



2026, 15 (1), 86-112 | Research Article

## Türkiye's Role in Global Value Chains: A Value-Added Analysis of Key Industrial Sectors (2000–2020)

Banu Erkök<sup>1</sup>

### Abstract

This paper evaluates Türkiye's involvement in global value chains (GVCs) by examining foreign value-added (FVA) and domestic value-added (DVA) shares embodied in gross exports over the period 2000–2020, using Trade in Value Added (TiVA) indicators derived from the OECD Inter-Country Input-Output tables, 2023 edition. The analysis adopts a data-driven sectoral focus by ranking the sectors according to their time average foreign value-added shares over the sample period and selecting those with the highest values: coke and refined petroleum products; motor vehicles, trailers, and semi-trailers; electrical equipment; computer, electronic, and optical products; basic metals; and chemicals and chemical products. For these sectors, the paper examines corresponding domestic value-added shares and compares Türkiye's performance with OECD and G20 TiVA regional aggregates, providing a relevant benchmark given Türkiye's position between advanced and emerging economies. The findings show that Türkiye consistently exhibits higher foreign value-added shares and lower domestic value-added shares than the OECD and G20 TiVA regional aggregates across the selected sectors, indicating a strong reliance on imported intermediate inputs in export production. These results suggest that Türkiye's participation in global value chains, in these manufacturing sectors, is associated with relatively high import dependence and lower domestic value retention. From a policy perspective, the results highlight the potential relevance of strategies to strengthen domestic production capabilities and enhance domestic value retention in sectors with high foreign-input dependence. Policies that support firm-level capability development and domestic supplier participation may contribute to higher domestic value-added shares over time, while maintaining integration into international production networks.

**Keywords:** International Trade, Global Value Chains, Value-Added, TiVA Data Set, Import Dependency

Erkök, B. (2026). Türkiye's Role in Global Value Chains: A Value-Added Analysis of Key Industrial Sectors (2000–2020), *Journal of the Human and Social Science Researches*, 15(1), 86-112. <https://izlik.org/IA93ZT63CH>  
<https://doi.org/10.15869/itobiad.1815998>

Date of Submission	02.11.2025
Date of Acceptance	02.03.2026
Date of Publication	31.03.2026
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<sup>1</sup> Dr. Lecturer, Başkent University, Faculty of Economics and Administrative Sciences Department of Economics, Ankara/ Türkiye, berkok@gmail.com, ORCID: 0000-0002-3410-9210



## Küresel Değer Zincirlerinde Türkiye'nin Rolü: Anahtar Sanayi Sektörlerinin Katma Değer Analizi (2000–2020)

Banu Erkök<sup>1</sup>

### Öz

Bu çalışma, Türkiye'nin küresel değer zincirlerindeki (KDZ) katılımını, 2000–2020 döneminde brüt ihracat bünyesinde yer alan yabancı katma değer (FVA) ve yerli katma değer (DVA) paylarını inceleyerek değerlendirmektedir. Analizde, OECD tarafından 2023 yılında yayımlanan Ülkeler Arası Girdi-Çıktı tablolarından türetilen Katma Değer Ticareti (TiVA) göstergeleri kullanılmaktadır. Çalışma, veri temelli bir sektörel yaklaşım benimseyerek, tüm sektörleri örneklem dönemi boyunca ortalama yabancı katma değer paylarına göre sıralamakta ve en yüksek değerlere sahip olan sektörleri seçmektedir. Buna göre analiz kapsamına alınan sektörler şunlardır: kok ve rafine petrol ürünleri; motorlu taşıtlar, römorklar ve yarı römorklar; elektrikli ekipman; bilgisayar, elektronik ve optik ürünler; temel metaller; ve kimyasallar ve kimyasal ürünler. Bahse konu sektörler için ilgili yurt içi katma değer payları incelenmekte ve Türkiye'nin performansı, gelişmiş ve gelişmekte olan ekonomiler arasındaki konumu dikkate alınarak, OECD ve G20 ekonomileriyle karşılaştırılmaktadır. Bulgular, Türkiye'nin seçilen sektörler genelinde OECD ve G20 ülkelerine kıyasla daha yüksek yabancı katma değer ve daha düşük yurtiçi katma değer paylarına sahip olduğunu göstermektedir. Bu durum, ihracata yönelik üretimde ithal ara girdilere güçlü bir bağımlılığa işaret etmektedir. Elde edilen sonuçlar, söz konusu imalat sektörlerinde Türkiye'nin küresel değer zincirlerine katılımının görece yüksek ithalat bağımlılığı ve daha düşük yurt içi katma değer tutma oranı ile ilişkili olduğunu ortaya koymaktadır. Politika perspektifinden bakıldığında ise sonuçlar, yabancı girdi bağımlılığı yüksek olan sektörlerde yurt içi üretim kapasitesini güçlendirmeye ve yurt içi katma değer tutulumunu artırmaya yönelik stratejilerin potansiyel önemini vurgulamaktadır. Firma düzeyinde yetkinlik gelişimini ve yurt içi tedarikçi katılımını destekleyen politikalar, uluslararası üretim ağlarıyla entegrasyonu korurken, zaman içinde daha yüksek yurt içi katma değer paylarına katkı sağlayabilir.

**Anahtar Kelimeler:** Uluslararası Ticaret, Küresel Değer Zincirleri, Katma Değer, TiVA veri seti, İthalat Bağımlılığı.

Erkök, B. (2026). Küresel Değer Zincirlerinde Türkiye'nin Rolü: Anahtar Sanayi Sektörlerinin Katma Değer Analizi (2000–2020). *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 15(1), 86-112. <https://izlik.org/JA93ZT63CH>  
<https://doi.org/10.15869/itobiad.1815998>

Geliş Tarihi	02.11.2025
Kabul Tarihi	02.03.2026
Yayın Tarihi	31.03.2026
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<sup>1</sup> Dr. Öğretim Görevlisi, Başkent Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İktisat, Ankara, Türkiye, berkoc@gmail.com, ORCID: 0000-0002-3410-9210

## 1. Introduction

Since the 1980s, Türkiye has pursued an export-led growth strategy supported by trade liberalization and foreign direct investment (FDI), with an emphasis on sectors in which it holds a comparative advantage. This policy orientation has aimed to strengthen competitiveness in international markets, contributing to rising export capacity, employment generation, and greater exposure to the global value chains (GVCs) and related production networks, while improving Türkiye's position in international trade and logistics (Erkök, 2018, p. 638). Türkiye's integration into global production networks has been further supported by the Customs Union agreement with the EU in 1995 and by its strategic geographic location at the intersection of Europe, Asia, and the Middle East.

While export expansion has played a central role in Türkiye's growth strategy, gross export volume alone provides limited information about the extent to which exports generate domestic value-added. A value-added perspective addresses this limitation by distinguishing between foreign value added (FVA) embodied in exports and domestic value-added (DVA) generated through export activity. Examining exports in value-added terms thus allows for a more informative assessment of Türkiye's participation in GVCs.

In the TiVA framework, GVC participation is commonly assessed using value-added indicators that distinguish between FVA embodied in exports, capturing the import content of export production, and DVA, which reflects the extent to which export activity translates into value retained within the domestic economy. Accordingly, this study does not treat either component as a stand-alone measure of GVC participation, but examines foreign and domestic value-added shares jointly to assess Türkiye's integration into GVCs and its associated patterns of value capture.

In this context, the paper evaluates Türkiye's participation in GVCs by examining foreign and domestic value-added shares in gross exports over the period 2000–2020, using Trade in Value-Added (TiVA) indicators derived from the OECD Inter-Country Input-Output framework.

Using OECD TiVA indicators, all sectors are ranked according to their average FVA share of gross exports over 2000–2020, and the sectors with the highest values are retained for detailed analysis. For these sectors, the paper examines the corresponding DVA shares and compares Türkiye's sectoral performance with the OECD and G20 TiVA regional aggregates. These aggregates provide comparative benchmarks for evaluating Türkiye's participation in GVCs and patterns of domestic value capture in an international context.

In this regard, the paper is guided by two main research questions. First, how does the composition of FVA and DVA in Türkiye's gross exports from 2000 to 2020 differ among the major manufacturing sectors examined? Second, how does the value-added structure of Türkiye's exports within GVCs differ from that of OECD and G20 TiVA regional aggregates? These questions motivate a comparative assessment of Türkiye's foreign and domestic value-added structure relative to OECD and G20 benchmarks.

The findings indicate that Türkiye's export structure is characterised by relatively high FVA and lower DVA shares than those of the OECD and G20 TiVA regional aggregates, suggesting a stronger reliance on imported intermediate inputs.

Against this background, this study contributes to the empirical analysis of GVCs by providing a sector-level decomposition of Türkiye's exports into foreign and domestic value-added using TiVA indicators, offering a more informative assessment than gross trade measures. By benchmarking Türkiye against OECD and G20 TiVA regional aggregates, the paper documents persistent differences in foreign input dependence and domestic value retention across key manufacturing sectors. The concluding section discusses the implications of these patterns for domestic value retention within export-led manufacturing. The remainder of the paper is structured as follows: the subsequent sections review Türkiye's participation in GVCs and the related literature; Section 4 describes the data and methodology; Section 5 presents the results; and the final section discusses the main findings and their implications.

## 2. Overview of Türkiye's Participation in Global Value Chains

Since the 1980s, Türkiye has pursued an export-led growth strategy, supported by the EU Customs Union and its strategic geographic location, expanding export capacity, strengthening international competitiveness, and deepening engagement with international production networks. Over this period, Türkiye's share of world exports increased from 0.85 percent in 2013 to 1.07 percent in 2023 (Statista, 2025a, p. 1). This rise reflects Türkiye's deeper integration into GVCs. As of 2023, industrial goods accounted for 81.3 percent of Türkiye's total exports<sup>3</sup> (Türkiye Exporters Assembly [TİM], 2025, p. 101).

Within industrial goods, the automotive sector emerged as the leading export sector, with exports increasing by 6.3 percent from 34.99 billion dollars in 2023 to 37.21 billion dollars in 2024 (TİM, 2025, p. 101). Automotive exports accounted for the largest share within industrial exports, representing 16.5 percent of the industrial sector's total. The strong export performance of the automotive sector is closely linked to the presence of multinational enterprises (MNEs) operating through subsidiaries and joint ventures in Türkiye. Türkiye's automotive exports are primarily directed toward the EU. In 2023, Türkiye exported approximately 7.8 billion euros in motor vehicles and 4.3 billion euros in motor vehicle parts to the EU (Statista, 2025b, p. 1). Major automotive producers<sup>4</sup> in Türkiye operate as subsidiaries or joint ventures of American, European, and Asian MNEs. These firms use Türkiye as a production hub, reflecting relatively low labour costs, a well-developed supply network, and tariff-free access to the EU market under the Customs Union. Consistent with TiVA evidence of relatively high FVA and lower DVA shares in this sector, automotive export production relies substantially on imported intermediate inputs.

Electric and electronic products and chemical products also contributed significantly to Türkiye's export performance. Exports of electric and electronic products increased by 2.9 percent to approximately 16.68 billion dollars in 2024. Chemical products recorded modest growth over the same period. By contrast, exports of ready-to-wear and apparel

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<sup>3</sup> In 2023–2024, the composition of Türkiye's exports shows a modest shift across major sectors. The share of agriculture in total exports increased from 16.0 percent in 2023 to 17.0 percent in 2024, while the share of industry declined slightly from 81.3 percent to 80.3 percent over the same period. In contrast, the contribution of mining remained stable, accounting for 2.7 percent of total exports in both years (TİM, 2025, p. 101).

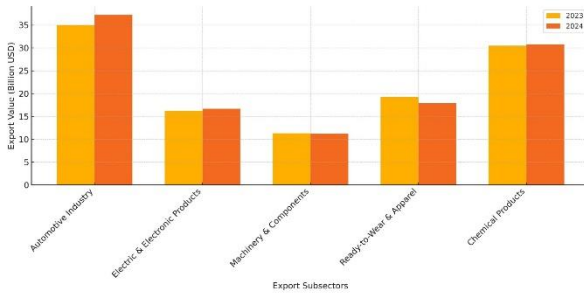
<sup>4</sup> such as Ford Otosan, Tofaş–Fiat, Oyak–Renault, Toyota, and Hyundai Assan

declined in 2024, while exports of machinery and components fell slightly between 2023 and 2024, although the sector remained structurally important within Türkiye's industrial base (TİM, 2025, p. 101).

The ready-to-wear and clothing industry, a historically important component of Türkiye's export structure, declined by 6.9 percent in 2024, with export values falling from 19.24 billion dollars to 17.92 billion dollars (TİM, 2025, p. 101). This contraction in 2024 is associated with weaker demand in the EU and rising production costs. Increased competition from lower-priced producers and higher import costs for raw materials also reduced Türkiye's export competitiveness in this segment. Nevertheless, the sector still accounted for 7.9 percent of Türkiye's industrial exports, while apparel and textile exports to the EU remained high at approximately 6 billion euros in 2023<sup>5</sup> (Statista, 2025b, p. 1).

Despite the decline in 2024, Türkiye remains a significant production base for global fashion and textile brands<sup>6</sup>, including Inditex<sup>7</sup>, Nike, Tommy Hilfiger, and Burberry. This position is supported by Türkiye's proximity to Europe, its skilled labor force, and its capacity for rapid delivery and flexible responses to changes in fashion demand. These features make Türkiye a competitive sourcing location for high-quality, time-sensitive apparel production.

In contrast, chemical products continued to play an essential role in Türkiye's industrial exports. The export value of chemical products increased slightly from 30.49 billion dollars in 2023 to 30.79 billion dollars in 2024 (TİM, 2025, p. 101). In 2024, chemical products accounted for 13.6 percent of Türkiye's industrial exports. Türkiye's export patterns in 2023 and 2024 and its main export destinations in 2024 are presented in Figures 1 and 2, respectively.



**Figure 1:** Türkiye's Top Export Sectors: 2023 and 2024

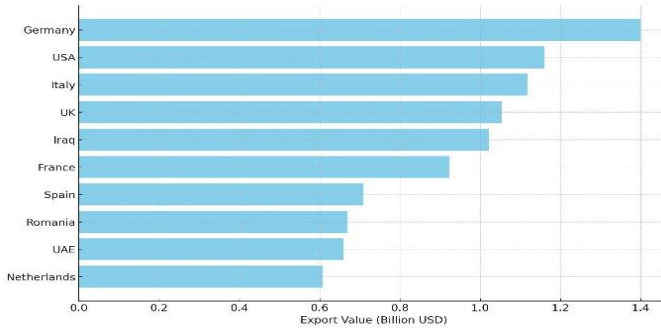
**Source:** Turkstat, 2025a

<sup>5</sup> This figure is composed of 3.5 billion euros in articles of apparel of textile fabrics and 2.3 billion euros in women's clothes (Statista, 2025b, p. 1).

<sup>6</sup> In 2023/2024, Türkiye imported approximately 776,000 metric tons of cotton, ranking as the fourth-largest cotton importer globally. Over the same period, China, Bangladesh, and Vietnam's cotton imports were approximately 3.3 million, 1.6 million, and 1.4 million metric tons, respectively, reflecting their significant roles in the global textile supply chain (Statista, 2025c, p. 1).

<sup>7</sup> In 2022, nearly 49 percent of the factories manufacturing garments for Inditex were located in countries such as Spain, Portugal, Morocco, and Türkiye (Inditex, 2023, p. 1).

As shown in Figure 1, the automotive industry emerged as the largest exporting sector and recorded moderate growth in export value over the period considered. Electrical and electronic products, as well as chemical products, also experienced modest export growth. In contrast, exports of machinery and components declined slightly between 2023 and 2024. The ready-to-wear and apparel sectors were the only industries that recorded a slight decline in export value in 2024 compared with the previous year. Figure 2 highlights Türkiye's strong export orientation toward the EU market by showing that six of its ten largest export destinations in 2024 are EU member states<sup>8</sup>.



**Figure 2: Türkiye's Top 10 Export Destinations (2024)**

**Source:** TİM, 2025:101

In addition to goods, Türkiye's service exports have expanded across several sectors. In 2023, international service exports excluding travel amounted to approximately 56.5 billion dollars, and the EU remained Türkiye's largest partner in services, accounting for 21.86 billion dollars, followed by other European countries with 8.61 billion dollars. (Turkstat, 2025b)<sup>9</sup>. These figures indicate that European markets remain central to Türkiye's export structure, both in goods and services.

Together with the growth in exports of goods and services, Türkiye's imports have also increased considerably over time. In 2023, Türkiye accounted for more than 1.49 percent of world imports (Ministry of Trade, 2024, p. 31), placing it among the world's top 20 importers (Statista, 2025d, p. 1). This strong import performance has been associated with persistent trade deficits, reflecting a structural pattern in which import growth has systematically exceeded export growth. The trade deficit reached approximately 109.5 billion dollars in 2022 and remained above 106.3 billion dollars in 2023 (Statista, 2025e, p. 1).

This pattern is closely linked to Türkiye's production structure, which relies heavily on imported intermediate and capital goods. As export activity expands, demand for foreign

<sup>8</sup> France, Spain, Germany, Italy, Romania, and the Netherlands.

<sup>9</sup> Türkiye's service trade expanded markedly over the period 2018–2024. Service exports increased from 65.5 billion dollars in 2018 to 117.2 billion dollars in 2024, despite a sharp contraction in 2020 associated with the COVID-19 pandemic. Following this decline, service exports recovered rapidly, reaching 62.9 billion dollars in 2021 and accelerating further in subsequent years. Over the same period, service imports rose from 29.1 billion dollars to 55.8 billion dollars. As a result, Türkiye maintained a persistent services trade surplus, which widened from 36.4 billion dollars in 2018 to 61.4 billion dollars in 2024 (Turkstat, 2025b).

inputs rises in parallel, contributing to import growth and external imbalances. Limited domestic capacity to produce technologically advanced intermediate inputs and capital goods further boosts this dependence.

Moreover, a production structure concentrated in assembly and labour-intensive stages tends to reduce DVA and impede upgrading into higher-value segments, thereby worsening structural imbalances in external trade.

For domestic firms in Türkiye, particularly those seeking to expand production capacity or invest in upstream activities, access to long-term, affordable financing is an important structural consideration. Constraints in domestic financial markets may affect the feasibility of investment in technologically advanced intermediate-input and capital-goods production. In this broader institutional context, international trade finance mechanisms—including buyer credit arrangements supported by Export Credit Agencies (ECAs<sup>10</sup>), form part of the external environment in which production and sourcing decisions are made. ECA-backed financing typically offers longer maturities and relatively favorable borrowing conditions for imported intermediate and capital goods, which may interact with existing cost structures in global production networks. The present study does not examine financing channels, firm-level behavior, or bilateral sourcing patterns. Nevertheless, institutional features such as trade-finance arrangements and credit conditions that support cross-border sourcing of intermediate and capital goods provide a relevant background for understanding the persistence of import-intensive production structures observed in value-added trade indicators.

At the macroeconomic level, persistent trade and current account deficits require continued external funding, increasing exposure to global financial conditions (Erkök, 2023, p. 67). Although such dynamics are not unique to Türkiye, they may heighten external vulnerability in emerging economies, where domestic financial depth and technological capacity remain constrained. Nevertheless, even in advanced economies, large current account deficits are difficult to sustain over the long run and can contribute to rising external indebtedness (Labonte, 2010, p. 1). Accordingly, large current account deficits often raise concerns because they may signal unsustainable macroeconomic trajectories or changes in the conditions supporting external financing (Aromi, 2021, p. 597). Such deficits are also frequently associated with credit expansions in both emerging and advanced economies, including Türkiye. They typically require continued external financing through higher borrowing or improved net export performance. When net exports do not adjust sufficiently to narrow the deficit, financing increasingly relies on borrowing, thereby enhancing external vulnerabilities and putting pressure on the balance of payments.

Moreover, persistent current account deficits can have adverse macroeconomic effects by favouring consumption over investment (Devadas & Loayza, 2018, p. 1). When such deficits are primarily financed through external borrowing and capital inflows, economies become more dependent on foreign capital and more vulnerable to global

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<sup>10</sup> government-backed institutions that provide loans, guarantees, and insurance to facilitate exports from their home countries by offering favorable financing terms to foreign buyers and reducing the risks associated with international trade.

financial shocks (Acemoğlu, 2018, p. 1). This dependence is particularly relevant for emerging economies such as Türkiye, where it weakens economic resilience and increases exposure to external shocks (Rodrik, 2012, p. 42). In Türkiye, persistent balance-of-payments deficits have constrained economic growth and heightened the risk of currency and financial crises, as observed during the 2008 global financial crisis and the 2018 Pastor Brunson episode (Konak & Erkök, 2024, p. 329).

Although Türkiye serves as a significant production hub in GVCs, particularly in the automotive, textile, and apparel sectors, its export structure in these industries is closely linked to multinational production networks. TiVA evidence indicates relatively high FVA and comparatively lower DVA shares in gross exports. In this context, MNEs may capture a substantial share of the value embodied in exports, even though the TiVA framework does not directly identify the allocation of value across firms or specific production functions. Accordingly, a non-trivial portion of the value embodied in Türkiye's gross exports reflects foreign inputs, implying lower domestic value retention relative to OECD and G20 benchmarks.

This interpretation is consistent with Türkiye's integration into multinational production networks, in which higher-value activities—such as design, technology development, and branding—are often located outside Türkiye, potentially limiting the share of value added retained domestically. In the automotive sector, despite its long-standing role as Türkiye's leading export industry, the relatively high import content of production implies constrained domestic value retention in gross exports; related analyses emphasize that a portion of export-related value may be realized outside Türkiye within multinational production networks (Erkök, 2021, p. 114).

These patterns support policy priorities that recognise that long-term economic growth depends not only on export expansion but also on increasing the DVA content of production. In Türkiye, prolonged dependence on imported inputs and limited technological capacity have constrained productivity gains and weakened the competitiveness of domestic sectors. Accordingly, the Ninth and Tenth Development Plans identify these structural weaknesses and emphasise industrial transformation through innovation, upgrading, and deeper integration into higher-value segments of production (Presidency of Turkey, Presidency of Strategy and Budget [SBB], 2006, p. 34). The Tenth Development Plan further stresses the need to reduce dependence on foreign inputs (SBB, 2013, p. 27). Overall, these plans set out a structural transformation toward higher-value-added manufacturing as essential for adapting to changes in the global division of labour and sustaining long-term economic growth.

### **3. Literature**

Several previous studies (e.g., Kowalski et al. (2015), Horner and Nadvi (2018), Gereffi et al. (2021), McWilliam et al. (2020), and Blanchard et al. (2025)) have examined the ability of GVCs to respond to structural, strategic, and policy determinants, especially in emerging economies. Kowalski et al. (2015) identified location, market size, and trade openness as key predictors of GVC participation in developing countries, and the authors found that higher levels of participation raise productivity and export diversification. Horner and Nadvi (2018) explored the effects of heightened South-South trade and the growth of Southern economies on GVCs and Global Production Networks (GPNs), and emphasised the emergence of polycentric trade structures and the need for governance

mechanisms for interconnected domestic, regional, and global markets. Gereffi et al. (2021) note that trade policies, such as tariffs and trade agreements, often serve as the basis for adaptive reconfigurations of GVCs, where firm-level strategy is seen as critical. McWilliam et al. (2020) took this a step further by extending the discussion to apply the OLI paradigm to systematically advance the concept of GVC governance in international business research, integrating it into the literature and showing how governance outcomes reflect lead-firm strategies and network dependencies. Blanchard et al. (2025), using data from 14 countries between 1995 and 2015, found that a stronger link between local and international value-added content reduces the likelihood of the imposition of higher tariffs and trade barriers.

On the other hand, Nagengast and Stehrer (2016); Kee and Tang (2016); Amador and Cabral (2017); Yu and Luo (2018); Aichele and Heiland (2018); Martinez-Galan and Fontoura (2019); Athukorala and Patunru (2022) and Hisamitsu and Toshiyuki (2025) analysed the policy implications of value-added trade, concentrating mainly on China, the OECD, the EU, and global production networks. Nagengast and Stehrer (2016) examine the disparities between bilateral trade balances assessed in gross terms and those estimated in value-added terms. This paper demonstrates that an increasing share of bilateral trade imbalances is influenced by demand from third countries rather than from the two direct trading partners.

According to Kee and Tang (2016), China's rising domestic content in exports is analyzed using firm-level and customs transaction-level data. Between 2000 and 2007, Chinese processing exporters used domestic inputs, rather than imported ones, increasing the domestic content of exports from 65 to 70 percent, according to the study. Amador and Cabral (2017) used network analysis to study the structure and development of value-added trade between 1995 and 2011. Results show that the network structures of GVCs are centralised and asymmetric as they are predominantly driven by a few key economies, including China, the United States, and Germany. The research stresses the decisive role of services as inputs to the export of both goods and services, noting that the FVA growth associated with goods exports has been faster than that of service exports.

Additionally, Yu and Luo (2018) studied the economic advantages China has achieved from participating in GVCs—focusing on the impact of exports on domestic GDP and the determinants of these effects. They found that value-added exports and export-related GDP are both lower than trade statistics indicate. According to the results, improvements in China's DVA positively affect productivity growth, research and development, capital accumulation, and vertical specialisation, highlighting differences in the composition of DVA between China and developed economies. In line with this, Aichele and Heiland (2018) used a multi-sector gravity model incorporating inter-sectoral links to investigate DVA content, value-added trade flows, and the value-added-to-exports ratio. Their results show that China's DVA ratio has increased, driven primarily by the growth of export zones. In addition, the report emphasized that China's entry into the World Trade Organisation (WTO) significantly enhanced regional production networks with neighbouring economies.

Martinez-Galan and Fontoura (2019) used the World I-O Database to measure value-added trade among OECD nations. The research evaluated GVC participation at the national and sectoral level and its relationship to inward FDI in the 2000s. The results

demonstrate that greater participation in GVCs is positively associated with higher bilateral inward FDI. Athukorala and Patunru (2022) also used I-O data from Indonesian manufacturing to determine the association of a higher percentage of DVA in exports. The paper underlines the importance of export-led growth for stimulating GDP and employment in emerging countries. It concludes that policymakers should focus on export-oriented sectors rather than rely on DVA shares as a development criterion. Finally, Hisamitsu and Toshiyuki (2025) investigated the impact of FDI on the increase in value-added production in GVCs. In their research, they conclude that FDI in downstream industries improves the product quality of local non-exporting Indonesian enterprises, particularly in intermediate goods.

In addition, an emerging body of research has analyzed the integration of Türkiye into GVCs and its effect on industrial upgrading, productivity, and value creation, including Taymaz et al. (2011); Gündoğdu and Saraçoğlu (2016); Kılıçaslan et al. (2021); and Yanıkkaya et al. (2022). Moreover, Erkan (2017), Çelebi Boz et al. (2019), Tufaner (2021), Baş et al. (2021), and Saygılı (2023) collectively show that Türkiye's economic and export performance is shaped by a value-added structure concentrated in low-value activities, limited effectiveness of R&D-driven upgrading, uneven sectoral contributions to growth and sustainability, and strong integration into GVCs that influences price transmission and domestic value capture through value-added trade.

Gündoğdu and Saraçoğlu (2016) examined Türkiye's backward GVC participation by using the World I-O data for 1995–2011. The paper applies the vertical specialisation measure developed by Hummels et al. (2001). Their survey finds that throughout 1995–2011, vertical specialisation increased (especially) in medium-high- and high-technology industries. The results indicate potential for technology transfer and spillover effects. However, the paper emphasizes that those benefits seem limited as participation becomes predominantly focused on assembly-based activities.

Furthermore, Taymaz et al. (2011) studied the role of Türkiye in five major global production chains: motor vehicles, textiles and apparel, television, food, and machinery from 2002 to 2008. They found that Türkiye continued to specialise in low-growth, low-unit-price sectors of these supply chains. Even though export volumes have risen because of favourable market conditions and geographic proximity, the country has not advanced in high-growth or technology-intensive industries.

Kılıçaslan et al. (2021) examined the effect of integrating domestic and GVC industries on the productivity of Turkish manufacturing firms from 2003 to 2015. The results suggest that creating domestic value chains harms productivity, but involvement in GVCs is beneficial (though not statistically significant). Expanding on this study, Yanıkkaya et al. (2022) examined the effect of openness on value-added, total factor productivity (TFP), and exports from 1995 to 2014, controlling for GVC involvement. Their results showed that DVA in exports adds to sectoral value-added and yet does not significantly affect total factor productivity. Their findings suggest that, by contrast, backward linkages, though critical to manufacturing productivity, have only a marginal impact on overall sectoral value creation.

Erkan (2017) examines Türkiye's export specialization and competitiveness in the EU and global markets using revealed comparative advantage indices for the period 2000–2015. The results indicate that Türkiye's export competitiveness is limited and concentrated

mainly in low-value-added, labour- and raw-material-intensive products. This export structure weakens terms of trade, limits income elasticity of demand, and increases dependence on high-value-added imported inputs. The study highlights the need for a shift toward innovation-driven, higher value-added production to improve export performance and external balance. Çelebi Boz et al. (2019) examine the link between R&D expenditures and high-technology exports in BRICS and MIST countries. The findings show that effective R&D investment and openness to foreign capital support high-technology exports and increase domestic value-added. For Türkiye, however, the relationship is one-sided, suggesting that R&D spending has not translated sufficiently into higher-value-added export production. This highlights the importance of improving the efficiency of R&D investments to support upgrading and domestic value creation. Baş et al. (2021) show that the environmental impact of economic activity in Türkiye varies by the composition of value-added: agricultural and export value-added reduce carbon emissions, while merchandise and share value-added increase emissions, highlighting the importance of the value-added structure for sustainable development. Tufaner (2021) analyzes the relationship between sectoral value-added and economic growth in Türkiye for the period 1969–2019. The results show that value-added in the services sector contributes most to growth, followed by manufacturing and agriculture. While manufacturing value-added exhibits a bidirectional relationship with economic development, agricultural value-added responds mainly to growth rather than driving it. Overall, the study indicates that value added in agriculture and manufacturing has played a limited role in supporting economic growth, underscoring the importance of policies that increase value creation in these sectors. Saygılı (2023) shows that exchange rate pass-through in Türkiye is shaped by invoicing currency and the degree of value-added trade, with stronger integration into GVCs reducing price sensitivity and affecting domestic value capture.

## 4. Data and Methodology

### 4.1 Data

Global and regional economic linkages are analyzed using indicators from the OECD's Trade in Value-Added (TiVA) framework, which is derived from the Inter-Country Input-Output (ICIO) tables. TiVA provides insights into how value is created and distributed across GVCs by tracing the value-added generated by each country and industry along international production networks (OECD, 2023a). Unlike conventional trade statistics based on gross flows that double-count intermediate goods, TiVA indicators identify the domestic and foreign value-added embodied in exports and highlight the role of imported inputs and services in production (OECD, 2025a, p. 1). The present study uses selected TiVA indicators to evaluate Türkiye's sectoral position within GVCs.

The 2023 edition of the TiVA database covers 76 economies and 45 industries for the period 1995–2020, using ISIC Rev. 4 industry classifications. This analysis focuses on Türkiye and on regional aggregates for the OECD and the G20, which are treated as single economies within the TiVA framework. These aggregates provide a relevant benchmark for assessing Türkiye's performance given its position between advanced and emerging economies (see Appendix A, Table 1).

TiVA indicators are constructed by the OECD using ICIO tables that combine

harmonized national Supply and Use Tables (SUTs) and Input-Output Tables (IOTs) with detailed bilateral trade data. The ICIO tables are compiled and balanced to ensure consistency with the 2008 System of National Accounts at both sectoral and macroeconomic levels. Where necessary, the OECD applies estimation and adjustment procedures to address data gaps, ensuring temporal and cross-country comparability.

The analysis focuses on two principal TiVA indicators: the FVA share and the DVA share of gross exports.<sup>11</sup> The FVA<sup>12</sup> share measures the proportion of a sector's gross exports that rely on imported intermediate inputs and services and is defined as FVA embodied in gross exports, expressed as a percentage of total gross exports. It is commonly interpreted as an indicator of backward GVC linkages, capturing the import content of exports (OECD, 2023a, p. 1).<sup>13</sup>

The DVA share represents the complementary domestic component of gross exports and measures the proportion of export value generated within the domestic economy (OECD, 2025c, p. 1).

It includes labour income, capital income, mixed income, and net taxes on production embodied in exports. The DVA share provides information on the extent of domestic value retention in export production and, in Türkiye's case, offers evidence on how the domestic contribution to export value has evolved over time.

Together, FVA and DVA shares capture key dimensions of sectoral GVC integration by quantifying the relative importance of foreign input reliance and domestic value retention in export production. Accordingly, the present study concentrates on these two indicators as core measures of Türkiye's participation in GVCs.

## 4.2 Methodology

This study employs share measures, reported as percentages of gross exports, because they provide a scale-free representation of value-added composition that is directly comparable across countries, sectors, and years (OECD, 2023a). In particular, the FVA and DVA indicators normalize value-added components by total gross exports, in line with the construction of the OECD TiVA Principal Indicators (shares), which report value-added content of exports in percentage terms to facilitate cross-country and cross-sectoral comparison (OECD, 2023a, pp. 18–22).

This normalization allows the analysis to focus on the relative importance of imported inputs in exports (FVA share) and the relative domestic contribution to export value (DVA share), rather than on absolute trade volumes. Accordingly, FVA and DVA shares are interpreted as intensity measures of value-added participation in GVCs (OECD, 2023a, pp. 22–25).

Sectoral outcomes are summarized using unweighted time averages computed from annual TiVA series. TiVA indicators are reported at the country–industry–year level,

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<sup>11</sup> While TiVA also supports forward and backward GVC participation measures based on the decompositions of Koopman et al. (2014, p.459-461) and Wang et al. (2017a, p.3-7, 2017b, p. 2-5), this study focuses on foreign and domestic value-added shares of gross exports to provide a direct sectoral measure of import dependence and domestic value retention.

<sup>12</sup> A higher FVA share indicates greater reliance on global supply networks (OECD, 2025b, p. 1).

<sup>13</sup> For further details, see OECD (2023b, p. 1) and OECD (2023c, p. 1).

which permits aggregation over time and facilitates the identification of persistent sectoral patterns. For each country  $c$ , sector  $s$ , and year  $t$ , let  $X_{cst}$  denote either the foreign or DVA share of gross exports, expressed in percentage terms. The sectoral average is computed as the arithmetic mean over the available years within the analysis period (2000–2020),

$$\bar{X}_{cs} = \frac{1}{T_{cs}} \sum_{t=1}^{T_{cs}} X_{cst}$$

where  $T_{cs}$  denotes the number of non-missing annual observations for the sector  $s$  in country  $c$ .

Sectoral averages are then used to rank industries by DVA and FVA intensity and to compare Türkiye's manufacturing sectors with the corresponding OECD and G20 benchmarks. Sectoral rankings are initially conducted across the full set of industries in the TiVA 2023 dataset, covering agriculture, mining, manufacturing, and service activities as defined under ISIC Rev. 4 (see Appendix A, Table 1). The results show that sectors with the highest FVA intensities are concentrated entirely within manufacturing industries. Consequently, the subsequent analysis focuses on manufacturing sectors that emerge endogenously from the data as the most import-intensive segments of Türkiye's export structure.

The analysis adopts a comparative descriptive approach using FVA and DVA shares of gross exports, both expressed as percentages. Ranking sectors by these intensity measures allows the identification of manufacturing industries with relatively high reliance on imported intermediates and those with stronger domestic value retention. Türkiye's sectoral patterns are evaluated against OECD and G20 aggregates to assess its relative position and degree of integration into GVCs on the input side.

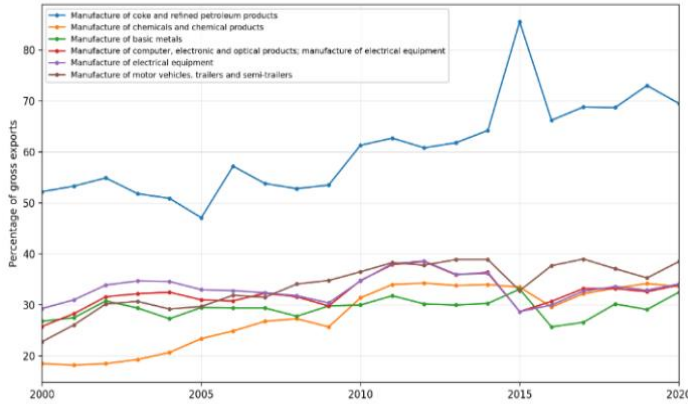
## 5. Results

We use Trade in Value Added (TiVA) Principal Indicators (shares) derived from the OECD Inter-Country Input–Output (ICIO) tables (TiVA 2023 edition). We adopt a data-driven sectoral approach by ranking Türkiye's sectors across the full TiVA industry coverage by their average FVA share of gross exports over 2000–2020 and benchmarking sectoral FVA shares against the OECD and G20 TiVA regional aggregates. The highest-ranked sectors are all manufacturing industries; the detailed analysis therefore focuses on coke and refined petroleum products (ISIC Rev.4: 19), chemicals and chemical products (20), basic metals (24), computer, electronic and optical products (26), electrical equipment (27), and motor vehicles, trailers and semi-trailers (29). For these sectors, we then examine the corresponding DVA share of gross export and benchmark Türkiye's DVA shares against the OECD and G20 TiVA regional aggregates. This sequence provides a consistent assessment of Türkiye's sectoral GVC integration from both foreign- and domestic-value-added perspectives.

### 5.1 FVA Share in Gross Exports

Figure 3 illustrates the evolution of Türkiye's FVA shares in gross exports across these sectors. Among them, coke and refined petroleum products consistently exhibit the highest FVA intensity over the period. The sector's FVA share increased from 52.2 percent

in 2000 to 61.3 percent in 2010, then spiked in the mid-2010s to 85.5 percent in 2015, before remaining elevated at 69.5 percent in 2020. This pattern indicates a persistently high reliance on imported inputs in the sector.



**Figure 3: Foreign Value-Added Share in Gross Exports (Türkiye) (2000 - 2020)**  
**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

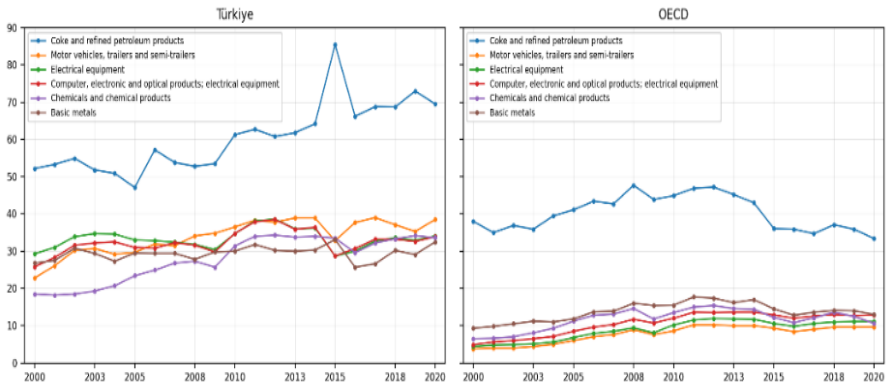
The motor vehicles, trailers, and semi-trailers sector also displays a clear upward trend in FVA intensity. The FVA share rose from 22.8 percent in 2000 to 36.5 percent in 2010 and further increased to 38.5 percent by 2020, indicating a sustained rise in the import content of automotive production over time.

In chemicals and chemical products, the FVA share increased from 18.5 percent in 2000 to 31.4 percent in 2010, reaching 33.6 percent in 2020, pointing to a gradual deepening of imported intermediate input use. The basic metals industry exhibits a more moderate but upward-sloping profile, with the FVA share rising from 26.8 percent in 2000 to 30.0 percent in 2010 and further to 32.5 percent in 2020, suggesting increasing integration into foreign input supply chains.

For computer, electronic and optical products, the FVA share rose from 25.8 percent in 2000 to 34.8 percent in 2010 and remained elevated at 33.9 percent in 2020. A similar trajectory is observed in the standalone electrical equipment sector, where the FVA share increased from 29.3 percent in 2000 to 34.7 percent in 2010, before stabilizing at 34.1 percent in 2020.

Overall, Figure 3 indicates high and, in several cases, rising foreign input dependence across Türkiye’s key manufacturing industries over the 2000–2020 period.

Türkiye’s FVA shares in gross exports remained consistently above the OECD TiVA regional aggregate across all six sectors over the 2000–2020 period (Figure 4).



**Figure 4: Foreign Value-Added Shares in Gross Exports (2000–2020) Türkiye vs OECD**  
**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

In coke and refined petroleum products, Türkiye's FVA share increased from 52.2 percent in 2000 to 69.5 percent in 2020, while the OECD TiVA regional aggregate remained substantially lower and declined after the early 2010s.

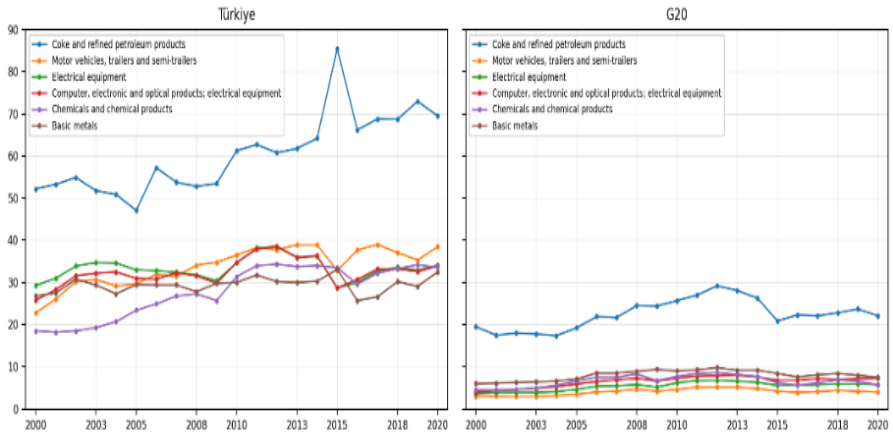
A similar divergence is observed in motor vehicles, trailers, and semi-trailers, where Türkiye's FVA share rose from 22.8 percent to 38.5 percent over the period, compared with only a marginal increase in the OECD TiVA regional aggregate, which reached 9.6 percent by 2020. This pattern indicates a markedly higher FVA content in Türkiye's automotive exports relative to the OECD TiVA regional aggregate.

Türkiye's FVA shares were also higher than the OECD TiVA regional aggregate in computer, electronic and optical products, exceeding 30 percent by 2020, while the OECD TiVA regional aggregate increased more gradually from 4.9 percent to 12.9 percent. A comparable pattern is observed in electrical equipment, where Türkiye's FVA share reached 34.1 percent in 2020, compared with an OECD TiVA regional aggregate of 11.1 percent.

In basic metals, Türkiye's FVA share increased from 26.8 percent in 2000 to 32.5 percent in 2020, whereas the OECD TiVA regional aggregate rose more modestly from 9.3 percent to 13.0 percent. The chemicals and chemical products sector display a similar contrast, with Türkiye's FVA share rising from 18.5 percent to 33.6 percent, compared with a limited increase in the OECD TiVA regional aggregate from 6.5 percent to 10.6 percent.

Overall, Figure 4 shows that Türkiye consistently recorded higher FVA shares in gross exports than the OECD TiVA regional aggregate across all six sectors between 2000 and 2020, indicating a persistently higher reliance on imported intermediate inputs.

Across all six sectors, Türkiye's FVA shares in gross exports were higher in 2020 than in 2000, indicating an increased reliance on imported intermediate inputs (Figure 5). In contrast, the G20 TiVA regional aggregate remained comparatively low and exhibited only modest changes over the same period. The OECD and G20 benchmark series shown in Figures 4 and 5 correspond to TiVA regional aggregates.



**Figure 5: Foreign Value-Added Shares in Gross Exports (2000–2020) Türkiye vs G20**

**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

In coke and refined petroleum products, Türkiye's FVA share increased from 52.2 percent in 2000 to 69.5 percent in 2020, while the G20 TiVA regional aggregate rose only marginally, from 19.5 percent to 22.1 per cent. A similar gap is observed in the motor vehicles, trailers, and semi-trailers sector, where Türkiye's FVA share grew from 22.8 percent to 38.5 percent, while the much lower G20 TiVA regional aggregate increased only from 2.9 per cent to 4.0 percent.

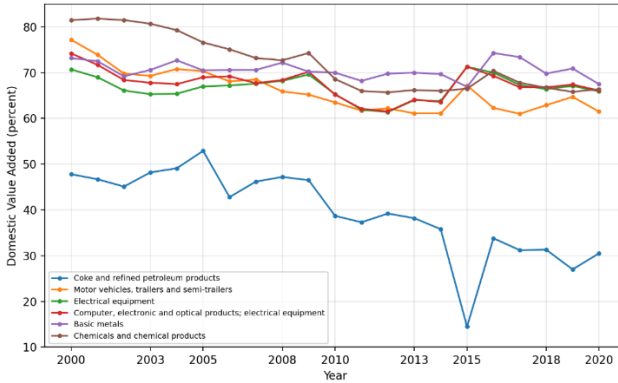
In computer, electronic, and optical products, Türkiye's FVA share rose from 25.8 percent in 2000 to 33.9 percent in 2020, whereas the G20 TiVA regional aggregate increased more moderately, from 3.9 percent to 7.3 percent. A similar contrast is observed for electrical equipment, with Türkiye's FVA share reaching 34.1 percent in 2020, compared with approximately 5.8 percent for the G20 TiVA regional aggregate.

For basic metals, Türkiye's FVA share increased from 26.8 percent to 32.5 percent over the period, while the G20 TiVA regional aggregate remained relatively stable, fluctuating between 6.0 percent and 7.5 percent. In chemicals and chemical products, Türkiye recorded a substantial rise in its FVA share, from 18.5 percent in 2000 to 33.6 percent in 2020, compared with a more limited increase in the G20 TiVA regional aggregate from 4.5 percent to 5.7 percent.

Overall, Figure 5 shows that Türkiye consistently exhibits higher FVA shares in gross exports than the G20 TiVA regional aggregate across all six manufacturing sectors. This persistent gap indicates Türkiye's comparatively higher dependence on imported intermediate inputs within GVCs.

## 5.2 DVA Share in Gross Exports

Figure 6 presents the evolution of Türkiye's DVA shares in gross exports across six manufacturing sectors between 2000 and 2020. The results indicate a general tendency toward declining or stagnant DVA shares across the selected sectors over the period.



**Figure 6: Domestic Value-Added Share in Gross Exports (Türkiye) (2000 - 2020)**

**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

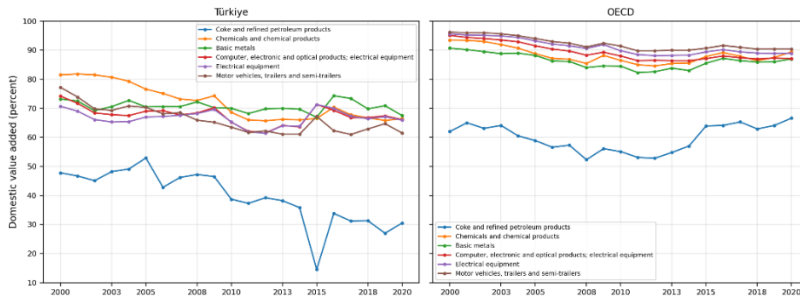
The most pronounced reduction is observed in coke and refined petroleum products, where the DVA share declined from 47.8 per cent in 2000 to 38.7 per cent in 2010 and further to 30.5 per cent in 2020, with a sharp trough of 14.5 per cent in 2015, indicating a substantial weakening of domestic value retention in export production.

In the motor vehicles, trailers, and semi-trailers sector, the DVA share fell from 77.2 per cent in 2000 to 63.5 per cent in 2010 and to 61.5 per cent in 2020, with the pace of decline moderating in the latter decade. A comparable pattern is evident in electrical equipment, where the DVA share decreased from 70.7 per cent in 2000 to 65.3 per cent in 2010 and remained broadly stable at 65.9 per cent in 2020.

For computer, electronic, and optical products, the DVA share declined from 74.2 per cent in 2000 to 65.2 per cent in 2010, standing at 66.1 per cent by 2020. The basic metals sector also experienced a gradual reduction, with DVA shares decreasing from 73.2 per cent in 2000 to 70.0 per cent in 2010 and to 67.5 per cent in 2020. In chemicals and chemical products, the DVA share declined substantially from 81.5 per cent in 2000 to 68.6 per cent in 2010 and further to 66.4 per cent in 2020, with the largest decline occurring during the first decade of the period.

Taken together, Figure 6 indicates a broad-based decline in DVA content across Türkiye's key manufacturing exports, consistent with the rising FVA shares documented in earlier figures and indicating a growing reliance on imported intermediate inputs.

Figure 7 compares Türkiye's DVA shares in gross exports with the OECD TiVA regional aggregate across six manufacturing sectors over the 2000–2020 period. Across all sectors, Türkiye consistently records lower DVA shares than the OECD TiVA regional aggregate, indicating weaker domestic value capture in export production. This gap is particularly pronounced in technologically intensive sectors such as motor vehicles, electrical equipment, and computer, electronic and optical products.



**Figure 7: Domestic Value-Added Share in Gross Exports (2000 - 2020) Türkiye vs OECD**

**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

In coke and refined petroleum products, Türkiye's DVA share declined from 47.8 percent in 2000 to 38.7 percent in 2010 and further to 30.5 percent in 2020, with a pronounced trough of 14.5 percent in 2015. By contrast, the OECD TiVA regional aggregate remained substantially higher, falling from 62.0 percent in 2000 to 55.1 percent in 2010 before increasing to 66.6 percent by 2020.

A similar contrast characterizes the motor vehicles, trailers, and semi-trailers sector. Türkiye's DVA share decreased from 77.2 percent in 2000 to 63.5 percent in 2010 and to 61.5 percent in 2020, whereas the OECD TiVA regional aggregate maintained markedly higher shares, declining only modestly from 96.2 percent to 91.4 percent over the first decade and remaining high at 90.4 percent in 2020.

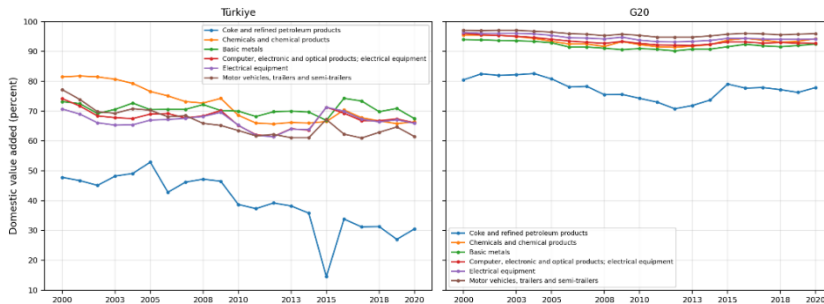
In computer, electronic and optical products, Türkiye's DVA share declined from 74.2 percent in 2000 to 65.2 percent in 2010 and stabilized at 66.1 percent by 2020. OECD TiVA regional aggregate DVA shares were consistently elevated, decreasing from 95.1 percent in 2000 to 88.0 percent in 2010 and remaining broadly stable at 87.1 percent thereafter. A closely related pattern is observed in electrical equipment, where Türkiye's DVA share fell from 70.7 percent to 65.3 percent between 2000 and 2010 and remained near that level in 2020, while the OECD TiVA regional aggregate declined only moderately and stayed close to 90 percent throughout.

In basic metals, Türkiye's DVA share decreased from 73.2 percent in 2000 to 70.0 percent in 2010 and further to 67.5 percent in 2020. Although the OECD TiVA regional aggregate also declined during the first decade, it remained substantially higher overall, increasing to 87.0 percent by 2020. Finally, the chemicals and chemical products sector experienced a marked reduction in Türkiye's DVA share, from 81.5 percent in 2000 to 68.6 percent in 2010 and 66.4 percent in 2020, while the OECD TiVA regional aggregate maintained considerably higher domestic value retention, ending the period at 89.4 percent.

Taken together, Figure 7 shows that Türkiye's DVA content in gross exports declined sharply during the first decade of the sample period and remained persistently below the OECD TiVA regional aggregate thereafter. In contrast, the OECD TiVA regional aggregate maintained high and relatively stable DVA shares across all six sectors. These patterns indicate that a larger share of Türkiye's export value is accounted for by imported intermediate inputs relative to OECD economies, consistent with the higher

FVA shares documented earlier.

Figure 8 compares DVA shares in gross exports between Türkiye and the G20 TiVA regional aggregate across six manufacturing sectors over the 2000–2020 period. Across all sectors, Türkiye consistently records lower DVA shares than the G20 TiVA regional aggregate, indicating a higher reliance on foreign intermediate inputs in export production. By contrast, the G20 TiVA regional aggregate maintains high and relatively stable DVA shares throughout the period, particularly in motor vehicles, chemicals, and computer, electronic and optical products.



**Figure 8: Domestic Value-Added Share in Gross Exports (2000 - 2020) Türkiye vs G20**

**Source:** OECD, 2023a (Principal Indicators, shares). Unit: % of gross exports.

In coke and refined petroleum products, Türkiye's DVA share declined sharply from 47.8 percent in 2000 to 38.7 percent in 2010 and further to 30.5 percent in 2020, with a pronounced trough observed in 2015. In contrast, the G20 TiVA regional aggregate remained substantially higher, fluctuating within a relatively narrow range of roughly 75 to 82 percent over the same period.

A similar contrast is observed in the motor vehicles, trailers, and semi-trailers sector. Türkiye's DVA share fell from 77.2 percent in 2000 to 63.5 percent in 2010 and further to 61.5 percent in 2020, whereas the G20 TiVA regional aggregate consistently maintained very high DVA shares, remaining above 95 percent throughout the sample.

In computer, electronic and optical products, Türkiye's DVA share declined from 74.2 percent in 2000 to 65.2 percent in 2010 and stabilized at 66.1 percent by 2020. By comparison, the G20 TiVA regional aggregate retained DVA shares above 92 percent in all years, reflecting substantially higher domestic value retention in high-technology exports. A closely related pattern is evident in electrical equipment, where Türkiye's DVA share decreased from 70.7 percent in 2000 to 65.3 percent in 2010 and remained near that level in 2020, while the G20 TiVA regional aggregate maintained DVA shares above 93 percent throughout.

In basic metals, Türkiye's DVA share declined from 73.2 percent in 2000 to 70.0 percent in 2010 and further to 67.5 percent in 2020, whereas the G20 TiVA regional aggregate remained high and stable, ranging between approximately 91 and 94 percent. Similarly, in chemicals and chemical products, Türkiye's DVA share fell markedly from 81.5 percent

in 2000 to 68.6 percent in 2010 and 66.4 percent in 2020, while the G20 TiVA regional aggregate maintained consistently high DVA shares, declining only modestly before increasing toward the end of the period.

Taken together, Figure 8 shows a persistent and sizeable gap in DVA content between Türkiye and the G20 TiVA regional aggregate across all six manufacturing sectors. While Türkiye's DVA shares declined notably—particularly during the first decade of the period—the G20 TiVA regional aggregate preserved high and stable domestic value retention.

Taken together, the evidence from Figures 3 through 8 reveals a clear and internally consistent pattern in Türkiye's export structure over the 2000–2020 period. Across all six manufacturing sectors examined, FVA shares increased over the period, while DVA shares declined in parallel. This inverse movement is particularly pronounced in petroleum refining, automotive production, electronics, and chemicals, where Türkiye's exports exhibit rising dependence on imported inputs alongside weakening domestic value capture. In contrast, both OECD and G20 TiVA regional aggregates exhibited substantially higher and more stable DVA shares throughout the period, especially in technologically intensive and capital-intensive industries.

The joint evolution of FVA and DVA indicators shows that the evidence characterizes Türkiye's engagement in GVCs over the period as being shaped primarily by deeper integration into cross-border production processes rather than by a strengthening of DVA generation. While export activity expanded and integration into internationally fragmented production networks increased, the domestic contribution to gross exports did not rise proportionately. This pattern is particularly evident in the automotive, electrical equipment, and electronics sectors, where Türkiye's position within GVCs is associated with limited domestic value retention relative to OECD and G20 benchmarks.

## **6. Conclusion, Discussion and Policy Implications**

This study examined Türkiye's participation in global value chains by analyzing foreign and domestic value-added shares embodied in gross exports over the period 2000–2020, using OECD Trade in Value-Added indicators derived from inter-country input–output tables. The analysis identified manufacturing sectors with the highest average reliance on foreign inputs, assessed their corresponding domestic value-added shares, and benchmarked Türkiye's performance against OECD and G20 TiVA regional aggregates.

The results show that the highest FVA shares are observed in coke and refined petroleum products; motor vehicles, trailers, and semi-trailers; electrical equipment; computer, electronic, and optical products; basic metals; and chemicals and chemical products. Across all sectors, Türkiye records persistently higher FVA shares and lower domestic value-added shares than the OECD and G20 aggregates, indicating a strong and sustained reliance on imported intermediate inputs in export-oriented manufacturing.

Taken together, the findings suggest that although Türkiye's integration into GVCs has supported export expansion, it has not been accompanied by a proportional increase in domestic value creation. Rising FVA shares alongside declining domestic value-added shares imply an export structure in which an increasing share of value embodied in exports originates abroad. This pattern is particularly pronounced in automotive, electronics, chemicals, and petroleum-related industries.

From an interpretative perspective, these developments are consistent with a mode of GVC participation where export growth is driven mainly by downstream production stages. These include assembly, processing, and final manufacturing, which rely heavily on imported intermediate and capital goods. In this context, increasing integration into fragmented global production networks can raise foreign value-added content. This is especially likely when domestic upstream and input-supplying sectors expand at different paces. As a result, higher export volumes may coexist with limited domestic value retention, especially in technologically intensive, import-dependent industries.

The documented patterns are also consistent with structural differences between Türkiye and the OECD and G20 benchmarks. OECD and G20 TiVA regional aggregates reflect production systems with deeper domestic supplier networks and stronger upstream industries. These systems have a greater capacity to generate intermediate inputs domestically, contributing to higher and more stable domestic value-added shares in exports. In contrast, Türkiye's comparatively lower domestic value retention reflects a production structure in which domestic input provision and higher-value-added activities have not expanded in proportion to export growth. This means that Türkiye retains a smaller share of the value generated from its exports within its domestic economy, as a higher proportion of intermediate inputs and value-added processes are sourced from abroad.

The analysis describes findings without identifying causal mechanisms. Still, the findings show the importance of generating domestic value-added in export-led manufacturing. From a policy perspective, the results support strategies that boost domestic production capabilities and keep value in sectors reliant on foreign inputs. Supporting firm-level capability development and technological upgrading can raise domestic value-added shares. Integrating domestic suppliers into GVCs also sustains the benefits of international production networks.

Peer-Review	Double anonymized – Three External
Ethical Statement	* It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
Plagiarism Checks	Yes – Ithenticate
Conflicts of Interest	The author(s) has no conflict of interest to declare.
Complaints	itobiad@itobiad.com
Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Değerlendirme	Üç Dış Hakem / Çift Taraflı Körleme
Etik Beyan	* Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.
Benzerlik Taraması	Yapıldı – Ithenticate
Etik Bildirim	itobiad@itobiad.com
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır

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## Appendix A.

**Table 1: Sectoral Classification Used in the TiVA 2023 Dataset**

Code	Economic activities (EN)	ISIC Rev.4 / CITI Rév.4
A01_02	Agriculture, hunting, forestry	01, 02
A03	Fishing and aquaculture	03
B05_06	Mining and quarrying, energy producing products	05, 06
B07_08	Mining and quarrying, non-energy producing products	07, 08
B09	Mining support service activities	09
C10T12	Food products, beverages and tobacco	10–12
C13T15	Textiles, textile products, leather and footwear	13–15
C16	Wood and products of wood and cork	16
C17_18	Paper products and printing	17, 18
C19	Coke and refined petroleum products	19
C20	Chemical and chemical products	20
C21	Pharmaceuticals, medicinal chemical and botanical products	21
C22	Rubber and plastics products	22
C23	Other non-metallic mineral products	23
C24	Basic metals	24
C25	Fabricated metal products	25
C26	Computer, electronic and optical equipment	26
C27	Electrical equipment	27
C28	Machinery and equipment, n.e.c.	28
C29	Motor vehicles, trailers and semi-trailers	29
C30	Other transport equipment	30
C31T33	Manufacturing n.e.c.; repair and installation of machinery and equipment	31–33
D	Electricity, gas, steam and air conditioning supply	35
E	Water supply; sewerage, waste management and remediation activities	36–39
F	Construction	41–43
G	Wholesale and retail trade; repair of motor vehicles	45–47
H49	Land transport and transport via pipelines	49
H50	Water transport	50
H51	Air transport	51
H52	Warehousing and support activities for transportation	52
H53	Postal and courier activities	53
I	Accommodation and food service activities	55, 56

J58T60	Publishing, audiovisual and broadcasting activities	58–60
J61	Telecommunications	61
J62_63	IT and other information services	62, 63
K	Financial and insurance activities	64–66
L	Real estate activities	68
M	Professional, scientific and technical activities	69–75
N	Administrative and support services	77–82
O	Public administration and defence; compulsory social security	84
P	Education	85
Q	Human health and social work activities	86–88
R	Arts, entertainment and recreation	90–93
S	Other service activities	94–96
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	97, 98

**Source:** OECD, 2023a, OECD, 2023b. Trade in Value Added (TiVA) 2023 edition: Principal Indicators, levels [cloud replica]