

# The Impact of Structural Transformation on Global Value Chains in the MENA Countries

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## ARTICLE INFO

*Original Scientific Article*

*Article history:*

Received April 2024

Revised June 2024

Accepted June 2024

*JEL Classification*

F02, F14, L16, O14

*Keywords:*

Global Value Chains

GMM

MENA countries

Structural transformation

UDK: 339.5(5-15)(6-17)

DOI: 10.2478/ngoe-2024-0007

*Cite this article as:* Frikha, N. & Gabsi, F. B. (2024). The impact of Structural transformation on Global Value Chains in the MENA countries. *Naše gospodarstvo/Our Economy*, 70(2), 1-11. DOI: 10.2478/ngoe-2024-0007.

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## Abstract

Several studies on economic transition propose that structural change in developing countries, that involves reallocating from less productive to more productive sectors, might enhance participation in global value chains (GVCs). However, there is a lack of empirical work on this claim. This study explores the factors affecting global value chain (GVC) participation in the Middle East and North Africa (MENA) region while considering structural transformation from 2000 to 2018. By applying the system GMM empirical research method, we found that structural change significantly contributes to facilitating the position of MENA economies under consideration. Specifically, the service and industry sectors play pivotal roles in these countries. This study also postulates that if we want to strengthen the participation of companies in GVCs, access to the internet, and a high level of education tertiary are necessary. Also, environment and policies conducive to investment and direct investment abroad are important. The study posits positive commercial and financial links, and population size as important factors in promoting this position.

## Introduction

The shift in the sectoral composition of economies towards industries and services draws all countries throughout the development process. This fact is well-known and widely studied in the literature on the importance of structural change (Herrendorf et al., 2014).

Structural transformation refers to an economy's shift from low productivity and labour-intensive to high productivity and skill-intensive activity. Structural transformation is driven by productivity changes in the modern manufacturing and service sectors (UN-Habitat, 2015). The workforce transitions from labour-intensive to skill-intensive activities. Labour mobility is impacted by opportunities in

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skill-intensive sectors. However, sufficient training is necessary for workers to transition to a new industry.

The analysis of structural transformations is now a crucial topic in development economics and is the foundation of primary work. It has received much attention among economists and inspired much of the theoretical comprehension of structural problems since classical economics specialists such as Lewis (1954), Myrdal (1957), Hirschmann (1958), Rostow (1959), Kuznets (1966), Kaldor (1967), Chenery & Taylor (1968) to more contemporary approaches predicated in the neoclassical tradition; such as Herrendorf et al (2014), McMillan, Rodrik & Verduzco-Gallo (2014), Diao, McMillan & Rodrik (2017). Economic development is developed as a process of economic modernization. It is based on the reallocation of production factors from the traditional agricultural sector which has low productivity and decreasing returns, to a sector with high productivity and increasing returns. This reallocation is done by the transfer of resources from agriculture to industry and services (World Bank, 2020).

Several economists, such as Hausman et al. (2007), Serigne & Fousséni (2019) and Busse et al. (2019) examined the link between structural transformation and economic development. Some have focused on sector diversification, measured by value added or employment, while others have studied exports as an indicator of structural change, emphasizing the importance of export sophistication in economic development. Theories of structural change advocate the diversification of productive activities, while theories of international trade support the specialization and sophistication of products in which the country has comparative advantages, even in primary activities. Then, the key indicators have included sector shares in total employment and total value added, export diversification, and export sophistication. Deudibe et al. (2020) suggest that structural transformation leads to economic development and welfare improvement.

Structural transformation is indeed crucial for economies, especially in regions like MENA. It offers various benefits, including economic diversification which makes countries less vulnerable to external shocks. In addition, it promotes job creation, reduces inequalities, and strengthens competitiveness on the global stage. In MENA, where the demand for diversifying economies and creating new opportunities is pressing, structural transformation is essential for sustainable and inclusive growth (Busse et al., 2024). So, this process has entered a phase of progress and

strength over the last two decades in most MENA countries. Literature shows that structural changes have a profound impact on GVCs. These transformations, such as sectoral developments or technological advances, are redefining how countries and companies participate in GVCs (Ayadi, 2024). Additionally, technological changes, such as automation and digitalization, are changing global value chains' production and management processes. In response to these changes, government policies often aim to strengthen the competitiveness of countries and companies, thereby influencing their participation and positioning in GVCs (Fernandes et al., 2021).

MENA region has been heavily incorporated into the globalization process over the past few decades. Some countries in this region have emerged as competitors on a global scale. With globalization, these countries tend to cross national borders on an ever-increasing scale and are known as GVCs. Integration into global value chains (GVCs) offers various benefits to the MENA region. First, it can boost exports, which have stagnated in recent years (Jaud & Freund, 2015). Second, SMEs' access to GVCs could promote their growth and improve their productive structure (Mancini et al., 2024). Additionally, the MENA region has attractive assets for foreign investors, such as competitive labour costs and preferential trade agreements (Abushady & Zaki, 2021). Finally, participation in GVCs could boost employment and help resolve the region's structural challenges (Ayadi, 2024).

Additionally, despite the benefits of GVCs, the strategic geographical position of MENA in the Mediterranean, and cost advantages relative to the Northern shore, the MENA region has struggled to integrate into GVCs (World Bank, 2020) fully.

Our contribution unfolds in three distinct parts, each bringing a new perspective to the existing literature and offering precise answers to the research questions.

First, we enrich the empirical literature on the determinants of participation in global value chains (GVCs) by providing new evidence for selected MENA countries. By examining the specific factors that influence integration in GVCs in this region, we contribute to filling existing research gaps and better understanding the underlying dynamics that shape MENA countries' economic participation globally.

Second, we take an innovative approach using Eora and TiVA input-output tables to construct and analyze the

intermediary trade network of MENA countries. This approach offers a unique perspective on both intra-regional and extra-regional trade links. By examining these trade flows in detail, we shed light on the economic interactions between MENA countries and the rest of the world, highlighting previously unexplored dynamics.

Finally, our most significant contribution lies in demonstrating the impact of structural change on improving the position of MENA countries in GVCs. By highlighting the mechanisms by which structural developments in these economies influence their integration into GVCs, we offer valuable insights for policymakers and researchers interested in the economic regional, and global integration of MENA countries.

In summary, our research is structured around these three axes which complement each other to offer an in-depth and comprehensive analysis of MENA countries' participation in GVCs, highlighting new perspectives and significant results for literature and practice.

The rest of the article is organized as follows. Section 2 reviews the literature on the relationship between GVCs and structural transformation, highlighting other factors that influence the position of Mena countries in GVCs. Section 3 presents the data and describes the measures and methods used in the paper. Section 4 presents the econometric approach and the results. Section 5 presents the conclusion and discusses the policy implications of our study.

## Theoretical Background and Literature Review

The scarcity of econometrics and empirical studies on integrating GVCs is linked to the lack of exchange of input-output databases in countries. This problem was solved by the creation of databases which were built by the OECD, UNCTAD, and the WTO. Several studies have recently examined the determinants of GVCs. Some studies analyze the fundamentals of GVCs to estimate the impact of structural transformation.

### Structural Transformation and GVCs

The impact of structural transformation in the position of MENA countries in GVCs is a critical topic because, as noted above, countries are increasingly competitive, and governments are considering improving their stakes in GVCs to promote economic growth and development. However, it has received little attention and needs to be demonstrated.

A limited number of empirical studies have studied how the industrial sector affects the country's position in the global value chain. According to Tinta (2017), theory shows that robust manufacturing sectors are positively correlated with countries' participation in global value chains (GVCs). Creating manufacturing complexes and industrial networks represents an opportunity for countries to further integrate into GVCs. Additionally, higher industrialization allows countries to improve their integration within these value chains. The study by Sharma & Arora (2023) proved the positive role of technological progress, domestic capital, and industrial capacity in promoting the level of participation in GVCs.

The industrial sector represents an opportunity for India to become a new GVC hub in the Asia-Pacific region.

Several works have highlighted the role of the service sector in GVC's participation. Promoting GVC participation and transforming it into more advantageous forms through process or product upgrading is crucial for efficient services (OECD, 2013).

Gölgeci et al. (2021) establish the link between service and GVCs, fastening the phenomenon of service GVCs. They thus argue that service promotes participation in GVCs. Kersan-Skabic (2019) uses dynamic panel data methodology (GMM) and indicates that the share of services in GDP and the share of high-tech products in exports are important drivers of GVC participation.

The study by Lee (2018) investigates how liberalizing services can encourage involvement in international value chains. It looks at how services trade agreements affect global value chain commerce (backward and forward participation in products) and gross trade. It does this by using the gravity framework. The study concludes that although the consequences of services trade agreements are varied, they primarily support global value chain commerce, especially for exporters from developing nations. Furthermore, agreements for services that permit the export of goods without a physical presence in a country are crucial for encouraging involvement in international value chains.

### Other determinants of GVCs

Cheng et al (2015) chose the dependent variable as the logarithm of the share of domestic value added (DVA). They showed that countries with greater economic complexity can capture a greater share of the value added from GVCs than those with lower economic complexity. Also, they showed that countries with higher

tariffs on intermediate goods cannot increase their participation in GVCs.

Lopez-Gonzalez et al. (2015) carried out several estimations to analyze the determinants of participation in GVCs in a sample of 152 countries. They find that the larger the market size, the greater a country's upstream commitment, and the higher the per capita income, the greater the downstream commitment. They thus show that the protection of intellectual property, the quality of infrastructure, institutional quality, FDI, and regional trade agreements have a strong impact on integration in GVCs.

The IMF (2016) study is based on an unbalanced panel of 185 countries and the period between 2007 and 2011. With the least squares (OLS) method, this study shows deeper integration in GVCs. Participation in GVCs is measured by the share of value added in total exports. This participation is associated with better indicators of human capital and availability, while higher tariff levels and difficult business environments hamper it.

Tinta's (2017) study shows that an increase in FDI and positive changes in intra-community trade are positively related to increasing backward participation. However, the level of development negatively affects insertion into GVCs. It also shows that changes in industrialization (manufacturing value added) and domestic value added per capita are associated with negative changes in the degree of backward integration, suggesting that there is a substitution between domestic value added and foreign value added.

Fernandes et al. (2020) measured participation by gross exports. The results suggest that factor endowments, geographic distance, political stability, trade policy, FDI, and domestic industrial capacity are all very important in explaining GVC participation.

The structural transformation of economies, characterized by a transition from agriculture to industry and services, is crucial for their integration into global value chains (GVCs). The literature review highlights that this development favours specialization in sectors with high added value, thus strengthening competitiveness in the market. At the same time, GVCs provide opportunities for technological learning and access to new markets for developing countries. The empirical analysis highlights the concrete impact of structural transformation on the participation of MENA countries in GVCs. It reveals the upscaling of certain industrial sectors results in ameliorating integration in GVCs. In

addition, it shows how policies to promote innovation and economic diversification support this dynamic.

By linking these elements, we better understand how structural transformation shapes the position of MENA countries in GVCs. This explicit connection between the literature review and empirical analysis highlights the importance of this transformation as a driver of regional and global economic integration for the MENA region.

## Data and Empirical Methodology

### Data sources

We use panel data regression with 16 MENA countries for the period 2000-2018. The dataset comes from different sources. The variable of interest explained in this study is the position index of countries in GVCs, calculated based on new databases provided by the OECD and UNCTAD. However, the data is not available for a uniform duration for each country. Therefore, the number of observations is expected to vary across countries, leading to unbalanced panel data estimates.

### Indicators of GVC participation

There is no precise measure to identify the positioning of economies in GVCs. The indicator proposed in recent literature is the GVC participation index based on new value-added trade measures. This indicator is calculated based on new databases provided by the OECD and UNCTAD.

The OECD (2024) developed the TIVA database, which provides data on the value added of gross exports, distinguishing backward and forward integration. UNCTAD-Eora (2024) database integrates more developing African countries and covering 187 countries from 1970 to 2011 with information on 25 to 500 industries depending on the country.

The main conclusion of the UNCTAD-Eora database is a set of principal GVC participation indicators that consider exports in foreign value added (backward integration) and exports in national value-added integrated into the production of other countries (forward integration).

A country's position in the GVC, influenced by its specialization, can fluctuate and affect the gains it derives from its participation, particularly with high-value-added activities such as research and development. The value-added content of gross exports is broken down into several categories: direct local value

added (DVA), which is the direct contribution of an industry to production intended for export; indirect local value added (DVX), representing the indirect contribution of national suppliers; re-imported local value added (RVA), which is the domestic value-added re-imported goods from another country; and finally, foreign value added (FVA), which is the foreign value added embedded in gross exports.

Our key variable (IPC) is then defined as the position index in GVCs by Koopman et al. (2010) who reveal whether a country specializes in the early stages of the production chain or at the end. Thus, this index is calculated by the ratio of the use of intermediate goods supplied by a country in the exports of other countries and the use by the country of imported intermediate goods in its local production.

Data on structural transformation

For structural transformation variables, we use a set of indicators taken from the World Development Indicators (WDI) database of the World Bank (2024). Six indicators were selected: (1) the value added by agriculture as a %

of GDP (VAJ-AGR), (2) the value added by industry as a % of GDP (VAJ-IND), (3) the value added by services as a % of GDP (VAJ-SER), (4) employment in agriculture as a % of total employment (EMP-AGR), (5) employment in industry as a % of total employment (EMP -IND), (6) employment in services as % of total jobs (EMP-SER).

Other data

To assess the strength of the independent link between structural transformation and GVC participation, we control for other potential GVC determinants in our regression.

More precisely, we consider the most used variables in empirical theory taken from the World Development Indicators (WDI) database of the World Bank defined as follows: foreign direct investment (FDI), gross fixed capital formation (GFCF), tertiary enrollment rate (EDU-TERT), users of the Internet as a % of the population (Int), the population growth rate which informs us about the fertility rate in the countries (POP).

We present the main descriptive statistics of the retained variables in Table 1.

**Table 1**  
*Descriptive statistics*

Variables	Number of observations	Mean	Standard deviation	Minimum	Maximum
IPC	304	3.783	3.795	0.547	18.912
EDU-TER	275	0.102	0.098	0.785	1.195
EMP-AGR	304	0.198	0.181	0.011	0.621
EMP-IND	304	0.258	0.100	0.090	0.596
EMP-SER	304	0.544	0.544	0.277	0.824
GFCF	301	0.277	0.087	0.125	0.579
FDI	303	0.037	0.062	-0.009	0.551
INT	302	0.347	0.287	0.002	0.997
POP	304	0.028	0.030	-0.009	0.175
VAJ-AGR	297	0.070	0.059	0.001	0.249
VAJ-IND	276	0.409	0.148	0.169	0.748
VAJ-SER	304	0.453	0.133	0.277	0.824

Source: Authors' work

**Methodology**

The principle of the empirical study is based on the following equation, and we estimate them with a two-step GMM-system estimator:

$$IPC_{it} = \beta_0 + \beta_1 IPC_{it-1} + \beta_2 X_{it} + \beta_3 ST_{it} + V_t + U_i + \varepsilon_{it} \quad (1)$$

Where  $IPC_{i,t}$  is the GVC Position Index for country  $i$  in period  $t$ ,  $IPC_{i,t-1}$  is the lagged value of  $IPC_{i,t-1}$ ,  $X_{it}$  is the

vector of baseline controls variables,  $ST_{it}$  represents the variables related to structural transformation;  $U_i$  represents the specific country effect,  $V_t$  represents the specific temporal effect, and  $\varepsilon_{it}$  is the error term.

**Results and discussion**

We now turn to the empirical results after introducing the variables and the model specifications. To begin

with, we present the benchmark results for estimations in Table 2.

The regression coefficient estimates are generally consistent with previous theoretical and empirical analyses. However, in all our model specifications, the Hansen test cannot reject the null hypothesis that our instruments are valid. The coefficient associated with the lagged current account (L.IPC) has a positive coefficient and statistically significant impact on the position of the MENA region in GVCs.

Our empirical analysis indicated that the industrial sector (VAJ-IND) and (EMP-IND) positively affect the insertion in GVCs. Although the theory establishes a positive relationship between the industrial sector and GVC integration, our results are justified. The industrial sector appears to play a distinct role in GVC commerce because of its unique potential to cultivate domestic suppliers and enable countries such as China to advance value chains (by growing national added value). This result is consistent with the results of Fernandes et al (2020).

**Table 2**

*The relationship between the position index in GVCs and structural transformation*

Variables	(1)	(2)	(3)	(4)	(5)	(6)
L.IPC	0.990*** (0.016)	1.034*** (0.017)	1.002*** (0.008)	0.979*** (0.016)	0.985*** (0.020)	0.979*** (0.039)
FDI	0.014*** (0.005)	0.087*** (0.019)	0.034*** (0.006)	0.006*** (0.002)	0.007** (0.004)	0.021** (0.010)
GFCF	0.503*** (0.163)	0.515** (0.602)	-0.447** (0.195)	0.325 (0.393)	-0.208 (0.559)	-0.023 (1.143)
EDU-TERT	0.001 (0.051)	-0.269 (0.259)	0.147 (0.281)	0.294 (0.229)	-0.227 (0.251)	0.983** (0.396)
INT	0.232*** (0.038)	0.769*** (0.207)	0.248*** (0.091)	0.205* (0.108)	0.363** (0.143)	0.607*** (0.223)
POP	-0.304 (0.568)	0.115** (0.066)	0.399 (1.057)	0.913* (1.529)	0.809*** (0.535)	0.268*** (2.057)
VAJ-IND	0.595** (0.273)					
VAJ-AGR		0.711*** (0.229)				
VAJ-SER			0.462** (0.247)			
EMP-IND				1.203** (0.498)		
EMP-AGR					-0.819*** (0.535)	
EMP-SER						-0.591*** (1.479)
Constant	-0.176 (0.136)	-0.489** (0.217)	-0.486** (0.201)	-0.111 (0.209)	-0.325 (0.325)	3.313*** (0.998)
Observations	234	253	258	258	258	258
Number of countries	16	16	16	16	16	16
AR2 (p-value)	0.284	0.339	0.277	0.218	0.231	0.215
Hansen (p-value)	0.812	0.430	0.726	0.332	0.477	0.506
F-stat (p-value)	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Hansen's over-identification test and the AR(2) test confirm the validity of delayed variables as instruments. Standard errors in parentheses. \*\*\* stands for  $p < 0.01$ , \*\* for  $p < 0.05$ , and \* for  $p < 0.1$

Source: Authors' calculation

The coefficient value added in industry (VAJ-IND) is 0.595. This means that increased industrial value added is associated with improved integration into GVCs. A high value-added indicates robust regional industrial development that can deserve international standards, thus growing the attractiveness for integration into GVCs.

Strong industrial development that satisfies international standards boosts integration into GVCs. The industrial employment coefficient (EMP-IND) is 1.203. This means that increased industry employment is linked with increased GVC integration. A high coefficient for industrial jobs suggests that the increase in the labour

force in this sector is strongly linked to better integration into GVCs. This may be due to a skilled and abundant workforce that draws international companies to integrate these workers into their value chain. An

industrial sector with high employment can soak up economic shocks and fluctuations in global demand, ensuring stability and reliability which are crucial factors for GVCs in MENA countries.

The estimation results identify those structural changes in the services sector due to positive variable coefficients (VAJ-SER) and (EMP-SER) are enough to increase the position of MENA countries in GVCs. The service sector promotes the establishment of new ecosystems and joint structures in GVCs, decreases the fragmentation of the overall network structure, and enhances integration within GVCs. Our results are consistent with Gölgeci et al. (2021) and Du & Agbola (2024) conclusions.

The value-added coefficient in services (VAJ-SER) is 0.462. This means that an increase in value added in the services sector is associated with an increase in the integration of MENA countries into GVCs. A high VAI indicates that local services are innovative and competitive, meeting international standards. This attracts GVC partners, promoting deeper integration. High-added value services contribute to the creation of new economic ecosystems, promoting international collaborations. By developing complex and interconnected services, MENA countries can reduce the fragmentation of GVC networks and improve their integration.

The coefficient of employment in services (EMP-SER) is -0.591. If increased employment is not accompanied by improved skills and productivity, this may undermine the ability of MENA countries to integrate effectively into GVCs. To improve their position in GVCs, MENA countries need to focus on improving the skills and productivity of employees in services, rather than simply increasing employment. Large numbers of employees in services without a corresponding increase in productivity or quality can harm the competitiveness of services, thereby reducing their attractiveness to GVCs. The quality of employment in services is as important as the quantity. To improve their position in GVCs, MENA countries need to focus on improving the skills and productivity of employees in services, rather than simply increasing employment.

Agriculture is regarded as a strategic sector, yet its impact on macroeconomic indicators lessens as countries' socioeconomic development progresses.

The coefficient of value added in agriculture (VAJ-AGR) is 0.711. An increase in agricultural value added indicates the adoption of more efficient technologies and practices. The coefficient of employment in agriculture (EMP-AGR) is -0.819. This means that a 1% increase in agricultural employment is associated with a 0.819% decrease in the integration of MENA countries into GVCs. High employment in agriculture is often associated with a labour force and low productivity. Agricultural employment does not contribute positively to the competitiveness necessary for integration into GVCs which require skilled labor and high-value-added jobs. The apparent contradiction between the negative effect of agricultural employment and the positive effect of agricultural value added can be explained by the distinction between quantity and quality. High employment in agriculture without productivity gains reflects an inefficient use of human resources and a reliance on traditional methods. An increase in agricultural value addition indicates qualitative improvements such as the adoption of advanced technologies, improved skills, and innovation.

Our panel regression results show that the role of FDI is found to be positive. our result is in line with Fernandes et al. (2020) result which found that FDI is positively associated with retrospective participation of these African countries in GVCs, both at the level of company analysis and the national level. This consistency persists when FDI is measured in values and when it is represented by foreign ownership of firms in the WBES data. By attracting FDI, countries can overcome the relative scarcity of capital, technology, and knowledge, and integration into the (GVC) can be achieved. The relatively low coefficient of Foreign Direct Investment (FDI) for MENA countries, with a value of 0.087, suggests that despite a positive association, the impact of FDI on integration into Global Value Chains (GVCs) for this region might be limited. Here is a detailed analysis of this coefficient: A low coefficient may indicate that MENA countries still have untapped potential to attract more FDI. This may be due to factors such as less attractive investment policies, political instability, or structural constraints in the economy.

For tertiary education (EDU-TERT), the coefficient on this

indicator is positive and statistically significant. Governments are obliged to consider the level of education in their country, especially when they want to develop their position in GVCs. The implementation of international agreements requires the strengthening of flexibility and education of the workforce (Cattaneo et al. 2013). The positive and significant coefficient of 0.983 tertiary education indicates a strong correlation with integration into global value chains (GVCs). A well-educated, flexible, and innovative workforce is crucial for businesses and attracts foreign investment. Therefore, MENA countries prioritize tertiary education in their economic development strategies to improve competitiveness and attract investments.

The quality of infrastructure (INT) has a favourable impact on internet usage, indicating that communication infrastructure is crucial for both forward and backward GVC. Improved infrastructure in MENA nations may lead to increased participation in local value-added exports to direct and indirect trade partners. The findings agree with (Soliman & Elobolok, 2022; De Melo & Twim, 2020; Mouanda-Mouanda & Gong, 2019). The coefficient of 0.607 for Internet infrastructure indicates the importance of this factor in a country's integration into global value chains. For this reason, governments in the MENA area need to enhance communications infrastructure to boost their share of local value-added exports and fortify their standing in GVCs.

The findings investigate the role of investment effort (GFCF) in helping MENA countries participate in GVC. Speakman and Koivisto (2013) argue that the state must initiate simultaneous and coordinated investments in many sectors to support self-sustaining industrialization in a country and to improve its position in international trade. The coefficient of 0.503 for investment (GFCF) highlights the importance of this aspect in the participation of MENA countries in global value chains. Governments in the region must therefore prioritize policies aimed at stimulating productive investment in key sectors of the economy to strengthen the competitiveness and international integration of their industries.

Empirical results reveal that population (POP) has a positive and statistically significant effect on the comprehensive indicators of a MENA's GVC position. Larger nations have greater industrial capability, which lowers the GVC and increases the GVC participation by reducing the utilization of imported inputs relative to locally sourced inputs. The result is consistent with Wu et al (2024). The coefficient of 0.809 for population

suggests that it has a significant effect on the position of MENA countries in the GVCs. Governments can use these findings to design policies to strengthen industrial capacity, promote local production, and boost domestic demand, thereby contributing to better integration into global value chains.

## Conclusion

In this article, we study the determinants of countries' participation in GVCs. In particular, the study provides empirical evidence on factors affecting MENA countries' participation in GVCs. The study attempted to answer the impact of structural transformation on MENA countries' participation in GVCs.

From previous literature to our knowledge, few studies focus on the position of MENA countries in GVCs, and almost no study on the impact of structural transformation. So, our article, therefore, contributes to the literature by identifying the main GVCs determinants of MENA countries and the effect of structural change on our students' objectives over the period 2000-2018 using the GMM system method.

We contribute to the literature by showing that positive changes in services and industry (value added and employment) increase the insertion of the MENA region into GVCs. The model also proves the positive impact of the process of structural transformation of boosting the position of the Mena region on GVC. Specifically, industry and the service sectors play important roles. The results also highlight the importance of investing in the industrial sector to increase local value added and employment. For better integration in the CVM, MENA countries must develop specific strategies that can force local capacitance in the production industry and increase employment in this sector. Public policies concentrate on the most advanced technologies, professional training, and industry innovation. Also, MENA countries should encourage investments in high-value-added services, such as information technology, finance, and professional services, to improve the competitiveness and attractiveness of local services to international GVC partners. A focus on continuing education and skills development in the service sector is crucial. This ensures that increased employment translates into increased productivity and quality, thereby increasing the attractiveness of local services to GVCs. MENA countries need to foster service innovation and the integration of local service ecosystems with global GVCs to reduce the fragmentation of GVC networks and improve local service integration.

However, agriculture may not be a less effective means of boosting competitiveness in these nations. MENA countries must encourage the adoption of new agricultural technologies and practices to increase value-added and reduce dependence on a large but unproductive workforce. Train agricultural workers so that they can adopt and use new technologies effectively, thereby increasing productivity. MENA countries must also promote the transition of workers from agriculture to higher value-added sectors such as industry and services, to improve integration into GVCs.

The main finding proves that the model is significant and correlates with the theoretical model. FDI, GFCF, tertiary education, Infrastructure, and Market size are important determinants of GVCs. Given these results, our research highlights the following policy implications.

Firstly, MENA countries need to focus on attracting foreign direct investment (FDI) by putting in place attractive tax and regulatory incentives. They should also direct FDI towards manufacturing industries to promote participation in global value chains (GVCs). This will strengthen the competitiveness of their economies and further integrate their industries into the global economy. Secondly, MENA countries need to focus on human capital development and innovation. They must invest in training programs to develop workforce skills and encourage innovation through research and development (R&D) incentives. Also, these countries need to focus on human capital development and innovation. They must invest in training programs to develop workforce skills and encourage innovation through research and development (R&D) incentives. Thirdly, MENA countries need to improve their infrastructure to support their economic growth. This involves modernizing and expanding transport networks,

ensuring reliable and sustainable energy supplies, and developing robust digital infrastructure. These measures are essential to facilitate trade and foster innovation and integration into the global economy. Finally, MENA countries need to increase the value-added of their service and industrial sectors in GDP. This can be achieved through targeted investments in technology, infrastructure, and innovation, as well as by implementing policies that support entrepreneurship, promote trade, and enhance the competitiveness of these sectors on a global scale.

This study is subject to certain limitations. Due to limited data availability, our analysis cannot incorporate innovation. We must therefore for this sample (MENA countries) determine the factors that improve their position upstream and downstream in the GVCs.

Future research could further explore the impact of institutional quality by examining governance, transparency, and political stability influencing MENA countries' participation in GVCs. A detailed exploration of specific industries helps identify sectors where MENA countries have a comparative advantage. The use of advanced modelling techniques, such as dynamic econometric models and machine learning approaches, would provide more robust results. Furthermore, analyzing the effects of trade policies and free trade agreements, as well as the impact of technological innovation and training policies, would be essential to understanding economic dynamics. Finally, regional comparative studies would help identify specific success factors and obstacles, thus providing strategic recommendations for better integration into GVCs. Despite its limitations, this study adds value to the literature by presenting findings on the determinants of structural transformation.

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## Vpliv strukturne preobrazbe na globalne vrednostne verige v državah MENA

### Izvleček

Številne raziskave o gospodarskem prehodu ugotavljajo, da lahko strukturne spremembe v državah v razvoju, ki vključujejo prerazporeditev iz manj produktivnih v bolj produktivne sektorje, povečajo udeležbo v globalnih vrednostnih verigah (GVV). Vendar pa empiričnega dela v zvezi s to trditvijo primanjkuje. Ta študija raziskuje dejavnike, ki vplivajo na udeležbo v globalnih vrednostnih verigah (GVV) v regiji Bližnjega vzhoda in Severne Afrike (MENA), pri čemer upošteva strukturne spremembe v obdobju 2000–2018. Z uporabo empirične raziskovalne metode sistemskih GMM (angl. system generalized method of moments) smo ugotovili, da strukturne spremembe pomembno prispevajo k izboljšanju položaja obravnavanih gospodarstev MENA. Storitveni in industrijski sektor imata ključno vlogo v teh državah. Ta študija predlaga, da če želimo okrepiti udeležbo podjetij v GVV, sta ključnega pomena dostop do interneta ter visoka raven terciarnega izobraževanja. Okolje in politike, ki spodbujajo domače naložbe in naložbe v tujini, so prav tako pomembni. Študija navaja pozitivne trgovinske in finančne povezave ter število prebivalcev kot pomemben dejavnik pri spodbujanju tega položaja.

**Ključne besede:** Globalne vrednostne verige, GMM, MENA gospodarstva, strukturna transformacija