

# Türkiye Azerbaycan Economic Relations: Bilateral Revealed Comparative Advantage Perspective

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**Abstract:** Türkiye is attempting to strengthen its economic relations through regional and global cooperations. Türkiye desires to boost trade volume, diversify trade markets, and become a major player in the area through bilateral or multilateral collaboration with South Caucasus and Central Asian nations, with whom it shares linguistic and cultural affinities. After Azerbaijan declared its independence in 1991, Türkiye established economic relations with Azerbaijan and signed a Preferential Trade Agreement in 2020, in order to take the cooperation to a higher level. The economic relations of the two nations are analyzed in terms of international trade in this study, with the goal of increasing bilateral trade volume and liberalizing trade. Countries are assessed using fundamental macroeconomic variables, and their comparative advantages in bilateral trade are established. Using the bilateral revealed comparative advantage index, the study examined the nations' comparative advantages and export shares by product group. The findings of the study allow for a comparison of product groupings with comparative advantage with the products covered by the Preferential Trade Agreement, as well as a sense of the agreement's potential to enhance trade volume.

**Keywords:** Türkiye, Azerbaycan, Bilateral Revealed Comparative Advantage Index

**Jel Codes:** F10, F15, F00

## *Türkiye Azerbaycan Ekonomik İlişkileri: İki Taraflı Açıklanmış Karşılaştırmalı Üstünlükler Perspektifi*

**Öz:** Türkiye bölgesel ve küresel düzeyde iş birlikleri ile ekonomik ilişkilerini güçlendirmeye çalışmaktadır. Ortak dil ve kültüre sahip olduğu Güney Kafkasya ve Orta Asya ülkeleri ile iki ya da çok taraflı iş birlikleri çerçevesinde ticaret hacmini artırma, ticaret pazarlarını çeşitlendirme ve bölgede önemli bir aktör olma hedefindedir. Azerbaycan'ın 1991 yılında bağımsızlığını ilan etmesinin ardından Türkiye Azerbaycan ekonomik ilişkileri başlamış ve ülkeler iş birliğini daha ileri bir düzeye taşımak için 2020 yılında Tercihli Ticaret Anlaşması imzalamışlardır. Bu çalışmada ticaret hacmini arttırmayı ve ticareti serbestleştirmeyi amaç edinen iki ülkenin ekonomik ilişkileri dış ticaret özelinde incelenmiştir. Çalışmada, ülkeler temel makroekonomik göstergeleri itibariyle değerlendirilmiş ve iki taraflı ticarete açıklanmış karşılaştırmalı üstünlükleri belirlenmiştir. İki taraflı açıklanmış karşılaştırmalı üstünlükler endeksi kullanılan çalışmada, ülkelerin karşılaştırmalı üstünlükleri ürün grupları itibariyle belirlenmiş ve ürün gruplarının ihracattaki payları karşılaştırılmıştır. Çalışma bulguları, karşılaştırmalı üstünlüğe sahip olunan ürün gruplarının, Tercihli Ticaret Anlaşması kapsamındaki ürünlerle karşılaştırılması imkânı sunmakta ve anlaşmanın ticaret hacmini artırma potansiyeli ile ilgili fikir vermektedir.

**Anahtar Kelimeler:** Türkiye, Azerbaycan, İki Taraflı Açıklanmış Karşılaştırmalı Üstünlükler Endeksi

**Jel Kodları:** F10, F15, F00

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## 1. Introduction

Türkiye decided to implement a free-market economy with the decisions of January 24, 1980, and an export-oriented industrialization policy, and since then it has been attempting to expand its trade relations on a global and regional scale. Türkiye seeks to strengthen its trade relations on a global scale through the General Agreement on Tariffs and Trade, to which it became a party after the Second World War, and the World Trade Organization, which was established in 1995, and on a regional scale through customs unions, free trade agreements, and preferential trade agreements. As the World Trade Organization's efforts to ensure the development of multilateral trade by removing international trade barriers have been insufficient, countries have turned to regional integrations such as free trade agreements, customs unions, common markets, and economic unions to develop their trade relations. Türkiye has also turned to trade agreements to enhance its market share and has signed a Preferential Trade Agreement with Azerbaijan, with whom it shares linguistic and cultural affinities, to strengthen commercial connections.

Türkiye was the first state to recognize Azerbaijan after Azerbaijan declared its independence in 1991 and diplomatic relations were established in 1992. Economic relations between the two nations have been gradually developing since Azerbaijan's restoration of independence. Azerbaijan and Türkiye signed a Trade and Economic Cooperation Agreement in 1992 (Embassy of the Republic of Azerbaijan to the Republic of Türkiye). The High-Level Strategic Cooperation Council was formed in 2010 to strengthen Türkiye-Azerbaijan relations, and the Şuşa Declaration was signed in 2021 to improve bilateral relations to the level of alliance (Republic of Türkiye Ministry of Foreign Affairs, 2023).

The Turkic Council (The Cooperation Council of Turkic Speaking States, member states Türkiye, Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, and Hungary (observer)) were established in 2009 to strengthen multilateral cooperation among Turkic-speaking countries through Türkiye's initiatives starting in 1992. The Turkic Business Council and the Turkic Council of Commerce and Industry are organizations operating under the Turkic Council to expand economic relations (Republic of Türkiye Ministry of Foreign Affairs, 2023).

The Agreement on Avoidance of Double Taxation was signed with Azerbaijan in 1994, the Long-Term Economic and Trade Cooperation Program and Implementation Plan in 2007, the Partnership and Cooperation Agreement in 2007, the Agreement on Mutual Encouragement and Protection of Investments in 2011, the Protocol for the 8th Term of the Joint Economic Commission and the 1st Action Plan in 2019, and these agreements entered into force in the following years. The two countries signed a Preferential Trade Agreement in 2020 to increase economic and trade relations, and negotiations began in the same year to expand the scope of the agreement, which entered into force in 2021. The agreement primarily covers the reciprocal lowering of customs taxes on imports for 15 categories of agricultural and food items subject to an annual tariff limit (Republic of Türkiye Ministry of Trade, 2023).

The parties noted that by broadening the agreement's content, the parties' areas of interest would expand, living standards in both nations would rise, and this agreement would contribute to the countries' development by diversifying the items subject to trade. Tariffs on animal and vegetable products, animal and vegetable oils, and food sector goods are reduced or eliminated under the agreement, as are non-tariff and tariff-like restrictions. The parties also agreed to provide the appropriate framework for long-term trade growth and to ensure fair competition. They also agreed on the most-favored-nation principle and adopted the national treatment clause, which states that no more stringent limitations would be imposed on the trading, transportation, and use of imported goods than on identical items of national origin. Furthermore, if one of the parties engages in dumping or subsidization, the other party may impose compensatory measures. If an imported product harms or is likely to harm the domestic sector, safeguard measures can

be implemented for the same good with the agreement of the relevant authorities, but only once a year. Similarly, in the event of a balance-of-payments crisis, restrictive measures could be used in accordance with the IMF's guidelines, provided that both parties are informed and that they are ended as soon as possible. Türkiye and Azerbaijan have signed a protocol to broaden the scope of the Preferential Trade Agreement, which will contribute to their goal of reaching a trade volume of 15 billion dollars. The protocol, which is currently undergoing internal clearance, will expand the number of agricultural and industrial items covered by the agreement and boost the trade volume to \$150 (Republic of Türkiye Ministry of Trade, 2023).

The countries also have joint projects in the energy sector, such as the Baku-Tbilisi-Ceyhan oil pipeline, the Baku-Tbilisi-Erzurum gas pipeline, and the Trans-Anatolian pipeline. Foreign direct investment from Türkiye to Azerbaijan totaled \$13.3 billion between 1995 and 2021. Turkish companies mostly participate in the energy, manufacturing, telecommunications, banking and insurance, construction, transportation, and health care sectors. Azerbaijan's investments have grown significantly in recent years. Direct investments from Azerbaijan to Türkiye totaled \$20.3 billion between 1995 and 2021, and most of these investments are in the energy sector (Embassy of the Republic of Azerbaijan to the Republic of Türkiye).

Türkiye and Azerbaijan aim to strengthen their economic relations and increase their trade volume through cooperations. In this framework, the aim of this study is to analyze Türkiye-Azerbaijan economic relations in terms of foreign trade, as well as to determine the countries' comparative advantages and trade potentials of the countries in bilateral trade. The following section contains examples from the related literature. In the third section, the economic relations between Türkiye and Azerbaijan are evaluated through fundamental macroeconomic and international trade statistics. Finally, the index used to establish comparative advantage in foreign trade is introduced and the countries' trading patterns are analyzed in the last section.

## 2. Literature Review

Türkiye Azerbaijan economic relations have been examined with two different methods in the literature. Some studies analyze Türkiye's economic relations with several groups of states that include Azerbaijan, while other studies utilize bilateral trade statistics of both Türkiye and Azerbaijan. Some examples from the literature are reviewed here with the focus on selected method.

Karaalp (2011) analyzed Türkiye's competitiveness against CIS countries (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia, and Ukraine) by using revealed comparative advantage index, intra-industry trade index and trade intensity index for 16 product groups for the period 1996-2008 and identified the sectors in which Türkiye has comparative advantage. Çılğın and Kurt (2021) applied cluster analysis with the 2017 foreign trade data of Türkiye, Azerbaijan and Kazakhstan and identified the trade clusters of the countries. Balıkçioğlu (2019) analyzed foreign trade relations between Türkiye and Turkic Republics in terms of direction, scale, and sectoral distribution of foreign trade for the period 2000-2017. Doru and Aslan (2019) evaluated the course of foreign trade, foreign direct investments and touristic activities in Türkiye and Turkic Republics in the historical process. In another study examining the trade relations between Türkiye and the Turkic Republics, the extended gravity model was used, and it was concluded that the trade between these countries is not similar (İnançlı, 2012). Kaygusuz (2021) analyzed the impact of the Turkic Council on trade between Türkiye and the member countries.

As mentioned above, the other group of studies specifically focus on relations between Türkiye and Azerbaijan. Aslanlı (2018) evaluated trade, investment, and energy relations by considering the legal infrastructure of Türkiye Azerbaijan economic relations. Baghirova et al. (2017) analyzed the impact of Azerbaijan Türkiye trade on the growth of countries for the period 1998-2014 with regression and correlation methods. Alpdoğan

et al. (2020) analyzed Türkiye Azerbaijan trade with export and import concentration indices for the period 1995-2015. Another study analyzed the effect of oil prices on Azerbaijan's imports from Türkiye with a vector autoregression model and concluded that oil price shocks affect Azerbaijan's imports (Dikkaya et al., 2018). Ersoy et al. (2017) analyzed Türkiye Azerbaijan foreign trade with a vector autoregression model for a limited number of sectors and found no cointegration relationship between the sectors. In the study examining the course of Azerbaijan Türkiye economic relations in the historical process, the obstacles to the development of trade between two countries were mentioned and suggestions were made for the growth of trade relations (Gürçam, 2021). Kara and Gribincea (2016) evaluated the relationship between Azerbaijan and Türkiye within the framework of cooperation in the fields of trade, energy, transportation, investment, and tourism. In another study, Türkiye Azerbaijan relations were analyzed within the framework of bilateral trade, energy projects and foreign direct investments (Kardaş and Macit, 2015).

In both groups of studies, it was found that there were a limited number of studies in which comparative advantages were determined, while no study was found in which revealed comparative advantage was determined using bilateral trade data of Azerbaijan and Türkiye. This study aims to contribute to the literature in this respect by using bilateral revealed comparative advantage index. Different indices are used in the literature to analyze economic relations between countries. Şimşek and Kurt (2021) analyzed the economic relations between Türkiye and Uzbekistan using bilateral revealed comparative advantage index and complementarity index and found that there is a potential to improve trade between the two countries. Ahmad et al. (2018) examined India-China trade with revealed comparative advantage and bilateral revealed comparative advantage indices and identified the products in which countries specialize. Şimşek et al. (2010) investigated Türkiye's competitiveness in the EU market using revealed comparative advantage index, revealed competitiveness index and intra-industry trade index. Utkulu and Seymen (2004) examined Türkiye's competitiveness in the EU market at sectoral level using revealed comparative advantage index. Saki et al. (2019) determined the United States' comparative advantage in textile and apparel products with revealed comparative advantage and normalized comparative advantage indices for the periods 1996-2016 and 2010-2016. Ahmad et al. (2021) determined Pakistan's comparative advantage in major fruit and vegetable sectors using the revealed comparative advantage index.

### 3. Macroeconomic Indicators of Türkiye and Azerbaijan

The economies of Türkiye and Azerbaijan will be assessed in this section using their main macroeconomic indicators. According to World Bank data, the two countries, which are in the upper middle-income group, are quite different from each other in terms of population and national income size. While Türkiye's gross domestic product in 2022 is realized as 905.99 billion dollars and its growth rate as 5.6%, with a population of 85 million, the country's gross domestic product per capita is 10,616 dollars and the unemployment rate is 10%. The rise in Türkiye's inflation rate to 72.3% in 2022 has negative impact on real income and welfare, as well as the country's competitiveness. Azerbaijan's gross domestic product was 78.72 billion dollars, with a population of 10 million, and its gross domestic product per capita was USD 7736.7, while the country's economy expanded by 4.6% in 2022. The unemployment and inflation rates in Azerbaijan were 5.5% and 13.9%, respectively, significantly lower than in Türkiye (World Bank, 2023).

The human development index highlights that, in addition to economic progress, additional factors should be considered for a country's development. The human development index evaluates three aspects of human development: health, education, and standard of life. Azerbaijan was placed 91st out of 191 nations in the high human development category in 2021, with a human development score of 0.745. Türkiye, rated

48th out of 191 nations, has a human development index value of 0.838, placing it in the very high category (United Nations Development Programme, 2023).

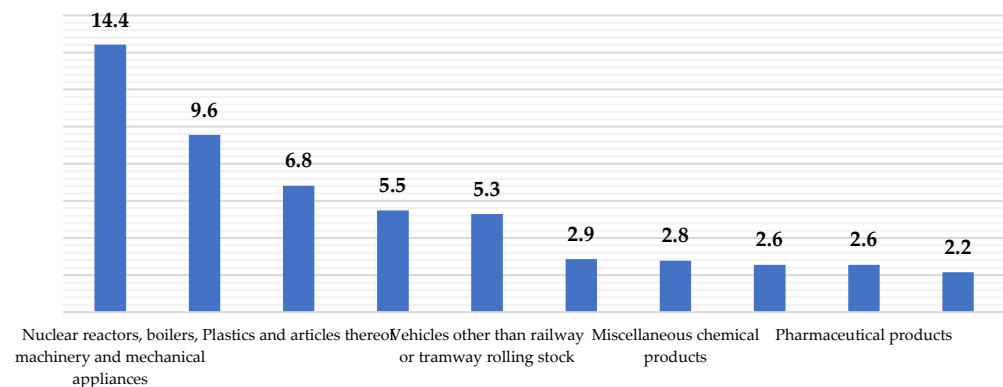
Table 1 displays 20 years of bilateral trade statistics between Türkiye and Azerbaijan. Between 2003 and 2014, Türkiye's exports to Azerbaijan exhibited a general increased tendency, followed by a downtrend, and then resumed an upward trend in the past five years. The increases in Türkiye's exports and imports recorded in 2007 are remarkable. Imports from Azerbaijan fell for two years in a row due to the 2008 global financial crisis, but began to recover in 2010, and imports increased nearly three times in 2015 compared to the previous year. While the trade balance was favorable in favor of Türkiye except for one year between 2003 and 2016, it has shifted in favor of Azerbaijan since 2017.

**Table 1.** Türkiye Azerbaijan bilateral trade (thousand dollars)

Year	Export to Azerbaijan	Import from Azerbaijan	Trade balance
2003	315,488	107,036	208,452
2004	403,942	182,622	221,320
2005	528,076	275,959	252,117
2006	695,287	388,145	307,142
2007	1,047,668	1,056,323	-8,655
2008	1,667,469	626,157	1,041,312
2009	1,400,446	107,588	1,292,858
2010	1,550,479	170,894	1,379,585
2011	2,063,996	455,761	1,608,235
2012	2,584,671	600,025	1,984,646
2013	3,174,497	525,987	2,648,510
2014	3,061,218	502,493	2,558,725
2015	1,898,543	1,477,257	421,286
2016	1,285,840	1,185,663	100,177
2017	1,356,999	1,393,786	-36,787
2018	1,474,368	1,825,980	-351,612
2019	1,788,708	2,862,688	-1,073,980
2020	2,085,574	2,597,747	-512,173
2021	2,342,993	2,818,136	-475,143
2022	2,527,826	3,544,756	-1,016,930

Source: Trade Map (2023)

Figure 1 shows the top ten items that Türkiye exports to Azerbaijan as well as their respective market shares. Nuclear reactors, boilers, machinery, and mechanical appliances account for 14.4% of Türkiye's exports to Azerbaijan. This rate is 9.6% for electrical machinery and equipment, 6.8% for plastics, 5.5% for iron and steel, and 5.3% for vehicles other than railway or tramway rolling stock. Other items not included in the export figure account for 45% of total exports.



**Figure 1.** Top 10 products in Türkiye's exports to Azerbaijan (Share in export %-2022)

Figure 2 depicts the top ten products exported by Azerbaijan to Türkiye, together with their market shares. Mineral fuels, mineral oils, and products of their distillation product group rank first, accounting for approximately 85% of total exports. Cotton comes in second with a share of 5.4%, aluminum comes in third with a share of 3.1%, and other items not included in the figure have a stake of just 1.4%. While the top exports of the two nations are extremely different, Azerbaijan's exports are concentrated in one product group.

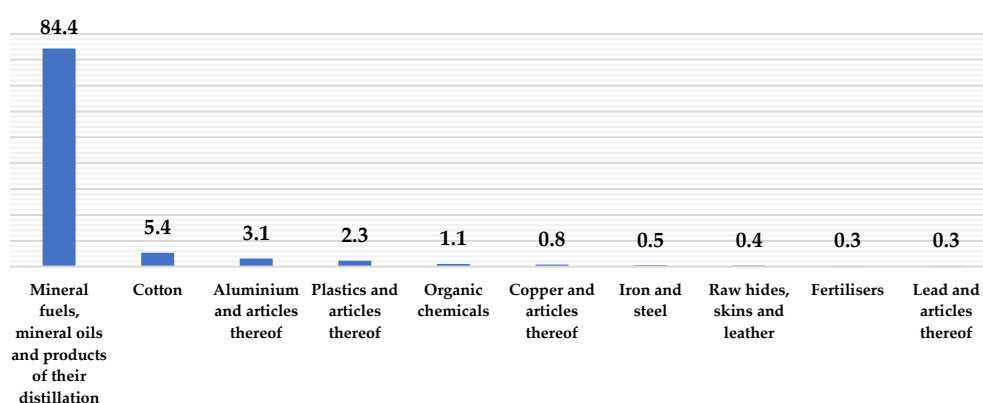


Figure 2. Top 10 products in Azerbaijan's export to Türkiye (Share in export %-2022)

Azerbaijan's exports of 38 billion dollars' worth of goods, with a 48% share in gross domestic product, increased by 72% in 2022 and Azerbaijan's foreign trade had a surplus of 23 billion dollars. Mineral fuel, mineral oil and products derived from their distillation account for about 93% of the country's merchandise exports and contribute significantly to the country's foreign trade surplus. Table 2 lists Azerbaijan's main export partners in 2022. Italy, the country's major export partner, contributes around 47% of total goods exports, while Türkiye, its second largest partner, accounts for 9%. Mineral fuels, mineral oils, and items resulting from their distillation account for nearly all the \$17.8 billion in exports to Italy and 84% of the \$3.5 billion in exports to Türkiye. Although the country's percentage of partner country imports is low, as seen in the table of the ten largest export partners, exports have climbed dramatically in 2022, with a trade surplus with all countries except Russia.

Table 2. Azerbaijan's major export partners (thousand dollars)

Importing countries	Export value in 2022	Trade balance 2022	Share in export (%)	Share in partner's import (%)	Export value growth (%)
Italy	17,782,905	17,444,718	46.6	3.1	92
Türkiye	3,544,756	1,247,544	9.3	0.2	26
Israel	1,682,726	1,647,062	4.4	0	87
India	1,662,624	1,443,175	4.4	0.1	180
Greece	1,391,812	1,363,439	3.6	2.6	235
Spain	1,008,998	914,360	2.6	0.3	79
Russian Fed.	975,456	-1,757,856	2.6	0.5	6
Croatia	952,397	940,672	2.5	2.8	27
Czech Rep.	922,191	854,799	2.4	0.6	250
UK	779,724	523,068	2.0	0	97

Source: Trade Map (2023)

Table 3 presents data on Azerbaijan's largest import partners. Russia, Türkiye, and China were Azerbaijan's main import partners in 2022, accounting for 18.8%, 15.8%, and 14.3% of the country's \$14.5 billion in imports. Azerbaijan's imports account for a relatively small proportion of the exports of the nations from which it imports the most.

Azerbaijan maintains a trade surplus with all nations except Türkiye and Italy, from whom it imports the most. The country's most imported product groups<sup>1</sup> account for about 60% of imports. Azerbaijan's total merchandise imports increased by 24% compared to the previous year, and while imports from the top ten countries have generally increased significantly, the increase in imports from neighboring Turkmenistan and Kazakhstan differs significantly from other countries.

**Table 3.** Azerbaijan's major import partners (thousand dollars)

Exporting countries	Import value in 2022	Trade balance 2022	Share in import (%)	Share in partner's export (%)	Import value growth (%)
Russian Fed.	2,733,312	-1,757,856	18.8	0.5	32
Türkiye	2,297,212	1,247,544	15.8	1.0	25
China	2,086,286	-2,013,522	14.3	0.0	27
Germany	662,363	-71,062	4.6	0.0	4
Turkmenistan	509,706	-484,015	3.5	3.6	621
Kazakhstan	494,423	-390,392	3.4	0.4	418
USA	480,020	-389,682	3.3	0.0	8
Iran	476,434	-446,603	3.3	3.1	20
Italy	338,187	17,444,718	2.3	0.0	-19
Japan	290,219	-276,191	2.0	0.0	12

Source: Trade Map (2023)

Türkiye's exports accounted for 28% of gross domestic product in 2022, totaling \$254 billion dollars, an increase of 13% from the previous year. According to the statistics in Table 4, Türkiye's exports to its four main trading partners, Germany, USA, Iraq, and UK, account for 25% of total goods exports. The share of Türkiye's top ten exports<sup>2</sup> in total good exports is 57%. Exports to countries other than Iraq have a very small share in the countries' imports. Azerbaijan, which ranks 24th in Türkiye's exports, accounts for only 1% of total Turkish exports.

**Table 4.** Türkiye's major export partners (thousand dollars)

Importing countries	Export value in 2022	Trade balance 2022	Share in export (%)	Share in partner's import (%)	Export value growth (%)
Germany	21,144,909	-2,887,829	8.3	1.6	9
USA	16,882,282	1,653,704	6.6	0.6	15
Iraq	13,750,841	12,331,666	5.4	30.7	24
UK	13,010,911	7,106,967	5.1	1.9	-5
Italy	12,353,974	-1,729,480	4.9	1.9	8
Spain	9,650,501	2,646,507	3.8	2.1	0
France	9,548,796	118,974	3.8	1.4	5
Russian Fed.	9,343,472	-49,510,027	3.7	4.8	62
Netherlands	8,028,814	3,531,553	3.2	0.8	19
Israel	7,032,861	4,581,124	2.8	6.3	11
Azerbaijan	2,527,826	-1,016,930	1	15.8	8

Source: Trade Map (2023)

<sup>1</sup> These products are nuclear reactors, boilers, machinery and mechanical devices and parts thereof, vehicles other than railway or tramway wagons and parts thereof, mineral fuels, mineral oils and products derived from their distillation, electrical machinery and equipment and parts thereof, pharmaceutical products, articles of iron and steel, cereals, plastics, and articles made of these, iron and steel, wood, and articles of wood and charco.

<sup>2</sup> These products are vehicles other than railway or tramway rolling stock, and parts and accessories thereof, nuclear reactors, boilers, machinery and mechanical appliances; parts thereof, mineral fuels, mineral oils and products of their distillation, iron and steel, electrical machinery and equipment and parts thereof, plastics and articles thereof, articles of apparel and clothing accessories, knitted or crocheted, articles of iron and steel, natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin, articles of apparel and clothing accessories, not knitted or crocheted.

In 2022, Türkiye's imports reached 363 billion dollars, a 34% increase over the previous year. Table 5 displays Türkiye's top ten import destinations, and Türkiye has a significant share in the exports of only Russia. Türkiye's imports from its two main trading partners account for around 28% of total imports. Türkiye's top ten<sup>3</sup> imports account for over 73% of total goods imports. With 3.5 billion dollars in imports, Azerbaijan ranks 55th among Türkiye's importing nations. Despite having a relatively modest share of Türkiye's good imports from Azerbaijan, this commerce makes Türkiye Azerbaijan's second largest export market, accounting for 9.3% of Azerbaijan's exports. As previously stated, despite ranking 24th on the list of nations to which Türkiye exports, Azerbaijan receives around 16% of its total import products from Türkiye. Based on this information, it is possible to infer that Türkiye is a significant market for Azerbaijan's exports and imports.

**Table 5.** Türkiye's major import partners (thousand dollars)

Exporting countries	Import value in 2022	Trade balance 2022	Share in import (%)	Share in partner's exports (%)	Import value growth (%)
Russian Fed.	58,853,499	-49,510,027	16.2	10.4	103
China	41,353,932	-38,072,812	11.4	0.9	28
Germany	24,032,738	-2,887,829	6.6	1.7	10
Switzerland	15,342,734	-14,001,254	4.2	3.2	402
USA	15,228,578	1,653,704	4.2	0.7	16
Italy	14,083,454	-1,729,480	3.9	2.2	22
India	10,697,671	-9,060,142	2.9	2.2	35
France	9,429,822	118,974	2.6	1.6	19
Korea Rep.	9,004,398	-7,952,766	2.5	1.1	19
Spain	7,003,994	2,646,507	1.9	1.7	11
Azerbaijan	3,544,756	-1,016,930	0.9	9.3	11

Source: Trade Map (2023)

#### 4. Bilateral Revealed Comparative Advantages

The Ricardian theory and the Heckscher-Ohlin theory are two notable trade theories based on comparative advantage. The Ricardian theory holds that comparative advantage originates from variations in technology across nations, while the relative factor scarcity of a nation determines its comparative advantage according to the Heckscher-Ohlin theory. Since not all factors affecting comparative advantages are observable, Balassa developed the revealed comparative advantage index by stating that revealed comparative advantage can be determined with observable factors and that export-import ratios will reflect relative advantages (Balassa, 1965).

Even though the index is often derived in comparison world trade, it can also be used in bilateral trade. The bilateral revealed comparative advantage (BRCA) demonstrates how much a specific nation exports to a particular market in comparison to how much the rest of the world exports to that market. If the bilateral revealed comparative advantage is more than one, it means that, as compared to the rest of the world, nation *i* has a revealed comparative advantage in country *j*'s market for that specific commodity (Phan and Jeong, 2012). The index is presented below.

$$BRCA_{ij}^a = \frac{X_{ij}^a / X_{ij}}{X_{wj}^a / X_{wj}} \quad (1)$$

$X_{ij}^a$  is the export of good *a* by country *i* to country *j*.  $X_{ij}$  is the total export of country *i* to country *j*.  $X_{wj}^a$  is the world's export of good *a* to country *j* and  $X_{wj}$  is the world's total

<sup>3</sup> These products are mineral fuels, mineral oils and products of their distillation, nuclear reactors, boilers, machinery and mechanical appliances, iron and steel, natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin, electrical machinery and equipment and parts thereof, plastics and articles thereof, Vehicles other than railway or tramway rolling stock, and parts and accessories thereof, organic chemicals, aluminium and articles thereof, copper and articles thereof.



export to country *j*. A BRCA index greater than 1 indicates that the country has a comparative advantage in the relevant good, while a BRCA index less than 1 indicates the opposite.

The BRCA index was used to assess comparative advantages in bilateral trade between Türkiye and Azerbaijan. The Harmonized Commodity Description and Coding System (HS) at digit 4 level was utilized for product categories, and the data was acquired from Trade Map.

BRCA indices were computed for Türkiye and Azerbaijan for the years 2007, 2012, 2017, and 2022, and the results for 2022 were evaluated in depth by product group for both countries. The summary of BRCA indices is reported in Table 6. In 2007, for Türkiye, comparative advantage was identified in 445 out of 1176 product groups, with the product category having comparative advantage accounting for 80% of total exports. The overall number of items in 2012 and 2017 was 1202 and 1219, respectively, while the number of products with a comparative advantage among these products was 548 and 475. During these two years, these items accounted for 79% and 78% of total exports, respectively. The share of Azerbaijan's products with comparative advantage in exports increased from 19% in 2007 to 76% in 2012 and 90% in 2017. While the number of products in which Türkiye has comparative advantage has fluctuated, the number of products in which Azerbaijan has comparative advantage has increased over the years.

**Table 6.** BRCA indices for Türkiye and Azerbaijan

Years	Türkiye			Azerbaijan		
	Total	BRCA>1	Export share %	Total	BRCA>1	Export share %
2007	1,176	445	80	1,176	24	19
2012	1,202	548	79	1,187	28	76
2017	1,219	475	78	1,183	35	90
2022	1,222	551	78	1,151	39	80

The BRCA index was computed for 1,222 product categories in Türkiye, and the BRCA value was more than 1 in 551 of them. Table 7 illustrates the distribution of 551 product groupings into sections, their BRCA values, and the percentage of total goods exports to Azerbaijan for each section. Türkiye's exports in 551 product groups in which Türkiye has a comparative advantage account for almost 78% of total exports to Azerbaijan. The machinery and mechanical appliances section differs significantly from other sections. The export value of the 87 products with comparative advantage in this section accounts for almost one-fifth of Türkiye's merchandise exports to Azerbaijan. In the products of the chemical or allied industries section, exports of 102 products with a comparative advantage account for approximately one tenth of total merchandise exports. Base metals and articles thereof, plastics and articles thereof ve food industry preparations are other sections that draw attention due to their percentage of overall exports. Apart from arms and ammunition section XIX, which is not included in the table, all sections feature products in which Türkiye has a comparative advantage, although with a modest percentage of exports.

**Table 7.** Türkiye's BRCA>1 product groups and export shares (2022)

Section	Product label	Chapter	Number of products with BRCA>1	Export share %
I	Live animals; animal products	01-05	8	0.76
II	Vegetable products	06-14	23	3
III	Animal, vegetable or microbial fats and oils and their cleavage products	15	5	0.61
IV	Food industry preparations	16-24	22	6.33
V	Mineral products	25-27	10	0.05
VI	Products of the chemical or allied industries	28-38	102	9.76

VII	Plastics and articles thereof	39-40	30	7.64
VIII	Raw hides and skins, leather, furskins and articles thereof	41-43	6	0.17
IX	Wood and articles of wood	44-46	5	0.83
X	Pulp of wood or of other fibrous cellulosic material	47-49	20	1.81
XI	Textiles and textile articles	50-63	78	4.83
XII	Footwear, headgear, umbrellas, walking sticks, seat-sticks, whips, riding-crops and parts thereof	64-67	14	0.95
XIII	Articles of stone, plaster, cement, asbestos, mica or similar materials	68-70	24	1.17
XIV	Natural or cultered pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof	71	5	0.75
XV	Base metals and articles thereof	72-83	67	8.66
XVI	Machinery and mechanical appliances; electrical equipment	84-85	87	19.6
XVII	Vehicles, aircraft, vessels, and associated equipment	86-89	7	3.88
XVIII	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instrument and apparatus	90-92	22	1.46
XX	Miscellaneous manufactured articles	94-96	15	3.89
XXI	Works of art, collectors' pieces and antiques	97-99	1	1.5

To figure out Azerbaijan's comparative advantage, calculations were performed for 1,151 product groups, and it came out that the BRCA value was larger than 1 in 39 of them. Table 8 includes only those sections in which Azerbaijan has product groups with a comparative advantage. In comparison to Türkiye, the number of products in which Azerbaijan has a comparative advantage is very restricted. Azerbaijan has a comparative advantage in 15 out of 21 segments, with a total of 39 product groups, and except for one, the share of these groups in exports is quite modest. Exports account for around 80% of total exports to Türkiye in the product groups where Azerbaijan has a comparative advantage. Azerbaijan's mineral product exports account for around 67% of its overall exports to Türkiye. The textiles and textile articles section is the second largest export category after mineral products, accounting for 5.36% of total exports. The base metals and articles thereof section is the third largest export category, accounting for 3.96% of overall exports.

**Table 8.** Azerbaijan's BRCA>1 product groups and export shares (2022)

Section	Product label	Chapter	Number of products with BRCA>1	Exports share %
I	Live animals; animal products	01-05	3	0.07
II	Vegetable products	06-14	4	0.21
III	Animal, vegetable or microbial fats and oils and their cleavage products	15	2	0.02
IV	Food industry preparations	16-24	3	0.03
V	Mineral products	25-27	4	66.81
VI	Products of the chemical or allied industries	28-38	2	1.08
VII	Plastics and articles thereof	39-40	1	1.26
VIII	Raw hides and skins, leather, furskins and articles thereof	41-43	2	0.34
IX	Wood and articles of wood	44-46	1	0.29
X	Pulp of wood or of other fibrous cellulosic material	47-49	1	0.01
XI	Textiles and textile articles	50-63	6	5.36

XIII	Articles of stone, plaster, cement, asbestos, mica or similar materials	68-70	1	0.12
XIV	Natural or cultered pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof	71	2	0.008
XV	Base metals and articles thereof	72-83	6	3.96
XVI	Machinery and mechanical appliances; electrical equipment	84-85	1	0.05

The comparative advantage of the country provides insight into the potential future implications of the Preferential Trade Agreement, which entered into force in 2021. Agricultural and processed agricultural products are subject to the Preferential Trade Agreement's preferential trade system.

According to the Preferential Trade Agreement, one of the 15 products specified in the list of commodities originating in the Republic of Türkiye, where Azerbaijan would apply the preferential trade regime, is in section I, one is in section II, one is in section III, and twelve are in section IV. Azerbaijan reduces tariffs on imports of these 15 items by 100%, subject to an annual tariff limit. Türkiye has a comparative advantage in 12 out of 15 products when product codes are considered as 4 digits. In this case, it seems likely that section 4, where most of the products to be subjected to the preferential trading regime, will increase its share of exports over time. Türkiye's comparative advantages would be greatly enhanced if the Preferential Trade Agreement were expanded to include section XVI (machinery and mechanical appliances) and section VI (chemical or allied products), given Türkiye's high share of exports in product groups with comparative advantage.

The list of goods originating in Azerbaijan to which Türkiye applies the preferential trade regime includes 1 item from section I, 5 items from section II, 2 items from section III, and 7 items of section IV. Products with comparative advantage in these four sections account for not even 1% of exports. Furthermore, it has been determined that Azerbaijan only has a competitive advantage in two of these products when the agreement's product codes are considered as four digits. While Türkiye's application of a 100% reduction in customs tariffs on imports subject to an annual tariff limit of these products is normally expected to have a positive impact on Azerbaijan's exports of those products, it is unlikely that there will be very serious increases in exports at a very low level currently.

## 5. Conclusion

Türkiye is seeking to strengthen its cooperation with the countries of Central Asia and the South Caucasus, with which it has a common culture, especially with the Turkish-speaking countries. Türkiye signed a free trade agreement with Georgia, and Preferential Trade Agreements with Azerbaijan and Uzbekistan. Türkiye also plays an important role in expanding these countries' energy export markets. However, due to the presence of powerful nations in the region, such as Russia, the United States, and China, it is necessary to enhance cooperation to increase bilateral trade and investment.

Azerbaijan and Türkiye, which are classified as upper middle-income countries by the World Bank, are considerably different in terms of national GDP levels, growth rates, populations, and export structures. Azerbaijan's goods exports are mostly dependent on mineral fuel and mineral oil resources, and the country's exports account for 48% of its GDP, which continues to increase. Türkiye's exports account for 28% of GDP, and the country's export growth rate is behind that of Azerbaijan. Trade relations between the two nations have improved in recent years, and the trade balance, which favored Türkiye in the beginning, has shifted in recent years to benefit Azerbaijan. Türkiye is a major trading partner for Azerbaijan, ranking second in terms of exports and imports. Azerbaijan ranks 24th among Türkiye's exporters and 55th among Türkiye's importers. Azerbaijan's exports to Türkiye are concentrated in the mineral fuel and mineral oil product groups, whereas

Türkiye's exports to Azerbaijan include a variety of items such as nuclear reactors, boilers, electrical machinery, plastics, iron and steel components, and vehicles other than railway carriages.

To determine the bilateral revealed comparative advantages of Türkiye and Azerbaijan, the BRCA index has been computed for 2007, 2012, 2017, and 2022, and the change in the number of goods with a comparative advantage and the export share of these goods has been examined. The 2022 BRCA index was analyzed based on sectional groups and the export shares of these groups. While Türkiye's exports of goods with a comparative advantage account for 78% of overall exports, Azerbaijan has a comparative advantage in a considerably smaller number of commodities than Türkiye, yet these products account for 80% of total exports. The findings of the study also provide useful results on the potential trade implications of the Preferential Trade Agreement, which entered into force in recent years and is currently being worked on to expand its scope.

An additional protocol to expand the scope of the Preferential Trade Agreement is in the process of ratification. The fact that Türkiye has a comparative advantage in most of the products covered by the Preferential Trade Agreement is likely to affect Türkiye's exports to Azerbaijan in a way that will increase in the coming years. The low share of the products covered by the Preferential Trade Agreement in which Azerbaijan has a comparative advantage in exports can be interpreted as meaning that the agreement will not have a significant impact on Azerbaijan's exports to Türkiye. Based on all this information, the development of trade between the two countries, strengthening cooperation, and expanding the scope of the Preferential Trade Agreement will serve the interests of both countries. It is critical to broaden the scope of the agreement to include the items with which nations trade the most and have comparative advantages. Expanding the scope of the agreement to include machinery and mechanical appliances, chemical industry products, base metals, and plastics (the products that Türkiye exports the most to Azerbaijan and has a comparative advantage in) will significantly increase Türkiye's exports to Azerbaijan. Additionally, boosting or eliminating tariff limits on items with tariff reductions will contribute to the nation's goal of expanding trade volume. Furthermore, facilitating legal regulations to strengthen cooperation, improving logistical infrastructure, and lowering transportation costs would all contribute to increased trade volume.

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