities. It is important to consider that the indices calculated in the study are affected by anything that distorts the trade pattern, e.g., all types of trade barriers, trade policy instruments such as subsidies, tariffs and quotas. The results of calculations are exposed to aggregation bias.

On the grounds that because of the war Russia has stopped to publish economic reports since February 2022 there is no accurate data about Russia's foreign trade, the analysis relies on trade data from previous years, outlook is built on identified tendencies and trends. At present it does not seem possible to evaluate the size of a drop in foreign supply to Russian market since no reliable data is available yet.

3.2. METHODOLOGY AND DATA

With the purpose to look into the matter of the bilateral trade between Turkey and Russia the paper has adopted the following methodologies:

- trade intensity index (Kojima, 1964),
- trade complementarity index (Michaely, 1996),
- static and dynamic revealed comparative advantage (Balassa, 1965; Edwards and Shoen, 2002),
- sectoral classification of commodities based on their technological

characteristics (Hufbauer, Chlas, 1974; Yılmaz, 2002).

For the analysis, the secondary data sets are obtained from the online database of The United Nations Commodity Trade database (UN COMTRADE). This database aggregates detailed annual and monthly trade statistics by product and trading partner on a global level. Data compiled by the United Nations Statistics Division covers approximately 200 countries and represents more than 99% of the world's merchandise trade (UN COMTRADE). For this study the following data was extracted from the UN Comtrade database: amounts of export and import of Turkey and the world, of Russia and the world, as well as export-import numbers between Russia and Turkey.

The Standard international trade classification (SITC), is a product classification of the United Nations used for external trade statistics, allowing for international comparisons of commodities and manufactured goods. Data at the 3-digit level, according to SITC Rev. 3, is used to classify commodities traded between Russia and Turkey, and to conduct the calculations of indices.

3.2.1. Trade Intensity

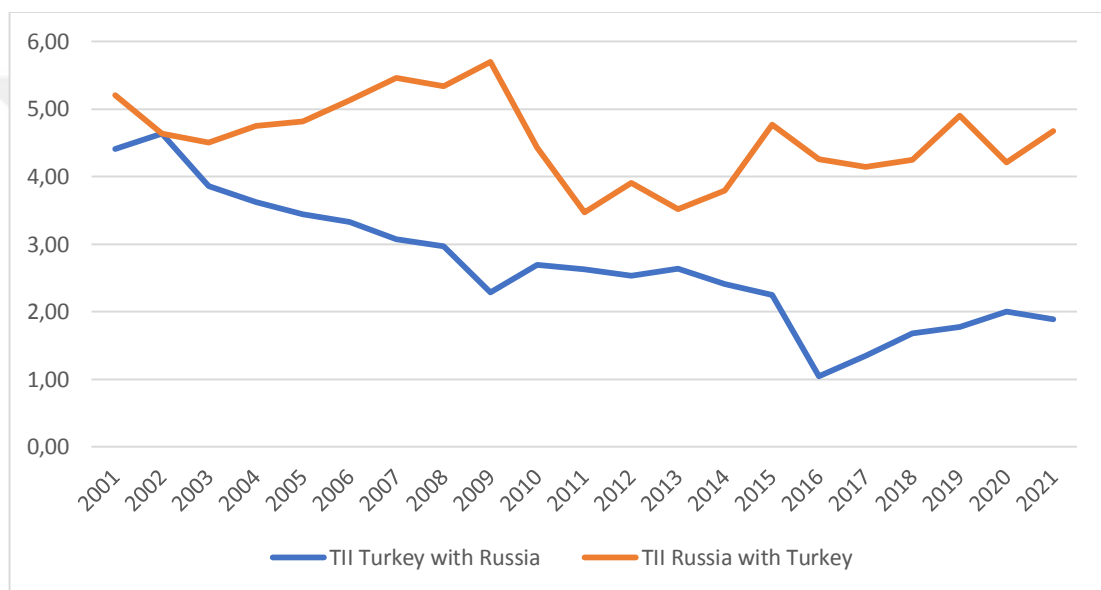
Trade Intensity Index allows to compare an export size of a particular country or region and world's export to a given destination. Put another way, the index demonstrates whether or not trade intensity between two partners is higher than with the rest of the world. Formulas for the trade intensity approach were presented by Kojima (1964: 19). The trade intensity index for country i with country j is calculated as follows:

$$TII_{ij} = \frac{X_{ij}/X_i}{M_j/(M_w - M_i)} * 100 \quad (1)$$

where X_{ij} is a value of country i's export to country j; X_i is total export from country i; M_j is total import of country j; M_w is total world import; M_i is total import of country i. These values pertain to a given period of time and expressed by a common currency. The index takes on a value from 0 to infinity; values greater than 1 indicate an 'intense' trade relationship. An index of more than one indicates that a bilateral trade flow between the countries can be regarded as intense.

A steady growth of Russian TII was observed within the period of 2003-2009, with a peak of intensity in 2009, which was followed by a decrease related to the global financial crisis. Since 2011 Russia has been gradually increasing the intensity of trade with Turkey. At the same time, Turkey has demonstrated quite the opposite tendency – a gradual decline since 2002. After 2015 Turkey’s trade intensity indicator dropped sharply which to a certain degree could be explained by the Fighter Jet Crisis and consequent trade barriers set by Moscow.

Figure 3: Trade Intensity Indices, 2001-2021



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (17.06.2022).

Overall, it can be concluded that the trade intensity index remained over unity throughout the observed period indicating an active cooperation between Russia and Turkey. The following step is to analyse the nature of Russian-Turkish bilateral trade by comparing their export-import patterns.

3.2.2. Trade Complementarity

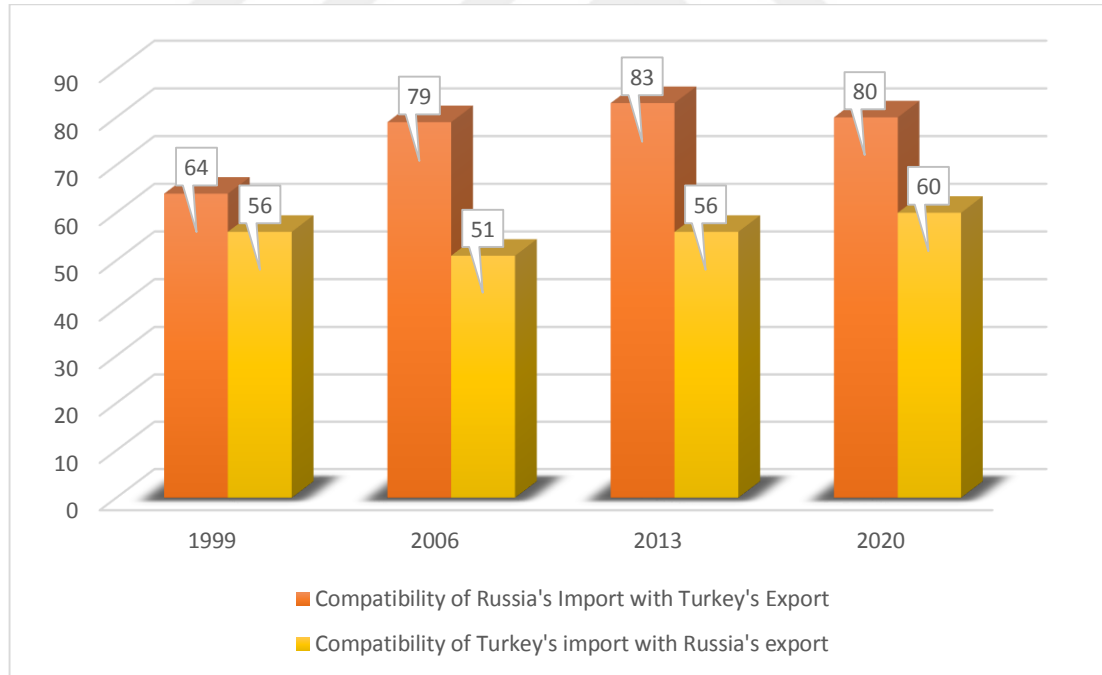
The complementarity index introduced (Michaely, 1996) is a type of overlap index that measure to what extent two countries are “natural trading partners” in the sense that the export pattern of one country matches or overlaps the import pattern of

another. A higher degree of complementarity displays more favourable prospects for efficient trade relations. Analysis of the index in dynamic demonstrates whether the trade profiles are getting more or less compatible over a particular time period. The trade complementarity index is calculated as follows:

$$TCI_{jk} = 100 * (1 - \sum \frac{|m_{ij} - x_{ik}|}{2}) \quad (2)$$

Where TCI_{jk} shows the compatibility of imports of country j with exports of country k; x_{ik} is the share of product i in global exports of country k and m_{ij} is the share of product i in total imports of country j. The index value varies from 0 to 100, with zero indicating that trade flows have no similarity and 100 indicating a perfect match in the import/export pattern.

Figure 4: Trade Complementarity Indices of Turkey and Russia, 1999-2020



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (17.06.2022).

The index may have wide range of applications as various values can be used under the concept of "product". For the purposes of this paper, the Standard International Trade Classification (SITC) was used to collect trade sectors data, which

was divided into five groups. Detailed explanation of utilized commodities grouping is provided in the following subsection 4.2.3.

The results of trade complementarity provide further evidence that Russia and Turkey are able to meet each other trade demands quite successfully. Russia's import pattern has matched Turkey's export pattern to a great extent over the studied period even with a slight decrease from 2013 to 2020. Turkey as well has increased its import compatibility since 2006. However, since the higher value of index indicates not only a higher similarity of trade patterns of home-country and a partner but the stronger potential of displacement of imports from the rest of the world by imports from this partner (Michaely, 2001: 132), a current situation is risky for both sides. To avoid possible overdependence Turkey could diversify its imports from Russia and, at the same time, look for new supplier in the sectors where Russia is the major exporter.

3.2.3. Sectoral Classification of Commodities

The export commodities are classified in accordance with their technological characteristics, built on the latest most common approaches adopted by Hufbauer and Chilas (1974) and Yilmaz (2002). Earlier interpretations of the similar approach were evident, such as Kojima (1964) offering a three-fold classification: natural-factor-intensive, labour-intensive, and capital-intensive goods. The trade sectors "Standard International Trade Classification (SITC)" values have been divided into the following groups:

1. raw-material intensive goods (RMIG) include

- SITC 0 Food and Live Animals,
- SITC 2 Crude Material, Inedible, Except Fuels (excluding 26),
- SITC 3 Mineral Fuels, Lubricants and Related Materials (excluding 35),
- SITC 4 Animal and Vegetable Oils, Fats and Waxes,
- SITC 56 Fertilizers (Other Than Those of Group 272);

2. labour-intensive goods (LIG) include

- SITC 26 Textile Fibres (Other Than Wool Tops and Other Combed Wool) and Their Wastes (Not Manufactured Into Yarn or Fabric),
- SITC 6 Manufactured Goods Classified Chiefly by Material (excluding 62, 67,

68),

SITC 8 Miscellaneous Manufactured Articles (excluding 88, 87);

3. *capital-intensive goods (CIG) include*

SITC 1 Beverages and Tobacco,

SITC 35 Electric Current,

SITC 53 Dyeing, Tanning and Colouring Materials,

SITC 55 Essential Oils and Resinoids and Perfume Materials; Toilet, Polishing and Cleansing Preparations,

SITC 62 Rubber Manufactures, n.e.s.,

SITC 67 Iron and Steel,

SITC 68 Non-Ferrous Metals,

SITC 78 Road Vehicles (Including Air-Cushion Vehicles);

4. *easy-to-imitate research-intensive goods (EIRG) include*

SITC 51 Organic Chemicals,

SITC 52 Inorganic Chemicals,

SITC 54 Medicinal and Pharmaceutical Products,

SITC 58 Plastics in Non-Primary Forms,

SITC 59 Chemical Materials and Products, n.e.s.,

SITC 75 Office Machines and Automatic Data-Processing Machines,

SITC 76 Telecommunications and Sound-Recording and Reproducing Apparatus and Equipment;

5. *difficult-to-imitate research-intensive goods (DIRG) include*

SITC 57 Plastics in Primary Forms,

SITC 7 Machinery and Transport Equipment (excluding 75, 76, 78),

SITC 87 Professional, Scientific and Controlling Instruments and Apparatus, n.e.s.,

SITC 88 Photographic Apparatus, Equipment and Supplies and Optical Goods, n.e.s.; Watches and Clocks.

The Figure 5 demonstrates Turkey's total export structure in dynamic from 1999 to 2008. Over studied period there was no evidence of significant structural changes of export, only in 2006 a small decrease of labour-intensive goods share predominantly in favour of capital-intensive goods that is not a very beneficial shift

for country since commodities of these groups are not as expensive as EIRG and DIRG. A growth of difficult-to-intimate research-intensive group from 11% in 1999 to 18% in 2020 is a positive trend for Turkey since goods with high added value (EIRG and DIRG) accumulated almost a quarter of total export (23%), however, to provide sustainable economic growth policies oriented to increase this share must be taken.

Sectoral structure of Turkey's total import shown on the Figure 6 has had positive changes since 1999, share of price goods (EIRG and DIRG) decreased from almost a half of total import (45%) to 36% in favour to raw-material goods that have comparatively lower prices on average.

The Figure 7 clearly demonstrates the main problem of Russian economy which is an extreme dependency on energy export. Raw-material-intensive goods calculated 80% of total exports in 2020, this section includes energy sources and food (cereals, corn, sunflower). Needed to note that in some degree growing prices on energy affect this ratio as well. Especially in a current situation when countries supporting Ukraine (including major European consumers of Russian energy and wheat) trying to find alternative supplier or energy sources to reduce trade with Moscow. Russia extremely needs to diversify its export and develop production of research-intensive good.

Meanwhile, according to the Figure 8, structure of total Russian import looks much more diversified in comparison to the exports pattern, a negative tendency of this diversification can be seen as well. If in 1999 Russia imported 33% of research-intensive goods, up to 2020 this number grew to 48% which means higher spendings. One of the reasons behind this growth is overall simplification of production.

A closer look at the Figure 9 representing sectoral share of Turkey's export to Russia between 1992-2021 reveals its similarity with the Figure 5 picturing Turkey's total export. There is a sharp decline in the share of labour-intensive goods from 54% in 1999 to 25% in 2021 while research-intensive goods shares grew from 10% to 30%. As it was mentioned in the previous chapter, Turkey's top exports to Russia are vegetables, fruits and nuts which are raw-material-intensive goods (31% in 2021), then machinery, motor vehicles and their parts which are DIRG (26%) and CIG (14%), textiles grouped to labour-intensive goods (25%) and plastics which are also DIRG.

Figure 5: Sectoral Structure of Turkey's Total Export, 1999-2020

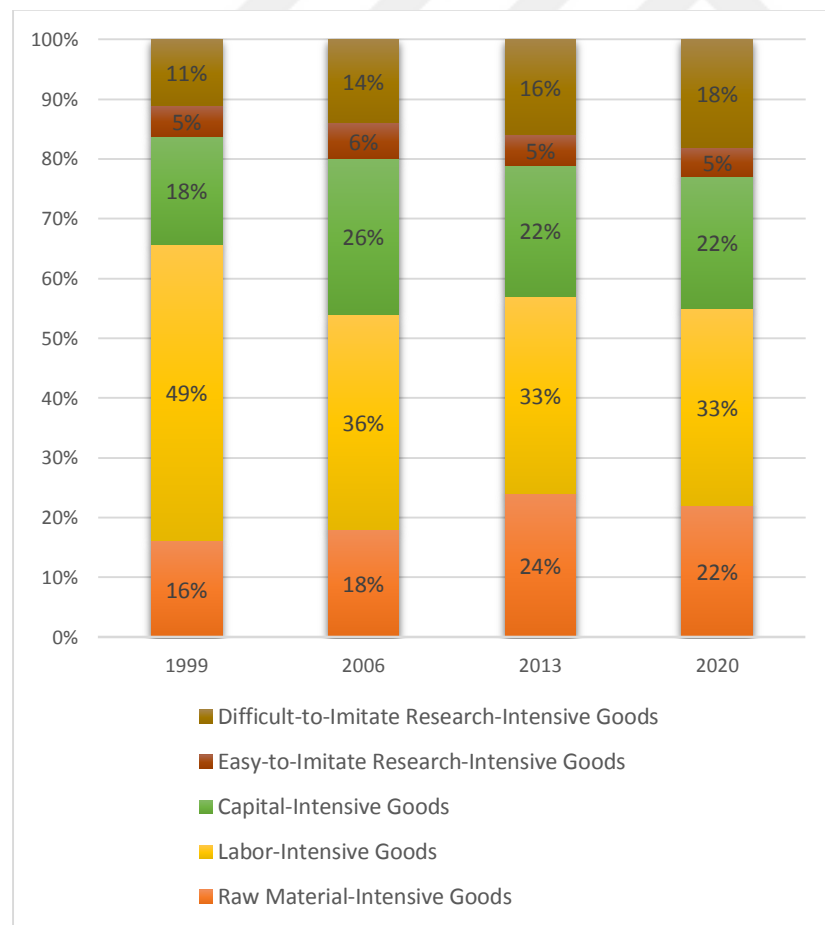
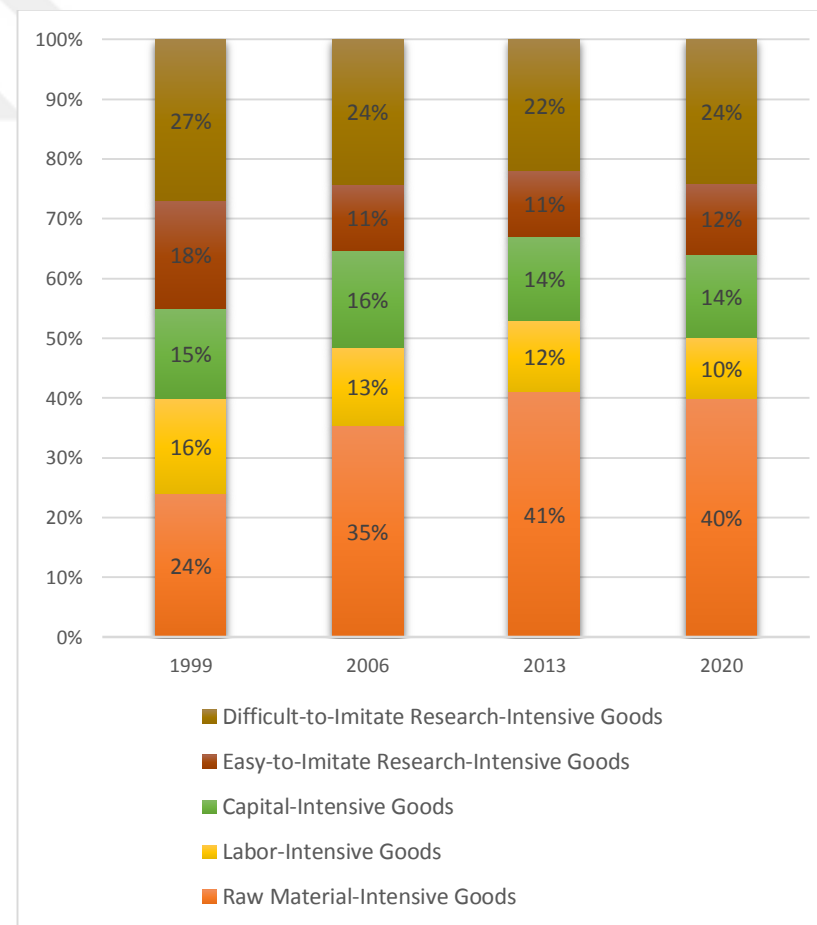


Figure 6: Sectoral Structure of Turkey's Total Import, 1999-2020



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (18.06.2022)

Figure 7: Sectoral Structure of Russia's Total Export, 1999-2020

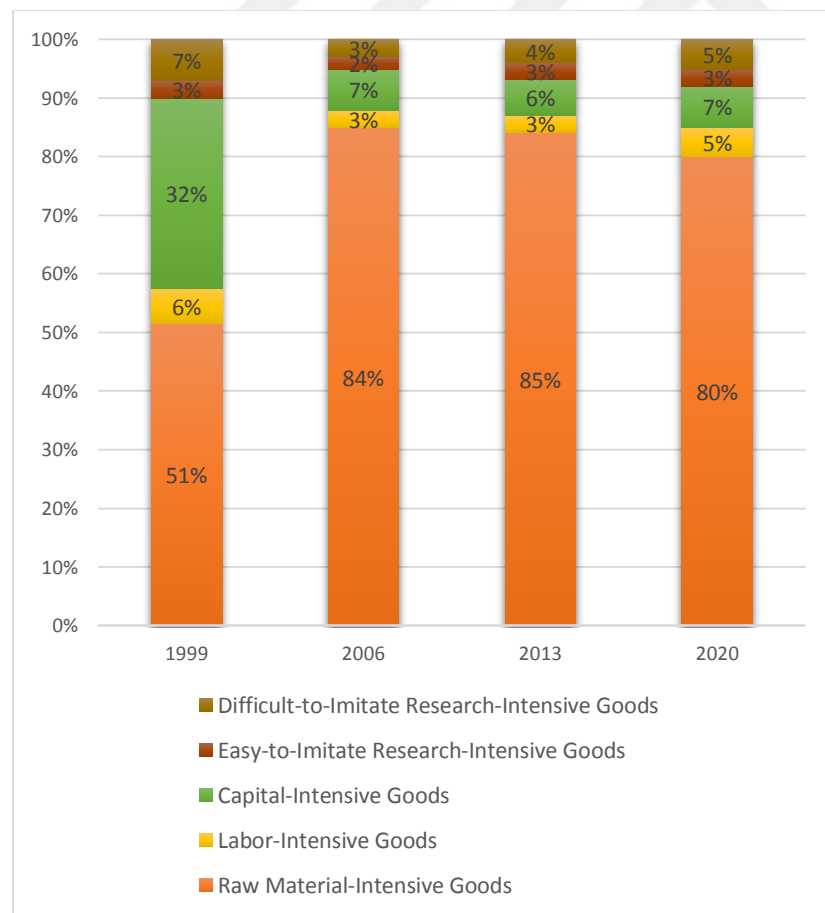
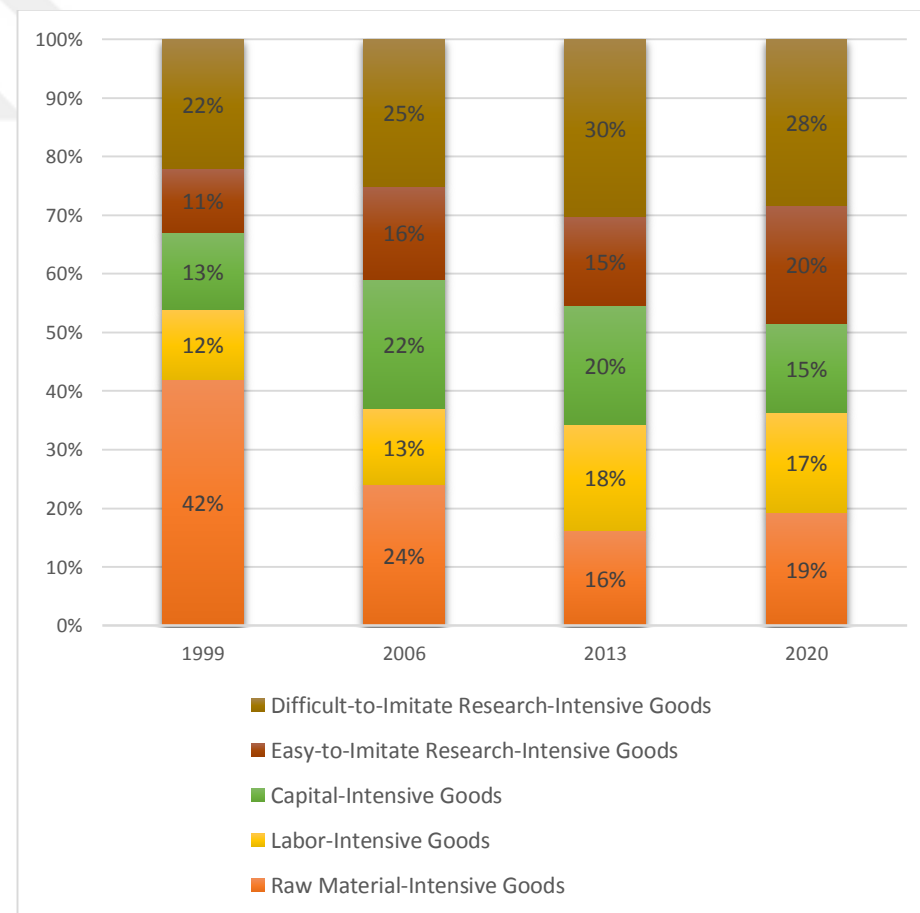


Figure 8: Sectoral Structure of Russia's Total Import, 1999-2020



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (18.06.2022)

Figure 9: Sectoral Structure of Turkey's Export to Russia, 1992-2021

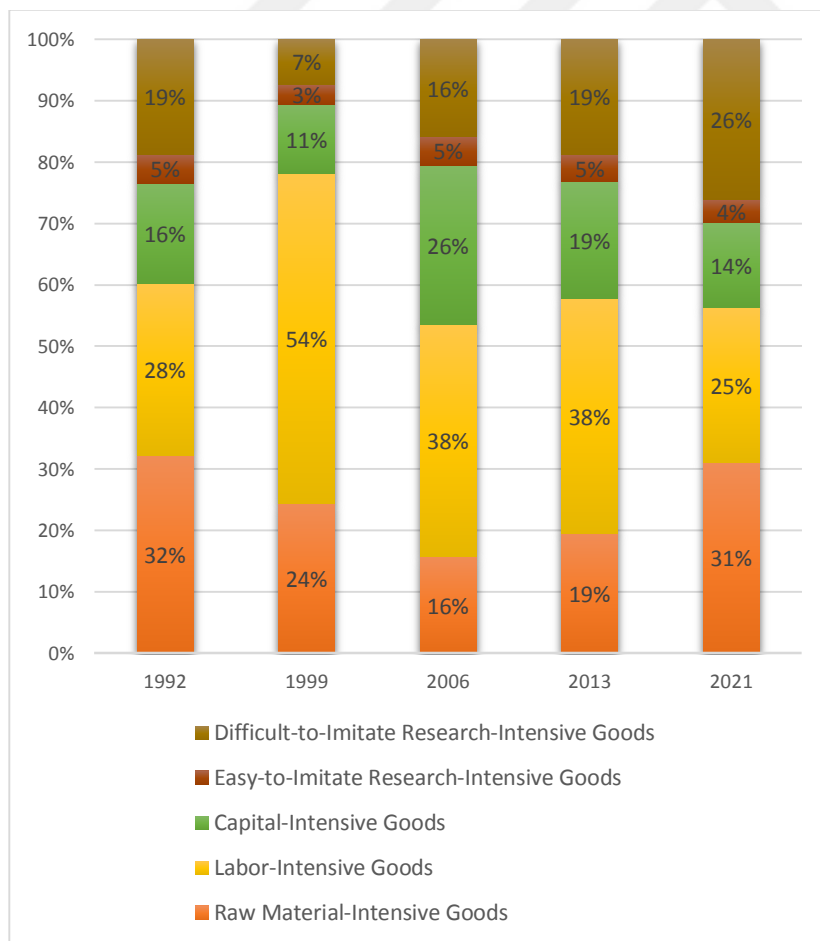
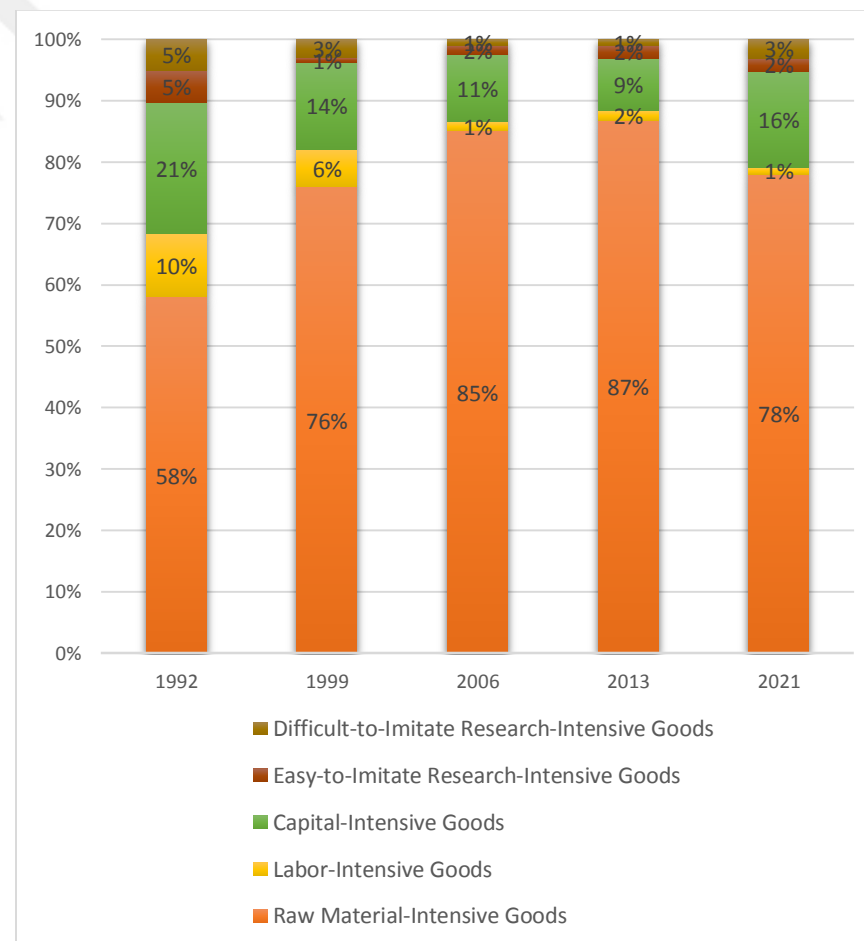


Figure 10: Sectoral Structure of Turkey's Import from Russia, 1992-2021



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (18.06.2022)

The Figure 10 “Sectoral shares of Turkey’s import from Russia” also demonstrates high similarity with structure of Russian total export. Russian top exports to Turkey are energy sources and cereals, corn and sunflower all of which are RMIG accumulated 78% in 2021, then iron, steel and aluminium which are CIG accumulated 16% of total Russian import to Turkey.

To conclude, Turkey as an exporter to Russia is in a more favourable position since sectoral structure of its export is quite diversified with research-intensive goods accumulating 30% (2020), further strengthening of these sectors is recommended in order to provide sustainable economic growth. Russia’s export is, on the contrary, absolutely one-dimensional. Raw-material-intensive goods constitute almost two-thirds of Russian export to Turkey. These conclusions are based on commodities trade only without taking trade of services into consideration. According to Ulchenko and Shlikov (2014: 53) existing Russian-Turkish trade pattern is structurally limited and outdated, while leading economies aspire to deepen the internationalization of production and build global value chains. Authors recommend to intensify cooperation in the field of high-tech production to stimulate experience exchange.

The Russian invasion of Ukraine began on 24th February 2022 and was immediately condemned by the majority of the world, leading to a large number of sanctions imposed to weaken aggressor’s economy. Leading countries and largest economies such as the USA, the United Kingdom, France, Germany, Italy and Japan, as well as international organizations of United Nations (UN) and The North Atlantic Treaty Organization (NATO) demonstrated significant criticism of the invasion. Due to express solidarity with Ukraine and to avoid reputational risks over one thousand of international companies have publicly announced that they are voluntarily folding their operations in Russia to some degree beyond the bare minimum legally required by international sanctions.

The Yale School of Management is currently conducting a research aiming to collect and highlight the latest data about foreign companies’ operation status in Russia. The aim is to encourage businesses to halt Russian engagements and exit Russian market. Updated information is being published on their web-site regularly.

Table 5: The Largest Foreign Companies Suspended or Limited their Business in Russia

	Company	Sales in Russia in 2020, billion rubles	SITC Section	Group of Goods
1	Volkswagen AG	319,7	78 - Road vehicles	CIG
2	Renault S.A.	310,0	78 - Road vehicles	CIG
3	Toyota Motor Corporation	263,9	78 - Road vehicles	CIG
4	Apple Inc	266,3	76 - Telecommunications and sound-recording and reproducing apparatus and equipment	EIRG
5	Samsung Electronics Co., Ltd	246,0	76 - Telecommunications and sound-recording and reproducing apparatus and equipment 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment)	EIRG DIRG
6	IKEA Group	245,6	26 - Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric) 65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products 69 - Manufactures of metals, n.e.s. 82 - Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings 89 - Miscellaneous manufactured articles, n.e.s.	LIG
7	PepsiCo Inc.	217,6	11 - Beverages	CIG
8	British American Tobacco	197,0	12 - Tobacco and tobacco manufactures	CIG
9	Mercedes-Benz	191,8	78 - Road vehicles	CIG
10	Nestlé S.A.	186,6	0 - Food and live animals	RMIG
11	Bayerische Motoren Werke AG (BMW)	179,7	78 - Road vehicles	CIG
12	Hyundai Motor	176,3	78 - Road vehicles	CIG
13	The Procter & Gamble Company	108,8	55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	CIG
14	Royal Dutch Shell	102,3	33 - Petroleum, petroleum products and related materials	RMIG
15	Nissan Motor Co., Ltd.	98,7	78 - Road vehicles	CIG
16	LG Electronics Inc	95,2	74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s. 76 - Telecommunications and sound-recording and reproducing apparatus and equipment 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment)	DIRG EIRG DIRG

Table 5. Extension

17	Robert Bosch GmbH	87,4	71 - Power-generating machinery and equipment 72 - Machinery specialized for particular industries 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s. 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment) 78 - Road vehicles	DIRG
18	Henkel AG & Co	84,1	55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	CIG CIG
19	Industria de Diseño Textil, S.A. (Inditex)	82,8	65 - Textile yarn, fabrics, made -up articles, n.e.s., and related products	LIG
20	Unilever plc	81,0	0 - Food and live animals 55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	RMIG CIG
21	Carlsberg A/S	75,8	11 - Beverages	CIG
22	Coca-Cola Hellenic Bottling Company	72,8	11 - Beverages	CIG
23	Volvo	65,3	78 - Road vehicles	CIG
24	Johnson & Johnson	64,4	55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	CIG
25	Mondi plc	61,1	64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard	LIG
26	Komatsu Ltd.	60,4	72 - Machinery specialized for particular industries 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	DIRG
27	Novartis International AG	60,1	54 - Medicinal and pharmaceutical products	EIRG
28	Mondelez International, Inc.	59,4	0 - Food and live animals	RMIG
Total		4060,1 (approx. 24% of total import)		

Source: Forbes Media, <https://www.forbes.ru/biznes/441733-50-krupnejsih-inostrannyh-kompanij-v-rossii-2021-rejting-forbes>; Yale CELI List of Companies Leaving and Staying in Russia, <https://www.yalerussianbusinessretreat.com/>, (27.06.2022)

It has been decided to compare the “Yale CELI List of Companies Leaving and Staying in Russia” with the list of 50 the largest international companies in Russian

market in 2020 (Forbes Media, 2021) in order to evaluate structural changes of Russian market. The largest foreign companies that totally or to a great extent suspended their business in Russia due to the invasion of Ukraine are listed and ranked by amount of sales in the country in the Table 5. In 2020 sales of these 28 companies generated approximately 24% of total Russian import.

Types of their products are categorized with SITC, and subsequently 18 sections were revealed:

SITC 0 Food and live animals,

SITC 11 Beverages,

SITC 12 Tobacco and tobacco manufactures,

SITC 26 Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric),

SITC 33 Petroleum, petroleum products and related materials,

SITC 54 Medicinal and pharmaceutical products,

SITC 55 Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations,

SITC 64 Paper, paperboard and articles of paper pulp, of paper or of paperboard,

SITC 65 Textile yarn, fabrics, made -up articles, n.e.s., and related products,

SITC 69 Manufactures of metals, n.e.s.

SITC 71 Power-generating machinery and equipment,

SITC 72 Machinery specialized for particular industries,

SITC 74 General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.,

SITC 76 Telecommunications and sound-recording and reproducing apparatus and equipment,

SITC 77 Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment),

SITC 78 Road vehicles,

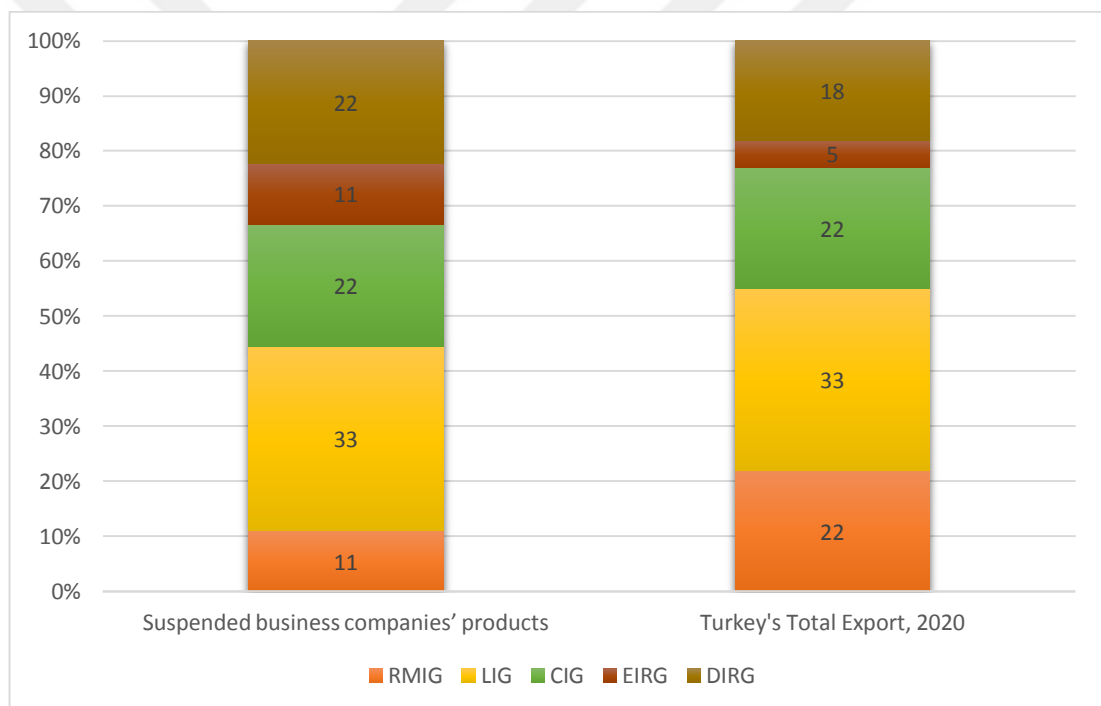
SITC 82 Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings,

SITC 89 Miscellaneous manufactured articles, n.e.s.

These are types of commodities that are going to experience a drop in foreign supply in the following months, so customers are expected to look for new trade partners that are willing to work in Russian market.

Distribution of identified sections into 5 groups demonstrated that 6 out of 18 sections are labour-intensive goods (33%), while capital-intensive goods (22%) and difficult-to-imitate research-intensive goods (22%) include 4 section each (Picture 8). The rest 4 sections are shared between raw-material intensive goods (11%) and easy-to-imitate research-intensive goods (11%).

Figure 11: Turkey's Export Prospects



Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (27.06.2022)

The Figure 11 presents that Turkey's export structure looks compatible with the structure of commodity groups of companies which suspended or stopped business in Russia. This obvious similarity proves that Turkey could replace a number of retreated companies and supply Russia with deficient goods. Thus, it can be concluded that further study of Turkey's opportunities to occupy released shares of market and increase its exports to Russia is justified.

3.2.4. Revealed Comparative Advantage

The standard calculation of RCA measures how much a country of interest exports a particular good relative to its total trade, in comparison to the export share of that good in the world trade. It takes a value between zero and infinite. A country is said to have a revealed comparative advantage in the production of product j if the value exceeds unity; the higher the index, the greater is the advantage it represents.

The RCA index is calculated by the following formula (Balassa, 1965):

$$RCA = \frac{x_{ij}}{X_{it}} / \frac{x_{wj}}{X_{wt}} \quad (3)$$

Where x_{ij} is export of country i in product j ; X_{it} is total exports of country i ; x_{wj} is total world export of product j ; X_{wt} is total world export.

Given that RCA index helps to highlight commodities that might be successfully exported it has been decided to analyse Tukey's export potential using the index for 18 sectors identified in the Table 5.

With reference to the Table 6, Turkey is revealed to have a comparative advantage in 12 out of 18 commodity categories:

- textile yarn, fabrics, made-up articles, n.e.s., and related products;
- tobacco and tobacco manufactures;
- manufactures of metals, n.e.s.;
- furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings;
- textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric);
- road vehicles;
- food and live animals;
- miscellaneous manufactured articles, n.e.s.;
- paper, paperboard and articles of paper pulp, of paper or of paperboard;
- essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations;

- power-generating machinery and equipment;
- general industrial machinery and equipment, n.e.s., and machine parts, n.e.s.

Table 6: Revealed Comparative Advantage Index for Identified Sectors, Turkey, 2021

SITC Section	Types of Goods	RCA
65	Textile yarn, fabrics, made-up articles, n.e.s., and related products	4,51
12	Tobacco and tobacco manufactures	2,30
69	Manufactures of metals, n.e.s.	2,01
82	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	1,86
26	Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)	1,80
78	Road vehicles	1,74
0	Food and live animals	1,70
89	Miscellaneous manufactured articles, n.e.s.	1,58
64	Paper, paperboard and articles of paper pulp, of paper or of paperboard	1,52
55	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	1,15
71	Power-generating machinery and equipment	1,07
74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	1,00
72	Machinery specialized for particular industries	0,91
33	Petroleum, petroleum products and related materials	0,87
77	Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment)	0,65
11	Beverages	0,36
54	Medicinal and pharmaceutical products	0,25
76	Telecommunications and sound-recording and reproducing apparatus and equipment	0,24

Source: Calculated by authors using SITC Rev.3 from Uncomtrade.com, <http://comtrade.un.org/>, (30.06.2022)

For the rest of commodity groups values of RCA do not exceed the unity

meaning that in these categories Turkey has a revealed comparative disadvantage. The next step is to analyse further those categories where Turkey demonstrates comparative advantage to see if there is a development over time and what direction it has.

3.2.5. Dynamic Revealed Comparative Advantage

The Dynamic Revealed Comparative Advantage (DRCA) was constructed by Edwards and Shoer (2002: 1026) as an improved version of Balassa's to identify changes of country's competitiveness over time as well as to estimate this measure's stability. The authors also mention that their approach is a variant of the four-fold classification offered by Tsikata (1999). The DRCA index is calculated as:

$$\frac{\Delta RCA_{ij}}{RCA_{ij}} = \frac{\Delta(x_{ij}/x_i)}{x_{ij}/x_i} - \frac{\Delta(x_{wj}/x_w)}{x_{wj}/x_w} \quad (4)$$

Where the first term on the right-hand side reflects the growth in the share of commodity j's export in the total export of the country i; the second term reflects the growth in the share of commodity j's export in the world's total export (Edwards and Shoer, 2002: 1026). The results the comparison of j's export shares demonstrates positioning of this commodity in the dynamic market position and has six possible scenarios (see the Table 7). A commodity j falls into one of the categories named as rising stars, falling stars, lagging retreat, lost opportunity, leading retreat and lagging opportunity:

- Rising stars are the commodities which export is increasing in correlation to global export of these commodities. This is the best position for exporters promising them stability because its product's export growth rate is faster than the world's.
- Falling stars are goods which export share is falling around the world but growing at country's level and there is a gain for exporters.
- Lagging retreat describes the commodities which decrease at country's level is worse than at world's level.
- Leading retreat is a category for products with decreasing values over a

period at both country's and world's level but rate of country's export drawdown is slower.

- Lagging opportunity is a category for commodities with increasing values over a period at both country's and world's level but rate of country's export growth is slower.
- Lost opportunity is the least desirable category for exporters since they are not able to export more of the commodity world's export of which is growing.

Table 7: Market Position of Exports

	Commodity j's share in country i exports		Commodity j's share in world exports	Dynamic market position
Increasing RCA	↑	>	↑	Rising stars
	↑		↓	Falling stars
	↓	>	↓	Lagging retreat
Decreasing RCA	↓		↑	Lost opportunity
	↓	<	↓	Leading retreat
	↑	<	↑	Lagging opportunity

Source: Edwards and Shoer, 2002: 1026.

The DRCA index is describing changes over a period of time which represent as a restructuring of export. According to Edward and Shoer, a successful restructuring refers to an entrance into dynamic markets (rising stars) and an escape from stagnating markets facing a drop in demand (leading retreat), while increased export share in categories of lost opportunities and falling stars means poor restructuring.

As dynamic RCA estimates changes over a time period it is necessary to set a time frame for analysis. It has been decided to calculate the index for two periods, 2014-2017 and 2018-2021, wherein the first period reflects the impact of the Jet Crisis and following trade bans on trade and the second period covers the COVID-19 pandemic affect and the post-pandemic recovery. The formula 4 was modified so the first term on the right-hand side represents the increase in the share of commodity j in Turkey's trade with Russia, and the other term represents the increase in the share of

the same commodity in world's trade with Russia. The results of dynamic market positioning for twelve identified goods sections with RCA over-unity are shown in the Table 8.

Table 8: Dynamic Market Positions of Turkey in Relation to Russia, 2014-2021

SITC Section	Types of Goods	Dynamic market position	
		2014-2017	2018-2021
0	Food and live animals	falling stars	falling stars
12	Tobacco and tobacco manufactures	falling stars	falling stars
71	Power-generating machinery and equipment	leading retreat	falling stars
74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	lagging opportunity	falling stars
26	Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)	rising stars	leading retreat
64	Paper, paperboard and articles of paper pulp, of paper or of paperboard	lagging retreat	leading retreat
55	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	falling stars	lagging retreat
65	Textile yarn, fabrics, made-up articles, n.e.s., and related products	leading retreat	lagging retreat
78	Road vehicles	lagging retreat	lagging retreat
82	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	lagging retreat	lagging retreat
89	Miscellaneous manufactured articles, n.e.s.	falling stars	lagging opportunity
69	Manufactures of metals, n.e.s.	falling stars	rising stars

Source: Prepared by authors on a base of Edward and Shoer (2002: 1026) classification

Sections 0 - food and live animals, 12 - tobacco and tobacco manufactures remained in the category “falling stars” meaning that Turkey demonstrates a “poor

restructuring of export” of these commodities. However, this category is not the least desirable for an exporter and Turkey can benefit from a considerable gain in its market share. Section 71 - power-generating machinery ..., and section 74 - general industrial machinery and equipment, ..., made a shift to the “falling stars” as well. A “falling stars” category describes a situation when commodity’s j share in world’s export is increasing and market experiences a stagnation, but since we study a situation where leading suppliers are leaving the market and an imbalance of supply-demand size is expected, it is possible to conclude that Turkey can increase its income in these sectors.

Road vehicles (78) and Furniture and parts thereof, ... (82) also did not change their market positions remaining in a “lagging retreat” category, where section 55 - essential oils and ... and section 65 - textile yarn, fabrics, ... were transferred as well. This market position can turn to an opportunity for Turkey because over studied time Turkey was decreasing Russian export of these categories slower than the rest of the world so, in case Russian demand grows, Turkey should not reduce exporting amounts (as it would be recommended in normal conditions).

Section 26 - Textile fibres, ..., made a shift from “rising stars” to “leading retreat”, which is explained by a decrease in world’s export of these goods to Russia; and section 64 - Paper, paperboard and ..., transferred from “lagging retreat” to “leading retreat”. In normal conditions, this category refers to a successful restructuring of export but in the conditions where a rise in demand is expected it is not logical to slow down Turkey’s exports. To benefit in these two sections Turkey should push them to a “falling stars” category by increasing its export values to Russia.

Miscellaneous manufactured articles (89) shifted from “falling stars” to “lagging opportunity”, this is a potential opportunity for Turkey in current situation, Turkey needs to enlarge amounts of its imports to Russia and push this goods section to “rising stars”.

The only goods section in a “rising stars” category is 69 - manufactures of metals, which is a very promising commodities group for Turkey in the situation where big competitors leave the market.

3.3. RESULTS

The analysis of trade intensity index revealed intense bilateral trade flows between Russia and Turkey over the whole studied period between 2001 and 2021. While Russia gradually intensifies its exports to Turkey despite political and economic obstacles such as the Global Financial Crisis, the Fighter Jet Crisis or the COVID-19 pandemic, Turkey demonstrates the opposite tendency and steadily reduces its trade intensity with Russia. The similar tendency was discovered by Simay Karaalp (2011) as well in their study covering 1996-2008 period, and by Şimşek et al. (2017) research over 1992-2014. Both articles observed high trade intensity between Russia and Turkey. Overall, it can be concluded that the trade intensity index remained over unity throughout the observed period indicating an active cooperation between Russia and Turkey.

Trade complementarity evaluation demonstrated an improvement of countries economic and political ties, intensified bilateral trade, and their export-import patterns are well-matched all of which frame favourable terms for further trade. Russia's import pattern has matched Turkey's import pattern to a great extent over the studied period 1999-2020, the same result was found by Şimşek et al. (2017) over 1992-2014 period. Turkey as well is gradually rising its import compatibility. However, since the higher value of index indicates not only a higher similarity of trade patterns of home-country and a partner but the stronger potential of displacement of imports from the rest of the world by imports from this partner (Michaely, 2001), current situation can turn into a risky one for both sides. To avoid possible overdependence Turkey could diversify its imports from Russia and, at the same time, look for new supplier in the sectors where Russia is the major exporter.

Further research of countries bilateral trade included export-import structural analysis based on technological classification of goods (Hufbauer and Chilas, 1974; Yılmaz, 2002). Turkey's export structure in 2020 was as follows: raw-material intensive goods 22%, labour-intensive goods 33%, capital-intensive goods 22%, easy-to-imitate research-intensive goods 5%, and difficult-to-imitate research-intensive goods 18%. A growth of difficult-to-imitate research-intensive group from 11% in 1999 to 18% in 2020 is a positive trend for Turkey since goods with high added value

(EIRG and DIRG) accumulated almost a quarter of total export (23%), however, to provide sustainable economic growth policies oriented to increase this share must be taken.

Turkey's import structure in 2020 was as follows: raw-material intensive goods 40%, labour-intensive goods 10%, capital-intensive goods 14%, easy-to-imitate research-intensive goods 12%, and difficult-to-imitate research-intensive goods 24%. The structure has had positive changes since 1999, share of price goods (EIRG and DIRG) decreased from almost a half of total import (45%) to 36% in favour to raw-material goods that have comparatively lower prices on average.

Russia's export structure in 2020 was as follows: raw-material intensive goods 80%, labour-intensive goods 5%, capital-intensive goods 7%, easy-to-imitate research-intensive goods 3%, and difficult-to-imitate research-intensive goods 5%. The analysis reveals the main problem of Russian economy which is an extreme dependency on energy export. In a current situation when countries supporting Ukraine (including major European consumers of Russian energy and wheat) trying to find alternative supplier or energy sources to reduce trade with Moscow, Russia extremely needs to diversify its export and develop production of research-intensive good.

Russia's import structure in 2020 was as follows: raw-material intensive goods 19%, labour-intensive goods 17%, capital-intensive goods 15%, easy-to-imitate research-intensive goods 20%, and difficult-to-imitate research-intensive goods 28%. If in 1999 Russia imported 33% of research-intensive goods, up to 2020 this number grew to 48% which means higher spendings. One of the reasons behind this growth is overall simplification of production.

Examination of bilateral trade structure reveals a high similarity to total export-import patterns of the countries. Sectoral structure of Turkey's export to Russia is similar to Turkey's total export pattern, while sectoral structure of Turkey's import from Russia correlates to Russian total export pattern. As noted, Turkey's top exports to Russia are vegetables, fruits and nuts which are raw-material-intensive goods (31% in 2021), then machinery, motor vehicles and their parts which are DIRG (26%) and CIG (14%), textiles grouped to labour-intensive goods (25%) and plastics which are also DIRG. Russian top exports to Turkey are energy sources and cereals, corn and sunflower all of which are RMIG accumulated 78% in 2021, then iron, steel and

aluminium which are CIG accumulated 16% of total Russian import to Turkey.

These findings prove one more time the fact that Russia and Turkey export noncompeting goods and have all reasons to be trade partners. Clearly, it is not only about trade, but the countries also have multidimensional partnership. After the Russian invasion of Ukraine took place on February 24, 2022, Ankara did not make attempts to cease all the contacts with Moscow, Turkey offered to host and mediate negotiations, and remained almost the only possible communication channel between Russia and Ukraine with its allies. Ankara looking for a chance to enhance its reputation and expand its influence regionally and globally was interested in a mediating role between the conflicting countries as well as it tries to maintain stable and prosperous relations with both Russia and Ukraine since each of them are close partners of Turkey.

There are a few possible reasons behind Turkey's attempts to shorten the war. First, Turkey does not want Russia to expand its influence in the Black Sea region; secondly, the war is worsening existing economy crisis in Turkey that poses risks to the President and his Government; moreover, tourism, one of the most profitable sectors of Turkish economy, is negatively affected by the war as well, and finally, rising number of refugees and immigrants who look for a social security also increases pressure on Turkey's economy. And finally, the war has disrupted agricultural exports, in 2020 export shares of wheat, corn and sunflower in total exports of Russia and Ukraine to Turkey reached about 15% (2 billion USD) and 18% (0,5 billion USD) relatively (OEC).

To conclude, Turkey demonstrates solidarity with the majority of the world and criticizes Russian military actions in Ukraine, but at the same time, leaders of the country have decided not to enter into a sharp confrontation with Russia and remain a communication channel between Russia and Ukraine with its supporters. Turkey found a position in this war without endangering its own geostrategic plans, besides this position can be used to continue or even improve trading cooperation with Russia since "being a mediator" can cover some reputational risks. However, to increase trade intensity Turkey must be prepared not only to possible criticism but to the facts that Russian economy is exposed to sanctions and expected to shrink, political and social stability is disrupted, and the Russian ruble is not sustainable even demonstrating

strengthening over the last weeks.

Because of the Russian-Ukrainian war over 1000 of international companies have publicly announced that they are voluntarily folding their operations in Russia to some degree beyond the bare minimum legally required by international sanctions. Reasons behind companies suspending their operations in Russia are individual for each firm in particular, as Pawinska Sims (2022) noted it is a “complex, overlapping set of factors” that businesses must take into a consideration, starting from a moral values and an aspiration to show a solidarity with Ukraine and ending with commercial motives and business-driven aspects such as supply chains, logistics, manufacturing problems, restrictions on payment methods, fluctuating costs, trading conditions and many others. These are the problem that Turkey can meet as well if it intensifies its trade with Russia.

Due to released share of Russian market, a significant fall in the eighteen identified commodities sectors is expected:

SITC 65 - textile yarn, fabrics, made-up articles, n.e.s., and related products;

SITC 12 - tobacco and tobacco manufactures;

SITC 69 - manufactures of metals, n.e.s.;

SITC 82 - furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings;

SITC 26 - textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric);

SITC 78 - road vehicles;

SITC 0 - food and live animals;

SITC 89 - miscellaneous manufactured articles, n.e.s.;

SITC 64 - paper, paperboard and articles of paper pulp, of paper or of paperboard;

SITC 55 - essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations;

SITC 71 - power-generating machinery and equipment;

SITC 74 - general industrial machinery and equipment, n.e.s., and machine parts, n.e.s.;

SITC 72 - machinery specialized for particular industries;

SITC 33 - petroleum, petroleum products and related materials;

SITC 77 - electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household type equipment);

SITC 11 - beverages;

SITC 54 - medicinal and pharmaceutical products; and

SITC 76 - telecommunications and sound-recording and reproducing apparatus and equipment.

Turkey is revealed to have a comparative advantage in 12 out of 18 commodity categories meaning that these sectors are Turkey's possibility to enlarge its trade with Russia. Further these commodities sectors were analysed by dynamic Revealed Comparative Advantage approach that describes changes over a period of time. The index was calculated for two periods i.e., 2014-2017 and 2018-2021, wherein the first period reflects the impact of the Jet Crisis and following trade bans on trade and the second period covers the COVID-19 pandemic affect and the post-pandemic recovery.

A "falling stars" category describes a situation when commodity's j share in world's export is decreasing and market experiences a stagnation, but as we study a situation where leading suppliers are leaving the market and an imbalance of supply-demand size is expected, with commodities falling into this category (SITC 0, 12, 71, 74) Turkey can increase its income in these sectors by directing goods not demanded in the world to Russia.

In "lagging retreat" category there are four types of commodities (SITC 55, 65, 78, 82). This market position can turn to an opportunity for Turkey because over studied time Turkey was decreasing Russian export of these categories slower than the rest of the world so, in case Russian demand grows, Turkey's should not reduce exporting amounts (as it would be recommended in normal conditions).

Commodity sections 26 and 64 are in the "leading retreat" category. In normal conditions, this category refers to a successful restructuring of export but in the conditions where a rise in demand is expected it is not logical to slow down Turkey's exports. To benefit in these two sections Turkey should push them to a "falling stars" category by increasing its export values to Russia.

Miscellaneous manufactured articles (89) shifted from "falling stars" to

“lagging opportunity”, this is a potential opportunity for Turkey in current situation, Turkey needs to enlarge amounts of its imports to Russia and push this goods section to “rising stars”. The only goods section in a “rising stars” category is SITC 69, which is a very promising commodities group for Turkey in the situation where big competitors leave the market. To sum it up, with an adequate policy for an each commodity group Turkey has considerable chances to benefit from growing Russian isolation caused by Russia’s invasion of Ukraine.



CONCLUSION

Over its long-standing history, bilateral trade relations between Russia and Turkey have experienced significant fluctuations from bans and confrontation to promising trade agreements and mutual investments. Starting from establishment of Russian Federation in 1991 the countries sharing a maritime boarder and controversial geopolitical interests in the Black Sea entered into a relationship which is described in the literature as ‘cooperative rivalry’ (Bechev, 2021) or ‘adversarial collaboration’ (Yildiz, 2021: 3). In 1990s when both Russia and Turkey were experiencing economic shocks their authorities agreed on comprehensive development of all common sectors, respecting the sovereignty and territorial integrity of each other and both countries took considerable steps towards establishment of sustainable partnership in the fields of energy, trade, tourism, and defence.

Since 1991 the countries have been improving their trade cooperation so that Russia became Turkey’s major supplier of energy sources, and in return Turkey provides tourism and construction services to a great extent. Total Russian export in 2021 amounted to 492,3 billion USD (2,29% of total world export) which is twice as high as Turkey’s export over the same time period: 225,2 billion USD (1,05% of total world export). Total import volumes of Russia and Turkey are comparable: 293,5 and 271,4 billion USD relatively. Over the last 30 years Turkey has demonstrated a negative trade balance with Russia and remained the position of a net importer, in fact, on average Turkey’s import of goods from Russia exceeds its export in 3-6 times.

Russia is a leading energy supplier for Turkey, from 2000 to 2020 share of mineral fuels, mineral oils and products of their distillation in total Turkey’s import from Russia remained between 25-59%. Therefore, Russian export to Turkey is not diversified enough, and Turkey has a high dependency on Russian energy supply. This dependency is one of the reasons behind constantly growing trade imbalance between the two countries: a growth rate of Turkey’s exports value is not able to overcome a growth rate of Turkey’s import value based on oil prices (Ulchenko, Shlikov, 2014: 49). Enhanced cooperation with Russia guaranteed Turkey a role of a major energy corridor from East to West (Hürriyet, 2020). This position leads to more independent Turkish policy initiatives on the way to become a regional ‘soft power’ and a regional

energy hub, which provides Turkey with increasing bargaining power not just in face of Russia, but also of the EU.

Speaking about trade of goods, apart from mineral fuels and oils, Russia exports to Turkey iron, steel and aluminium, cereals, sunflower seeds and oil, gold; in return Turkey exports vegetables, fruits and nuts, machinery, motor vehicles and their parts, textiles, plastics (OEC, 2020). Given that Russia has a larger pattern of export destination than Turkey, its chances to switch to another supplier are higher than Turkey's options to replace Russian supplies (Hamilton and Mikulska, 2021: 53). To conclude, due to all above mentioned reasons, Turkey should develop policies that can decrease trade imbalance with Russia.

The findings of trade intensity showed large bilateral trade flows between Russia and Turkey over the whole studied period 2001-2021. While Russia gradually intensifies its exports to Turkey despite political and economic obstacles such as the Global Financial Crisis, the Fighter Jet Crisis or the COVID-19 pandemic, Turkey demonstrates the opposite tendency and steadily reduces its trade intensity with Russia.

Trade complementarity evaluation revealed that over the last decades Russia and Turkey have improved their economic and political ties, intensified bilateral trade, and their export-import patterns are well-matched all of which frame favourable terms for further trade. Russia's import pattern matched Turkey's import pattern to a great extent over the studied period 1999-2020. Turkey as well has been gradually improving its import compatibility with Russian trade pattern. However, while on the one hand, the higher value of the index indicates a higher similarity of trade patterns of home-country and a partner but, on the other hand, it might raise possibility of displacement of imports from the rest of the world by imports from this partner, meaning that current situation is risky for both sides.

As it was mentioned earlier in this study, a significant fall in the eighteen identified goods sectors is expected in Russia due to international businesses being suspended. World's export of these commodities to Russia is expected to be shrinking which means that to benefit from this situation Turkey should restructure its own export policy concerned highlighted commodities. It must be noted that for an exporter there are not only reputational risks but also more practical, business-driven aspects such as supply chains, logistics, manufacturing problems, restrictions on payment

methods, fluctuating costs, trading conditions and many others (Pawinska Sims, 2022). However, from economic point of view, in the current situation expansion of exports to Russia can bring Turkey financial benefits. That is why, it is in Turkey's interest to improve current export situation and obtain comparative advantage in identified sectors.

Further evaluation of Turkey's revealed comparative advantage showed that in the eighteen highlighted goods categories Turkey has an advantage in twelve of them:

SITC 65 - textile yarn, fabrics, made-up articles, n.e.s., and related products;

SITC 12 - tobacco and tobacco manufactures;

SITC 69 - manufactures of metals, n.e.s.;

SITC 82 - furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings;

SITC 26 - textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric);

SITC 78 - road vehicles;

SITC 0 - food and live animals;

SITC 89 - miscellaneous manufactured articles, n.e.s.;

SITC 64 - paper, paperboard and articles of paper pulp, of paper or of paperboard;

SITC 55 - essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations;

SITC 71 - power-generating machinery and equipment;

SITC 74 - general industrial machinery and equipment, n.e.s., and machine parts, n.e.s.;

Dynamic revealed comparative advantage indices were calculated for these categories, and it was concluded that with an adequate policy for each goods group Turkey has considerable chances to benefit from growing Russian isolation caused by Russia's invasion of Ukraine.

This study has a practical implication, first, for Turkey since the research reveals potentialities and problems caused by the Russian-Ukrainian War so appropriate policies can be implemented betimes. Secondly, as the paper identifies particular commodities sectors where a decrease in supply is expected, Turkish

exporters can benefit from taking market shares released by international companies. Moreover, with the largest competitors leaving Russian market level of competition is going to be less severe as well as average quality of goods accepted by Russian customers is expected to get lower.

And finally, Russian authorities trapped by sanctions and economic instability are willing to get support from any offered help, thus given Turkey's mediating role in the Russian conflict with Ukraine and its allies, Russia can increase its cooperation with Turkey. Indeed, Russia has a chance to tighten its relations with Turkey and by intensifying bilateral trade channels find an ally in the struggle against the Western sanctions. This study highlights the commodities sectors where Turkey has comparative advantages so Russia can imply policies encouraging trade of these goods.

Since Russia and Turkey are large, neighbouring economies exporting noncompeting goods, the ascending cooperation between Russia and Turkey can be jointly beneficial for both countries and essential for their welfare and security. More intense trade cooperation will establish more trustful relationships between the countries, which is a necessity for de-escalation of any potential conflicts.

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APPENDIX

Appendix: Sector Codes of Standard International Trade Classification

- 0 - Food and live animals
 - 00 - Live animals other than animals of division 03
 - 01 - Meat and meat preparations
 - 02 - Dairy products and birds' eggs
 - 03 - Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof
 - 04 - Cereals and cereal preparations
 - 05 - Vegetables and fruit
 - 06 - Sugars, sugar preparations and honey
 - 07 - Coffee, tea, cocoa, spices, and manufactures thereof
 - 08 - Feeding stuff for animals (not including unmilled cereals)
 - 09 - Miscellaneous edible products and preparations
- 1 - Beverages and tobacco
 - 11 - Beverages
 - 12 - Tobacco and tobacco manufactures
- 2 - Crude materials, inedible, except fuels
 - 21 - Hides, skins and furskins, raw
 - 22 - Oil-seeds and oleaginous fruits
 - 23 - Crude rubber (including synthetic and reclaimed)
 - 24 - Cork and wood
 - 25 - Pulp and waste paper
 - 26 - Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)
 - 27 - Crude fertilizers, other than those of Division 56, and crude minerals (excluding coal, petroleum and precious stones)
 - 28 - Metalliferous ores and metal scrap
 - 29 - Crude animal and vegetable materials, n.e.s.
- 3 - Mineral fuels, lubricants and related materials
 - 32 - Coal, coke and briquettes

- 33 - Petroleum, petroleum products and related materials
- 34 - Gas, natural and manufactured
- 35 - Electric current
- 4 - Animal and vegetable oils, fats and waxes
 - 41 - Animal oils and fats
 - 42 - Fixed vegetable fats and oils, crude, refined or fractionated
 - 43 - Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.
- 5 - Chemicals and related products, n.e.s.
 - 51 - Organic chemicals
 - 52 - Inorganic chemicals
 - 53 - Dyeing, tanning and colouring materials
 - 54 - Medicinal and pharmaceutical products
 - 55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations
 - 56 - Fertilizers (other than those of group 272)
 - 57 - Plastics in primary forms
 - 58 - Plastics in non-primary forms
 - 59 - Chemical materials and products, n.e.s.
- 6 - Manufactured goods classified chiefly by material
 - 61 - Leather, leather manufactures, n.e.s., and dressed furskins
 - 62 - Rubber manufactures, n.e.s.
 - 63 - Cork and wood manufactures (excluding furniture)
 - 64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard
 - 65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products
 - 66 - Non-metallic mineral manufactures, n.e.s.
 - 67 - Iron and steel
 - 68 - Non-ferrous metals
 - 69 - Manufactures of metals, n.e.s.
- 7 - Machinery and transport equipment
 - 71 - Power-generating machinery and equipment

- 72 - Machinery specialized for particular industries
- 73 - Metalworking machinery
- 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
- 75 - Office machines and automatic data-processing machines
- 76 - Telecommunications and sound-recording and reproducing apparatus and equipment
- 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical householdtype equipment)
- 78 - Road vehicles (including air-cushion vehicles)
- 79 - Other transport equipment
- 8 - Miscellaneous manufactured articles
 - 81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings
 - 82 - Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
 - 83 - Travel goods, handbags and similar containers
 - 84 - Articles of apparel and clothing accessories
 - 85 - Footwear
 - 87 - Professional, scientific and controlling instruments and apparatus, n.e.s.
 - 88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
 - 89 - Miscellaneous manufactured articles, n.e.s.
- 9 - Commodities and transactions not classified elsewhere in the SITC
 - 91 - Postal packages not classified according to kind
 - 93 - Special transactions and commodities not classified according to kind
 - 96 - Coin (other than gold coin), not being legal tender
 - 97 - Gold, non-monetary (excluding gold)