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THE DYNAMICS OF TURKIYE'S EXPORT PERFORMANCE: A COMPREHENSIVE ANALYSIS USING CONSTANT MARKET SHARE METHOD

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ABSTRACT

THE DYNAMICS OF TURKIYE'S EXPORT PERFORMANCE: A COMPREHENSIVE ANALYSIS USING CONSTANT MARKET SHARE METHOD

This study examines the changes in Turkiye's market share in its export markets from 2003 to 2019. Using a constant market share (CMS) analysis, this study dissects the variations in Turkiye's market share into two distinct components: market-related effects and commodity-related effects. The study period has been segmented into two distinct sub-groups: 2003-2013 and 2014-2019. Turkiye's international trade with its primary trading partners, focusing on the top 10 export markets ranked by export performance, is analyzed using SITC Rev.3 1-digit and 2-digit data. The 1-digit commodity group encompasses 10 items, while the 2-digit commodity group contains a more detailed categorization of 65 items, allowing for a comprehensive analysis of export dynamics. Upon evaluating the CMS analysis components, including market share effect, commodity composition effect, and commodity adaptation effect, the findings indicate that the rise in Turkiye's export performance was attributed to a positive market share effect in the first period. Additionally, the commodity composition effect has a positive role in both periods, whereas the commodity adaptation effect contributed to the increase in export performance specifically during the first period. In the first period, Iraq emerged as the most significant contributor to Turkiye's export performance in terms of the market share effect, with Israel and the United Kingdom following. However, in the second period, Iraq's contribution to export performance through the market share effect declined, becoming the least among the examined countries. Despite this, Iraq once again led in export performance contribution during the second period through the commodity composition effect, followed by France and Italy.

***Keywords*:** Turkiye, constant market share analysis, export performance, country competitiveness.

ÖZET

TÜRKİYE'NİN İHRACAT PERFORMANSININ DİNAMİKLERİ: SABİT PAZAR PAYI YÖNTEMİ İLE KAPSAMLI BİR ANALİZ

Bu çalışma, 2003'ten 2019'a kadar Türkiye'nin ihracat pazarlarındaki pazar payı değişikliklerini incelemektedir. Sabit pazar payı (CMS) analizi kullanılan çalışmada, Türkiye'nin pazar payındaki değişiklikler iki ayrı bileşene ayrılarak incelendi: pazarla ilgili etkiler ve emtia ile ilgili etkiler. Söz konusu çalışma dönemi iki ayrı alt gruba ayrılmıştır: 2003-2013 ve 2014-2019. İhracat performansına göre sıralanan ilk 10 ihracat pazarına odaklanılarak, Türkiye'nin ana ticaret ortaklarıyla uluslararası ticareti, SITC Rev.3 tek haneli ve iki haneli verileri kullanılarak analiz yapılmıştır. Tek haneli mal sınıflandırması 10 farklı emtia kategorisini kapsamaktadır. İki haneli mal sınıflandırması ise 65 farklı emtia kategorisini kapsamakla daha detaylı bir analize imkan sağlamaktadır. Pazar payı etkisi, emtia kompozisyonu etkisi ve emtia adaptasyon etkisi gibi CMS analiz bileşenleri değerlendirildiğinde elde edilen bulgular, Türkiye'nin ihracat performansındaki artışın ilk dönemde pozitif pazar payı etkisine bağlandığını göstermektedir. Ayrıca, emtia kompozisyonu etkisi her iki dönemde de olumlu rol oynarken, emtia adaptasyon etkisi özellikle ilk dönemde ihracat performansının artmasına katkıda bulunmuştur. İlk dönemde, Irak, pazar payı etkisi açısından Türkiye'nin ihracat performansına en önemli katkıyı sağlayan ülke olarak öne çıkmış ve onu İsrail ve Birleşik Krallık takip etmiştir. Ancak, ikinci dönemde, Irak'ın pazar payı etkisi yoluyla ihracat performansına katkısı azalmış ve incelenen ülkeler arasında en düşük seviyeye gerilemiştir. Buna rağmen, Irak, ikinci dönemde emtia kompozisyonu etkisi yoluyla yine ihracat performansına en fazla katkı sağlayan ülke olmuş ve ardından Fransa ve İtalya gelmiştir.

***Anahtar Kelimeler*:** Turkiye, sabit pazar payı analizi, ihracat performansı, ülke rekabeti

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In this study, Turkiye's export performance between 2003 and 2019 has been evaluated using the Constant Market Share analysis method.

I owe a deep debt of gratitude to my esteemed advisor, Prof. Dr. Feride Doğaner Gönel, whose valuable comments, suggestions, and guidance have been indispensable throughout all stages of this thesis.

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Emrecan ARI

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ABBREVIATIONS

AKP	: Justice and Development Party
BN	: Billion
CAE	: Commodity Adaptation Effect
CCE	: Commodity Composition Effect
CMS	: Constant Market Share
ECB	: European Central Bank
EU	: European Union
FDI	: Foreign Direct Investment
GDP	: Gross Domestic Product
GNP	: Gross National Product
IMF	: International Monetary Fund
MIO	: Million
MSE	: Market Share Effect
OECD	: The Organization for Economic Cooperation and Development
UK	: United Kingdom
UNCTAD	: United Nations Conference on Trade and Development
USA	: United States of America
WTO	: World Trade Organization

1. INTRODUCTION

The ongoing process of globalization and tough competition are forcing economies to enter export markets. Turkiye, in its pursuit of fully integrate to worlds economy since the 1980's, has consistently aimed to enhance its exports. This thesis aims to investigate Turkiye's participation in global markets and to identify the main driving forces of the country's export growth in this context between 2003-2019. To achieve this goal, the study examines shifts in Turkiye's export share in the global markets, both at the country and commodity levels, employing constant market share analysis.

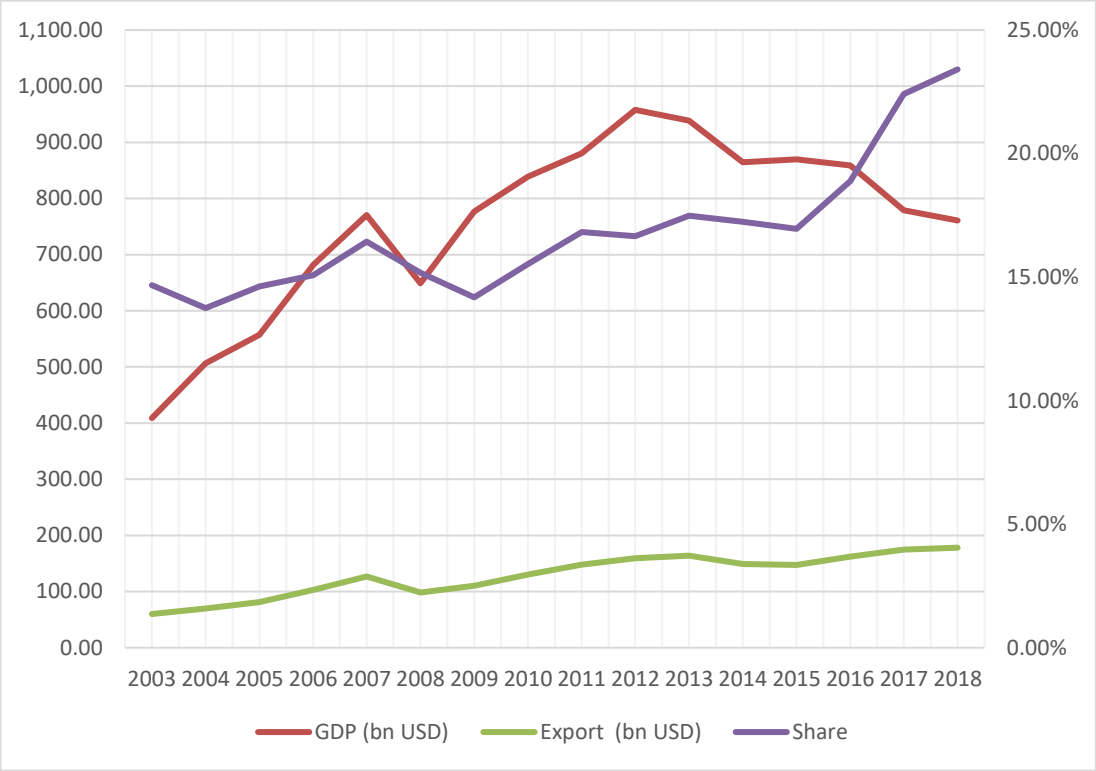
According to the UNCTAD data, Turkiye's total exports grew by an average of 10% annually from 2003 to 2019. This increase has been one of the most critical factors in Turkiye's Gross National Product (GNP) growth, which is an average of 24.43% annually over GNP (TUIK, Turkish Statistical Institute, 2023). Hence, the expansion of Turkiye's exports in world markets is an essential part of its growth and development strategy. As a part of this strategy, the government has formulated many trade liberalization reforms and has implemented free trade agreements with its main trading partners.

Figure 1 presents an overview of Turkiye's GDP, export values, and the corresponding share of exports over GDP from 2003 to 2019. Turkiye's GDP grew from $314.6 billion in 2003 to $761.0 billion in 2019, showing substantial, albeit fluctuating, growth. Exports rose from $44.52 billion to $178.13 billion during the same period, with the export-to-GDP share increasing from 14.15% to 23.41%, indicating a stronger reliance on exports.

From 2003 to 2008, GDP and exports grew robustly, with exports outpacing GDP growth, raising the export-to-GDP share to 16.44%. The global financial crisis in 2009 reduced GDP to $649.3 billion and exports to $98.51 billion. However, the export-to-GDP share increased slightly to 15.17%, indicating resilience. Post-crisis recovery from 2010 to 2014 saw GDP peaking at $957.8

billion in 2013, with exports consistently rising, leading to an export-to-GDP share of 17.48% by 2014. Despite GDP fluctuations from 2015 to 2019, exports continued to grow, and the export-to-GDP share reached 23.41% in 2019, the highest in the period.

Figure 1: Export, GDP and Export Share over GDP in Turkiye, 2003-2019



Source: The World Bank - Data, 08.06.2024

However, Turkiye's export performance is not only dependent on factors within the country, but also closely related to developments in the world markets. Trade liberalization and the increasing number of exporters and importers make competition strong and severe in world markets. Therefore, Turkiye's export performance is closely linked to the export performance of its competitors and importing ability of its trading partners (Ekmen Özçelik, 2021).

Based on the international trade data from the UNCTAD, Table 1 illustrates Turkiye's export trends over the specified period, showcasing the country's export evolution year by year. It is evident from the data that Turkiye experienced a consistent growth in export volume throughout the entire period, except for three years. One of these years is 2009, which corresponds to the year after the global economic crisis, while the other two could possibly be attributed to the decrease in demands of most

importing partners (sanctions that applied to Russia, challenges confronting Iraq's political landscape, decrease in the imports of Germany, Italy, USA, Spain, UK, and France, due to the impact of the global crisis, etc.) and low elasticity of exporting goods of Turkiye.

In this research we use Constant Market Share (CMS) analysis, which dissects the shifts in Turkiye's market share between the periods of 2003-2013 and 2014-2019. The analysis considers the performance of other exporting countries as well as the demand within the destination markets.

In the CMS analysis, the rise in a country's international trade performance during a specific time interval is gauged through three primary effects: MSE, CCE, and CAE. This thesis seeks to analyze the contributions of the three identified effects to Turkiye's export performance in the global market.

This thesis is structured as follows. After this introduction part, section 2 examines the evolution of Turkish foreign trade, presenting insights into the dynamics that have shaped the country's trade landscape. Following this, section 3 delves into the overall framework of Turkiye's foreign trade, specifically focusing on its primary trading partners. In section 4, literature review is presented, offering a contextual backdrop to the study. Section 5 elucidates the data and methodology employed, setting the stage for the empirical findings presented in section 6 through the lens of Constant Market Share analysis. The thesis concludes in section 7.

2. THE DEVELOPMENT OF TURKISH FOREIGN TRADE

In this section, the Turkish foreign trade development will be presented by highlighting economic policy adjustments, political transitions, and economic crises over the past several years. As mentioned above, the scope of this thesis begins in 2003, but it is essential to acknowledge the significant shifts in Turkiye's foreign trade policy starting from the 1980's and the subsequent years, which may be marked as a period of dramatic changes.

From the early 1960's to the late 1970's, Turkiye's main economic development strategy was industrialization through import substitution economic policy. Turkiye's adoption of neoliberal policies in reaction to the late 1970s economic crisis initiated with the implementation of a new policies supported by the IMF in January 1980. Central to this period were significant policy shifts, including the increasing liberalization of foreign trade, the focus on exporting manufactured goods, the elimination of constraints on global capital flows, and the privatization of state-owned enterprises. Moreover, the signing of the Customs Union agreement with the European Union in 1995 further bolstered support for the exportation of manufactured goods.

During the interventionist industrialization era, characterized by import substitution, the state played a crucial role in the economy by allocating scarce resources, such as foreign exchange, and implementing protectionist foreign trade policies. However, with the adoption of the new neoliberal policies, often referred to as the Washington Consensus, in 1980, it was asserted that the state's role in the economy would decrease, and its previous interventionist functions would fade away. In this new phase, many barriers and controls on foreign trade and international capital movements were removed. Furthermore, a significant portion of the support measures intended for industrial activities, including sector-specific policies, were reduced, and some were entirely repealed (Pamuk, 2023).

The economic policy direction outlined by the January 24 decisions significantly impacted the economy through various measures; a foreign exchange policy aligned with real devaluations, aiming to adjust exchange rates according to market conditions,

gradual liberalization of the import regime, transitioning from protectionist measures to increased openness, prioritization of exports, supported by incentives such as preferential foreign currency rates, low-interest loans, and tax refunds, removal of price controls and subsidies on most essential goods, signaling a move towards market-driven pricing mechanisms, macroeconomic policies focused on constraining domestic demand to achieve stability and balance in the economy (Boratav, 2002).

Table 2 illustrates the evolution of Turkiye's international trade beginning from 1980. While the second and the third columns state the export and import values as billions of US dollars respectively, the fourth and fifth columns show the percentage changes of export and import values over previous years. It is clear from the table that, after January 24 decisions, export of the country has increased dramatically while import increase has remained at a relatively lower in 1981.

The January 24 decisions aimed at achieving short-term stability by addressing balance of payments issues and curbing inflation, while also fostering a long-term economic environment oriented towards market principles and outward-facing strategies, particularly emphasizing export expansion. Departing from the interventionist and domestically focused economic model established since the 1930s, the reforms sought to transition towards a more market-driven and globally engaged economy.

The implementation of the reform package involved a series of policy measures. In response to the pressing balance of payments issues, a significant devaluation of the Turkish lira against the US dollar was executed, reducing its value from 47 lira to 70 lira. Subsequently, the lira's depreciation continued, closely tracking the domestic inflation rate. By May 1981, exchange rates began to be determined on a daily basis. Simultaneously, the government introduced a suite of measures including exchange rate adjustments, tax incentives, and other supports aimed at bolstering export activity. Furthermore, substantial liberalizations were enacted in both trade and payment regimes (Pamuk, 2023).

Within domestic markets, price controls were dismantled, and products from public economic enterprises were priced at higher rates to bolster public finances. Concurrently, subsidies and support across various sectors of the economy were phased out. A more liberalized regime regarding interest rates was instituted, alongside additional measures designed to incentivize foreign capital inflows (Pamuk, 2018).

Table 3 illustrates the STIC Rev 3, 1-digit commodity groups based international trade values at ten-year intervals. It can be seen from the Table 3 that export of the country has consistently increased except one ten-year interval for one commodity group; that is 2000 and *Animal and vegetable oils, fats and waxes* commodity group, while pace of increase has varied. In 1980, *Food and Live Animals* was the most exported commodity group, but by 2019, it had fallen to fourth rank. *Mineral fuels, lubricants and related materials* group was the most imported commodity group in 1980 while it was fifth in 2019.

Machinery and transport equipment has been both the most exported and imported commodity group in 2019 while it was sixth rank in 1980 for the export and second for the import, followed by *Manufactured goods* and *Chemicals and related products, n.e.s.* commodity groups as imported goods and *Manufactured goods* and *Miscellaneous manufactured articles* commodity groups as exported goods. From this perspective, it may indicate that the country's economy has shifted from agriculture-based products to technology-based products.

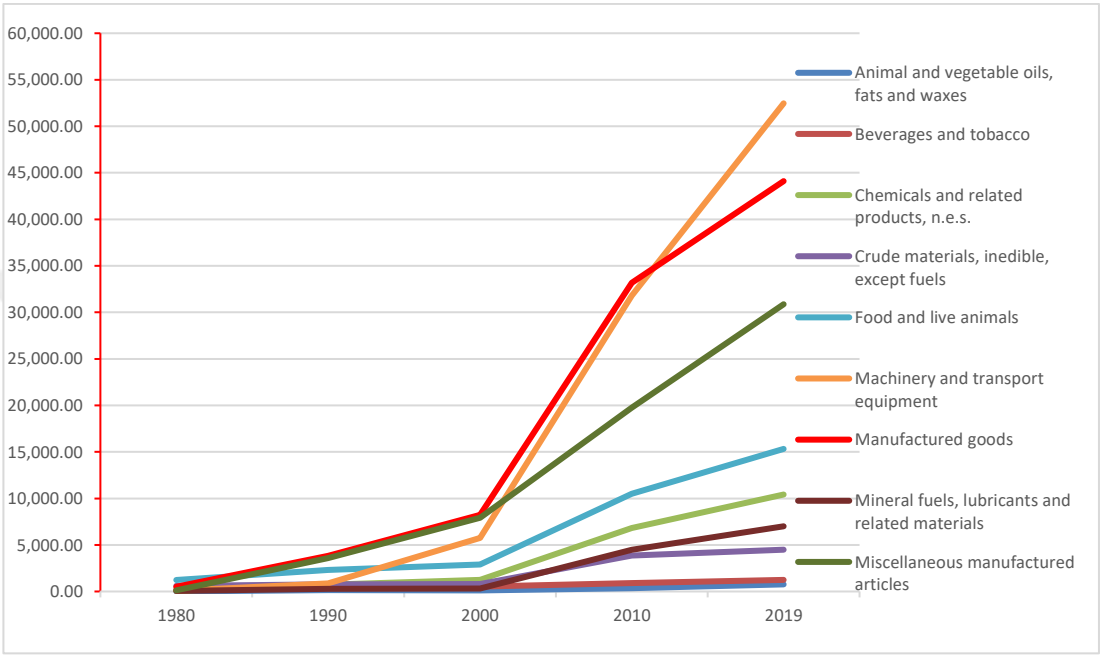
Figure 2 represents export of the country for stated ten-year intervals. As shown in the figure, export deviations for three commodity groups; *Machinery and Transport Equipment, Manufactured Goods,* and *Miscellaneous Manufactured Articles,* began in 2000 and have continued since. While *Mineral fuels, lubricants and related materials, Crude materials, inedible, except fuels, Food and live animals and Chemicals and related products, n.e.s.* commodity groups have relative increased, *Beverages and tobacco* and *Animal and vegetable oils, fats and waxes* commodity groups have not shown notable changes.

While Table 3 represents only international trade values for the stated years, a clearer perspective may be obtained by examining the yearly rates of commodity-based trade values relative to the total trade values for each relevant year. This approach may help to determine whether changes in trade values stem from overall export and import fluctuations or if specific commodity groups have shown relatively more significant changes.

Most exported and imported commodity group shifts from 1980 to 2019 can be identified from Table 4. In 1980, while most exported commodity group was *Food and live animals* with 42,46% over total export of the year, most imported commodity group was *Mineral fuels, lubricants, and related materials* with 49,39%. When looked

at the 2019 rates dramatic shift has been seen as; while most exported commodity group was *Machinery and transport equipment* with 31,47% over total export of the year, most imported commodity group was the same group with 31,12%. It can be interpreted as Turkiye has shifted its trade focus from agriculture-based product to manufactural based products from 1980 to 2019.

Figure 2: Commodity Level Export (as mio USD) at 10 Year Interval



Source: TUIK, Turkish Statistical Institute, 2024

When considering the least exported and imported commodity groups, *Animal and Vegetable Oils, Fats, and Waxes* commodity group was the least exported commodity group in both 1980 and 2019. In terms of imports, the *Beverages and Tobacco* commodity group held the lowest rank in both years. This suggests that the least imported and exported commodity groups remained consistent from 1980 to 2019.

Moreover, if focus on rate changes for each commodity groups by looking at Table 4; for *Animal and vegetable oils, fats and waxes* group, while export rates relatively remain constant, import rates has decreased starting from 2000's. The nearly opposite situation has occurred for the *Beverages and tobacco* commodity group. While export rates decreased, import rates has relatively remained constant.

Export rates for *Chemicals and related products* and *Machinery and transport equipment* groups have steadily increased over the period. For *Manufactured goods* group, steady increase has been detected until 1990s, after this year, rate over total

export of the relevant year has mostly remained constant. For *Food and live animals* and *Crude materials, inedible, except fuels* commodity groups exports, significant decreases have been seen.

Due to external factors such as the global economic recession and the Gulf Crisis in the early 1990s, alongside persistent challenges including high inflation rates, public deficits, and escalating domestic and external debt, Turkiye encountered an economic crisis in 1994. Subsequently, the government enacted a series of measures aimed at restoring economic stability, known as the April 5 Decisions.

Both internal and external factors contributed to a deceleration in the growth rate of Turkiye's exports during the period of 1990-1993. Despite efforts, for three years total, exports saw only an 18% increase over this timeframe. Relative to the years following 1994, which were characterized by devaluation, this growth rate may be deemed inadequate.

The substantial devaluation in 1994, alongside the implementation of various economic policies, had a favorable impact on Turkiye's competitiveness in international markets. This was reflected in significant increases in exports, with growth rates of 18% in 1994 and 19.5% in 1995, highlighting the effectiveness of the measures taken to enhance the country's export performance.

Despite the signing of a customs union agreement with the EU in 1995 and effectuated in 1996, the primary factor contributing to the slowdown in Turkiye's export growth rate by 7.3% was the deceleration in the global trade growth rate. According to WTO the increase in world trade decreased from 9.1% in 1995 to nearly 4% in 1996, and this change can be attributed primarily to developments in Asia, where trade growth (both exports and imports) fell below GDP growth (WTO, 1997). This broader slowdown in global trade dynamics significantly impacted Turkiye's export performance during that period, overshadowing the potential benefits of the customs union agreement with the EU.

The Justice and Development Party (AKP) era, starting from 2003, marked a significant transformation in Turkiye's foreign trade dynamics. These years marked both the first and second phases of the second cycle in Turkiye's engagement with globalization. The program devised by Kemal Derviş with IMF support after the 2001 crisis differed from previous Washington Consensus based programs by

acknowledging the importance of institutions in market functioning and proposing the establishment of new independent institutions to supervise markets. In its early years, the AKP government pursued policies supportive of Turkiye's EU membership and implemented outward-oriented economic regulations. Although a long-term industrialization and growth strategy was not fully established, high growth rates were achieved, bolstered by favorable global economic conditions. However, over time, center-right governments in EU began to openly oppose Turkiye's EU membership (Pamuk, 2023).

In its first five years in power, the AKP was significantly more inclined than previous governments to implement policies favoring the private sector. This approach garnered substantial support from conservative businesspeople and industrialists across the country, as well as from larger-scale business circles and industrialists in Istanbul. At the same time, the AKP embraced fiscal discipline, a crucial element of the program, to re-establish macroeconomic stability. Indirect taxes on fuel and consumer goods were increased, and privatizations played a significant role in reducing public sector deficits. The AKP continued the privatization process, often overlooking goals such as long-term productivity, efficiency, competition, and consumer protection (Hatipağaoğlu, 2017).

The restoration of macroeconomic balances and the initiation of accession negotiations with the EU also paved the way for substantial inflows of foreign direct investment (FDI). However, a significant portion of these investments involved the acquisition of existing domestic companies, resulting in limited contributions to new employment creation. During these years, the global abundance of liquidity led to even larger inflows of short-term funds into Turkiye. This influx of "hot money," coupled with interest rate policies aimed at attracting it, caused the exchange rate of the Turkish lira to remain high (Pamuk, 2018).

The economy had recovered, and incomes had increased, but the AKP's economic policies largely adhered to the institutional regulations and fiscal discipline outlined in the IMF-supported package launched in 2001. Despite these efforts, a comprehensive long-term perspective on industrialization, growth, and employment was not developed (Taymaz & Voyvoda, 2012).

In the second phase of its over twenty-year rule, the AKP and its leader, Recep Tayyip Erdoğan, shifted towards establishing an increasingly authoritarian political

regime. Since 2008, the loss of judicial independence, erosion of the rule of law, political control over the media, and the subordination of autonomous economic institutions and the Central Bank to the executive have led to a decline in trust in Turkiye's economy and economic policies, both domestically and internationally.

In the initial years of the second phase, the intense demand for housing and infrastructure driven by rapid urbanization attracted significant government attention. The construction industry, which stimulates the economy and generates employment by supporting numerous sub-sectors, was particularly appealing to the government. Major infrastructure projects, including bridges, airports, and roads, became central to the government's agenda. However, falling savings during this period led to a growing need for external borrowing. This reliance on external borrowing, necessitated by low domestic savings rates, made the country's economy increasingly dependent on short-term external resources.

After the 2017 referendum and the first presidential election in 2018, Turkiye entered a new era characterized by political and economic difficulties. The deterioration in the legal system and economic institutions weakened the private sector's inclination to make long-term investments. As the economy slowed, the AKP's insistence on expansionary monetary policies intensified. With low growth rates and rising unemployment, there was increased pressure on the Central Bank to keep interest rates low and expand credit volume.

Moreover, the merit and quality in economic management that characterized the AKP's early years began to erode. Expansionary macroeconomic policies were further intensified ahead of the 2015 general elections, the 2017 referendum for the transition to a presidential system, and the first general election under the presidential regime in 2018. During this period, interest rates were kept low, and government spending was increased. Both public and private banks were encouraged to expand their credit volumes, further fueling economic imbalances (Pamuk, 2023).

In summary, during the second phase of the AKP rule, the priority shifted from the goal of building a robust economy to the goal of establishing a new political regime. As this new political regime took shape, numerous existing political and economic institutions underwent changes. The judiciary and the media were placed under tighter control, while instances of corruption in the economy and support for government-affiliated groups became more prominent. Consequently, confidence in the economy

and economic policies dwindled both domestically and internationally. Long-term objectives such as improving education, advancing technologies, and enhancing productivity in the economy were sidelined during this period.

3. THE OVERALL FRAMEWORK OF TURKIYE'S FOREIGN TRADE WITH ITS PRIMARY TRADING PARTNERS

In this section, we will first present the export values of Turkiye and the world, highlighting the differences in their changes. Turkiye's exports have averaged around 0.82% of world exports from 2003 to 2019. This ratio fluctuates from 0.63% to 0.96% and these percentages coincide in the first and the last years of the period.

Table 5 illustrates the percentage changes over previous year in Turkiye's exports and world exports throughout the specified period. The fourth column indicates the difference between Turkiye's and the world's export percentage changes from the previous year, while the fifth column represents the ratio of Turkiye's export volume to the world export volume. It is observed that Turkiye achieved an average export growth of 9.61% over the period, surpassing the world market's growth rate of 6.68%. Turkiye outperformed the global market in terms of export growth throughout the entire period, except for five years. The first instance occurred during the 2008 global crisis and the subsequent two years. A notable aspect of the 2008 financial crisis was the sharp decline in world trade, which occurred all around the world. Between the third quarter of 2008 and the second quarter of 2009, world trade volumes decreased by approximately 15%, a much steeper decline compared to the around 2% decrease in world GDP over the same period (ECB, 2010). 2017-2018 period pertains to the initial two years marked by Turkiye's struggle with inflation issues that caused by political and unorthodox economy policy issues.

Table 5 provides a comparison of Turkiye's export growth with that of world exports. Until 2009 it is an evident that the growth of Turkiye's export is higher than that of world exports, which corresponding to a market share gain of Turkiye. However, after 2009 the picture is changing towards more parallel trends with world exports or more fluctuate pattern.

As indicated in the preceding sections, this thesis relies on data from the UNCTAD merchandise trade matrix. Therefore, the definitions of *Middle-Income Developing Economies* and *High-Income Developing Economies* utilized in this study are based

on the classification provided by UNCTAD. According to this classification, Turkiye falls within the category of *High-Income Developing Economies*. For more detailed explanation of these categories, please see Table 20.

Table 6 presents the annual percentage changes in export values of Turkiye and Middle-Income Developing Economies, and the difference between these two trade partners over the years. From 2004 to 2008, Turkiye consistently outperformed Middle-Income Developing Economies in export growth, with positive differences ranging from 4.46% to 7.34%. However, in 2009, both Turkiye and Middle-Income Developing Economies experienced a decline in exports due to crisis, with Turkiye's decrease slightly less severe.

The recovery in 2010 was marked by Turkiye's positive export growth, surpassing Middle-Income Developing Economies by a significant margin. This trend continued until 2012 when Turkiye's export growth, while positive, was outpaced by Middle-Income Developing Economies. Between 2013 and 2015, Turkiye sustained positive export growth, even she is exhibiting mixed performance compared to Middle-Income Developing Economies. Turkiye outperformed in 2013 and 2014 but experienced a decline in 2015. In 2016, both Turkiye and Middle-Income Developing Economies experienced marginal declines in export growth. In 2017 and 2018, Turkiye's export growth exceeded that of Middle-Income Developing Economies, showcasing a positive trend. In 2019, while Turkiye's export growth remained positive, the difference with Middle-Income Developing Economies narrowed. In summary, Turkiye generally demonstrated positive export growth compared to Middle-Income Developing Economies throughout the period, with some fluctuations in the yearly differences.

In the same context as Table 6, Table 7 presents the annual percentage changes in export values for Turkiye, High-Income Developing Economies, and the difference between these two trade partners over the years. From 2004 to 2008, Turkiye consistently exhibited export growth, outperforming high-income developing economies. Particularly noteworthy is 2007 when Turkiye's exports surged by 25.41%, significantly surpassing the growth of 16.86% observed in high-income developing economies. The subsequent years saw Turkiye facing challenges, with a notable contraction in 2009 (-22.64%) as global crises have driven, although it remained

somewhat comparable to the negative growth in high-income developing economies (-21.36%).

In the recovery period from 2010 to 2013, Turkiye experienced positive export growth, even surpassing high-income developing economies in 2012. However, the subsequent years, especially 2015, witnessed a decline in Turkiye's export growth, with a notable difference compared to high-income developing economies.

On average, Turkiye's exports demonstrated a positive growth rate of 9.61% throughout the entire period, slightly outpacing the average growth of 9.03% observed in high-income developing economies.

Based on the data presented in Table 6 and Table 7, when comparing the percentage change differences between Turkiye's export and High-Income Developing Economies Export, and Turkiye's export and Middle-Income Developing Economies Export, we find that the average difference over the entire period for the High-Income Developing Economies comparison is positive, standing at 0.58%. This indicates that, on average, Turkiye's export growth surpassed that of high-income developing economies. Specific years such as 2004, 2007, and 2019 exhibited positive differences. Conversely, there were also years with negative differences, like 2005, 2006, and 2010, suggesting periods of slower export growth compared to high-income developing economies.

For the Middle-Income Developing Economies comparison, the average difference over the entire period is negative at -0.39%. This indicates that, on average, Turkiye's export growth lagged that of middle-income developing economies. In specific years, such as 2012 and 2015, the difference was positive. However, there were also years with negative differences, such as 2010 and 2011.

The data reveals fluctuations in Turkiye's export performance relative to both high-income and middle-income developing economies over the period from 2003 to 2019. While Turkiye generally outperformed high-income developing economies in terms of export growth, it lagged middle-income developing economies on average. These fluctuations may reflect shifts in global economic conditions, changes in Turkiye's trade policies, and evolving competitiveness in international markets based on the reasons stated at below sections.

In this thesis, Turkiye's main trading partners as of 2019 exports were determined and the first 10 countries to which Turkiye exported the most were selected. These countries are United States of America, United Kingdom, Spain, Russia, Netherlands, Italy, Israel, Iraq, Germany, and France. If we examine the top ten export partners for the initial year of the study, 2003, they are: Germany, the United States of America, the United Kingdom, Italy, France, Spain, the Netherlands, the Russian Federation, Israel, and Greece in descending order. From this perspective, we observe that Iraq has replaced Greece in the 2019 list.

Table 8 presents Turkiye's export values to the selected partners over the period. The partners have been arranged in descending order based on the total export values over the period.

It is evident that Germany tops the list as the most exported country, accounting for 21.1% of the total export value. The United Kingdom follows closely with 13.8%. Four European Union countries together contribute to nearly half of the total exports, accounting for 49.5%. Iraq and Israel are the two Middle Eastern country in the list and ranks third among the most exported countries, representing 11.48% of the total export value and Israel is at the 10^{th} rank.

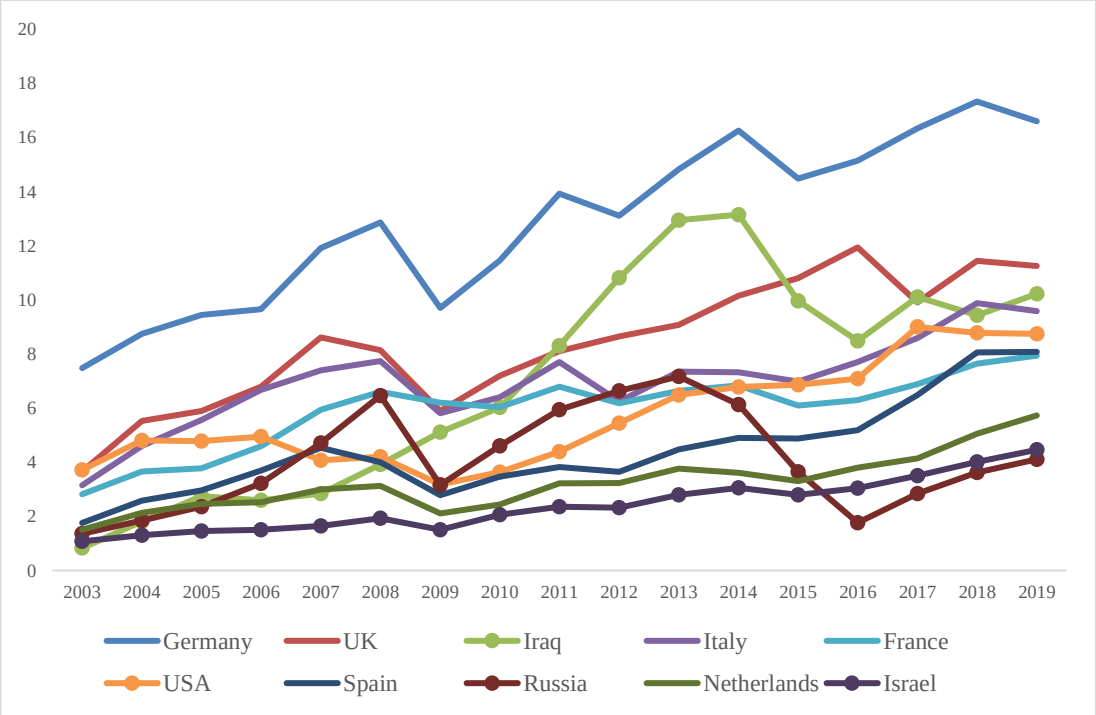
Referring to the previous paragraph where we discussed the years of declining export values, these ten countries were affected by the global crisis in 2008 and the subsequent two years. However, they did not seem to be impacted by the decrease in export values starting from 2017. Instead, the export values continued to rise during those years as well.

Figure 3 illustrates the data presented in Table 8, offering a clearer visual representation. In the figure, partners that are EU members are depicted with straight lines, while non-EU members are shown with lines with markers.

Turkiye's exports to Germany have shown a consistent upward trend over the years. Starting from $7.48 billion in 2003, exports peaked at $17.33 billion in 2018 before slightly decreasing to $16.6 billion in 2019. This may indicate a robust and strengthening trade relationship with Germany, making it a crucial export destination for Turkiye throughout the years. Exports to the UK have generally increased, rising from $3.66 billion in 2003 to $11.25 billion in 2019, with some fluctuations in between. The export value peaked at $11.94 billion in 2017. Exports to Iraq have seen

a robust increase, starting from $0.83 billion in 2003 and reaching a peak of $13.15 billion in 2014. However, there is a noticeable decline in subsequent years, with exports at $10.22 billion in 2019. The sharp rise and subsequent decline may highlight the volatility in trade relations, possibly due to regional instability and economic conditions in Iraq.

Figure 3: Turkiye's Export to the Major Partner Countries, 2003-2019 (bn $)



Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Turkiye's exports to Italy have grown steadily, from $3.15 billion in 2003 to $9.59 billion in 2019, with a peak of $9.88 billion in 2018. Exports to France have increased from $2.82 billion in 2003 to $7.94 billion in 2019. The growth has been steady, with some fluctuations. Exports to the USA have shown a gradual increase, rising from $3.72 billion in 2003 to $8.74 billion in 2019, with peaks and troughs throughout the period. The USA is a vital trade partner, with significant growth in exports, especially notable in the later years. After 2008, despite the major decline in imported goods by European countries due to the global financial crisis, Turkiye's steady increase in export values to the USA and Iraq helped to mitigate the impact. Turkiye's exports to Spain have increased from $1.76 billion in 2003 to $8.08 billion in 2019, with a notable surge in recent years.

Exports to Russia have experienced significant fluctuations, growing from $1.36 billion in 2003 to a peak of $7.17 billion in 2013, followed by a decline and subsequent partial recovery to $4.11 billion in 2019. The volatility in trade with Russia reflects geopolitical and economic factors affecting bilateral trade relations. Exports to the Netherlands have increased from $1.51 billion in 2003 to $5.73 billion in 2019, showing steady growth with minor fluctuations. Turkiye's exports to Israel have grown from $1.08 billion in 2003 to $4.46 billion in 2019, with consistent increases each year.

In summary, Turkiye's exports to its main trading partners have generally shown a positive growth trend from 2003 to 2019, with significant increases in export values across most partners. Germany, the UK, Italy, and France remain top European destinations for Turkish exports, showing consistent growth. Iraq, despite volatility, has been a significant market. The USA and Spain have shown substantial growth, while Russia's trade has been more volatile

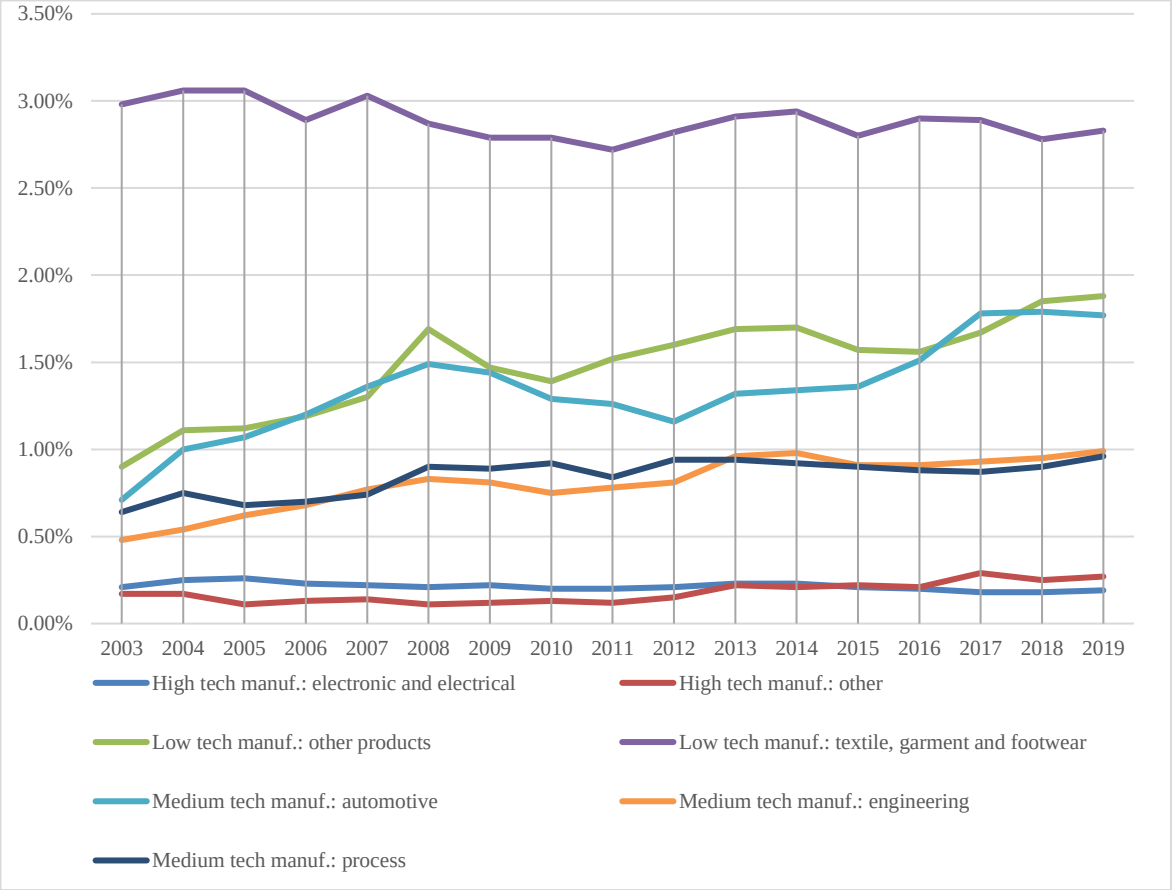
Table 9 outlines the most exported commodities for each partner, utilizing SITC 1-digit commodities, for over the last two decades. Notably, the *Machinery and transport equipment* group emerges as the most exported commodity group for most of the partner countries. The fourth column provides the share of the related commodity group to the total export over the entire period, highlighting its significance in the overall export profile.

However, when we examine SITC 2-digit commodity groups, a significant shift in perspective becomes apparent. Table 10 presents the sorting based on 2-digit commodities. It becomes evident that while the most exported commodity group was *Machinery and transport equipment* at the 1-digit level, in the 2-digit classification, only one commodity from this group stands out: *Road Vehicles*, but the *Articles of Apparel & Clothing accessories* commodity group takes the lead in the 2 -digit data, emerging as the dominant category among the most exported commodities.

This observation suggests that Germany, Netherlands, Russia, Spain, and the UK diversified their imported commodities from Turkiye. This diversification becomes apparent when comparing 1-digit and 2-digit group commodities since most of the commodities imported from these countries do not belong to the same groups at both levels. In contrast, other partners seem to have maintained a focus on specific commodity groups without significant diversification.

Figure 4 represents Turkiye's export share across different tech level commodity groups, based on the classification method provided by UNCTAD. This classification method comprises four sections and eight subsections, encompassing a total of 157 product groups. For a more detailed breakdown of this classification, please see Table 21.

Figure 4: Turkiye's Export Share over the World Export by Tech Level Commodity Groups



Source: UNCTAD, UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Turkiye's export share in high-tech manufacturing, including electronic and electrical products, has remained relatively stable over the years, with values ranging from 0.11% to 0.29%. Despite some fluctuations, there is no significant jump or even upward trend in this category. Turkiye maintains a modest export share in medium-tech manufacturing sectors, including automotive, engineering, and process-related products. While there have been fluctuations, the overall trend in these sectors remains stable, with values fluctuating between 0.64% and 1.79%. In contrast, Turkiye's export share in low-tech manufacturing sectors, such as other products and textile, garment, and footwear, has shown more variability. While the export share in these sectors has

generally decreased over the years, from 1.11% to 1.88%, the textile, garment, and footwear sector has remained relatively stable, with values fluctuating between 2.72% and 3.06%.

Turkiye's export share across different tech level commodity groups reflects a diversified export portfolio, with varying levels of stability and growth. While high-tech manufacturing sectors show modest export shares, there is potential for further growth and development in these areas. Medium-tech manufacturing sectors maintain a stable export share, indicating Turkiye's continued presence in these industries. The decline in export share in low-tech manufacturing sectors suggests a shift towards more technologically advanced or value-added exports, though traditional sectors like textile, garment, and footwear remain significant contributors to Turkiye's export market.

Finally, Table 11 displays the ratio of imports from Turkiye in relation to the total imports for the years 2003 and 2019. Specifically, these two years were considered to observe changes over the entire period. One of the most important indicators that Turkiye is shifting from the EU to the Middle East in market diversification is its import share. Interestingly, Iraq emerges as the top country in terms of this ratio, indicating a relatively higher import volume from Turkiye compared to other partners, with a substantial percentage gap. However, when examining the percentage change of import at the end of the period, it becomes apparent that Turkiye significantly increased its export operations, particularly to Spain and Israel.

4. BRIEF LITERATURE REVIEW ON CMS ANALYSIS

Constant Market Share (CMS) analysis is commonly employed in practical studies focused on export development. In this section, we will briefly explain the mainstream models and mention some of these studies.

During the 1950s, numerous studies emerged that concentrated on structural shifts in global trade and production, and their implications for the export performance and growth trajectories of individual countries. (Fagerberg & Sollie, 1987). Tyszinski (1951) introduced the CMS analysis as a method to assess changes in competitiveness in international trade. Tyszynski analyzed the export fluctuations within manufacturing industries across 11 countries, encompassing 16 commodity groups, from 1899 to 1950.

Tyszynski suggests that the effect of structural changes can be isolated by calculating the hypothetical share of a country's trade for the latest year, assuming the country had retained its initial year share in the various commodity groups. The difference between the shares in the initial year indicates what he terms the change due to "structure". The changes between the presumed share and the actual share in the year the latest he ascribes to "competition" (Baldwin, 1958).

Leamer and Stern (1970) provided an extensive discussion of the method developed by Tyszynski, along with its potential applications. They introduced a new version of the method, largely referring to Tyszynski's approach by computing the 'structural' effect, termed the commodity composition effect, and a competitiveness effect, calculated as a residual. However, they introduced an additional factor: the effect of the market distribution of a country's exports. This addition stemmed from the recognition that since the imports of various countries exhibit disparate growth rates, the geographical distribution of a country's exports may also influence its export growth.

Fagerberg and Sollie (1987) introduced a new version of the model aimed at explaining the limitations of prior versions. They adopted Laspeyres indices, utilizing

the initial year's weights throughout the calculations. This adjustment has made the economic interpretation of the residual explicit.

The two additional effects were found to be measures of a country's ability to adapt its export structure to changes in the commodity and market composition of world imports, respectively. Thus, the method developed in their paper has provided a solution to the problem originally posed but only partly solved by Tyszynski: to develop a method that gives a clear picture of the adaptability of different countries to changes in the patterns of world trade (Fagerberg & Sollie, 1987).

By employing this model, they derived five effects instead of three; Commodity composition effect, market composition effect, market share effect, commodity adaptation effect and market adaption effect. This enabled the calculation of effects that mirror a country's capacity to adjust its export structure in response to alterations in the commodity and market composition of world imports. Initially, this type of CMS analysis was conducted for 20 OECD countries over the period from 1961 to 1983.

These three mainstream models have been summarized in Table 12. In this study, we used the Fagerberg and Sollie model (1987) which focused on three effects: market share effect, commodity composition effect and commodity adaptation effect.

Lohrmann (2000) used Constant Market Share analysis developed by Fagerberg and Solie to measure Turkiye’s export performance with the key partner countries for the period from 1980 to 1993. From the change in Turkiye's trade policy in 1980 point of view, Lohrmann focused on the enormous impact of the change in Turkiye's trade policy in 1980 and argued that the export orientation policy led to an impressive increase in market shares. But, on the other hand, Turkiye did not meet the changing demand structure of the OECD markets very well, which influenced her position in a negative way.

Batista (2008) developed an extension of the model initially proposed by Fagerberg and Sollie (1987), which attributes the gains or losses of market share of an exporter in a specific market to its competitors. The primary objective of the study was to propose a general methodology to address the problem wherein, if there are more than two exporters, it is not always evident how to allocate one's total change of market shares, assigning a portion of it to each competing exporter. This methodology was

then applied to analyze Brazil's exports of manufactured goods to the United States, comparing the changes between the years 1992, 1999, and 2004.

Batista's analysis revealed that while Brazil experienced a loss of competitiveness in the sub-period from 1992 to 1999, followed by a gain in competitiveness in the sub-period from 1999 to 2004. Furthermore, it was observed that Brazil tended to gain competitiveness against the largest advanced economies while losing competitiveness to most emerging countries in both sub-periods (Batista, 2008).

Erlat at al. (2012) used Constant Market Share analysis to investigate Turkiye's export performance with the Middle East Countries for the period from 1990 to 2002. They precipitated that when all Middle Eastern countries subject to study are considered, aggregated results indicate a decrease in market share in the Middle Eastern market throughout the period. These results also reveal that the effects of commodity composition and commodity adaptation are inadequate, indicating that Turkiye is negatively affected by changes in the import compositions of the trading partners, meaning Turkiye has not demonstrated the necessary flexibility and adaptability in shifting to new export goods. The positive nature of the market composition effect indicates that Turkiye's exports have not been negatively impacted by changes in the import shares of countries within the group imports. However, the fact that we have not fully adapted to changes in this relative share suggests a small but negative commodity adaptation effect.

Atış et al. (2015) utilized the CMS method to analyze Turkiye's export performance with its top 20 trading partners from 1995 to 2011, using SITC Rev.3 3-digit data. The evaluation considered three main factors: market share effect, commodity composition effect, and commodity adaptation effect. The results indicated that improvements in Turkiye's export performance were primarily due to positive market share and commodity composition effects, while the commodity adaptation effect was mostly negative. The authors suggest that aligning export commodity groups with the evolving demand structure of these markets could further enhance Turkiye's export performance.

Hatipağaoğlu (2017) aimed to determine whether a structural transformation occurred in Turkiye's foreign trade between 1990 and 2014 using Constant Market Share (CMS) analysis. Analyzing Turkiye's foreign trade data with its 23 largest trade partners, significant positive developments were observed in the period from 1990 to

2004. However, these developments were found not to be unique or independent of global trends. In summary, Hatipağaoğlu concluded that there was no noticeable structural transformation in Turkiye's export performance concerning product, technological composition, and geographical market diversity.

Ekmen Özçelik (2021) analyzed changes in Turkiye’s market share, decomposed into market-related and commodity-related effects based on CMS analysis developed by Fagerberg and Solie for the period from 2007 to 2019. Ekmen Özçelik concluded that Turkiye’s share in its main export markets, except the United Arab Emirates and Russia, has increased and a large portion of this increase was due to the market share effect, which indicates the strong competitiveness of Turkiye in these markets.

The last four above stated studies employing Constant Market Share (CMS) analysis provide valuable insights into Turkiye's export performance over different time periods and with various trading partners. Erlat et al. (2012) focused on Turkiye's exports to Middle Eastern countries from 1990 to 2002 and noted a decrease in market share in the Middle Eastern market over the period. Atış et al. (2015) extended the analysis to Turkiye's top 20 trading partners from 1995 to 2011, observing enhancements in export performance driven primarily by positive market share and commodity composition effects, despite a predominantly negative commodity adaptation effect. Hatipağaoğlu (2017) examined Turkiye's foreign trade with its largest partners from 1990 to 2014, concluding that while significant positive developments occurred, they were not unique or independent of global trends, suggesting no noticeable structural transformation in Turkiye's export performance. Lastly, Ekmen Özçelik (2021) analyzed Turkiye's market share changes from 2007 to 2019, observing increased market shares in most export markets, primarily driven by strong competitiveness indicated by the market share effect. These studies collectively highlight Turkiye's export performance, emphasizing the importance of market share, commodity composition, and adaptation in driving export growth and competitiveness.

5. DATA AND METHODOLOGY

In this thesis Turkiye's international trade with its key partners are examined using the SITC Rev.3 classification system using CMS analysis. The analysis involves disaggregating trade data into 75 distinct commodity groups, comprising 10 1-digit, that are *Food and live animals, Beverages and tobacco, Crude materials, inedible, except fuels, Mineral fuels, lubricants and related materials, Animal and vegetable oils, fats and waxes, Chemicals and related products, n.e.s., Manufactured goods, Machinery and transport equipment, Miscellaneous manufactured articles* and *Commodities and transactions, n.e.s.* and 65 2-digit commodity groups, spanning the years 2003-2019. The data, sourced from UNCTAD's statistical database, is subjected to comprehensive analysis. The CMS methodology is deployed to elucidate the factors underpinning fluctuations in a country's export market shares over time. Within this framework, three primary effects shape a country's export performance: MSE, CCE, and CAE.

The selection of key trading partners for this study was crafted, relying on Turkiye's 2019 export data (UNCTAD, 2023). These partners were ranked in descending order, with the top 10 chosen to form the focal point of our analysis.

If the change in the market share of the home country is analyzed in only one country, the market share in question, s_{tn}, is found by dividing the value of home country's exports of commodity *t* by the value of the partner country's (*n*) total imports (Gacener Atış, Saygılı, & Kaya, 2015). Accordingly;

$$S_{tn} = \frac{X_{tn}}{\sum M_{tn}} = a_{tn} \times b_{tn} \qquad (1)$$

where,

s_{tn} = share of host country exports of good *t* in country *n*'s total imports

X_{tn} = host country's exports of good *t* to partner country *n*

M_{tn} = country n's imports of good t

This market share, s_{tn}, consist of two ratios;

a_{tn}: The value that is found by dividing the value of host country's exports of good t(X_{tn}), to country n by the amount of country n's imports of good t(M_{tn}).

$$a_{tn} = \frac{X_{tn}}{M_{tn}}$$

(2)

B_{tn}: The percentage of the country n's imports of good t (M_{tn}) in country n's total imports

$$b_{tn} = \frac{M_{tn}}{\sum M_{tn}}$$

(3)

Equations (2) and (3) are the equations which are used to calculate the market share. If we divide the first and the second periods by "1" and "2" respectively, then, the difference in the stn (Δ(Stn)) from one period to another can be expressed as:

$$\triangle (S_{tn}) = S_{tn2} - S_{tn1} = a_{tn2} \times b_{tn2} - a_{tn1} \times b_{tn1}$$

(4)

Above stated equations can be written as a definition and it can be divided into three effects;

$$\triangle (S_{tn}) \equiv (a_{tn2} - a_{tn1}) \times b_{tn1} + (b_{tn2} - b_{tn1}) \times a_{tn1} + (a_{tn2} - a_{tn1}) \times (b_{tn2} - b_{tn1})$$

(5)

MSE means that change in s_{tn} from one period to another is calculated only by differences in the a_{tn}*'s*. In other words, this effect indicates what the difference in the

market share of a country may be if the difference was only due to the change in the ratio of host country exports of good *t* to partner country imports of that good (Gacener Atış, Saygılı, & Kaya, 2015). In other words, the market share effect shows how a change in Turkiye's market share would occur only if the share of Turkiye's goods exports to market *m* in world exports of good *t* to market n changed. The market share effect is an indicator of competitiveness (Ekmen Özçelik, 2021).

CCE means that difference in s_{tn} from one period to another is measured only by differences in b_{tn}'s. This effect indicates what the difference between two periods may be if the difference was only due to the difference in the share of partner country's imports of a good to partner country's imports. This is a demand-side effect. More specifically, good composition effect shows how the market share of Turkiye is affected by the changes in demand conditions of good *t* in the targeted market (Ekmen Özçelik, 2021).

CAE means whether the host country can accommodate its exports to differences in the good bundle of her partner's imports. (Gacener Atış, Saygılı, & Kaya, 2015).

6. THE EMPIRICAL FINDINGS OF CMS ANALYSIS

The aim of the CMS analysis in the thesis is to understand and state the dynamic factors influencing Turkiye's export performance over the period 2003-2019. This methodological approach provides a comprehensive understanding of the country's evolving competitiveness in the global market. The CMS analysis enables a nuanced examination of the changes in Turkiye's market shares, attributing these variations to three key effects: the MSE, CCE, and CAE. By systematically dissecting these effects, the study aims to uncover the underlying determinants of Turkiye's trade patterns, offering valuable insights into the shifts in market dynamics, product structures, and competitive positioning on the international stage.

Utilizing SITC Rev 3 1-digit and 2-digit data, the analysis considers the magnitude of export figures for individual commodities within these sectors. Through data aggregation, this comprehensive approach discerns the factors influencing shifts in Turkiye’s export performance with its trading partners.

In the context of international trade, examining Turkiye’s export performance with key partner countries offers valuable insights into the nation’s country’s evolving global trade relationships. By analyzing the MSE, CCE, and CAE during the time frames of 2003-2013 and 2014-2019, changing dynamics emerge.

Table 13 illustrates the partner-based CMS analysis results for specified sub-periods with summing the values at the last two rows. In the first decade (2003-2013), France demonstrated stability with a modest MSE of 0.16%, de- spite minor setbacks in CCE and CAE. In the subsequent years (2014-2019), France showed improved market penetration, with a positive MSE (0.06%). CCE and CAE remained consistent, reflecting adaptability in trade strategies.

Germany experienced marginal fluctuations in MSE (-0.03%) during the first period, which slightly improved in the second period (-0.01%). CCE and CAE data indicate subtle shifts, showcasing the nation’s ability to adapt strategies.

Iraq exhibited remarkable growth in the first period (5.27% MSE), driven by substantial CCE and CAE. However, the second period saw a decline, indicating challenges in sustaining earlier successes.

Israel displayed promising growth in MSE (1.33%) in the latter period, coupled with improved CAE, indicating adaptive strategies. The CCE data reveal stable trends, showcasing Israel's consistent position as a significant trade partner for Turkiye.

Spain maintained a positive MSE (0.38%) in the second period, hinting at effective market strategies. CCE and CAE data reveal subtle shifts, indicating Spain's ability to adjust to market demands and maintain a positive trade relationship with Turkiye.

Summing up, Turkiye's total export performance witnessed significant growth (7.13%) as total effect in the first period (2003-2013), but the subsequent years posed challenges, leading to a decline in total effect values (-2.03%). Despite adversities, Turkiye's trade strategies demonstrate adaptability, as reflected in specific partner countries' MSE, CCE, and CAE data.

Table 14 illustrates the partner-product matches in a descending order that affected the most by three effects and both periods. In Iraq, Turkiye experienced a significant increase in market share effect for the category of *Miscellaneous manufactured articles*, with a change of 1.25 units during the period of 2003-2013. This change indicates a notable improvement in Turkiye's market presence in this product category within the Iraqi market. Additionally, the Commodity Composition Effect (CCE) for Turkiye's exports to Iraq showed a decrease of 0.06 units, reflecting challenges in diversifying the product composition effectively. This decline was particularly observed in categories such as *Machinery and transport equipment* and *Food and live animals*.

The Commodity Adaptation Effect (CAE) in Iraq registered a decrease of 0.14 units, indicating difficulties in adapting products, especially in categories like *Miscellaneous manufactured articles* and *Manufactured goods*, to meet the specific demands of the Iraqi market during the same period.

For Israel, Turkiye's market share effect increased by 0.18 units in the category of *Miscellaneous manufactured articles*, highlighting Turkiye's competitive position. However, the Commodity Composition Effect (CCE) showed a decrease of 0.12 units,

indicating challenges in diversifying product categories effectively. These challenges were particularly evident in products like *Machinery and transport equipment* and *Chemicals and related products, n.e.s.*. The Commodity Adaptation Effect (CAE) was slightly negative at -0.03 units, signifying minor struggles in adapting products, especially in categories *Miscellaneous manufactured articles* and *Chemicals and related products, n.e.s.*, to meet Israeli market needs.

In Spain, Turkiye's market share effect increased by 0.16 units in the category of *Miscellaneous manufactured articles*, showcasing the country's competitive products. The Commodity Composition Effect (CCE) remained stable, suggesting a consistent product composition effect. This stability was observed in products like *Mineral fuels, lubricants and related materials* and *Machinery and transport equipment.* The Commodity Adaptation Effect (CAE) in Spain showed a small positive impact of 0.01 units, indicating modest success in adapting products, including *Miscellaneous manufactured articles* and *Machinery and transport equipment*, to the Spanish market.

Italy witnessed a 0.18 unit rise in Turkiye's market share effect in the category of *Machinery and transport equipment* during 2003-2013. However, the Commodity Composition Effect (CCE) was slightly negative at -0.06 units, signifying challenges in diversifying product composition effectively. These challenges were particularly evident in categories like *Machinery and transport equipment* and *Miscellaneous manufactured articles*. The Commodity Adaptation Effect (CAE) in Italy also reflected a minor negative impact of -0.06 units, indicating difficulties in adapting products, including *Machinery and transport equipment* and *Chemicals and related products, n.e.s.*, to Italian market demands.

In the United Kingdom, Turkiye's market share effect increased significantly by 0.27 units in the category of *Machinery and transport equipment* during 2003-2013. However, the Commodity Composition Effect (CCE) was marginally negative at -0.02 units, suggesting minor challenges in diversifying product categories effectively. These challenges were observed in categories like *Machinery and transport equipment* and *Manufactured goods*. The Commodity Adaptation Effect (CAE) in the UK also showed a minor negative impact of -0.06 units, indicating slight difficulties in adapting products, particularly *Machinery and transport* equipment and *Miscellaneous manufactured articles*, to meet the UK market demands.

Comparing 1-digit commodity groups can offer a general overview of the composition of the country's main export categories. Table 14 illustrates the dominance of the Machinery and Transport Equipment commodity group. However, when focusing on more specific 2-digit commodity groups, the impact magnitudes are likely to vary, and thus, Table 15 may present different results.

Table 15 fulfills the same objective as Table 14, but focuses on 2-digit commodity groups. While there has been no significant change observed in terms of products, it is important to note that Iraq's dominance as a trade partner has increased.

6.1. Market Share Effect (MSE) Findings:

At the forefront of Turkiye's export prowess are *Miscellaneous manufactured goods* (Commodity Group Code: 8) and *Machinery and transport equipment* (Commodity Group Code: 7), demonstrating remarkable MSE values. Furthermore, *Food and live animals* (Commodity Group Code: 0) and *Commodities and transactions* (Commodity Group Code: 9) have consistently contributed significantly, emphasizing the nation's expertise in the agricultural and transactional sectors.

6.2. Commodity Composition Effect (CCE) Findings:

The CCE analysis reveals the pivotal roles played by *Food and live animals* (Commodity Group Code: 0) and *Chemicals and related products* (Commodity Group Code: 5). Turkiye's strength in the food industry, alongside its chemical manufacturing capabilities, positions the nation as a vital player in global trade.

Machinery and transport equipment (Commodity Group Code: 7) and *Crude materials, inedible* (Commodity Group Code: 2) also emerge as significant contributors, reflecting Turkiye's diverse export composition.

6.3. Commodity Adaptation Effect (CAE) Findings:

When delving into CAE, *Mineral fuels and lubricants* (Commodity Group Code: 3) and *Beverages and tobacco* (Commodity Group Code: 1) stand out prominently. Turkiye's adaptability in the energy sector and its thriving beverage and tobacco industries are evident through these commodities. *Manufactured goods* (Commodity Group Code: 6) and *Animal and vegetable oils* (Commodity Group Code:

4) further showcase the nation's ability to tailor its exports to meet the evolving demands of international markets.

Table 16 illustrates the first 15 2-digit commodity groups that have had the most significant impact on Turkiye's export performance separated into MSE, CCE and CAE effects. Each effect has been sorted based on the cumulative values for the two sub-periods.

In the analysis of Market Share Effect (MSE), certain key product categories have significantly influenced Turkiye's export performance. Notably, *Miscellaneous manufactured articles, n.e.s.* (Product Code: 89) emerged as the top contributor, with a MSE value of 1.195%. This was closely followed by *Road vehicles* (Product Code: 78) at 1.077%, indicating their substantial impact on Turkiye's exports.

Textile yarn and related products (Product Code: 65) and *Electrical machinery, apparatus, and appliances, n.e.s.* (Product Code: 77) played significant roles, with MSE values of 0.463% and 0.349%, respectively. These products demonstrated notable contributions to Turkiye's export performance in various international markets, mostly Iraq, Israel and United Kingdom.

Cereals and cereal preparations (Product Code: 04) and *Other industrial machinery and parts* (Product Code: 74) were key export products, with MSE values of 0.287% and 0.270%, respectively. These commodities highlighted Turkiye's diverse export portfolio, showcasing its proficiency in both agricultural and industrial sectors.

Other product categories that made substantial contributions include *Iron and steel* (Product Code: 67) at 0.226%, *Specialized machinery* (Product Code: 72) at 0.204%, and *Articles of apparel & clothing accessories* (Product Code: 84) at 0.159%, emphasizing the country's strength in manufacturing and textile industries.

Non-metallic mineral manufactures, n.e.s. (Product Code: 66), *Feedstuff for animals (excluding unmilled cereals)* (Product Code: 08), and *Crude fertilizers other than division 56, and crude minerals* (Product Code: 27) also made notable contributions, underlining Turkiye's diverse export strategies and product offerings in the global market.

Power generating machinery and equipment (Product Code: 71) demonstrated a MSE value of 0.097%, indicating its role in Turkiye's export landscape, albeit to a slightly lesser extent compared to the aforementioned products.

The Commodity Composition Effect (CCE) analysis sheds light on crucial product categories driving Turkiye's export performance. Among these, *Beverages* (Product Code: 11) emerged as a significant contributor, with a CCE value of 0.392%. This was followed closely by "Cereals and cereal preparations" (Product Code: 04) at 0.248%, emphasizing the importance of agricultural exports in Turkiye's international trade.

Road vehicles (Product Code: 78) and *Furniture and parts thereof* (Product Code: 82) played substantial roles, with CCE values of 0.217% and 0.193%, respectively. These figures underscore the significant role played by Turkiye's automotive and furniture industries on the global stage, demonstrating the nation's competitiveness and expertise in these key sectors of international trade.

Vegetables and fruits (Product Code: 05) and *Metal working machinery* (Product Code: 73) made noteworthy contributions, highlighting Turkiye's agricultural and manufacturing expertise. *Meat and meat preparations* (Product Code: 01) and *Miscellaneous edible products and preparations* (Product Code: 09) also played vital roles in the export composition.

Products like *Iron and steel* (Product Code: 67), *Other transport equipment* (Product Code: 79), and *Plastics in non-primary forms* (Product Code: 58) were integral components of Turkiye's export portfolio, showcasing the country's diverse manufacturing capabilities.

Additionally, *Paper and paper manufactures* (Product Code: 64), *Manufactures of metal, n.e.s.* (Product Code: 69), and *Tobacco and tobacco manufactures* (Product Code: 12) demonstrated notable contributions to Turkiye's exports, reflecting the nation's versatile industrial base.

Electric current (Product Code: 35) played a role, albeit to a slightly lesser extent, in Turkiye's export dynamics, highlighting the diversity of products contributing to the country's export composition.

In summary, this CCE analysis illuminates the diverse array of products fueling Turkiye's export growth, showcasing the country's robust manufacturing, agricultural, and processing sectors.

The Commodity Adaptation Effect (CAE) analysis underscores specific product categories that have significantly enhanced Turkiye's export performance. Notably, *Iron and steel* (Product Code: 67) emerges as a dominant contributor, with a CAE value of 0.694%, indicating its pivotal role in Turkiye's adaptive export strategies.

Gas, natural and manufactured (Product Code: 34) and *Meat and meat preparations* (Product Code: 01) have made substantial contributions, with CAE values of 0.251% and 0.207%, respectively. These commodities underline Turkiye's adaptability in the energy and food processing sectors, showcasing its ability to meet diverse market demands.

Petroleum, petroleum products, and related materials (Product Code: 33) and *Plastics in non-primary forms* (Product Code: 58) have played noteworthy roles, emphasizing Turkiye's flexibility in the petrochemical and plastic industries. *Articles of apparel & clothing accessories* (Product Code: 84) and *Miscellaneous manufactured articles, n.e.s.* (Product Code: 89) have also demonstrated adaptive export strategies, showcasing Turkiye's strength in the textile and miscellaneous manufacturing sectors.

Products such as *Manufactures of metal, n.e.s.* (Product Code: 69), *Furniture and parts thereof* (Product Code: 82), and *Gold, non-monetary (excluding gold ores and concentrates)* (Product Code: 97) have made notable contributions, reflecting Turkiye's ability to adapt its metal, furniture, and precious metal exports to various market demands.

Dairy products and birds' eggs (Product Code: 02), *Electrical machinery, apparatus, and appliances, n.e.s.* (Product Code: 77), *Non-ferrous metals* (Product Code: 68), *Dyeing, tanning, and coloring materials* (Product Code: 53), and *Sugar, sugar preparations, and honey* (Product Code: 06) have showcased Turkiye's flexibility in dairy, electrical machinery, non-ferrous metals, chemical, and sugar-related exports, demonstrating the country's ability to adapt to evolving global market demands.

The *Iron and steel* (Product Code: 67) commodity group emerges as a significant contributor across multiple subject effects in Turkiye's export performance analysis. Specifically, it stands out as the most affected group for the Commodity Adaptation Effect (CAE), indicating its crucial role in Turkiye's ability to adjust its export mix according to evolving global demand patterns. This underscores the strategic importance of the iron and steel sector in Turkiye's export portfolio, demonstrating its resilience and competitiveness in the international market. Additionally, other notable commodity groups such as *Miscellaneous manufactured articles* and *Road vehicles* appear in multiple effects, further emphasizing their significance in shaping Turkiye's export dynamics.

The classification of commodity groups according to their technological status by UNCTAD (UNCTADStat, 02.06.2024) used in this study as mentioned at the below sections. Notably, commodity groups *Iron and steel* and *Miscellaneous manufactured articles,* falling under the *Low-skill and technology-intensive manufactures technology* class. While these sectors may offer stability, future profitability may lie in transitioning towards higher technology domains. On the other hand, the *Road vehicles* commodity group, categorized under the *Medium-skill: Other, excluding electronics* class, suggests a capacity for producing goods with a higher degree of technological sophistication. Countries that prioritize investments in high-technology sectors could potentially enhance their export competitiveness and profitability in the long term. Therefore, diversifying export portfolios towards higher technology domains may offer countries like Turkiye opportunities for sustained growth and increased profitability in the future.

7. CONCLUSION

This thesis has aimed to dissect and elucidate the dynamic factors influencing Turkiye's export performance from 2003 to 2019 using the CMS analysis. By analyzing MSE, CCE, and CAE, the study offers a comprehensive understanding of the shifts in Turkiye's market dynamics, product structures, and international competitive positioning.

The analysis of MSE indicates that Turkiye's overall export performance saw significant growth in the first sub-period (2003-2013), with an overall positive MSE of 7.13%. This growth was notably driven by substantial market share gains in the Middle Eastern markets, particularly in Iraq, where the MSE reached an impressive 5.27%. Such gains were largely attributed to Turkiye's effective penetration and expansion strategies in these regions. However, the subsequent period (2014-2019) posed challenges, reflected by a decline in MSE to -2.03%, highlighting the volatility and competitive pressures in these markets. Countries like France and Germany showed more modest but stable improvements in their MSE, indicating steady trade relationships.

The CCE analysis underscores the importance of diversifying the export product mix. Turkiye's strength in traditional sectors such as *Food and Live Animals* (Commodity Group Code: 0) and *Chemicals and Related Products* (Commodity Group Code: 5) has been evident. However, the overall impact of CCE was mixed, with some markets showing negative values. For instance, while the CCE was positive in some Middle Eastern markets, it was negative in key European markets, reflecting a need for better alignment of export commodities with the import demands of these regions. Products like *Petroleum Oils* and *Iron and Steel Bars* showed significant contributions to CCE in various markets, but sectors like *Machinery and Transport Equipment* faced challenges in diversifying product compositions effectively.

The CAE findings reveal Turkiye's adaptability in aligning its exports to meet the specific demands of international markets. The *Iron and steel* (Product Code: 67) stood out, contributing significantly across multiple effects, particularly in the CAE. This

indicates Turkiye's capability to tailor its products to meet changing market needs. Other significant contributors to CAE included *Meat and Meat Preparations* (Product Code: 01) and *Miscellaneous Manufactured Articles* (Product Code: 89). These findings highlight Turkiye's flexibility in the energy, food processing, and miscellaneous manufacturing sectors, although there is room for improvement in adapting more diversified and technologically advanced products.

Classified under Low-skill and technology-intensive manufactures, the iron and steel sector has proven to be a resilient and critical component of Turkiye's export portfolio. Its significant presence in the CAE suggests that despite its classification, it has maintained a strong competitive edge through adaptability and market responsiveness.

The success of these sectors, particularly *Miscellaneous Manufactured Articles*, categorized under Low-skill and technology-intensive manufactures, and *Road Vehicles* under Medium-skill: Other, excluding electronics, reflects Turkiye's capability to produce goods with varying degrees of technological sophistication. The consistent positive MSE and CAE in these categories indicate a strong foundation that, if leveraged with technological upgrades, could lead to even greater export performance.

However, when we examine SITC 2-digit commodity groups, a significant shift in perspective becomes apparent. Table 10 presents the sorting based on 2-digit commodities. It becomes evident that while the most exported commodity group was *Machinery and transport equipment* at the 1-digit level, in the 2-digit classification, only one commodity from this group stands out: *Road Vehicles*, but the *Articles of Apparel & Clothing accessories* commodity group, which is classified under Labour-intensive and resource-intensive manufactures technology group, takes the lead in the 2-digit data, emerging as the dominant category among the most exported commodities.

To sustain and enhance export performance, Turkiye must prioritize investments in high-technology sectors. Advanced technology products not only command higher market values but also ensure longer-term competitiveness. Sectors such as electronics, advanced machinery, and renewable energy technologies offer significant potential for growth and profitability. By focusing on these high-tech domains,

Turkiye can diversify its export portfolio and reduce its reliance on traditional, low-technology-intensive sectors.

While Turkiye has shown adaptability in certain sectors, there remains a need for greater diversification in its export offerings. Developing a broader range of products that can cater to the evolving demands of both traditional and new markets is crucial. This includes expanding into sectors such as biotechnology, pharmaceuticals, and advanced manufacturing.

Maintaining and strengthening trade relationships with both existing and emerging markets is essential. Turkiye should continue to build on its successes in the Middle East and explore new opportunities in regions such as Asia-Pacific and the Commonwealth of Independent States (CIS). These markets are projected to increase their share in Turkiye's export landscape, providing new avenues for growth.

Providing support for Turkish exporters in terms of production, marketing, and financial resources is vital. Government policies and initiatives that facilitate access to international markets, offer financial incentives, and support innovation and technological upgrades will be key to enhancing Turkiye's export competitiveness.

To summarize the findings of the studies that have been stated below sections on Turkiye's export performance: Erlat (2012) concluded that Turkiye's export performance in the Middle East was most significantly impacted by the market share effect (MSE), with a need for improvement in the commodity adaptation effect (CAE). Atış (2015) similarly noted the importance of MSE in Turkiye's export performance post-2003, but also highlighted the necessity to improve the commodity composition effect (CCE). Hatipağaoğlu (2017) found that competitiveness (linked to MSE) was the primary driver of structural changes, while product and technological changes had less impact. Ekmen Özçelik (2021) emphasized that MSE was crucial for export growth, noting that Turkiye’s competitiveness was a key factor, though negative world market adaptation effects were present.

In conclusion, the CMS analysis reveals that Turkiye's export performance over the period of 2003-2019 has been primarily driven by MSE and CAE. While the country has made significant strides in penetrating new markets and adapting to changing demands, there is a clear need to improve the commodity composition effect by diversifying and upgrading its export product mix. By focusing on high-technology

sectors, enhancing product diversification, and strengthening trade relationships, Turkiye can achieve sustained export growth and increased profitability. The future of Turkiye's export competitiveness lies in its ability to innovate and adapt to the dynamic global trade environment, ensuring long-term success and economic prosperity.

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APPENDIX

Table 1: The evolution of Turkiye's exports, 2003-2019 (billions USD)

Year	Export (bn$)	Change, %	Year	Export (bn$)	Change, %
2003	44.52	-	-	-	-
2004	59.98	34.73	2012	148.16	13.75
2005	69.59	16.02	2013	159.47	7.63
2006	81.47	17.07	2014	164.12	2.92
2007	102.68	26.04	2015	149.02	-9.20
2008	126.63	23.32	2016	147.46	-1.05
2009	98.51	-22.20	2017	162.16	9.97
2010	110.19	11.86	2018	174.54	7.63
2011	130.25	18.20	2019	178.13	2.06

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 2: The Evolution of Turkiye's International Trade from 1980 to 2019

Year	Export (mio$)	Import (mio$)	Change of Export (%)	Change of Import (%)
1980	2.910	7.909	-	-
1981	4.703	8.933	62	13
1982	5.746	8.843	22	-1
1983	5.728	9.235	0	4
1984	7.134	10.757	25	16
1985	7.958	11.343	12	5
1986	7.457	11.105	-6	-2
1987	10.190	14.158	37	27
1988	11.662	14.335	14	1
1989	11.625	15.789	0	10
1990	12.959	22.301	11	41
1991	13.593	21.047	5	-6
1992	14.715	22.871	8	9
1993	15.345	29.428	4	29
1994	18.105	23.270	18	-21
1995	21.635	35.709	19	53
1996	23.224	43.626	7	22
1997	26.261	48.559	13	11
1998	26.974	45.921	3	-5
1999	26.587	40.671	-1	-11
2000	27.774	54.458	4	34
2001	31.290	40.251	13	-26
2002	35.989	49.869	15	24
2003	47.122	66.458	31	33
2004	62.968	93.790	34	41
2005	73.085	112.737	16	20
2006	84.607	135.277	16	20
2007	105.988	164.391	25	22
2008	128.128	196.581	21	20
2009	97.227	138.867	-24	-29
2010	111.644	182.656	15	32
2011	133.226	234.115	19	28
2012	138.969	228.153	4	-3
2013	146.345	199.992	5	-12
2014	151.822	199.501	4	0
2015	134.353	178.742	-12	-10
2016	132.438	175.807	-1	-2
2017	148.043	194.629	12	11
2018	162.768	186.741	10	-4
2019	166.694	163.495	2	-12

Source: TUIK, Turkish Statistical Institute, 2024

Table 3: Commodity Level International Trade at 10 Year Interval

Year	SITC Group	Export (mio USD)	Import (mio USD)
1980	Animal and vegetable oils, fats and waxes	6.6	117.7
1990	Animal and vegetable oils, fats and waxes	139.0	302.8
2000	Animal and vegetable oils, fats and waxes	100.3	375.4
2010	Animal and vegetable oils, fats and waxes	345.9	1,047.1
2019	Animal and vegetable oils, fats and waxes	764.1	1,149.7
1980	Beverages and tobacco	237.3	0.2
1990	Beverages and tobacco	455.4	345.5
2000	Beverages and tobacco	528.9	365.3
2010	Beverages and tobacco	898.1	450.0
2019	Beverages and tobacco	1,244.1	753.4
1980	Chemicals and related products, n.e.s.	51.6	991.4
1990	Chemicals and related products, n.e.s.	747.2	2,845.3
2000	Chemicals and related products, n.e.s.	1,242.9	7,414.7
2010	Chemicals and related products, n.e.s.	6,805.8	25,446.3
2019	Chemicals and related products, n.e.s.	10,420.0	29,798.7
1980	Crude materials, inedible, except fuels	603.8	549.2
1990	Crude materials, inedible, except fuels	749.9	1,684.6
2000	Crude materials, inedible, except fuels	789.6	3,304.1
2010	Crude materials, inedible, except fuels	3,870.3	15,394.6
2019	Crude materials, inedible, except fuels	4,489.8	14,820.6
1980	Food and live animals	1,235.6	152.3
1990	Food and live animals	2,304.0	1,179.9
2000	Food and live animals	2,890.7	1,159.2
2010	Food and live animals	10,498.6	4,504.9
2019	Food and live animals	15,323.3	8,612.6
1980	Machinery and transport equipment	81.2	1,230.7
1990	Machinery and transport equipment	855.0	7,036.3
2000	Machinery and transport equipment	5,740.5	20,508.6
2010	Machinery and transport equipment	31,811.2	53,875.8
2019	Machinery and transport equipment	52,467.6	50,885.6
1980	Manufactured goods	509.3	849.1
1990	Manufactured goods	3,833.2	3,351.5
2000	Manufactured goods	8,224.5	8,465.1
2010	Manufactured goods	33,181.5	31,802.3
2019	Manufactured goods	44,106.4	31,529.7
1980	Mineral fuels, lubricants and related materials	59.4	3,906.7
1990	Mineral fuels, lubricants and related materials	296.3	4,622.1
2000	Mineral fuels, lubricants and related materials	329.1	9,529.3
2010	Mineral fuels, lubricants and related materials	4,469.4	38,497.0
2019	Mineral fuels, lubricants and related materials	7,004.9	14,600.1
1980	Miscellaneous manufactured articles	125.4	112.0
1990	Miscellaneous manufactured articles	3,579.1	933.4

2000	Miscellaneous manufactured articles	7,927.5	3,336.2
2010	Miscellaneous manufactured articles	19,763.1	11,638.1
2019	Miscellaneous manufactured articles	30,873.9	11,344.2

Source: TUIK, Turkish Statistical Institute, 2024

Table 4: Commodity Level International Trade Rates at 10 Year Intervals

Year	SITC Group	Share over Total Export	Share over Total Import
1980	Animal and vegetable oils, fats and waxes	0.2	1.5
1990	Animal and vegetable oils, fats and waxes	1.1	1.4
2000	Animal and vegetable oils, fats and waxes	0.4	0.7
2010	Animal and vegetable oils, fats and waxes	0.3	0.6
2019	Animal and vegetable oils, fats and waxes	0.5	0.7
1980	Beverages and tobacco	8.2	0.0
1990	Beverages and tobacco	3.5	1.5
2000	Beverages and tobacco	1.9	0.7
2010	Beverages and tobacco	0.8	0.2
2019	Beverages and tobacco	0.7	0.5
1980	Chemicals and related products, n.e.s.	1.8	12.5
1990	Chemicals and related products, n.e.s.	5.8	12.8
2000	Chemicals and related products, n.e.s.	4.5	13.6
2010	Chemicals and related products, n.e.s.	6.1	13.9
2019	Chemicals and related products, n.e.s.	6.3	18.2
1980	Crude materials, inedible, except fuels	20.7	6.9
1990	Crude materials, inedible, except fuels	5.8	7.6
2000	Crude materials, inedible, except fuels	2.8	6.1
2010	Crude materials, inedible, except fuels	3.5	8.4
2019	Crude materials, inedible, except fuels	2.7	9.1
1980	Food and live animals	42.5	1.9
1990	Food and live animals	17.8	5.3
2000	Food and live animals	10.4	2.1
2010	Food and live animals	9.4	2.5
2019	Food and live animals	9.2	5.3
1980	Machinery and transport equipment	2.8	15.6
1990	Machinery and transport equipment	6.6	31.6
2000	Machinery and transport equipment	20.7	37.7
2010	Machinery and transport equipment	28.5	29.5
2019	Machinery and transport equipment	31.5	31.1
1980	Manufactured goods	17.5	10.7
1990	Manufactured goods	29.6	15.0
2000	Manufactured goods	29.6	15.5
2010	Manufactured goods	29.7	17.4
2019	Manufactured goods	26.5	19.3
1980	Mineral fuels, lubricants and related materials	2.0	49.4
1990	Mineral fuels, lubricants and related materials	2.3	20.7
2000	Mineral fuels, lubricants and related materials	1.2	17.5
2010	Mineral fuels, lubricants and related materials	4.0	21.1
2019	Mineral fuels, lubricants and related materials	4.2	8.9
1980	Miscellaneous manufactured articles	4.3	1.4
1990	Miscellaneous manufactured articles	27.6	4.2

2000	Miscellaneous manufactured articles	28.5	6.1
2010	Miscellaneous manufactured articles	17.7	6.4
2019	Miscellaneous manufactured articles	18.5	6.9

Source: TUIK, Turkish Statistical Institute, 2024

Table 5: Comparison of Turkiye's and World Export Growth (%), 2003-2019

	Export $_{Turkiye}$(%)	**Export $_{world}$ (%)**	**Difference(%)**	**Share(%)**
2003	-	-	-	0.63
2004	33.68	22.22	11.46	0.69
2005	16.32	13.98	2.34	0.70
2006	16.41	15.92	0.49	0.70
2007	25.41	15.62	9.79	0.76
2008	23.08	15.21	7.86	0.82
2009	-22.64	-22.36	-0.28	0.81
2010	11.49	20.39	-8.89	0.75
2011	18.46	20.41	-1.95	0.74
2012	13.01	0.73	12.28	0.83
2013	5.92	2.56	3.36	0.86
2014	3.11	-0.02	3.13	0.89
2015	-9.32	-12.84	3.52	0.92
2016	-1.15	-3.02	1.87	0.94
2017	10.22	10.69	-0.47	0.94
2018	7.70	10.20	-2.50	0.91
2019	2.07	-2.87	4.94	0.96
Averages	**9.61**	**6.68**	**2.93**	**0.82**

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 6: Comparison of Turkiye's and Middle-Income Developing Economies Export Growth (%), 2003-2019

Year	Export $_{\text{Turkiye}}$ (%)	Middle-Income Developing Economies Export (%)	Difference (%)	Share (%)
2003	-	-	-	12.04
2004	33.68	29.22	4.46	12.45
2005	16.32	24.77	-8.45	11.61
2006	16.41	19.58	-3.17	11.30
2007	25.41	18.08	7.34	12.00
2008	23.08	25.99	-2.91	11.73
2009	-22.64	-21.25	-1.39	11.52
2010	11.49	28.64	-17.14	9.98
2011	18.46	31.33	-12.86	9.01
2012	13.01	-1.08	14.10	10.29
2013	5.92	1.69	4.23	10.72
2014	3.11	-1.26	4.37	11.19
2015	-9.32	-19.32	10.00	12.58
2016	-1.15	-4.61	3.46	13.03
2017	10.22	17.18	-6.96	12.26
2018	7.70	12.34	-4.64	11.75
2019	2.07	-1.32	3.39	12.16
Averages	9.61	10	-0.39	11.51

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 7: Comparison of Turkiye's and High-Income Developing Economies Export Change (%), 2003-2019

Year	Export Turkiye (%)	High-Income Developing Economies Export (%)	Difference (%)	Share (%)
2003	-	-	-	2.55%
2004	33.68	26.12	7.56	2.70%
2005	16.32	22.30	-5.98	2.57%
2006	16.41	20.59	-4.18	2.48%
2007	25.41	16.86	8.55	2.66%
2008	23.08	18.02	5.06	2.78%
2009	-22.64	-21.36	-1.27	2.73%
2010	11.49	28.34	-16.84	2.37%
2011	18.46	22.85	-4.39	2.29%
2012	13.01	5.84	7.17	2.45%
2013	5.92	3.01	2.91	2.51%
2014	3.11	0.03	3.08	2.59%
2015	-9.32	-11.61	2.28	2.66%
2016	-1.15	-5.35	4.20	2.78%
2017	10.22	10.51	-0.30	2.77%
2018	7.70	11.19	-3.49	2.68%
2019	2.07	-2.81	4.88	2.82%
Averages	9.61	9.03	0.58	2.61%

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 8: Turkiye's Export to the Major Partner Countries, 2003-2019 (bn $)

Partner	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Germany	7.48	8.74	9.44	9.66	11.92	12.86	9.70	11.46	13.93
UK	3.66	5.53	5.90	6.79	8.61	8.14	5.90	7.20	8.11
Iraq	0.83	1.82	2.75	2.59	2.84	3.92	5.12	6.03	8.31
Italy	3.15	4.60	5.56	6.68	7.40	7.74	5.81	6.40	7.70
France	2.82	3.66	3.78	4.59	5.94	6.61	6.20	6.04	6.79
USA	3.72	4.81	4.78	4.95	4.07	4.20	3.18	3.64	4.39
Spain	1.76	2.58	2.96	3.69	4.54	4.00	2.78	3.47	3.83
Russia	1.36	1.85	2.36	3.22	4.71	6.46	3.16	4.60	5.94
Netherlands	1.51	2.13	2.46	2.52	3.00	3.13	2.11	2.44	3.22
Israel	1.08	1.30	1.46	1.51	1.65	1.93	1.51	2.06	2.36
Total	27.37	37.01	41.44	46.20	54.69	58.99	45.47	53.35	64.58
Partner	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
Germany	13.11	14.82	16.26	14.48	15.15	16.34	17.33	16.60	219.29
UK	8.65	9.08	10.15	10.80	11.94	9.90	11.44	11.25	143.07
Iraq	10.82	12.95	13.15	9.96	8.49	10.11	9.43	10.22	119.34
Italy	6.25	7.35	7.33	6.98	7.71	8.59	9.88	9.59	118.72
France	6.18	6.64	6.84	6.10	6.30	6.89	7.65	7.94	100.98
USA	5.45	6.49	6.78	6.87	7.09	9.00	8.78	8.74	96.94
Spain	3.65	4.48	4.90	4.88	5.18	6.49	8.06	8.08	75.33
Russia	6.64	7.17	6.13	3.65	1.77	2.84	3.62	4.11	69.60
Netherlands	3.23	3.77	3.61	3.31	3.80	4.14	5.05	5.73	55.17
Israel	2.32	2.80	3.06	2.80	3.05	3.50	4.02	4.46	40.84
Total	66.30	75.54	78.22	69.84	70.49	77.79	85.27	86.72	1,039.28

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 9: Most Exported Commodities for Each Partner, 2003-2019 (bn $)

Partner	Product	Export (bn$)	Share (%)
Germany	Machinery and transport equip.	79.46	36.24
UK	Machinery and transport equip.	57.37	40.10
France	Machinery and transport equip.	55.62	55.08
Italy	Machinery and transport equip.	48.23	40.62
USA	Manufactured goods	37.07	38.24
Iraq	Food and live animals	30.96	25.94
Spain	Machinery and transport equip.	25.16	33.39
Russia	Machinery and transport equip.	18.85	27.09
Israel	Manufactured goods	16.55	40.51
Netherlands	Miscellaneous manuf. articles	16.11	29.19

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 10: Most Exported 2-Digit Commodities for Each Partner, (bn $)

Partner	Product	Export
France	Road vehicles	36.22
Germany	Articles of apparel & clothing accessories	52.88
Iraq	Cereals and cereal preparations	10.59
Israel	Iron and steel	7.31
Italy	Road vehicles	31.63
Netherlands	Articles of apparel & clothing accessories	13.44
Russia	Vegetables and fruits	11.61
Spain	Articles of apparel & clothing accessories	21.86
UK	Articles of apparel & clothing accessories	33.93
USA	Iron and steel	12.72

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 11: Turkiye's Share Over Partner's Total Import, 2003 and 2019 (%)

Partner	2003	2019	Change in Share
Spain	0.87	2.34	170
Israel	3.27	6.62	102
Italy	1.15	2.13	86
United Kingdom	0.93	1.66	79
France	0.80	1.29	61
Iraq	9.36	14.32	53
Netherlands	0.64	0.94	48
United States of America	0.30	0.36	21
Germany	1.42	1.46	3
Russia	1.95	1.69	-13

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 12: Basic Constant Market Share Models

Tyszynski Model	Leamer and Stern Model	Fagerberg and Sollie Model
Structural Effect Competitiveness Effect	Commodity Composition Effect Competitiveness Effect Market Distribution Effect	Market Share Effect Market Composition Effect Market Adaption Effect Commodity Adaption Effect Commodity Composition Effect

Table 13: Results by Partner Countries and Group Totals (%)

	2003 – 2013			2014 - 2019		
Partner	**MSE**	**CCE**	**CAE**	**MSE**	**CCE**	**CAE**
France	0.16	-0.04	-0.01	0.06	0.04	0.00
Germany	0.03	-0.02	-0.01	-0.01	0.02	0.00
Iraq	5.27	0.18	0.19	-4.20	0.61	-0.36
Israel	0.41	0.00	-0.05	1.33	-0.02	-0.18
Italy	0.32	-0.04	-0.05	0.21	0.04	0.00
Netherlands	0.06	-0.04	0.01	0.13	0.03	-0.01
Russia	0.28	-0.01	-0.03	-0.20	-0.04	-0.01
Spain	0.35	-0.05	-0.04	0.38	0.06	-0.01
UK	0.37	-0.05	-0.05	0.06	-0.01	0.03
USA	0.00	-0.01	0.01	0.03	0.00	0.00
Sub Totals	**7.24**	**-0.08**	**-0.03**	**-2.22**	**0.73**	**-0.54**
Period	**7.13**			**-2.03**		

Author's own calculation using UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 14: Results by STIC 1-Digit Commodities Groups and Partner - Top 15 (%)

		2003 - 2013			2014 - 2019			
Product Code-Label	**Partner**	**MSE**	**CCE**	**CAE**	**MSE**	**CCE**	**CAE**	**Total**
8 - Miscellaneous manuf.	Iraq	1.25	-0.06	-0.14	0.24	-0.01	0.00	1.29
6 - Manufactured goods	Iraq	1.36	0.23	0.38	-1.21	0.03	-0.01	0.78
0 - Food and live animals	Iraq	1.19	0.10	0.11	-1.16	0.63	-0.27	0.59
6 - Manufactured goods	Israel	0.18	-0.12	-0.03	0.94	-0.21	-0.24	0.52
7 - Machinery and transp.	Israel	0.20	0.00	0.00	0.08	0.11	0.01	0.42
5 - Chemicals and rltd.	Iraq	0.57	-0.03	-0.07	-0.20	0.10	-0.03	0.35
8 - Miscellaneous manuf.	Israel	-0.02	0.02	0.00	0.22	0.06	0.04	0.32
8 - Miscellaneous manuf.	Spain	0.16	0.00	0.01	0.07	0.03	0.01	0.28
7 - Machinery and transp.	Italy	0.18	-0.06	-0.06	0.09	0.05	0.02	0.21
7 - Machinery and transp.	UK	0.27	-0.02	-0.06	0.02	-0.01	0.00	0.20
7 - Machinery and transp.	Spain	0.14	-0.05	-0.05	0.10	0.03	0.02	0.19
7 - Machinery and transp.	France	0.12	-0.02	-0.01	0.06	0.03	0.01	0.19
6 - Manufactured goods	Italy	0.05	-0.01	0.00	0.07	0.00	0.00	0.11
5 - Chemicals and rltd.	Israel	0.04	0.00	0.00	0.04	0.01	0.00	0.10
3 - Mineral fuels, lubric.	Spain	0.02	0.01	0.02	0.10	-0.01	-0.03	0.09

Author's own calculation using UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 15: Results by STIC 2-Digit Commodities Groups and Partner - Top 15 (%)

		2003 – 2013			2014 - 2019			
Product Code-Label	**Partner**	**MSE**	**CCE**	**CAE**	**MSE**	**CCE**	**CAE**	**Total**
89- Misce. manuf. articles	Iraq	0.30	0.04	0.21	0.76	-0.13	-0.15	1.03
67- Iron and steel	Iraq	0.39	0.15	0.62	-0.49	-0.10	0.06	0.62
04- Cereals	Iraq	0.50	0.02	0.08	-0.26	0.23	-0.07	0.50
67- Iron and steel	Israel	0.00	0.08	0.00	0.21	0.00	0.00	0.29
84- Articles of apparel	Iraq	0.30	0.01	0.03	-0.12	0.07	-0.02	0.27
84- Articles of apparel	Spain	0.10	0.03	0.05	0.05	0.04	0.01	0.27
01- Meat and meat prep.	Iraq	0.09	0.02	0.27	-0.23	0.13	-0.06	0.22
82- Furniture	Iraq	0.09	0.08	0.07	-0.11	0.10	-0.03	0.20
78- Road vehicles	Israel	-0.04	0.08	-0.01	0.08	0.07	0.02	0.20
58- Plastics in non-primary forms	Iraq	0.08	0.04	0.13	-0.09	0.05	-0.02	0.20
78- Road vehicles	Italy	0.21	-0.04	-0.10	0.05	0.06	0.02	0.18
43- Processed Animal a	Iraq	0.18	0.00	0.01	-0.02	0.04	-0.04	0.18
64- Paper	Iraq	0.14	0.01	0.04	-0.08	0.09	-0.03	0.18
78- Road vehicles	France	0.11	-0.03	-0.03	0.03	0.05	0.01	0.15
77- Electrical machinery	Israel	0.13	0.00	0.00	0.03	-0.01	0.00	0.14

Author's own calculation using UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 16: First 15 2-Digit Commodity Groups that Affected the Most by MSE-CCE-CAE

MSE	CCE	CAE
89 - Miscellaneous manuf. art.	11 - Beverages	67 - Iron and steel
78 - Road vehicles	04 - Cereals and cereal prep	34 - Gas, natural and manufactured
65 - Textile yarn and related products	78 - Road vehicles	01 - Meat and meat preparations
77 - Electrical machinery, app.	82 - Furniture and parts thereof	33 - Petroleum, petroleum products
04 - Cereals and cereal preparations	05 - Vegetables and fruits	58 - Plastics in non/prim. forms
74 - Other industrial machinery	73 - Metal working machinery	84 - Articles of apparel & clothing
67 - Iron and steel	01 - Meat and meat preparations	89-Miscellaneous manufactured art.
72 - Specialized machinery	09 - Miscellaneous edible products	69 - Manufactures of metal, n.e.s.
64 - Paper and paper manufactures	67 - Iron and steel	82 - Furniture and parts thereof
43 - Processed Animal and vegetable oils	79 - Other transport equipment	97 - Gold, non/monetary
84 - Articles of apparel & clothing	58 - Plastics in non	2 - Dairy products and birds' eggs
66 - Non metallic mineral manuf.	64 - Paper and paper manufactures	77 - Electrical machinery, apparatus
8 - Feedstuff for animals	69 - Manufactures of metal, n.e.s.	68 - Non/ferrous metals
27 - Crude fertilizers	12 - Tobacco and tobacco man.	53 - Dyeing, tanning and colouring mat.
71 - Power generating mach.	35 - Electric current	6 - Sugar, sugar preparations, honey

Source: UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 17: 2-Digit Commodity Groups

Product Code	Product Label	Product Code	Product Label
00	Live animals other than animals of division 03	56	Fertilizers other than group 272
01	Meat and meat preparations	57	Plastics in primary forms
02	Dairy products and birds' eggs	58	Plastics in non-primary forms
03	Fish, crustaceans, molluscs and preparations thereof	59	Chemical materials and products, n.e.s.
04	Cereals and cereal preparations	61	Leather, leather manufactures and dressed furskins
05	Vegetables and fruits	62	Rubber manufactures, n.e.s.
06	Sugar, sugar preparations and honey	63	Cork and wood manufactures (excluding furniture)
07	Coffee, tea, cocoa, spices, and manufactures thereof	64	Paper and paper manufactures
08	Feedstuff for animals (excluding unmilled cereals)	65	Textile yarn and related products
09	Miscellaneous edible products and preparations	66	Non metallic mineral manufactures, n.e.s.
11	Beverages	67	Iron and steel
12	Tobacco and tobacco manufactures	68	Non-ferrous metals
21	Hides, skins and furskins, raw	69	Manufactures of metal, n.e.s.
22	Oil seeds and oleaginous fruits	71	Power generating machinery and equipment
23	Crude rubber (including synthetic and reclaimed)	72	Specialised machinery
24	Cork and wood	73	Metal working machinery
25	Pulp and waste paper	74	Other industrial machinery and parts
26	Textiles fibres and their wastes	75	Office machines and automatic data processing machines
27	Crude fertilizers other than division 56, and crude minerals	76	Telecommunication and sound recording apparatus
28	Metalliferous ores and metal scrap	77	Electrical machinery, apparatus and appliances, n.e.s.
29	Crude animal and vegetable materials, n.e.s.	78	Road vehicles
32	Coal, coke and briquettes	79	Other transport equipment
33	Petroleum, petroleum products and related materials	81	Prefabricated buildings, sanitary, heating and lighting fixtures, n.e.s.
34	Gas, natural and manufactured	82	Furniture and parts thereof
35	Electric current	83	Travel goods, handbags, etc.
41	Animal oils and fats	84	Articles of apparel & clothing accessories
42	Fixed vegetable oils and fats, crude, refined or fractionated	85	Footwear
43	Processed Animal and vegetable oils and fats	87	Professional and scientific instruments, n.e.s.
51	Organic chemicals	88	Photo apparatus, optical goods, watches and clocks
52	Inorganic chemicals	89	Miscellaneous manufactured articles, n.e.s.
53	Dyeing, tanning and colouring materials	96	Coin (other than gold coin), not being legal tender
54	Medicinal and pharmaceutical products	97	Gold, non-monetary (excluding gold ores and concentrates)
55	Essential oils for perfume materials and cleaning preparations		

Table 18: The First 10 Commodities Contributing Turkiye's Export Performance in the Major Trading Partners Market

Partners	France	Germany	Iraq	Israel	Italy	Nether.	Russia	Spain	UK	USA
STIC 2-Digit	78	78	89	67	78	78	03	78	97	78
	74	89	24	78	67	33	28	84	89	65
	33	82	54	89	33	84	42	67	79	89
	69	79	57	84	77	71	69	33	64	66
	71	69	00	66	74	62	62	71	71	68
	67	74	73	69	69	72	85	77	82	71
	72	72	59	82	52	79	07	74	69	77
	82	67	51	64	72	52	26	52	52	84
	66	62	23	68	66	77	02	27	68	33
	89	58	28	05	03	67	79	69	65	82

Author's own calculation using UNCTAD, UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 19: 1-Digit Commodity Groups Descending Sorting by MSE-CCE-CAE

MSE	CCE	CAE
8 - Miscellaneous manuf	0 - Food and live animals	3 - Mineral fuels, lubr.
7 - Machinery and trans.	1 - Beverages and tobacco	6 - Manufactured goods
6 - Manufactured goods	5 - Chemicals and related prod.	2 - Crude materials, inedible
5 - Chemicals and related prod	4 - Animal and vegetable oils	9 - Commodities and trans.
0 - Food and live animals	7 - Machinery and transport	8 - Miscellaneous manuf.
9 - Commodities and trans	9 - Commodities and trans.	5 - Chemicals and related prod.
2 - Crude materials, inedible	8 - Miscellaneous manuf.	4 - Animal and vegetable oils
4 - Animal and vegetable oils	2 - Crude materials, inedible	7 - Machinery and transport
1 - Beverages and tobacco	6 - Manufactured goods	0 - Food and live animals
3 - Mineral fuels, lubricants	3 - Mineral fuels, lubr.	1 - Beverages and tobacco

Author's own calculation using UNCTAD, UNCTAD Merchandise Trade Matrix, Annual, 2003 - 2019, 16.12.2023

Table 20: Composition Criteria of Economic Groups

Code	Label	Notes / Criteria
2621	High-income developing economies	Developing economies (code 1400) in which from 2019 to 2021 GDP per capita was on average higher than US$5 907.
2622	Middle-income developing economies	Developing economies (code 1400) in which from 2019 to 2021 GDP per capita was on average between US$1 313 and 5 907
2623	Low-income developing economies	Developing economies (code 1400) in which from 2019 to 2021 GDP per capita was on average lower than US$1 313.

Source: UNCTADStat, 04.06.2024

Table 21: Manufactured Goods by Degree of Manufacturing Groups (SITC Rev. 3)

Code	Label
TDRA	**MANUFACTURED GOODS BY DEGREE OF MANUFACTURING**
TDRB	**Labour-intensive and resource-intensive manufactures**
611	Leather
612	Manufactures of leather, n.e.s.; saddlery & harness
613	Furskins, tanned or dressed, excluding those of 8483
633	Cork manufactures
634	Veneers, plywood, and other wood, worked, n.e.s.
635	Wood manufacture, n.e.s.
641	Paper and paperboard
642	Paper & paperboard, cut to shape or size, articles
651	Textile yarn
652	Cotton fabrics, woven
653	Fabrics, woven, of man-made fabrics
654	Other textile fabrics, woven
655	Knitted or crocheted fabrics, n.e.s.
656	Tulles, trimmings, lace, ribbons & other small wares
657	Special yarn, special textile fabrics & related
658	Made-up articles, of textile materials, n.e.s.
659	Floor coverings, etc.
661	Lime, cement, fabrica. constr. mat. (excludingglass, clay)
662	Clay construction, refracto. construction materials
663	Mineral manufactures, n.e.s.
664	Glass

665	Glassware
666	Pottery
821	Furniture & parts
831	Travel goods, handbags & similar containers
841	Men's clothing of textile fabrics, not knitted
842	Women's clothing, of textile fabrics
843	Men's or boy's clothing, of textile, knitted, croche.
844	Women's clothing, of textile, knitted or crocheted
845	Articles of apparel, of textile fabrics, n.e.s.
846	Clothing accessories, of textile fabrics
848	Articles of apparel, clothing access., excluding textile
851	Footwear
TDRC	**Low-skill and technology-intensive manufactures**
671	Pig iron & spiegeleisen, sponge iron, powder & granu
672	Ingots, primary forms, of iron or steel; semi-finis.
673	Flat-rolled prod., iron, non-alloy steel, not coated
674	Flat-rolled prod., iron, non-alloy steel, coated, clad
675	Flat-rolled products of alloy steel
676	Iron & steel bars, rods, angles, shapes & sections
677	Rails & railway track construction mat., iron, steel
678	Wire of iron or steel
679	Tubes, pipes & hollow profiles, fittings, iron, steel
691	Structures & parts, n.e.s., of iron, steel, aluminium
692	Metal containers for storage or transport
693	Wire products (excluding electrical) and fencing grills
694	Nails, screws, nuts, bolts, rivets & the like, of metal

695	Tools for use in the hand or in machine
696	Cutlery
697	Household equipment of base metal, n.e.s.
699	Manufactures of base metal, n.e.s.
785	Motorcycles & cycles
786	Trailers & semi-trailers
791	Railway vehicles & associated equipment
793	Ships, boats & floating structures
895	Office & stationery supplies, n.e.s.
899	Miscellaneous manufactured articles, n.e.s.
TDRD	**Medium-skill and technology-intensive manufactures**
TDRD1	**Medium-skill: Electronics (excluding parts and components) (SITC 775)**
775	Household type equipment, electrical or not, n.e.s.
TDRD2	**Medium-skill: Parts and components for electrical and electronic goods (SITC 772)**
772	Apparatus for electrical circuits; board, panels
TDRD3	**Medium-skill: Other, excluding electronics**
621	Materials of rubber (pastes, plates, sheets, etc.)
625	Rubber tyres, tyre treads or flaps & inner tubes
629	Articles of rubber, n.e.s.
711	Vapour generating boilers, auxiliary plant; parts
712	Steam turbines & other vapour turbin., parts, n.e.s.
713	Internal combustion piston engines, parts, n.e.s.
714	Engines & motors, non-electric; parts, n.e.s.
716	Rotating electric plant & parts thereof, n.e.s.
718	Other power generating machinery & parts, n.e.s.
721	Agricultural machinery (excluding tractors) & parts

722	Tractors (excluding those of 71414 & 74415)
723	Civil engineering & contractors' plant & equipment
724	Textile & leather machinery, & parts thereof, n.e.s.
725	Paper mill, pulp mill machinery; paper articles man.
726	Printing & bookbinding machinery, & parts thereof
727	Food-processing machines (excluding domestic)
728	Other machinery for particular industries, n.e.s.
731	Machine-tools working by removing material
733	Mach.-tools for working metal, excluding removing mate.
735	Parts, n.e.s., & accessories for machines of 731, 733
737	Metalworking machinery (excludingmachine-tools) & parts
741	Heating & cooling equipment & parts thereof, n.e.s.
742	Pumps for liquids
743	Pumps (excluding liquid), gas compressors & fans; centr.
744	Mechanical handling equipment, & parts, n.e.s.
745	Other non-electr. machinery, tools & mechan. appar.
746	Ball or roller bearings
747	Appliances for pipes, boiler shells, tanks, vats, etc.
748	Transmis. shafts
749	Non-electric parts & accessor. of machinery, n.e.s.
771	Electric power machinery, and parts thereof
773	Equipment for distributing electricity, n.e.s.
774	Electro-diagnostic appa. for medical sciences, etc.
778	Electrical machinery & apparatus, n.e.s.
781	Motor vehicles for the transport of persons
782	Motor vehic. for transport of goods, special purpo.

783	Road motor vehicles, n.e.s.
784	Parts & accessories of vehicles of 722, 781, 782, 783
811	Prefabricated buildings
812	Sanitary, plumbing, heating fixtures, fittings, n.e.s.
813	Lighting fixtures & fittings, n.e.s.
893	Articles, n.e.s., of plastics
894	Baby carriages, toys, games & sporting goods
TDRE	**High-skill and technology-intensive manufactures**
TDRE1	**High-skill: Electronics (excluding parts and components) (SITC 751 + 752 + 761 + 762 + 763)**
751	Office machines
752	Automatic data processing machines, n.e.s.
761	Television receivers, whether or not combined
762	Radio-broadcast receivers, whether or not combined
763	Sound recorders or reproducers
TDRE2	**High-skill: Parts and components for electrical and electronic goods (SITC 759 + 764 + 776)**
759	Parts, accessories for machines of groups 751, 752
764	Telecommunication equipment, n.e.s.; & parts, n.e.s.
776	Cathode valves & tubes
TDRE3	**High-skill: Other, excluding electronics**
511	Hydrocarbons, n.e.s., & halogenated, nitr. derivative
512	Alcohols, phenols, halogenat., sulfonat., nitrat. der.
513	Carboxylic acids, anhydrides, halides, per.; derivati.
514	Nitrogen-function compounds
515	Organo-inorganic, heterocycl. compounds, nucl. acids
516	Other organic chemicals
522	Inorganic chemical elements, oxides & halogen salts

523	Metallic salts & peroxysalts, of inorganic acids
524	Other inorganic chemicals
525	Radio-actives and associated materials
531	Synth. organic colouring matter & colouring lakes
532	Dyeing & tanning extracts, synth. tanning materials
533	Pigments, paints, varnishes and related materials
541	Medicinal and pharmaceutical products, excluding 542
542	Medicaments (incl. veterinary medicaments)
551	Essential oils, perfume & flavour materials
553	Perfumery, cosmetics or toilet prepar. (excluding soaps)
554	Soaps, cleansing and polishing preparations
562	Fertilizers (other than those of group 272)
571	Polymers of ethylene, in primary forms
572	Polymers of styrene, in primary forms
573	Polymers of vinyl chloride or halogenated olefins
574	Polyethers, epoxide resins; polycarbonat., polyesters
575	Other plastics, in primary forms
579	Waste, parings and scrap, of plastics
581	Tubes, pipes and hoses of plastics
582	Plates, sheets, films, foil & strip, of plastics
583	Monofilaments, of plastics, cross-section > 1mm
591	Insectides & similar products, for retail sale
592	Starche, wheat gluten; albuminoidal substances; glues
593	Explosives and pyrotechnic products
597	Prepared addit. for miner. oils; lubricat., de-icing
598	Miscellaneous chemical products, n.e.s.

792	Aircraft & associated equipment; spacecraft, etc.
871	Optical instruments & apparatus, n.e.s.
872	Instruments & appliances, n.e.s., for medical, etc.
873	Meters & counters, n.e.s.
874	Measuring, analysing & controlling apparatus, n.e.s.
881	Photographic apparatus & equipment, n.e.s.
882	Cinematographic & photographic supplies
883	Cinematograph films, exposed & developed
884	Optical goods, n.e.s.
885	Watches & clocks
891	Arms & ammunition
892	Printed matter
896	Works of art, collectors' pieces & antiques
897	Jewellery & articles of precious materia., n.e.s.
898	Musical instruments, parts; records, tapes & similar

Source: UNCTADStat, 02.06.2024