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TRADE IN ENGINEERING PRODUCTS BETWEEN TURKIYE AND RUSSIA: COMPARATIVE ADVANTAGE ANALYSIS

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ABSTRACT

The bilateral economic relations, cooperation and bilateral institutional environment between Republic of Turkiye (Turkiye) and the Russian Federation (Russia) are all developing rapidly. This study presents a brief introduction to current bilateral trade relations based on trade in goods, trade in services and foreign direct investment. The special accent is made on the trade in engineering products. In addition, the study examines the short-term positive impact of the Russia-Ukraine crisis on Turkiye-Russia bilateral trade. The other subject of this study to examine the comparative advantages of Turkiye and Russia in terms of engineering products with the help of Revealed Comparative Advantage (RCA) index, for the period of 2012 to 2021. Findings indicate that Turkiye has comparative advantage (RCA>1) for vehicles other than railway or tramway rolling and ships, boats, however for Turkish export to Russia most important groups are machinery products and vehicles (other than railway...). On the other hand, Russia has a competitive advantage only in railway or tramway locomotives. Another important finding is that Turkish export to Russia dramatically grew during 2022 in engineering products due to Ukraine crisis. However, transit trade has a significant share in this increase.

Keywords: Engineering Products, Turkiye, Russia, Comparative Advantage

INTRODUCTION

Russia and Turkiye are strong regional economies with the potential for trade, infrastructure and investment. Bilateral economic relations, cooperation and the bilateral institutional environment are rapidly developing between these two countries. This study briefly presents the current bilateral trade relations by using foreign trade data, trade in services and foreign direct investment. The main focus is made on the trade in engineering products.

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In this study, in order to better understand and analyze the foreign trade between Turkiye and Russia, the short-term effects of the Russia-Ukraine crisis, which affected the trade and power balances in the world, on Turkiye-Russia trade are examined. Evaluations are made by comparing the trade data of previous years with the most up-to-date data available in 2022. In addition, the capital that Russian companies moved to Turkiye to continue their trade with Europe and the number of new companies opened or partnerships made in Turkiye are examined.

This study tries to investigate the competitiveness of engineering producsts between Turkiye and Russia as an initial part of a more comprehensive engineering goods trade analysis. In literature "Revealed Comparative Advantage (RCA Index)" developed by Balassa (1965) is one of the most widely used methods to analyze competitiveness of different sector. As a relevant study, Soyyiğit (2020) focused the RCA index to automotive sectors and subsectors of Turkiye, Russia and other selected countries. Other similar determination is made by Orlova et al.(2020), their study is evaluated the machinery and industrial equipment trade of Russia to Africa and used Harmonized System codes (HS Code-2 digits level) and classification.

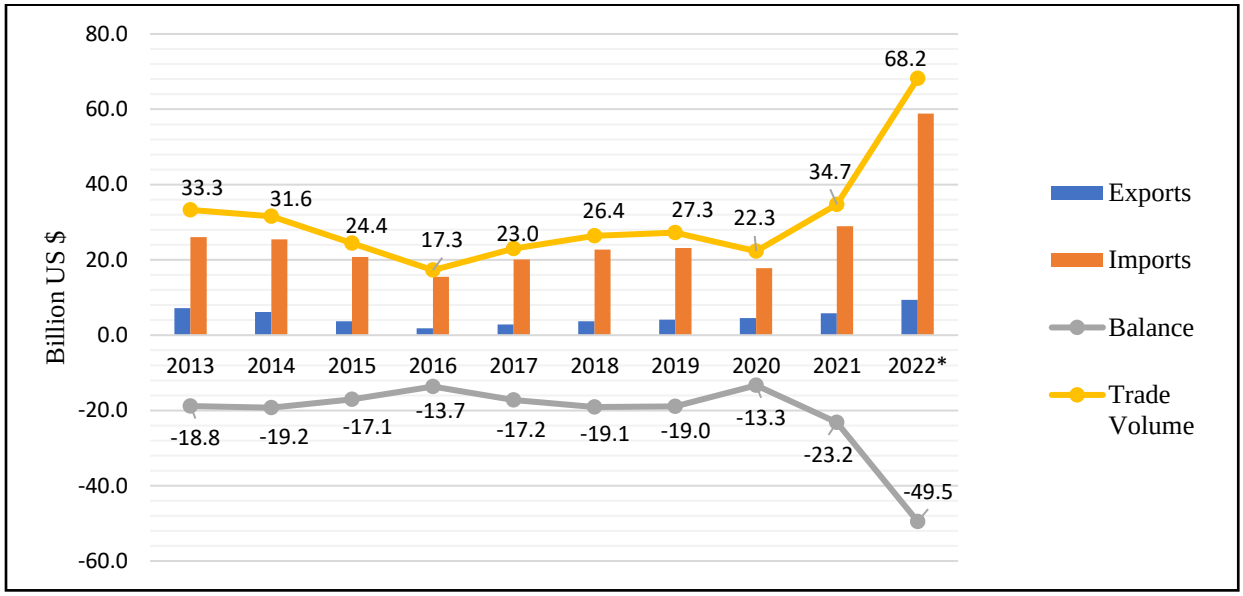
At the last part of the study, the values of engineering products trade between Turkiye and Russia, imports and exports and their dynamics in 2022 investigated by using recent data. The structure of the study is the following. There is a brief review of the bilateral trade relations and a short evaluation of impacts of Russia-Ukraine crisis. After literature review about relevant studies in the introduction, methodology and material are determined. In the last part, we present the findings, and discuss the comparative advantages and disadvantages of engineering goods in mutual trade of the two countries.

1. GENERAL OUTLOOK OF THE RUSSIA- TURKİYE TRADE

Economic and trade relations are the most significant driving force of the development of ties between Russia and Turkiye and this is reflected in all areas where these countries work together. Thus, Russia and Turkiye are important foreign trade partners for each other. Figure 1 illustrates the development of trade between Russia and Turkiye for the period 2013-2022. According to these values, even if there are fluctuations, Turkiye's exports and imports have generally increased from 2016 until 2022. Tukish import reached its highest value (58,8 billion US$) in 2021. It is seen on Figure 1 that both exports and imports have decreased from 2013 until 2016, and due to effects of the "Aircraft Crisis (2015)" total trade volume reduced to 17,3 billion US$(fig. 1).[3]

[3] See official website of the President Russia. http://en.kremlin.ru/events/president/news/50805

Figure 1: Turkiye's Foreign Trade with Russia by Years (Billion US$)



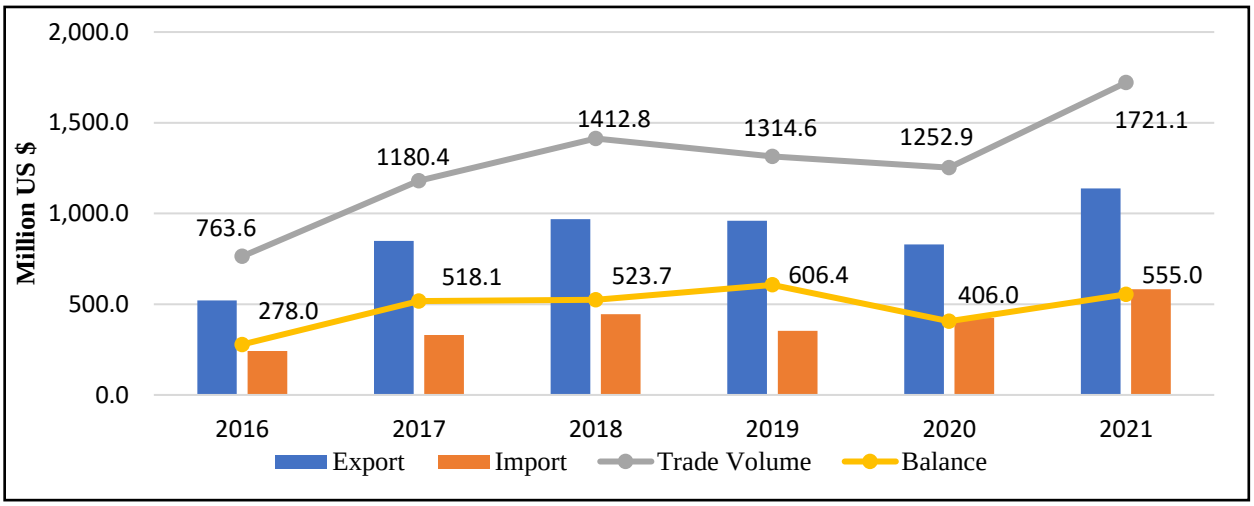
Source: Turkstat (*last visited in April 2023).

Turkiye has a permanent foreign trade deficit in its trade with Russia for the selected period, and this foreign trade deficit reached its lowest value in 2020 due to the effects of the Covid-19 Pandemic (Aydın, 2021). Despite the effects of the aircraft crisis and Covid-19, the volume of bilateral service trade has increased since Russia's decision to lift the ban in 2016 and this trend has not been adversely affected due to crisis in, on the contrary Russia and Turkiye have improved politic and economic relations, as a results of this total volume of trade in services reached 1,721 billion US$ in 2021. Russia exports services to Turkiye mainly in construction, transportation sectors and other businesses. On the other hand, Turkiye exports services to Russia in travel, other business services, and insurance services being the largest in terms of value.[4] Figure 2 shows that the trade volume of the service sector has increased with the removal of the obstacles that emerged with the aircraft crisis between the two countries. Despite the Covid-19 pandemic, service trade has not decreased significantly in 2020. Moreover, Turkiye is one of the important tourist destinations for Russia, and thus, as can be seen from Figure 2, bilateral trade in services is in favor of Turkiye. In January-November 2022, in the ranking of the countries that sent the largest number of visitors to Turkiye, Germany is in first place with 5,481 thousand tourists, and Russia is in second with 4,945 thousand visitors.[5]

[4] Current values for sector share in service trade are borrowed from following webiste: https://oec.world/en/profile/bilateral-country/rus/partner/tur

[5] Data is collected from website of Culture and Tourism Ministry of Türkiye (Border Gate Crossing Statistic in 2022)

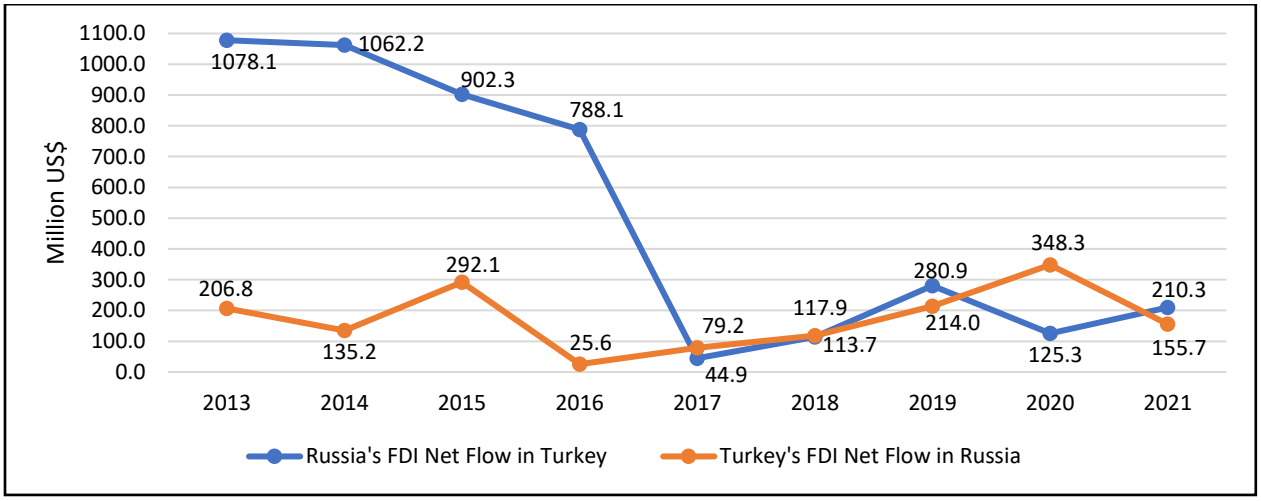
Figure 2: Turkiye's Service Trade with Russia in 2016-2021 (Million US$)



Source: Turkstat

Another important aspect of economic interdependence between Russia and Turkiye is investment. Bilateral foreign direct investment (FDI) stocks between Russia and Turkiye are fairly balanced compared to bilateral trade.

Figure 3: FDI Net Inflows Between Russia and Turkiye (Million US$)



Source: OECD

Between 2013 and 2016, there has been a significant foreign capital inflow from Russia into Turkiye (Figure 3). However, in the following years, a flow is observed at levels that can be called roughly equal for both countries. Currently, the main Turkish companies which are operating in engineering goods sectors, are investing in the Russian market as follows: Koç (household appliances), Zorlu (household appliances and energy), Hidromek AŞ (construction equipment), Tirsan Kadran (automotive spare parts)[6]. Most recently, Turkish company Beko (Koç)

[6] See www.ticaret.gov.tr (last visit at 17.01.2023)

made an agreement to buy the Russian assets of Whirlpool EMEA S.p.A. and Indesit International JSC in June 2022. The deal, worth 220 million Euros, is one of the most important investments in terms of engineering products trade.[7] The investments of Russian companies in Turkiye are mainly concentrated in the energy and metal sectors. Akkuyu Nükleer A.Ş. (Rossatom group company), JSC Power Machines (Turbines, pumps and energy machines), GAZ Group (vehicles), and Titan2 Holding (energy machines) are the main Russian engineering good companies which are investing in Turkiye.[8]

2. THE IMPACTS OF THE CONFLICT IN UKRAINE ON TRADE RELATION BETWEEN TURKİYE AND RUSSIA

Economic sanctions may be described as measures of economic pressure applied by other countries to force a country to take a certain course of action. Therefore, economic sanctions might be divided into two groups. First, sanctions related to foreign trade: Tariff, quota application, embargo and blockade. And financial sanctions: Foreign investment/aid cuts. Countries with a strong economy, which are using foreign trade effectively and having relatively scarce resources, often use practices such as preventing, restricting or banning foreign trade in political tensions, causing economic damage to the countries with which they are in conflict. Countries which are faced with this kind of economic sanctions, such as the most recent example the Russia, have the opportunity to respond by using diplomatic and economic tools such as embargo and blockade, and it may also seek its rights in international law (Kazantsev, 2019).

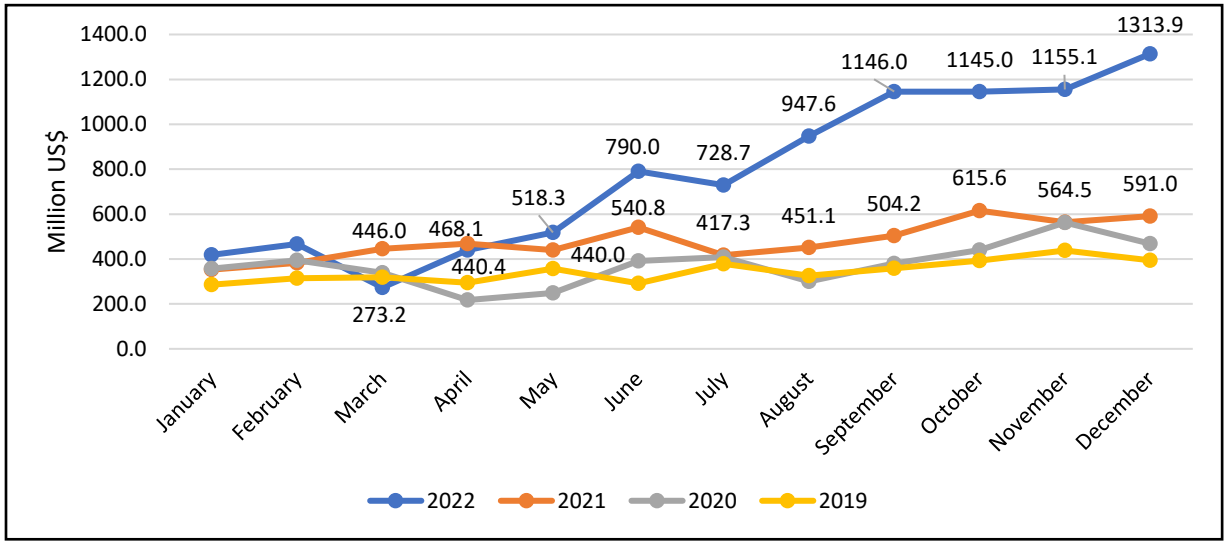
During the military operation of Russia in Ukraine in late February 2022, many countries, including the United States, Canada and the European Union, imposed economic sanctions on Russia.[9] Belarus is also sanctioned for its close cooperation and support of the Russian armed forces. The United States imposes sanctions on individuals, companies and officials from Russia and Ukraine, as well as other countries and international organizations. In response, Russia imposed sanctions on several countries, including a blanket ban on food imports from Australia, Canada, Norway, Japan, the United States, and the European Union.[10] During this period, when sanctions were imposed between the opposing countries, Turkiye did not take any side and assumed the role of mediator.[11]

The conflict in Ukraine has different effects on the sectors. The energy and food sectors are the most affected by this war.[12] However, it will also create potential results for the machinery industry.

[7] See details: https://www.kommersant.ru/doc/5435074 (visited at 17.12.2022)
[8] See details: https://raspp.ru/business_news/top-russian-companies-in-turkey/
[9] US and other countries-imposed sanctions for banks, companies, individuals etc. https://www.trade.gov/country-commercial-guides/russia-sanctions-framework
[10] The Russian Government has approved a list of unfriendly countries. See details: http://government.ru/en/docs/44745/
[11] See https://foreignpolicy.com/2022/08/11/turkey-russia-ukraine-war-swing-player/ (Visited at 15.12.2022)
[12] FAO prepared a report which includes the prices and logistic risks. https://www.fao.org/3/cc1025en/cc1025en.pdf

First of all, the geopolitical conflicts caused by the war will increase defense industry expenditures and defense industry investments. In particular, European countries are already announcing higher defense budgets. The crisis in the energy field requires an intensive energy investment especially in Europe. In this regard, the EU announces new programs and financial resources.[13] Another consequence of the war is the need for supply security in critical "rare materials". Countries have begun to use their critical raw material reserves as a strategic weapon[14] For this reason, investments for supply security will increase as well. High energy prices, which emerged as another result of the war, also necessitate the re-planning of the productions and the re-establishment of the supply balance. All these stand out as developments that will positively affect machinery and equipment demand.

Figure 4: Russia's Imports from Turkiye by Years and Months (Million US $)



Source: Turkstat

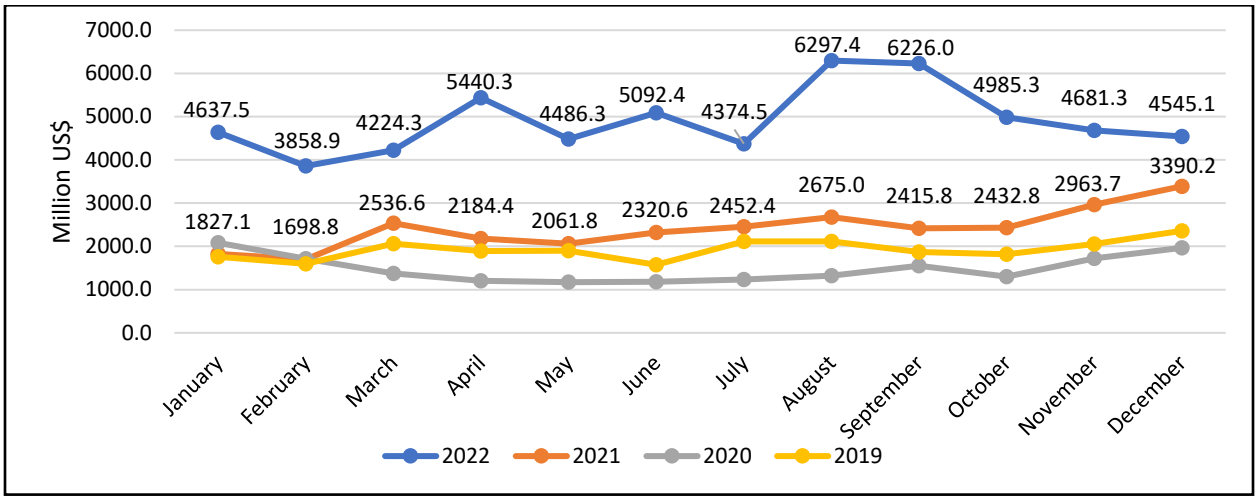
Turkiye's swing player policy affects its economic relations with Russia. Exports of Turkiye to Russia grows rapidly. In December 2022 it reached 1313,9 million US$ as a monthly maximum vlaue (Figure 4). When evaluated in general, it might be mentioned that the continuation of the economic sanctions imposed to Russia tends to increase the trade volume between Turkiye and the Russian federation in next years.

On the other hand, as the western countries tighten sanctions on Russia, new sanctions are pressuring Turkiye's increasing exports. It is stated that a significant portion of the high increase in trade between the two countries after the crisis between Russia and Ukraine is due to transit trade. According to transportation sector sources, Turkiye's transit exports to Russia in 2022 reached the level of 3 billion dollars.[15]

[13] See details. https://www.bruegel.org/dataset/national-energy-policy-responses-energy-crisis
[14] https://www.mining.com/as-demand-for-rare-earths-rises-worlds-biggest-producer-might-stop-exporting-them-says-analyst/
[15] Transit trade values were given based on sources of Association of International Forwarding and Logistics Service Providers (UTIKAD)

On the other hand, Figure 5 shows that due to high oil prices the export of Russia to Turkiye increased more than 2 times in one year from 2433 Million US$ in October 2022 (Figure 4).

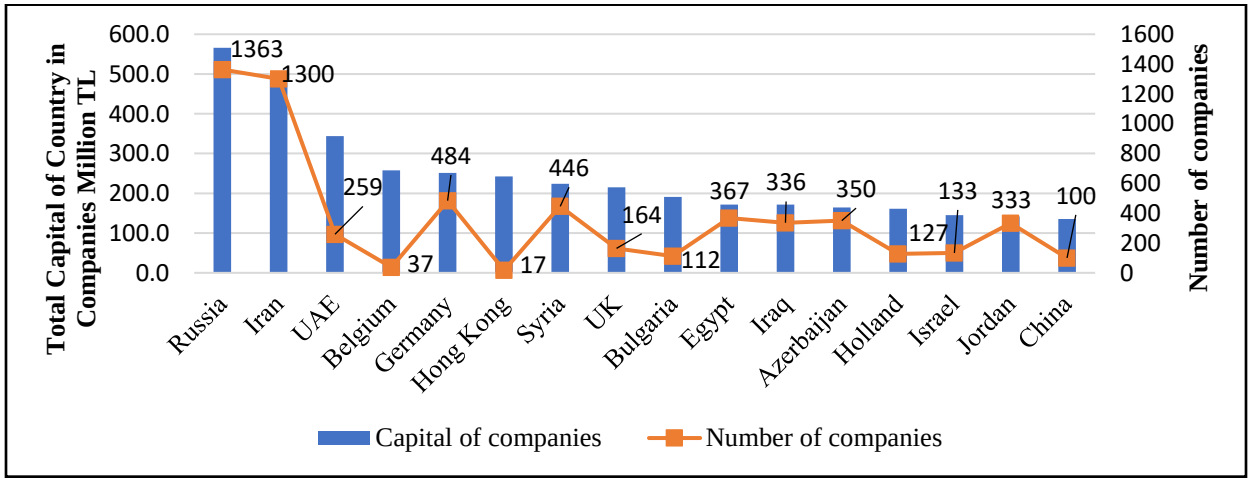
Figure 5: Turkiye's Imports from Russia by Years and Months (Million US $)



Source: Turkstat

In addition to these, the activities of Russian companies in Turkiye have increased considerably. In January-December 2022, 1363 Russian companies were opened in Turkiye or made partnerships with other companies (Figure 6).

Figure 6: Distribution of foreign companies established in Turkiye in 2022 by country (Million Turkish Liras)



Source: Turkish Trade Registry Authority. Capital of companies consists of only share of partner countries.

Therefore, Russia is in the first place in terms of the number of companies opened in Turkiye during that period and also in the first place by their capital. According to the data of Turkish Trade Registry Authority, most of Russian companies which are opened in Turkiye, operate in wholesale trade and retail, manufacturing and construction sectors.

3. MATERIALS AND METHODS

In this study, Russia- Turkiye engineering goods trade data were analyzed based on Harmonized System codes (HS Code-2 digits level) classification.[16] Definitions of the product groups included in the classification list considered as engineering products are presented on Table 1. The main data of the study is the export and import data obtained from the Turkstat, Ru-stat, Trademap database. Trade volume analysis for engineering products is made on the basis of 2012-2022* and 2022 values do not included November and December.

Table 1: Harmonized System Codes (HS Code 2017 – 2 digits)

Product code	Commodities according to the Harmonized Nomenclature (HS 2-digit level)
HS-84	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof
HS-85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television **...**
HS-86	Railway or tramway locomotives, rolling stock and parts thereof; railway or tramway track fixtures
HS-87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
HS-88	Aircraft, spacecraft, and parts thereof
HS-89	Ships, boats and floating structures
HS-90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical **...**

Another aim of this study is to investigate the competitiveness of the Russian and Turkiye in the field of engineering good trade. Balassa Index (RCA), which shows the comparative advantage of countries, aims to explain whether there is an apparent advantage difference between countries without taking into the reason for the comparative advantage. This index can be defined as the ratio of a country's exports of a certain sector to its total exports, divided by the ratio of the world's exports of the same sector to the world's total exports. Balassa's comparative advantage index calculated by using below formula.

$$RCA_{ij} = {(X_{ij}/X_{it})}\Big/{(X_{wj}/X_{wt})}$$

X_{ij}: Exports of ith country in j^{th} product

X_{it}: Total Exports value of the i^{th} country.

X_{wj}: Total World Exports of j^{th} product

X_{wt}: Total World Exports

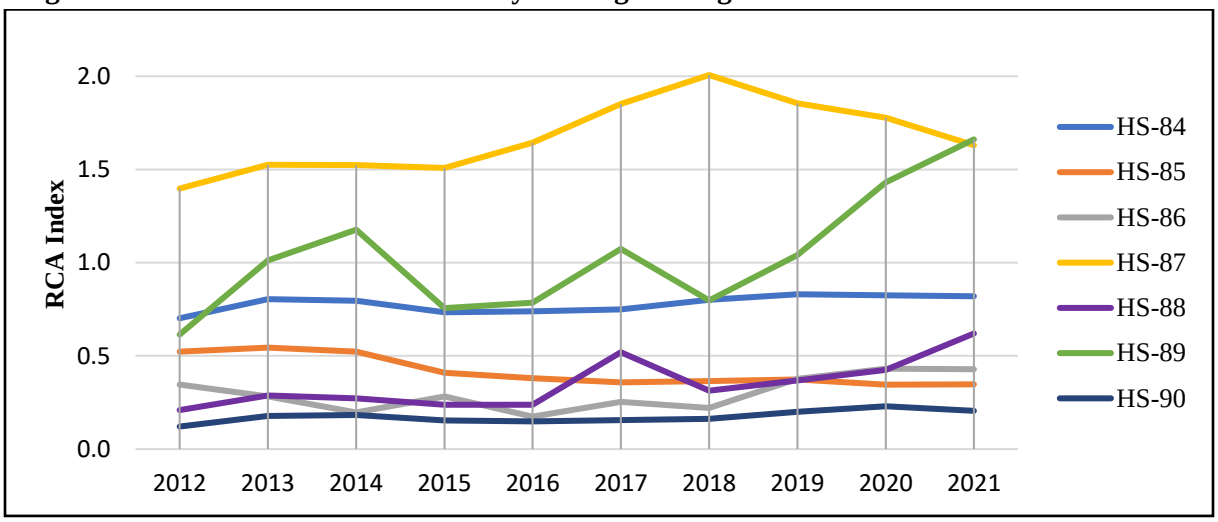
RCA Index is calculated for engineering products by using of the trade data for the period of 2012-2021. The RCA index ranges between 0 and 1 and if this index is less than 1 (RCA<1) indicates disadvantage for a country exporting a particular commodity category, while an RCA value greater than 1 (RCA>1) indicates a higher degree of advantage for the country in the exports of the commodity. In other words, RCA>1 means that the industry's share of the country's total exports is greater than its share of world trade.

[16] https://www.foreign-trade.com/reference/hscode.htm

4. FINDINGS AND DISCUSSION

The present empirical analysis is based on the measurement of revealed comparative advantages. The RCA Index defined on Figure 7 and Figure 8 are computed for comparison of Turkiye's trade in engineering products over the period 2013-2021 vis-a-vis Russia.

Figure 7: Balassa RCA Index for Turkiye in Engineering Goods for the Time Series 2012-2021



Source: Author's calculation based on Trademap data.

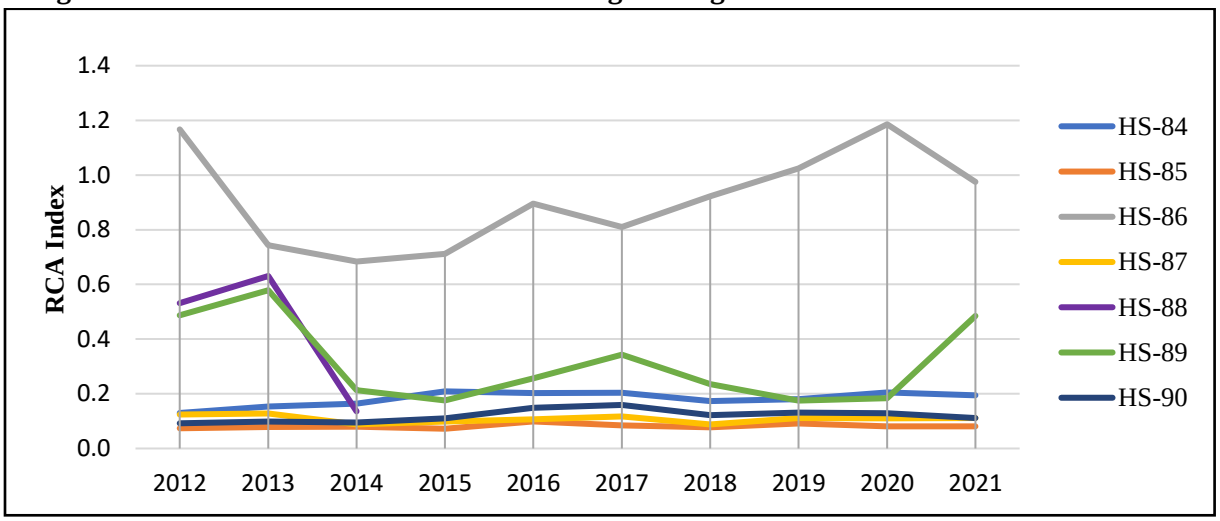
When Figure 7 is analyzed, RCA Index for HS-87 and HS-89 is greater than 1 and Turkiye has a comparative advantage in these product groups. While the RCA Index value of the HS-89 product group increased significantly from 2018 to 2021, the HS-87 product group reached its highest value in 2018 and it has shown a downward trend until 2021. The RCA Index values of the HS-84 and HS-90 product groups have not changed much over the years. On the other hand, it can be said that HS-88 and HS-86 product groups have been in an increasing trend since 2016. The RCA Index value of the HS-85 (electrical machines) group, in which total exports worldwide increased significantly, decreased between 2012 and 2021. According to this result, Turkiye has not been able to catch up with the rest of the world (mainly the exporter countries) in this product group.

The Balassa RCA Index values are examined in Russia's engineering products groups, it is seen on Figure 8 that only HS-86 (railway or tramway locomotives) is generally greater than 1. While Russia had a comparative disadvantage in this product group between 2013 and 2016, this value started to increase as of 2017. Even there were some increases in the RCA Index values of the HS-89 product group in 2013, 2017 and 2021 years, it remained below 1 and could not provide a competitive advantage. Since the values belonging to the HS-88 product group could not be shared by Russia after 2014, this group could not be evaluated in detail.[17]

[17] Values are not indicated in Trademap and other sources which belong to Russian state statistic instutitions.

It is observed on the graph that the RCA Index values calculated for the HS-84, HS-85, HS-87 and HS-90 product groups do not show any significant change in the 2012-2021 period.

Figure 8: Balassa RCA Index for Russia in Engineering Goods for the Time Series 2012-2021

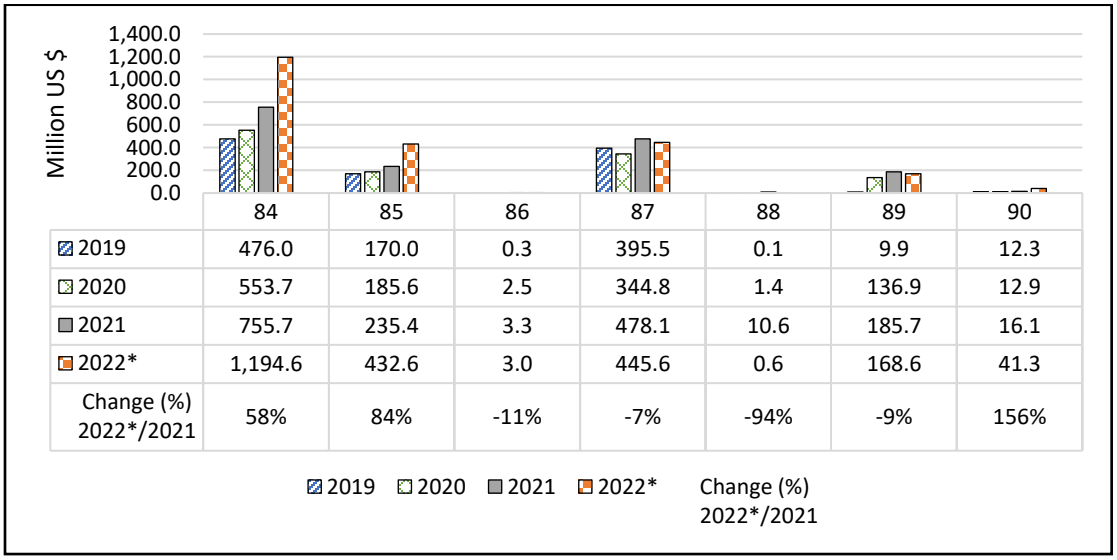


Source: Author's calculation based on Trademap data.

5. BILATERAL TRADE BETWEEN TURKİYE AND RUSSIA IN ENGINEERING GOODS

In this part, we examine engineering product groups in 2 digits level Harmonized System (HS-2) including 2022 export and import values. As of October 2022, Turkiye's annual total exports to Russia in all engineering products were recorded 1689,8 million US dollar (Figure 9). It should be noted that there is a significant growth in exports in machinery, electric machinery and in the ship building industry.

Figure 9: Turkiye's Export to Russia in Engineering Products (Million US Dollars)



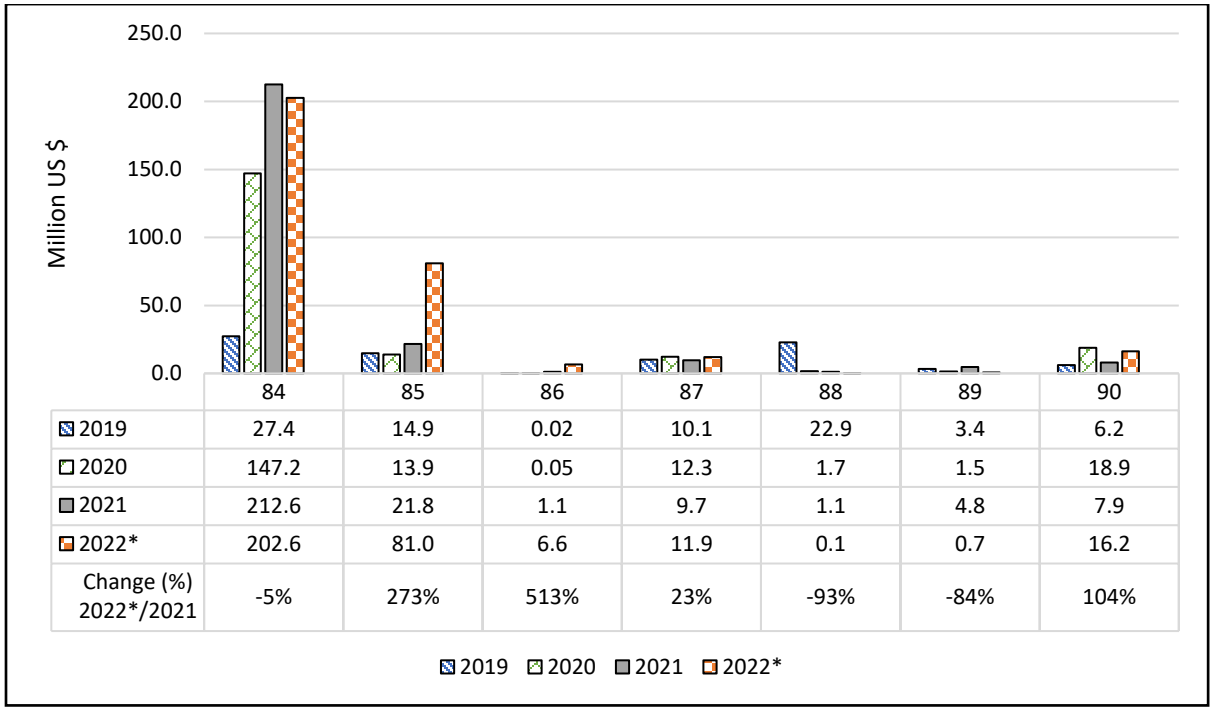
	84	85	86	87	88	89	90
2019	476.0	170.0	0.3	395.5	0.1	9.9	12.3
2020	553.7	185.6	2.5	344.8	1.4	136.9	12.9
2021	755.7	235.4	3.3	478.1	10.6	185.7	16.1
2022*	1,194.6	432.6	3.0	445.6	0.6	168.6	41.3
Change (%) 2022*/2021	58%	84%	-11%	-7%	-94%	-9%	156%

Source: Turkstat, *2022 values are collected in April 2023.

As an important reality, 31% of Russia's imports from Turkiye consists of engineering products. Share of HS-84 and HS-85 has been growing in 2022 significantly. When these groups, which have shown significant increases, are analyzed in detail, it can be said that mainly 8421 (Centrifuges…), 8429 (Bulldozers, graders, excavators …) 8414 (Air or vacuum pumps, air or other gas compressors…), 8428 (Lifting, handling, loading or unloading machinery…) and other similar product groups are the source of this increase. In 2022, the product categories of 8506 (Cells and batteries…), 8518 (Microphones…), 8528 (Monitors and projectors…), 8536 (Electrical apparatus…) and 8519 (Sound recording…) are the ones showing the highest increase among electrical machinery product groups.

According to Figure 10, HS-84 (Machinery, mechanical appliances…) come first among the engineering products in Russia's exports to Turkiye between 2019-2022. However, its export value seriously declined during 2022. Export of HS-85 products increased by 151% compared to previous year. Despite the negative effects of the Ukraine crisis, Russia's exports of HS-87 to Turkiye increased by 5%.

Figure 10: Turkiye's Imports from Russia in Engineering Products (Million US Dollars)



	84	85	86	87	88	89	90
2019	27.4	14.9	0.02	10.1	22.9	3.4	6.2
2020	147.2	13.9	0.05	12.3	1.7	1.5	18.9
2021	212.6	21.8	1.1	9.7	1.1	4.8	7.9
2022*	202.6	81.0	6.6	11.9	0.1	0.7	16.2
Change (%) 2022*/2021	-5%	273%	513%	23%	-93%	-84%	104%

Source: Turkstat, *2022 values are collected in April 2023.

When the HS-85 group, in which Russia's exports to Turkiye increased the most, is examined, it is determined that the HS-8502 (electric generating sets…), HS-8546 (electrical insulators), HS-8526 (telephone sets…), and HS-8537 (boards, panels, consoles) subgroups have an impact on this increase.

RESULTS

Turkiye's deficit in trade with Russia varies from year to year, and in 2022 it was recorded as 49,5 billion US$. The recent increase in the bilateral trade volume between the two countries has occured in imports from Russia rather than Turkiye's exports to Russia. According to the results, Turkiye's swing player policy between Russia and European countries has a short-term positive effect on bilateral trade relations with Russia. However, the rise in oil and raw material prices has turned this increase in favor of Russia. In addition, it is observed that the efforts of Russian companies to maintain commercial relations with European countries via Turkiye have pushed many companies to the path of representation and incorporation in Turkiye. The data for 2022 were analyzed and it is shown that the number of companies opened by Russian business in Turkiye and the capital they carry is in the first place when compared to other countries.

When we examine Turkiye's exports of engineering products to Russia, we see that the most traded product groups are machinery products, electrical machinery, vehicles other than railway or tramway, and ships. In 2022, the exports of machinery and electrical machinery products have significantly increased, thanks to the positive effects of the crisis in Ukraine. However, according to the Revealed Comparative Advantage (RCA) index, Turkiye has a comparative advantage (RCA>1) only in vehicles other than railway or tramway and ships among other engineering products. The product groups with the largest share in Russia's engineering product exports to Turkiye are machinery and electrical machinery. Despite this, the Balassa RCA Index value is less than one for machinery and electrical machinery, indicating that they have a revealed comparative disadvantage in Russia's trade. In 2022, electrical machinery gained significant momentum in Turkiye's exports to Russia. On the other hand, although Russia has a competitive advantage (RCA>1) only in railway or tramway locomotives, its exports to Turkiye in this product group remained low.

The increase in the trade volume between Turkiye and Russia as neighboring countries has pushed these two countries to develop mutual cooperation based on common economic interests. Turkiye's unbalanced structure of bilateral trade with Russia may be maintained by exporting different engineering products, in return for mineral and oil products purchased from Russia.

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