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THE STATE AND FUTURE OF TURKEY AND GERMANY RELATIONS: ASSESSMENT OF EXISTING AND EMERGING ECONOMIC RELATIONSHIP

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1. Introduction

The Turkish-German partnership is described as 'unavoidable',¹ due to the real mutual interests and dependencies. Therefore, much of this relationship has been analyzed in-depth both in economics and international relations literature. Much of the economic literature concentrates on trade and investment analysis. While we take a similar approach to the relationship in this paper, we try to contribute to the existing literature by identifying new areas for trade growth, exploring new areas of investment particularly in renewable energy resources and finally provide a fresh overview of the technology startup landscape of both countries and lay out areas of future cooperation.

Historically, Germany has been one of Turkey's most important trade partners and investors. With links dating back to the Turkish migration to Germany in the 1960s, relations between the countries go beyond a classic trade relationship.

Currently, with over 7,000 German companies in Turkey, German corporate investment is regarded as crucial for Turkish economic development and prosperity in the long run. In 2018, the trade volume between the countries added up to 37.7 billion euros. The relationship is a win-win situation for both Turkey and Germany. On one side, Turkey's youthful population is an asset for Germany's relatively old

workforce, and the low costs of operations in Turkey are an incentive that attracts German activity. The Turkish market is also an indispensable asset to Germany, as it is its biggest export market.

On the other side of the coin, German investment has been a significant employment generator and an FDI inflow. As a country experiencing a severe economic downturn, having support from the most significant economic power of Europe (with a GDP of over 4 trillion dollars), is crucial for Turkey's economic recovery. Since 2019, a negative trend was observed in the Turkish-German trade relations and investment schemes. Last year, German exports to Turkey declined significantly (from 20.4 billion euros to 18 billion euros) due to the worsening economic climate. Additionally, in 2018, Turkey has ranked lowest in trust as a partner among Germany's eight key allies.

Tourism relations have also been affected by this economic rally between countries. While Turkish citizens who visited Germany have been almost doubled in the last ten years, the number of Germans visiting Turkey is nearly the same, and it even decreased in 2016.² Similarly, Germany's tourism revenue gained from Turkish visitors has increased, as Germany's tourism expenditure to Turkey has declined.

¹ Szabo, S. F. (2018, March 23). Germany and Turkey: The Unavoidable Partnership. Foreign Policy at Brookings. Germany and Turkey: The unavoidable partnership. <https://www.brookings.edu/research/germany-and-turkey-the-unavoidable-partnership/>

² CEIC Data, an ISI Emerging Markets Group Company. <https://insights.ceicdata.com/login>



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2. FDI Trends and Investment Opportunities

2.1. Understanding the Relationship

Foreign Direct Investment (FDI) is a significant criterion for international economic integration of the countries. The symmetry of the relationship and the countries' relative significance over each other summarizes the essence of the relationship, its weaknesses, and strengths. Considering the relationship between Turkey and Germany in terms of foreign direct investment, it should be noted that the relationship has an asymmetrical nature.³ For Turkey, Germany is an important trade partner, investor, and tourism partner; while this relationship does not hold the other way around. Between 2002 to 2019, while Germany's foreign direct investments were reached to \$9.905 billion, Turkey's investments to Germany amounted to \$2.790 billion.⁴

Furthermore, in spite of 80,000 Turkish – German businesses operating in Germany with annual turnover amounts approximately \$52 billion, there are only 7,500 German companies in Turkey.⁵ However, Germany wants to develop this relationship with new investments.⁶ The number of investments to Turkey, from Germany, is not constant over time. During 1990-2013, Germany was one of the main investors to Turkey. However, between 2007-2013, Turkey experienced a fall in FDI inflows from all around the world. The period with low levels of investments has come to an end with the significant increase in investments from Germany, Netherlands, and Japan.

Similar to the other aspects of this relationship, fluctuations in the investments could be attributed to Turkey's political conditions, currency flows, and the relationship with Germany, itself. The amount of investment has been decreased since 2014; however, recently it started to show an increasing pattern. It should also be considered that the majority of the foreign direct investments flowing into Turkey

are placed in the services sector whilst Turkish capital seems to be invested in industry and services sectors. Being said that Germany's investments to Turkey are fluctuating over time, the changes are even sharper in Turkey's investments to Germany.

Foreign direct investments are also crucial for innovation. Economic integration facilitates the flow of technology and knowledge between countries via FDI.⁷ Especially German foreign investment has made a remarkable impact on the patent numbers in Turkey. According to a study, from 2010 through 2014, Germany's FDI contributions have enabled the transformation from patent applications to actual patents faster than any other foreign-based investments.⁸ This is particularly important for Turkey. Having exhausted productivity gains from structural changes, Turkey now seeks new sources of productivity growth from R&D and innovation.

The foreign direct investments to Turkey have been accumulated around a few sectors. Considering all foreign direct investments to Turkey in 2010, electricity, gas and water supply and distribution, financial intermediation, and manufacturing were the top three sectors attracting foreign capital. While in 2010, almost 56.5 percent of the total FDI inflows were in electricity, gas, and water supply in 2012, the highest inflows were in the manufacturing sector with 43 percent.⁹

German companies have been invested in Turkey, mainly in the manufacturing and service sectors between 2005-2015. Now, with new investments in the renewable energy sector, the investment relationship between Turkey and Germany will be turning to sustainability investments.

³ Vatandaş, S. (2019, March 20). Bending an Asymmetrical Graphic; On Turkish-German Economic Relations. INSAMER. https://insamer.com/en/bending-an-asymmetrical-graphic-on-turkish-german-economic-relations_2067.html

⁴ Republic of Turkey Ministry of Foreign Affairs. Commercial and Economic Relations between Turkey and the Federal Republic of Germany. <http://www.mfa.gov.tr/commercial-and-economic-relations-between-turkey-and-the-federal-republic-of-germany.en.mfa>

⁵ Ibid.

⁶ Anadolu Agency. (2018, September 21). Turkey, Germany vow to boost economic ties. <https://www.aa.com.tr/en/economy/turkey-germany-vow-to-boost-economic-ties/1261429>

⁷ Kustepeli, Y., Akgungor, S. (2014, January). Turkish-German Economic Relations via Foreign Direct Investment and Patents.

⁸ Ergül, Murat., Soylu, Ö.B., Okur, F. (2016). The Effect of Foreign Direct Investment (FDI) on Economic Growth: The Case of Turkey. *The Macrotheme Review* 5(4).

⁹ Electronic Data Delivery System of the Central Bank of Turkey. <http://evds.tcmb.gov.tr/>

2.2. Companies in The Action

In this section, we aim to provide a general overview of Turkish and German investment in respective countries. Indeed, the economic relationship between the two countries date back decades, and the cultural ties reveal great potential for the future. German companies are essential investors in Turkey. In comparison, Turkish investments in Germany are much less impressive.¹⁰ Currently, more than seven thousand Turkish-German companies operate in Turkey. German companies have invested more than 14,5 billion USD in Turkey since 1980.¹¹ Whilst Turkey provided German and other foreign investors with an amicable investment climate over the past decades, recently the risk perception of Turkey fared for the worse. Most recently, Volkswagen decided to divert its investment from Turkey. In 2019, the company announced that they were planning to invest approximately 1 billion euros into a manufacturing plant located in Manisa, Turkey. Construction of the plant was rescheduled four times for political reasons and eventually cancelled in July

2020 with the decision of Volkswagen Work Council due to the same reasons.¹² Still, Turkey is a fruitful investment opportunity for German companies. Companies like Siemens, Adidas, Allianz, Bosch, Daimler, Man, BMW and Audi either have a significant proportion of their customers located in Turkey or have their production lines in Turkey. Recently, Volkswagen and Bosch have decided to expand their investments in Turkey by relocating MAN's production to Turkey and producing its next-generation pump here as well, respectively.¹³ Even though the information regarding the Turkish companies in Germany is limited, they operate in a wide range of sectors. For instance, Tadım, a Turkish nuts company, made a recent investment to Germany with a worth of 11 million euros.¹⁴ Besides the food sector, companies like Beko (a Koç Holding brand) show a strong presence in Germany, thanks to its cooperation with Grundig.¹⁵ The brand is also the German Basketball League's main sponsor and the official technology partner of Bundesliga.

2.3. Investment in Sustainable Energy Sources

While investment opportunities and relations are developed and investigated mainly in the well-established industries like automobiles and banking, the twenty-first century's economy forced countries to shift their attention to relatively new but equally significant areas, like green investments. In this new investment field, Germany is aiming to take leadership. Almost every year, the country announces new policies to be able to reach its ambitious goal, becoming carbon neutral by 2050.¹⁶ According to the new \$145bn

recovery budget announced by the Federal Ministry of Finance of Germany in July 2020, Germany will be investing \$46 billion to sustainable investment areas like "renewable power and electric vehicles".¹⁷ One of the most crucial parts of this budget is allocating \$10 billion to green hydrogen, which is also called "tomorrow's petroleum" to help the country end its dependence on coal. With this new budget, Germany will be able to meet the country's electricity production by 10% with hydrogen. The importance put into

¹⁰ Ibid.

¹¹ Germany's Foreign Representative in Turkey. Türkiye'deki Alman Yatırımları. [German Investment in Turkey]. <https://tuerkei.diplo.de/tr-tr/themen/wirtschaft/-/1798700>

¹² Seiwert, M. (2020, December 4). VW-Chef Herbert Diess bedauert Aus für Werk in der Türkei. [VW boss Herbert Diess regrets the end of the plant in Turkey]. <https://www.wiwo.de/unternehmen/auto/herbert-diess-vw-chef-bedauert-aus-fuer-werk-in-der-tuerkei/26685890.html>

¹³ NTV. (2020, October 12). Alman otomotiv devi Volkswagen'den Türkiye kararı. [German automotive giant Volkswagen's decision on Turkey]. <https://www.ntv.com.tr/ekonomi/alman-otomotiv-devi-volkswagenden-turkiye-karari,DVRrJOj63UCkXSow4ktfbQ>

¹⁴ Germany Trade & Investment. The Food and Beverage Industry in Germany. Issue 2019/2020. <https://fmig-online.de/wp-content/uploads/2020/08/industry-overview-food-beverage-industry-en-data.pdf>

¹⁵ Arçelik. (2019, March). Investment Presentation. https://www.arcelikglobal.com/media/4221/arc-elik_as_investor-presentation-mar2019.pdf

¹⁶ Clean Energy Wire. (2021, January 4). Germany's greenhouse gas emissions and energy transition targets. <https://www.cleanenergywire.org/factsheets/germanys-greenhouse-gas-emissions-and-climate-targets>

¹⁷ The European Sting - Critical News & Insights on European Politics, Economy, Foreign Affairs, Business & Technology - europeansting.com. (2020, July 3). Billions for sustainable investments – Germany's plan for a green recovery. <https://europeansting.com/2020/07/03/billions-for-sustainable-investments-germanys-plan-for-a-green-recovery/>

hydrogen is stressed by the German Economy and Energy Minister Peter Altmaier, “The time has come for hydrogen, and the technologies enabling its use.”¹⁸

With nearly 44 percent of the electricity output generated through renewable sources, which 31.4% was from hydroelectric turbines in 2019, Turkey is a promising country to make partnerships and investments in the green investment sector, especially in hydro energy, according to data by the Minister of Energy of Turkey.¹⁹

Turkey is aiming to hit these levels of renewables utilization in the coming years. According to the International Finance Corporation (IFC) report, Climate Investment Opportunities in Emerging Markets renewable energy sector published in 2016, green investment is expected to reach \$665 billion by 2030 in Eastern Europe.²⁰ Turkey is projected to receive the highest investment in the area with \$270 billion after Russia receiving \$313 billion. Furthermore, by achieving 31% of its electricity production from renewable sources in 2018, the Turkish government put more weight on renewables and updated its 2023 renewables target by aiming to supply 65% of its energy from renewables. Turkey’s concrete

steps towards a renewable future and its experience in the renewable energy sector increased Turkey’s strategic importance for Germany.

Renewable energy is becoming one of the main pillars of the economic relationship between Turkey and Germany. Having the aim of closer cooperation and strengthening the dialogue between countries in the scope of energy, especially the renewables-generated electricity, Turkey and Germany co-founded The Turkish-German Energy Forum.²¹ This forum aims to foster joint projects and accelerate the investment process between two countries, especially for German companies who would like to invest in Turkey by attracting attention to Turkey’s competitive advantage in wind, PV, and hydropower. With the increasing number of energy partnerships and mutual investments, two countries have shown their intent to sustain and develop this relationship. Many experienced German firms have been involved in Turkey renewable energy companies as investors and suppliers, including Siemens and Kalyon & Türkerler; Germany’s InTEC Energy Solutions and Prime Enerji A.Ş. and the partnership between the Germany-based Enercon and Enerjisa.²²

¹⁸ Anadolu Agency. (2020, June 11). Germany approves national green hydrogen strategy. <https://www.aa.com.tr/en/energy/renewable/germany-approves-national-green-hydrogen-strategy/29551>

¹⁹ Ministry of Energy and Natural Resources (Turkey). (2020, November 1). Electricity. <https://enerji.gov.tr/Electricity-infobank>

²⁰ International Finance Corporation (IFC) World Bank Group. (2016). Climate Investment Opportunities in Emerging Markets. https://www.ifc.org/wps/wcm/connect/59260145-ec2e-40de-97e6-3aa78b82b3c9/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES&CVID=IBLd6Xq

²¹ Anadolu Agency. (2019, April 18). Turkey and Germany to boost renewable cooperation. <https://www.aa.com.tr/en/economy/turkey-and-germany-to-boost-renewable-cooperation/1456703>

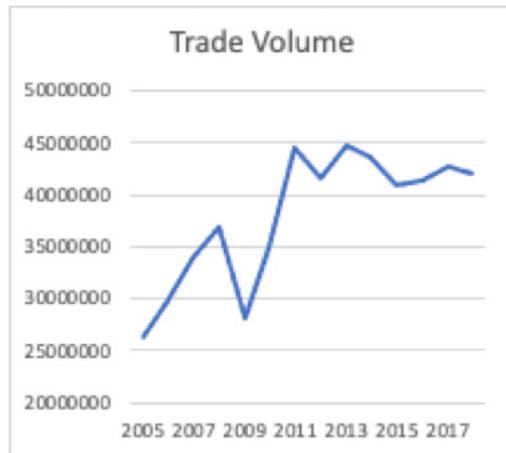
²² Daily Sabah. (2019, November 27). More German Firms to Assume Role in Turkish Renewable Sector. <https://www.dailysabah.com/energy/2019/11/27/more-german-firms-to-assume-role-in-turkish-renewable-sector>

3.Trade Links and Partnership

3.1. Underpinnings of the Relationship

For the past century, Germany has played a pivotal role in Turkish foreign trade. In this section, we aim to provide a detailed account of the trade relationship between the two

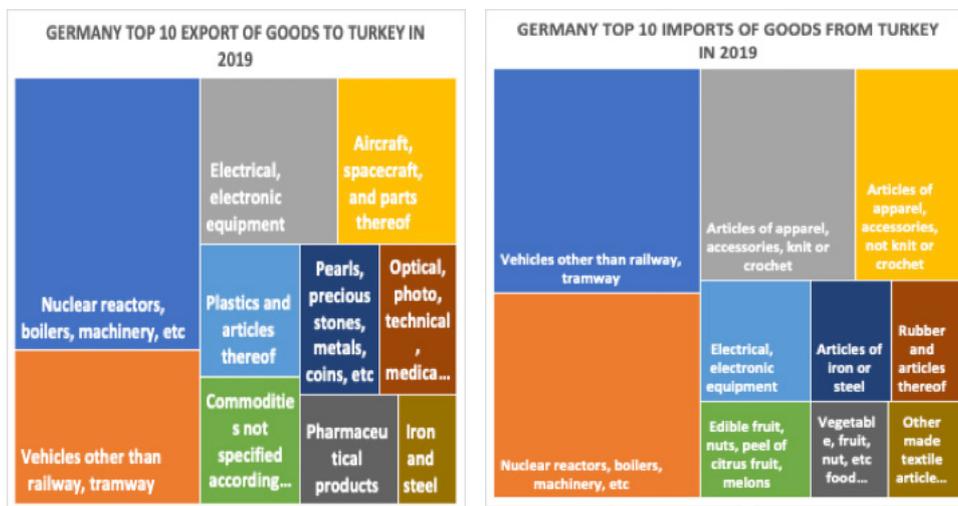
countries supported by available international trade data compiled by UN Comtrade and World Integrated Trade Solutions (WITS).



Source: UN Comtrade

In 2018 German-Turkish trade volume was recorded as USD 42.1 billion. \$22.7 billion was German exports to Turkey, while \$19.4 billion was Turkish exports to Germany. As a result of these trade volumes, in 2018 Turkey ranked as the 17th export and 19th import destination of Germany among 216 countries, whereas Germany ranked as the number one export and number two import destination of Turkey among 205 countries, respectively. Turkey contributed to 1.4% of German imports and was the destination of only 1.5% of German exports.²³

When it comes to the sectoral diversification of the trade, Turkey’s imports and exports to Germany show similar patterns. Top three products that Germany exported to Turkey were cars with the value of over 2 billion USD, vehicle parts valued 1.49 billion USD and finally gold with 664 million USD. While Turkey is exporting Cars with the value over 1 billion USD, Vehicle Parts valued \$993 million and differently Engine Parts valued almost one billion USD.

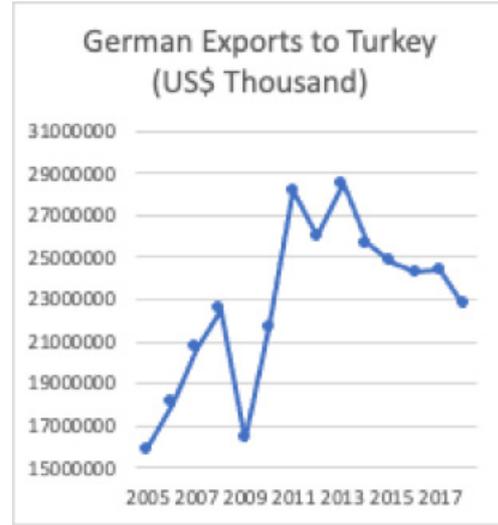


Source: World Bank (World Integrated Trade Solution - WITS)

²³ All data related to trade links and partnerships used in this section of the report is taken from the the UN Comtrade and WITS database. United Nations. Department of Economic and Social Affairs. Statistics Division. Trade Statistics. <https://comtrade.un.org/data/>; World Integrated Trade Solutions. <https://wits.worldbank.org>

The trade balance follows a similar trend in the first two decades of the 2000s. In the period between 2005-2018, Germany exported 271 billion USD worth of products to Turkey and imported 211 billion USD products from Turkey. In the same period, Germany realized 60 billion USD worth of trade surplus. Turkish exports to Germany rose from

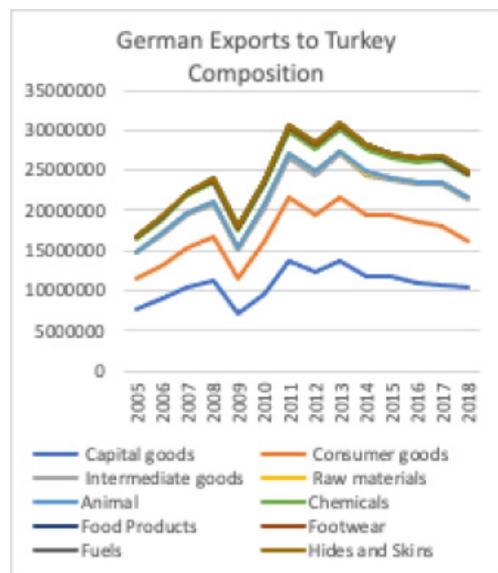
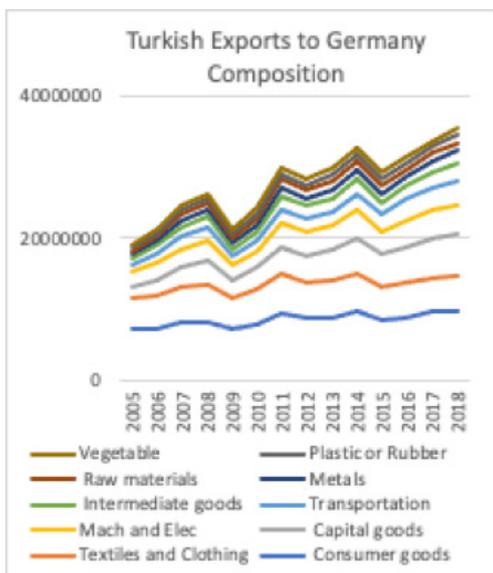
10.4B USD to 19.4 billion during the period with an average yearly growth rate of 4.91%. Meanwhile, the German exports to Turkey rose from 15.8 billion USD to 22.7 billion USD. It should be noted that while Turkish exports have a steady rising curve, the German exports to Turkey fluctuates over time with a declining trend in recent years.



Source: World Bank (World Integrated Trade Solution - WITS)

The analysis of the composition of the trade is also very relevant in this context. According to World Bank data, Turkey's exports are mainly composed of products with

low economic value, and the statement does not hold in the other direction.



Source: World Bank (World Integrated Trade Solution - WITS)

3.2. Revealed Comparative Advantage (RCA) Analysis

As demonstrated above, the trade relationship is an old and complex one between the two countries that have served them well both in the past and stand to do so going forward in old and new areas. In addition to the potential of startups and renewable energy investments, Turkey has the potential to grow its shares within Germany's imports.

Turkey's strong manufacturing base should also be reexamined in the context of the relocation of global production in the face of the disruption of global supply chains due to the COVID-19 pandemic. With the closure of many factories in China, global supply chains have suffered during the early stages of the pandemic. As a result, many companies decided to relocate their supply chains and do not invest in a single country, as they invest in China before the coronavirus.²⁴ Countries with a strong manufacturing base and a relatively developed human capital like Turkey stand to benefit from this relocation. Turkey can compete with countries like Poland, Hungary, and Czechia.

In order to understand where the above-mentioned potential lies, we have undertaken RCA analysis in products that are most imported by Germany, but, at the same time, in the products where Turkey is more competitive. Revealed comparative advantage (RCA), based on Ricardian theory, is a country's relative advantage or disadvantage in a

particular commodity compared to other countries. The trade flow of the country determines the relative advantage. If the value, from zero to infinity, is bigger than 1, this country is said to have a revealed comparative advantage in this particular type of commodity. Furthermore, when comparing two countries, the one with the highest value for RCA in a specific commodity is proportionately more efficient than the other country, particular to this group of products. All of the calculations in this paper is conducted with USD millions, and the data is converted into yearly summations.²⁵ Types of commodities have been determined based on the Standard International Trade Classification (SITC). Data has been collected and analyzed for multiple consecutive years; therefore both the seasonality and the impact of the Covid-19 pandemic have been eliminated.²⁶ The RCA values are calculated for the last four years (2016-2019), and the summations of the annual values are considered as it is the case for many academic studies.²⁷ This analysis is crucial and relevant for this paper, since it has the ability to show the comparative advantages of Turkey and Germany, and provide insights on how to develop the trade relationship between these two countries. This paper examined Turkey's exports and Germany's imports in detail by focusing on the volume and the commodity type. The aim of this analysis is to show Turkey's relative room for growth in the specific type of products.

²⁴ CNBC. (2020, April 21). Companies will shift supply chains away from China after coronavirus crisis, Mark Mobius predicts. <https://www.cnbc.com/2020/04/21/supply-chains-will-move-away-from-china-after-coronavirus-mark-mobius.html>

²⁵ The database is used for access to the raw data. All the analysis in this section has been conducted via Microsoft Office Programme.

²⁶ All data related to Relative Comparative Advantage (RCA) analysis used in this section of the report is taken from UNCTAD. <https://unctadstat.unctad.org/EN/>

²⁷ Granabetter, D. Revealed Comparative Advantage Index: An Analysis of Export Trade of the Austrian District Burgenland. *Review of Innovation and Competitiveness: A Journal of Economic and Social Research*. Volume. 2. Issue. 2. (2016). (pp. 97-114).

RCA Analysis

By SITC, Turkey's highest comparative advantage is in the Manufactured Goods category with an RCA of 2,05. In addition to this, Turkey also has a solid advantage in other categories like Commodities and Transactions,

Miscellaneous Manufactured Articles and many more. Individual product groups within the commodity groups will be further analyzed.

Commodity Groups by SITC	RCA of Turkey
Manufactured goods	2,05
Commodities and transactions, n.e.s.	1,59
Miscellaneous manufactured articles	1,49
Food and live animals	1,41
Animal and vegetable oils, fats and waxes	1,02
Beverages and tobacco	0,93
Machinery and transport equipment	0,85
Crude materials, inedible, except fuels	0,75
Chemicals and related products, n.e.s.	0,50
Mineral fuels, lubricants and related materials	0,26

Table 1: Turkey's RCA Values by Main Commodity Classifications

Germany imported products with a value of over USD 4.6 trillion over the last four years. The category with the highest import volume was Manufactured Goods, which comprised 38% of all imported goods. Commodities and Transactions, Miscellaneous Manufactured Articles, and Food and Live Animals categories follow the Manufactured Goods with the

relative contributions of 14%, 13%, and 13%. Combining these four categories occupies a cumulative percentage of 78% of all the products Germany is buying from abroad. The contribution of the goods that have high import volumes and the goods that Turkey has high RCAs can also be disaggregated into the categories' individual components.

Commodity Groups by SITC	Germany's Imports	Contr. %	Cumulative
Manufactured goods	1.744.310.410,96	%38	%38
Commodities and transactions, n.e.s.	641.313.667,67	%14	%52
Miscellaneous manufactured articles	609.644.684,81	%13	%65
Food and live animals	589.406.536,79	%13	%78
Animal and vegetable oils, fats and waxes	294.652.939,31	%6	%84
Beverages and tobacco	276.163.734,32	%6	%90
Machinery and transport equipment	249.009.132,53	%5	%95
Crude materials, inedible, except fuels	156.484.806,32	%3	%99
Chemicals and related products, n.e.s.	36.740.463,19	%1	%100
Mineral fuels, lubricants and related materials	16.536.305,14	%0	% 00

Table 2: Germany's Imports Over 4 Years (2016-2019)

Considering the individual components of SITC main categories, Turkey's RCA is the highest in the Crude Fertilizers category with a value of 5.48. Turkey is also

performing well on textile related products, vegetable and fruits and tobacco products.

PRODUCT	TR / RCA
Crude fertilizers other than division 56, and crude minerals	5,48
Textile yarn and related products	4,15
Articles of apparel & clothing accessories	3,53
Vegetables and fruits	2,98
Iron and steel	2,76
Tobacco and tobacco manufactures	2,39
Prefabricated buildings, sanitary, heating and lighting fixtures, n.e.s.a	2,10
Rubber manufactures, n.e.s.	2,08
Plastics in non-primary forms	1,99
Cereals and cereal preparations	1,99
Road vehicles	1,83
Manufactures of metal, n.e.s.	1,77
Furniture and parts thereof	1,62
Gold, non-monetary (excluding gold ores and concentrates)	1,59
Sugar, sugar preparations and honey	1,44
Paper and paper manufactures	1,42
Non metallic mineral manufactures, n.e.s.	1,28
Miscellaneous manufactured articles, n.e.s.	1,26
Fixed vegetable oils and fats, crude, refined or fractionated	1,24
Cork and wood manufactures (excluding furniture)	1,17
Leather, leather manufactures and dressed furskins	1,09
Textiles fibres and their wastes	1,05
Metal working machinery	1,05
Inorganic chemicals	1,05
Inorganic chemicals	1,02
Miscellaneous edible products and preparations	1,02
Dyeing, tanning and colouring materials	1,00

Table 3: Individual Categories and Turkey's RCA (2016-2019)

Road Vehicles is the primary import of Germany, with 11% of all products that Germany has been imported between 2016-

2019. Germany's other imports with the highest volumes are in the categories of electrical machinery and petroleum.

PRODUCT	% in Imports
Road vehicles	11%
Electrical machinery, apparatus and appliances, n.e.s.	9%
Petroleum, petroleum products and related materials	6%
Medicinal and pharmaceutical products	5%
Other industrial machinery and parts	5%
Office machines and automatic data processing machines	4%
Miscellaneous manufactured articles, n.e.s.	4%
Articles of apparel & clothing accessories	4%
Power generating machinery and equipment	3%
Telecommunication and sound recording apparatus	3%
Organic chemicals	3%
Manufactures of metal, n.e.s.	3%
Iron and steel	3%
Professional and scientific instruments, n.e.s.	3%
Non-ferrous metals	3%

Table 4: % of Individual Categories in Germany's Imports (2016-2019) up to 3%

The overlap between Germany's imports and Turkey's RCA is crucial to understanding this relationship's future. Investigating the relationship in terms of the main categories, it can be said that Germany's main import categories show

similarities to the categories that Turkey has high RCA values. The commodity groups Turkey's comparative advantage is high are also composing the products that Germany imports the most.

Commodity Groups by SITC	RCA of Turkey	Contribution to German Imports (%)
Manufactured goods	2.05	38%
Commodities and transactions, n.e.s.	1.59	14%
Miscellaneous manufactured articles	1,49	13%
Food and live animals	1,41	13%
Animal and vegetable oils, fats and waxes	1.02	6%
Beverages and tobacco	0,93	6%
Machinery and transport equipment	0.85	5%
Crude materials, inedible, except fuels	0,75	3%
Chemicals and related products, n.e.s.	0,50	1%
Mineral fuels, lubricants and related materials	0,26	0%

Table 5: Commodity Groups, RCA of Turkey and the Contribution to German Imports

While the main commodity classifications and the overlap between Turkey's RCA and Germany's imports hint the possible cooperation, more educated insights come from the relationship in the individual categories.

For this analysis, this paper also focused on the top 10 products that Turkey has the highest RCA. From these products, Crude Fertilizers shine out with the highest RCA and relatively low ranking when the strong comparative advantage is considered. For this product category, it can be said that Turkey has strong opportunities to improve its position in the hierarchy of the countries that export Crude

Fertilizers to Germany. Similar analysis and interpretations can be applied to Iron and Steel, Tobacco products and other categories. In addition to these, some categories need special attention due to their contributions to the German economy. To illustrate this, the Road Vehicles category can be examined. Road Vehicles is the largest contributor to the German imports, with 11%. Turkey's RCA in this product is 1,83, meaning that it is more efficient to import this product from Turkey than most countries. Turkey should carefully evaluate the current situation and the possible development points of the Road Vehicles trade.

3.3. On the Updated Customs Union Agreement

Turkey currently remains the only country with the responsibility of having to manage a common commercial regime with the EU without actually being a member of the Union.²⁸ The current membership to the EU Customs Union of Turkey lays the foundation for Turkey-EU economic relations, especially in the area of trade. Considering the fact that Germany is the biggest economy of the EU, the bilateral trade relations between Germany and Turkey cannot be considered separately from the EU-Turkey trade regulatory perspective. Hence, it is crucial to discuss Turkey's membership of the EU Customs Union while scrutinizing the Turkish-German trade relations. As the current customs union agreement dates back to 1995, the agreement's quarter-century periodic maintenance time has arrived. Currently, the debate regarding a reform of the Customs Union is ascending in Turkey.

In the last 25 years, many developing economies' economic structure has changed rapidly, as has the Turkish economy, especially during the 2000s. In addition to FDI inflows, the EU integration reforms in the specific period played a significant role in this transition. The transition and diversification of the economy formed the main reason for the need for a reformed Customs Union agreement for Turkey. The coverage of the existing Customs Union is limited to manufactured goods and processed agricultural products. The new round of negotiations aims to extend this scope by including services and possibly agriculture.²⁹ Including the new industries

to the current Customs Union is undoubtedly the chance to enhance Turkey and Germany's economic cooperation.

Another relevant point is that the Customs Union contributes to the competitiveness of EU industries by eradicating obstacles to free trade and advancing economic integration. This development would be further consolidated by a restructuring of the Customs Union that would remove non-tariff barriers. For example, in 2017, for Germany's total exports, Turkish value-added amounted to US\$7.5 billion.³⁰ With these figures, Turkey is ranked 24th worldwide in its value-added contribution to Germany's exports. This ranking tops the 13 members of the EU, including Slovakia, Romania, and Portugal. A much more integrated economic structure that comes with an enhanced Customs Union agreement can contribute positively to the ranking. In the composition of Turkey's contribution to German export industries, Chemical Products ranks first, and Business Services ranks second. In the modernized Customs Union, the service component is set to be the most impactful component. Services account for about 70% of both the Turkish economy and the EU economy. Consequently, if completed, the revised Customs Union would open up a much greater share of economic activity to free trade and competition. Turkish value-added Business Services German exports have more potential to grow with a new Customs Union agreement that would also extensively capture Services Trade Liberalization.

²⁸ Ülgen, S. (2020, December). Dış Ekonomik İlişkiler Kurulu. [Foreign Economic Relations Board]. The Business Case for A Turkey - EU Customs Union 2.0.

²⁹ Ibid.

³⁰ UNCTAD-Eora Global Value Chain Database.

3.4. Turkish – German Trade Associations and Consortiums

As the output of the long-lasting economic relationship between Turkey and Germany, in time, many trade associations have been established to fortify the relationship and be beneficial to both parties. Considering the relevant economic impact of these countries, most of these associations are founded and led by Turkish lobbyists, while the scope of the effect is bilateral. Trade associations play an essential role in the development of the relationship by organizing events, introducing newcomer businesspeople to the countries, and strengthening the network so that the structural holes could be filled most efficiently. One of the most significant events which are organized by the Turkish-German Chamber of Commerce and Industry, German Near and Middle East Association, and Hessen Trade & Invest GmbH was held in April 2019.³¹ Deutsch-Türkischen Wirtschaftstag (German-Turkish Trade Days) hosted

companies operating in the key sectors such as intelligent & renewable energy sectors, the automotive industry, and textile industries.

Turkey – Germany Business Council founded by DEIK, Foreign Economic Relations Board of Turkey, played an important role in the relationship's gradual evolution. DEIK aims to enable high-level collaboration between the countries in many sectors with business diplomacy.³² In addition to DEIK, also TOBB (The Union of Chambers and Commodity Exchanges of Turkey) and TUSIAD (Turkish Industry and Business Association) have chambers specialized in the economic relationships with Germany. Increasing numbers of these associations and councils signal Turkey's assiduous efforts to expand economic ties with Germany by empowering the dialogue.

³¹ Deutsch-Türkischen Wirtschaftstag / Turkish - German Trade Days. <https://turkish-germany-trade-days.b2match.io>

³² Dış Ekonomik İlişkiler Kurulu. [Foreign Economic Relations Board]. <https://www.deik.org.tr/european-business-councils-turkey-germany-business-council>

4. The New Economy: Startups

4.1. The Rise of Technology Startups

Entrepreneurship is one of the main drivers of economic growth and innovation. To be able to compete in the global world, countries should promote the establishment and the growth of startups.³³ It drives the companies to spread the innovation to the general public, increases the speed of innovation, and creates a suitable environment for youth to add value to the economic value chains. With entrepreneurship, the definition of the term, company, has diversified over the years. Thus, the underlying implications of the concept of the corporate company and a startup are dissimilar. The companies' effects on the economy have also been adapted to the gradual change from big corporations to startups. Companies founded by a small number of people, mostly have tech-based products and embrace the culture of independence, empowerment, and growth are called startups. These relatively new forms of companies are transforming industries, especially threatening the archaic companies which fail to take advantage of technology and putting an effort to sustain their old approaches. In 2000, the most valuable companies were generally automotive companies and banks, like General Motors and Citibank. However, in 2020, they left their places to technology companies, like Amazon, Apple, and Microsoft, who were once called startups.

Startups and their increasing value have brought technological developments into consideration of the general public and the government, which otherwise can be discussed only in the laboratory environments and universities. Over time, these new technologies became vital to our economies. In the recent report of NATO, it is highlighted that emerging disruptive technologies should be a political-strategic priority.³⁴ Artificial intelligence, one of the main developments

that can give rise to disruptive technologies, is given credit both at the international and national levels. The change steam has caused in the world can also be attributed to AI. European Union stresses the importance of AI in its recent report: "amid fierce global competition, a solid European framework is needed".³⁵ Germany, like many other countries, has developed its National Artificial Intelligence Strategy by defining the goals of making Germany one of the leaders in the use and development of AI technologies, responsible development of these technologies, and integrating it in multilevel needs of the society such as ethics, law, etc.³⁶. Even though artificial intelligence is known for its super capacities and abilities, the evidence is limited when it comes to its effect on the economy. In a study conducted by the Massachusetts Institute of Technology (MIT), it is found that machine translation systems developed with the help of artificial intelligence, significantly increased the export of international trade of the e-commerce website by 17.5%.³⁷ In future studies, the beneficial economic impact of artificial intelligence should be studied more.

Emerging technologies such as artificial intelligence augmented reality, and deep learning is easy to be adopted by startups. Hereby, startup companies contribute to these developments and increase competition by forcing established companies to adapt to the new age. Therefore, it is crucial to support the startup ecosystem with incentives to entrepreneurs and investors to be able to achieve economic development with technology. For this reason, it is again essential to examine the startup ecosystems of Turkey and Germany and understand the economic relationship between them.

³³ Bednarzik, R. W. Role of Entrepreneurship in the US and European Job Growth. 123 Monthly Labor Review. No. 3. 2000.

³⁴ NATO. (2020, November 25). NATO 2030: United for a New Era. Final Report. https://www.nato.int/nato_static_fi2014/assets/pdf/2020/12/pdf/201201-Reflection-Group-Final-Report-Uni.pdf

³⁵ European Commission. (2018, April 25). Artificial Intelligence for Europe.

³⁶ European Commission. (2020, February 25). National strategies on Artificial Intelligence. Country report – Germany. <https://knowledge4policy.ec.europa.eu/sites/default/files/germany-ai-strategy-report.pdf>

³⁷ Brynjolfsson, E., Hui, X., & Liu, M. (2018, August 20). Does Machine Translation Affect International Trade? Evidence from a Large Digital Platform. *Management Science* 65.12 (2019): 5449-5460.

4.2. Current Startup Ecosystems of Turkey and Germany

Turkey, with a population of over 83 million in 2019 with almost half of them under 33 years old, is the country with the highest number of the youth population in the European Union³⁸. According to the Startup Ecosystem Report of The Presidency of Republic of Turkey Investment Office's report, which has been published with the supports of Startup Watch, "Turkey is both digitally connected and active, evidenced by being the 10th largest market for Facebook, 6th largest market for Instagram, 6th largest market for Twitter, 3rd largest market for TikTok and the 8th largest market for YouTube globally."³⁹. Furthermore, Turkey was

the 7th largest top market for mobile apps, as determined by the total number of app downloads. The youth population brings Turkey a competitive advantage in terms of mobile penetration, being an early adopter of technology, and the high volume of e-commerce shopping. These advantages make Turkey a habitable place for startups. The numbers of accelerators, venture capitals, technoparks, and co-working spaces show an increasing trend. Moreover, Turkey invests over 100 million USD in startups, every year. Many of the Venture Capital funds in Turkey, achieved their first exits in the 2010s and established their second funds.

Startup	Exited to	Value
Peak	Zynga	\$1.8B (100%)
Trendyol	Alibaba	\$728M (82%)
Yemeksepeti	Delivery Hero	\$589M (100%)
Gram Games	Zynga	\$250M+ (100%)
Gittigidiyor	eBay	\$218M (100%)

Table 6: Top 5 Exits of Turkey

Germany on the other hand, having Berlin and Munich as the main hubs, according to the annual report of Deutscher Startup Monitor, published in 2020, hosts 2,000 startups, with a total of 4,750 founders and 26,000 employees.⁴⁰ 31.8% of these startups are tech-based, while 66.6% of the startups have a purely digital business model. The main trends are digitalization, artificial intelligence, and green startups. In Germany, startups value social responsibility as equal to

profit. The new concept of Zebra startups who desire to be both socially responsible and profitable are more popular than Unicorn startups in the country. Germany is the home of many successful startup exits, Teamviewer as the most profitable exit at a sales price of €830 million in 2014. With the educated youth population and an ecosystem with many network nodes and potential, Germany is one of the largest startup ecosystems in Europe and the world.

Startup	Exited To	Value
TeamViewer	Permira	\$1B
360T	Deutsche Börse	\$796M
Trivago	Expedia	\$632M
BigPoint	Summit Partners and TA Associates	\$460M
Runtastic	Adidas	\$240M

Table 7: Top 5 German Exits

³⁸ Turkish Statistical Institute. <http://www.tuik.gov.tr/>

³⁹ Unsal, S. (2020). The State of Turkish Startup Ecosystem. Startupwatch. Volume. 1. <https://www.invest.gov.tr/en/library/publications/lists/investpublications/the-state-of-turkish-startup-ecosystem.pdf>

⁴⁰ PwC. (2020, September). Deutscher Startup Monitor 2020. https://deutscherstartupmonitor.de/wp-content/uploads/2020/09/dsm_2020.pdf

Turkish and German ecosystems have been integrated for years. This integration is mainly due to Turkish diaspora in Germany, which are either immigrated in the scope of skilled worker migrations or have already been born in Germany, as a child of Turkish worker immigrants. The other reason for this integration is the investments of German VC funds and angel

investors to Turkish startups, German co-founders wish to locate their startup in Turkey, and vice versa. Besides, there are also institutional efforts to strengthen the bond between two ecosystems. TUSIAD's (Turkish Industry and Business Association) Bosphorus Initiative and its events in Berlin are compelling examples of these efforts.

Startup	Category	Year	Headquarter
ScutiX	Energy, Cryptocurrency	2018	Waghäusel / Germany
Influanza	Marketing-tech	2016	Berlin / Germany
Elopay	Fintech	2015	Berlin / Germany
Famobi	Game	2015	Köln / Germany
Tapglue	Social network	2014	Berlin / Germany
Social TM	Saas, Marketing-tech	2014	Köln / Germany
AUTO1 Group	Marketplace, Auto-tech	2012	Berlin / Germany

Table 8: Turkish Diaspora in Germany

Startup	Tags	Investment Stage	Location
insha	Fintech	Seed Stage	Berlin / Germany
Chargery	Mobility, Autotech	Seed Stage	Berlin / Germany
Retorio	Hrtech, Artificial intelligence	Seed Stage	München / Germany
BioNTech	Deeptech, Biotech	Maturity Stage	Mainz / Germany
Chargery	Mobility, Autotech	Seed Stage	Berlin / Germany
Blok-Z	Blockchain, Energy	Seed Stage	Berlin / Germany
AUTO1 Group	Marketplace, Autotech	Maturity Stage	Berlin / Germany
Moodnode	Internet of things, Smart home	Seed Stage	Berlin / Germany
Eventbaxx	Event	Seed Stage	Saarbrücken / Germany

Table 9: Startups located in Germany, founded or invested in by Turks

4.3. Biontech, Peak Games and More

The integration between two ecosystems is relatively new but hosts two successful cases: Peak Games and BioNTech. Peak Games have been founded by a group of Turkish startups and invested by a Germany-based VC fund, Earlybird. The company has been excited to Zynga recently for \$1.8 billion and recorded the highest valuation of a European startup in the exit round.⁴¹ Another example is

BioNTech, founded by one Turkish immigrant, and a second-generation immigrant of a worker family. The company has increased its valuations due to its success in developing the coronavirus vaccines, and the co-founder Uğur Şahin became the richest Turk in the world. These are just two examples of how the collaboration between these countries' ecosystems has made an impact.

BioNTech

BioNTech is a famous Mainz-based German biotechnology firm that was founded in 2008 by two Turkish origin scientists and business people Ozlem Tureci and Ugur Sahin. The firm specializes in case-based individualistic pharmaceutical solutions based on mRNA technology. After 2014, the company started to boom and increased the number of its international collaborations. BioNTech is a publicly-traded company on Nasdaq Global Select Market since 2019. Besides, BioNTech succeeds to gather 150 million dollars'

worth of total gross proceeds from its IPO in 2019. BioNTech became especially famous after their successful test results of the vaccine they developed against coronavirus has been released. Ugur Sahin and Ozlem Tureci started to be named as first persons who have found the safe vaccine. BioNTech is an illustrating example of how the children of the immigrant families and the migration of skilled workers could create a bond between two countries' ecosystems.

Peak Games

Peak Games is a mobile gaming developing company that was founded in 2010 by Sidar Sahin. The company designs and develops casual puzzle games. Peak Games has been funded by four different investors in its investment rounds. Their last round of investment collection was in 2013, and the total amount of capital raised was 18 million dollars. German-based VC Fund Earlybird Verwaltungs GmbH's, Digital East Fund was the biggest shareholder of the startup. They first invested 5 million USD in the startup in 2011. When Zynga has acquired Peak with a total purchase price of 1.85 billion dollars, German VC Fund Earlybird earned 520 million dollars with its 5 million dollars worth of investment. The capital was holding 43.32% of the shares during the exit. This exit was recorded as one of the largest technologies exits ever made by a German VC Fund. Peak Games is the paragon of the success of German-VC-backed Turkish startups.

acquisition of Kamil Koç, the second-biggest bus transport company by the German-based transportation provider, FlixBus, is also a key point for the ecosystems' engagement.⁴² This deal signalled that even traditional companies could be the point of improvement of the startup ecosystems of two countries with sufficient attention. Another exemplar is the Berlin-based Turkish Startup, Insha. Insha is a fintech which is founded to satisfy the need for Islamic banking in Europe. The company, founded in 2018, received seed funding at the value of €2.5 million. There will be more stories like this, especially from the new partnerships arising from energy startups. Germany is one of the primary hubs in Europe for energy startups. Turkish energy startups like Blok-Z and Reengen have been used this opportunity to expand in European markets. While Blok-Z is a startup that aims to digitalize the energy companies with blockchain technology, Reengen provides PaaS (platform as a service) analytics solutions.

Examples are not limited to BioNTech and Peak Games. The

⁴¹ All of the data provided in this section of the paper has been compiled from CrunchBase. <https://www.crunchbase.com>

⁴² Daily Sabah. (2019, August 21). German Flixbus Moves to Acquire Prominent Turkish Company. <https://www.dailysabah.com/tourism/2019/08/21/german-flixbus-moves-to-acquire-prominent-turkish-bus-company-kamil-koc>

4.4. Going Forward

The foreign direct investment (FDI) term has been attributed to big corporations for years. The FDI flows to Turkey by Germany is mostly associated with Siemens, Mercedes, and many more. However, as the entrepreneurial efforts result in success, all around the world, the term now can be attributed to Earlybird's investment in Peak Games, too. Overall it is a German company investing in a Turkish one. There is tremendous potential because both the ecosystems and the relationship is not at the maturity stage. The points of improvement are available in the collaboration of the human capital as an entrepreneur and as users of the startups. Firstly, as stated earlier, Turkey and Germany share some human capital who are either skilled workers who wish to sustain their operations in Germany or the Turkish-rooted Germans whose families are Gastarbeiters, relocated with the Labor Recruitment Agreement. This population embraces both countries' identities and can be one of the click points of the link of the two startup ecosystems. Growth potential is also deriving from Turkey's end-user potential to German star-

tups who wish to expand their operations to the Middle East. With the highest youth population in Europe and one of the world's biggest markets for technology startups, Turkey is one of the ideal spots to access and gain users. The high number of early adopters makes Turkey a wise choice to develop the product, particularly at the seed and the maturity stage. Furthermore, Turkey's geopolitical position, and the culture that promotes both European and Middle Eastern characteristics, make it a good start for German startups who wish to expand into international markets.

Considering the human capital and the relative strategic importance of the countries on each other, it can be said that the future of the startups will positively affect the economic relationship. The economic ties between countries can be developed with venture capital investments, successful startups, and their collaboration, spreading the know-how between countries and valuing the potential of expanding into close geographical areas.

5. Conclusion

As previously mentioned, the relations between Turkey and Germany are inseparable independently of the preferences of politicians. The historical and cultural ties between the two countries constitute the guarantee of the two countries' common economic future. On the other hand, this common economic future is a necessity not only for historical and cultural ties but also for the harmony of the strategic goals of the countries with each other.

As we tried to explain our article, the potential between Turkey and Germany are not just limited to conventional trade areas. Compatibility between Germany's green investment policies implemented by Turkey's potential in this area makes possible the volume of investment and cooperation in the coming period can be increased easily. On the other

hand, RCA analysis is an important metric to determine the other potential improvement areas and products. Besides, the dynamics of the ecosystem of technology entrepreneurship in Turkey, especially in recent years in this area, will increase cooperation and integration between the two countries and show that it would be beneficial for both sides.

For the realization of significant trade and investment potential between Turkey and we tried to describe above Germany, as well as political relations between the EU-Turkey becomes more regular and predictable is a prerequisite. Both sides have a common interest, and it is undergoing improved relations with Turkey as a more integrated trade with the EU.



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THE STATE AND FUTURE OF TURKEY AND GERMANY RELATIONS: ASSESSMENT OF EXISTING AND EMERGING ECONOMIC RELATIONSHIP

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