

A Service of

ZBW

Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

Ezzat, Asmaa; Zaki, Chahir

# Working Paper An empirical assessment of the nexus between competition policy and Global Value Chains

Sustainable Global Supply Chains Discussion Papers, No. 6

**Provided in Cooperation with:** Research Network Sustainable Global Supply Chains

*Suggested Citation:* Ezzat, Asmaa; Zaki, Chahir (2025) : An empirical assessment of the nexus between competition policy and Global Value Chains, Sustainable Global Supply Chains Discussion Papers, No. 6, Research Network Sustainable Global Supply Chains, Bonn, https://doi.org/10.57671/sgscdp-2506

This Version is available at: https://hdl.handle.net/10419/314432

#### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

#### Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



# WWW.ECONSTOR.EU



Sustainable Global Supply Chains Discussion Papers Number 6

# An Empirical Assessment of the Nexus Between Competition Policy and Global Value Chains

Asmaa Ezzat and Chahir Zaki

Cite as: Ezzat, Asmaa and Chahir Zaki, 2025. An Empirical Assessment of the Nexus Between Competition Policy and Global Value Chains. Sustainable Global Supply Chains Discussion Papers Number 6. Research Network Sustainable Global Supply Chains, www.sustainablesupplychains.org. doi: https://doi.org/10.57671/sgscdp-2506.

This Discussion Paper Series serves to disseminate the research results of work in progress prior to publication to encourage the exchange of ideas and academic debate. Inclusion of a paper in the Series does not constitute publication and should not limit publication in any other venue. Copyright remains with the authors. The views and opinions expressed are solely those of the author or authors.

Supported by the



Federal Ministry for Economic Cooperation and Development

The "Research Network Sustainable Global Supply Chains" is supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) and hosted by four organisations:











# An Empirical Assessment of the Nexus Between Competition Policy and Global Value Chains<sup>1</sup>

Asmaa Ezzat<sup>2</sup> Chahir Zaki<sup>3</sup>

#### Abstract

Efficient institutions matter in promoting Global Value Chains (GVCs) participation since they help reduce transaction costs for firms that engage in trade. Competition policy is considered an important dimension of these institutions. This paper investigates whether competition policy matters for participation of emerging countries in GVCs, with a special focus on African countries. To do so, we use the EORA dataset on backward and forward linkages and merge it with different indicators pertaining to the *de jure (competition law)* and the *de facto* (market dominance, antimonopoly, etc.) measures of competition policy. We find that both the de jure and the de facto dimensions of competition policy matter for backward and forward GVC participation. In addition, our findings indicate that this relationship is non-linear as the market can become saturated. Two important transmissions channels can explain this effect: market diversification and trade liberalization. These results remain robust after we control for the endogeneity between GVC and competition. In the case of African countries, we find that more diversified economies benefit from competitive markets, whereas other results remain unchanged, especially for the de jure measures.

Keywords: competition policy, GVC, Africa.

JEL classification: D40, F12, F14.

<sup>&</sup>lt;sup>1</sup> This paper benefited from financial support from the German Institute of Development and Sustainability (IDOS) under the Research Network Sustainable Global Supply Chains Project. The authors are grateful to Nora Aboushady (IDOS), Amirah El-Haddad (IDOS), and Rainer Thiele (Kiel Institute for the World Economy) for their constructive comments and feedback. The authors would also like to thank the participants of the "Africa in the Global Economy: Uncertain Future in Turbulent Times" Conference organized by IDOS (Bonn, December 5<sup>th</sup>-6<sup>th</sup>, 2024) and the African Growth Dynamics Conference organized by the Observatoire Français de Conjoncture Economique (OFCE) (Paris, September 24<sup>th</sup>-26<sup>th</sup>, 2024).

<sup>&</sup>lt;sup>2</sup> Associate Professor of Economics, Faculty of Economics and Political Science, Cairo University, and EMANES. Email: <u>asmaa.ezzat@feps.edu.eg</u>

<sup>&</sup>lt;sup>3</sup> Chaired Professor of Economics, University of Orléans and Laboratoire d'Economie d'Orléans, ERF, and EMANES. Email: <u>chahir.zaki@feps.edu.eg</u>

#### 1. Introduction

One significant feature of the twenty-first century global economy is the fragmentation of the production process along global value chains (GVCs) (OECD, 2013). This upsurge of GVCs is connected with the strong expansion of international trade, particularly of parts and components, and foreign direct investment flows, principally by multinational corporations. GVC-related trade reveals two features that differentiate it from traditional trade: hyper-specialization and durable firm-to-firm relationships. Since the global financial crisis, the pace of GVC integration has slowed globally after two decades of continued growth. While the recovery was fast, participation in GVCs started to decline again in 2011. Rising global protectionism, through the taper in reduction of tariff rates, as well as the increase in the use of regulatory measures and non-tariff barriers, led to an overall surge in trade distortions, and is likely have contributed to this slower pace of GVC integration. Furthermore, protectionist tendencies have been intensified, particularly in light of the trade dispute between the United States and China and the Brexit (Cigna et al., 2022). Moreover, the COVID-19 pandemic crisis has resulted in the exacerbation of the protectionist trends, especially in the first half of 2020, to avoid the domino effects that prevail in crises (El-Haddad & Zaki, 2023). Yet, while GVCs are primarily affected by trade policy, domestic factors such as the market structure, investment climate and competition policy do matter as well. Thus, this paper tries to examine whether competition policy matters for GVCs in emerging countries.

From a theoretical perspective, our argument is based on the industrial organization theory related to the mechanisms and arrangements by which market power can be extended and exerted (Durand and Milberg, 2020; Fujita, 2011; Gereffi et al., 2005; Sturgeon, 2009). Indeed, competition can affect GVC through two main channels. First, better institutions (including competition laws and policies) help reduce transaction costs for firms that engage in trade or participate in value chains (UNIDO, 2018). Lower transaction costs affect monitoring and contract enforcement costs, which, in turn, reduce insecurity and risks, and promote exports, imports and GVC participation (Anson et al., 2020). Second, competition can lead to better management and increased efficiency within firms by promoting innovation, investment, and ultimately boosting productivity (Polder and Veldhuizen, 2012 and Petersen, 2013). These three dimensions (innovation, investment and productivity) are key determinants for GVC participation (Antràs and Chor, 2022).

Given the lack of studies examining the impact of competition on participation in GVCs, this paper covers a sample of different countries at the global level. We also dedicate part of the analysis to African countries for several reasons. First, Africa's share in GVCs is still extremely low despite their large markets, their endowments, and the abundance of labor. Second, African economies are characterized by weak institutions and lack of competition policies, compared to similar emerging and developing regions (Buthe and Kigwiru, 2020). Third, despite the existence of several regional and multilateral initiatives to boost African integration, it is still lagging behind other developing

regions. This can be primarily attributed to deficient institutions and uncompetitive markets (Alence, 2004).

Against this background, and considering the scarce theoretical and empirical literature in this regard, this study investigates the impact of competition on GVC integration (backward and forward linkages). In addition, the study tries to distinguish between the impact of de jure and the de facto competition on GVC participation. Whereas the former is measured by the existence and the age of competition policies effectiveness. Finally, our study includes a panel of different countries, with a special focus on African ones, during the period 1995 – 2018. Our empirical results show that both de jure and de facto aspects of competition policy have a significant impact on overall GVC participation as well as on backward and forward linkages. Both market diversification and trade liberalization act as transmission channels for this effect. Our findings indicate also that there is a non-linear relationship between competition and GVC participation, especially for the de facto measures. This is chiefly due to that case where the market is oversaturated. The results remain robust for African countries and after controlling for the endogeneity of competition policy.

The study is structured as follows. Section 2 presents the theoretical and empirical literature on the relationship between competition and GVC participation. The third section presents the data we use, in addition to some stylized facts on integration in GVCs and the status of competition policy. The fourth section is dedicated to the empirical strategy. The fifth section discusses the results. Finally, Section 6 concludes.

# 2. Literature Review

The literature on the competition-GVC nexus can be divided into three main strands. The first strand examines the role of institutions (including competition policy) in promoting trade and GVC participation. The second strand summarizes how de jure and de facto competition policies could impact GVC participation through the channels of innovation and productivity. Finally, the third strand tackles the impact of GVC participation on competition.

# 2.1.Institutions, trade volumes, and GVC participation

The first strand of the literature highlights the role of institutions in promoting trade and participation in GVCs. First, efficient institutions help reduce transaction costs for firms that engage in trade (and thus participate in value chains), including monitoring and contract enforcement costs (Karam and Zaki, 2019). Second, better institutions facilitate transactions between firms since they reduce insecurity and risks and tend to facilitate countries' specialization in products or industries that involve relationship-specific investment (UNIDO, 2018). Third,

efficient institutions are particularly relevant for GVC integration in terms of their effect on the hold-up problem, which is related to incomplete contracts. The hold-up problem refers to the case when a party makes a sunk and relationship specific investment. As the surplus allocation is dependent on the interplay of *ex post* bargaining power amongst all participating parties, it is unlikely that any individual agent will fully appropriate the return from their investment. Consequently, agents are disinclined to invest at the optimal level, due to the risk of being held up by their counterparts. This leads to skewed investment incentives, resulting in underinvestment and inefficiency (Hart & Moore, 1990; Hermalin & Katz, 2009 and Yang, 2021). Clearly, better institutions and more competitive markets can help avoid this situation and increase exports in GVC-intensive manufacturing industries that are highly sensitive to the quality of institutions (Lanz and Piermartini, 2018). In the same vein, better local institutions help provide better governance structures within the value chains. This helps peripheral players upgrade to higher value activities and gain more control over the production process (Kano et al., 2020).

Regarding the role of competition laws and policies, and to the knowledge of the author, no empirical study has tackled their direct impact on GVC participation in particular. Instead, the literature has rather focused on their effect on trade volumes and export intensity. Studies indicate that competition laws and policies are important determinants of trade flows growth, and that industries with higher levels of perceived competition and lower market concentration tend to export more. This implies that businesses have a higher chance of success in international markets if they are exposed to more competition in domestic markets. This, in turn, may encourage more forward and backward linkages in global markets (Goodwin and Pierola, 2015; Hong, 2022). Other studies examined the impact of competition on export intensity, which is related to GVCs (measured at the intensive margin level). Participation in GVCs increases the exposure to international markets leading to a larger volume of exports by countries and firms. Kim and Marion (1997) provided evidence for a positive association between domestic competition and export performance from the U.S. food manufacturing industries. Similarly, Hollis (2003) found, by comparing 82 manufacturing industries in seven countries, that relatively higher domestic concentration is linked to fewer net exports and a smaller domestic share in world output. Using data from 11 countries from the Organization of Economic Co-operation and Development (OECD) region during the period 1980-2003, Babool (2007) showed that the introduction of competition laws had a significant impact on manufacturing exports growth. Estrin et al. (2008) also found evidence that the self-reported number of domestic competitors explained export intensity in a sample of six main emerging economies (Egypt, Hungary, India, Poland, South Africa, and Vietnam). Additionally, Bramati et al. (2015) employed a dataset of Belgian firms during the period 2005-2008 to examine the effect of domestic market competition on firm-level export intensity. After controlling for both self-selection and simultaneity bias, their empirical results showed a positive relationship between the level of competition and export intensity.

De jure competition policies, represented by competition laws and regulations, are among the recommended legal institutions that help better distribute the benefits of GVCs. These policies contribute to reducing the substantial market power that transnational corporations have over their suppliers and customers along the value chain. Market power can enable these firms to generate rents from the exertion of this power, protect their position by excluding rivals, weaken economywide investment, and suppress innovation of new products and business models that are usually introduced from GVC participation, in addition to reducing the average productivity by sector (Mondliwa et al., 2021). Furthermore, research in this area shows that participation in GVCs requires efficient domestic markets and the elimination of internal barriers and obstacles to competition. Pro-competitive domestic regulations that reduce markets restrictions, and trade liberalization can boost competition, which is likely to accelerate innovation and productivity growth (Abe, 2013 and Criscuolo et al., 2016;). The entry of new firms and increased competition motivate established businesses to innovate and to develop new products, services and technologies. This helps them gain a competitive edge and maintain their market share. This could potentially result in technological advancements, which enhance productivity and competitiveness and could lead to upgrading within GVCs (Hong, 2022, and Antras and Chor, 2022).

Nevertheless, the presence of competition laws and regulations (de jure competition policy) is considered a necessary but an insufficient condition to reap the benefits of participation in GVCs. It is the *de facto* competition policy represented by the efficient implementation of these laws and regulations that would reduce the costs associated with weak institutions, including corruption, red tape, lack of intellectual property rights and contract enforcement. These problems are usually linked with network-driven business practices, protection of local firms, as well as inefficient markets (Kummritz et al., 2017). Moreover, the effective implementation of competition laws would restrain anticompetitive behavior by lead firms, which could affect the distribution of gains from GVC participation (World Bank, 2020). Therefore, we try to distinguish between the *de facto* and the *de jure* competition dimensions. However, it is important to note that most of the available de facto measures are perception-based, which might not be accurate enough.

It is worth mentioning that competition does not always have a favorable effect on participation in GVCs. Price wars between firms could emerge occasionally from fierce competition, forcing firms to cut their prices to attract more customers. This may exert a downward pressure on profit margins, which may hinder firms' capacity to invest in GVC upgrading (Humphrey and Schmitz, 2002). In addition, competition may result in inequalities between firms engaged in the GVC, as firms operating in low-value segments of the chain and unable to compete may be marginalized or excluded from the global market. This may result in an uneven distribution of benefits within GVCs, with only a few firms benefiting from GVC participation and upgrading (Gereffi and Luo, 2015; Koopman et al., 2008; OECD, 2018; Park et al., 2023).

#### 2.2.Innovation and productivity as transmission channels

The second strand of the literature focuses on two main channels through which competition can affect participation in GVCs: innovation and productivity. Theoretical studies suggest that competition policy could have a major role in promoting GVC participation through supporting innovation and increasing productivity. Yet the role of these two main channels has not been studied empirically. Available empirical studies tackle only the impact of competition on innovation and productivity.

First, research indicates that competition fosters innovation. For example, results from Aghion et al. (2005, 2009) for the United Kingdom supported the existence of an inverted U-shaped relationship between both variables: markets with a moderate level of competition experienced the highest levels of innovation, while monopoly and highly competitive markets both experienced lower levels. Similar findings were obtained by subsequent studies that used data from different countries and industries. For instance, empirical findings of Polder and Veldhuizen (2012) and Bos et al. (2013) confirmed an inverted-U relationship between innovation and competition in the Netherlands and the US banking industry, respectively. Furthermore, Correa and Ornaghi's (2014) results showed that competition had a positive monotonic relationship with innovation.

As for the impact of competition on productivity growth, Aghion et al. (2008) found that a 10% reduction in markups was likely to boost manufacturing productivity growth by 2%-2.5% per year in South Africa. Similarly, Sekkat (2009) found that higher markups had a significant negative effect on productivity growth in Jordan and Morocco. Petersen (2013) used data from 154 countries during the period (1960 – 2005) with a difference-in-difference estimation and suggested that competition law positively affected GDP per capita and economic growth after a period of 10 years, as new institutions needed time to become effective and influence the overall economy. Moreover, Buccirossi et al. (2013) studied the effect of competition policy on productivity growth across 22 industries in 12 OECD countries during the period 1995 to 2005. They developed an aggregate Competition Policy Index (CPI) to assess the effectiveness of competition policy in each country and analyzed its relationship with productivity growth, while considering factors potentially linked to competition policy, such as Product Market Regulation (PMR), privatization, liberalization, and trade openness, using instrumental variables. The results suggested that the aggregate CPI had a positive significant impact on productivity growth.

#### 2.3.Impact of GVC participation on competition

The third strand of the literature focuses on the impact of GVC participation on competition as one of the transmission channels through which GVC participation affects productivity and growth. On one hand, GVC participation can have pro-competitive market restructuring effects which are not restricted to GVC participants but could also extend to non-participants (Taglioni and Winkler, 2016). Since GVC participation increases competition for the country's limited resources, it leads to an increase in the overall average productivity in the medium term. Additionally, direct imitation or reverse engineering done by local firms give rise to technology and knowledge spillovers (Kummritz et al., 2017; Eissa and Zaki, 2023). On the other hand, participation in GVCs may lead to an uneven distribution of GVC benefits (such as economic growth, technological advancement, and job creation) across and within countries due to the fierce competition from low wage developing countries, or due to the disproportionately high bargaining power of lead firms over their suppliers. Thus, developed countries' large and productive buyers tend to gain greater profits and markups, and developing countries' suppliers may face pressure due to their participation in GVCs. This is mainly because they have less bargaining power and may receive lower profits for their work, especially as lead firms in developed countries control prices and terms (Choi et al., 2021; World Economic Forum, 2018).

Although theoretical studies indicate that competition could impact GVC participation through different channels, empirical evidence in this regard is still lacking. To the best of our knowledge, there is no study that empirically investigated directly the impact of competition on GVC participation. Only Choi et al. (2021) examined the relationship between GVC participation and markups in Ethiopia, using manufacturing census panel data during the period (2000 – 2014). Their findings showed that Ethiopian firms' participation in GVCs is associated with a higher level of competition. They found that firms that participate in GVCs tend to have lower markups compared to non-GVC firms. In addition, they indicated that firms deeply integrated in GVCs tend to have lower markups compared to less integrated firms. They also showed that the effects of GVC participation on competition expand to the industry level, as due to horizontal competition and backward linkages, those firms operating in industries with high GVC presence and the suppliers dealing with such industries typically have lower markups<sup>4</sup>.

Hence, our study aims to fill this research gap by examining the role of competition policy in enhancing GVC participation. This paper contributes to the trade literature in several aspects. First,

<sup>&</sup>lt;sup>4</sup> Mondliwa et al. (2021) is another theoretical study that tried to connect the understanding of power in the global value chain literature with the analysis of market power and barriers to entry in competition economics. The study sheds light on how the bargaining power between firms influences value creation and capture along value chains. Using case studies of supermarkets and petrochemicals in South Africa, the authors demonstrate how the dominant bargaining power of leading firms is significantly influenced by historical government regulations and industrial policies, including those enforced by competition authorities. It also emphasizes that the choice of competition rules has significant implications for supplier firms' ability to develop capabilities and upgrade within value chains.

it adds to the empirical literature on the determinants of GVC participation by focusing on the role of competition. Second, it tries to distinguish between the *de jure* and *de facto* dimensions of competition policy and how their impact on GVC participation differs. Third, it extends the analysis by focusing on the non-linear effect of competition and the channels through which it can affect GVC. Finally, it takes Africa as a case study, as African countries generally suffers from weak GVC integration and distorted market structures.

# 3. Data and Stylized Facts

To examine the relationship between GVC and competition policy, we rely on several data sources. First, the recent increase in the availability of integrated input-output data and the development of indicators to measure GVC participation enabled researchers to empirically investigate the main drivers and impacts related to integration within GVCs. Thus, we use data on forward and backward participation in GVCs from the EORA dataset (Lenzen et al., 2013). Backward participation is measured by the Foreign Value Added (FVA) in exports, which is the value added in exports that is produced by foreign industries. Forward linkages are measured by the Domestic Value added (DVX) in exports, which is the value added that is embodied in the exports of other countries. GVC refers to the sum of both.

For competition variables, we use four variables to measure the *de jure* and the *de facto* dimensions. For the *de jure* competition, we include a dummy variable that takes the value of one if the country has a competition law and zero otherwise. Moreover, we include the age of the competition law. The older the law, the more a country is likely to have an experience in competition policy, and the more likely this policy can be effective (Youssef, 2023). As for the *de facto* competition, we use a survey-based measure of the intensity of local competition on the economy-wide level from the Global Competitiveness Report published by the World Economic Forum. This measure includes two variables: (i) the effective are anti-monopoly policies, based on the following question "*in your country, how effective are anti-monopoly policies at ensuring fair competition*?" (ranging between 1 (worst) and 7 (best)) and (ii) market dominance based on the question "*in your country, how do you characterize corporate activity*?" ranging from 1 (dominated by a few business groups) to 7 (spread among many firms)<sup>5</sup>.

Figures 1-3 show considerable heterogeneity in GVC participation across different regions and over time. While most of the regions experienced an increase over time, the financial crisis of 2007/8 reduced significantly GVC participation with the great trade collapse. Regardless of the type of GVC participation (backward or forward), Europe and Central Asia and East Asia and Pacific perform much better than other developed and developing regions. These figures reflect the two hubs with the highest GVC-related trade flows (Western Europe and East European countries, and China and neighboring Asian countries). Among developing countries, South Asia

<sup>&</sup>lt;sup>5</sup> It is important to note that perception-based variables might not be as accurate as factual ones. In some cases, they can be associated with a measurement error. However, these are the best measures we found.

and Sub-Saharan Africa have lower GVC participation than the Middle East and North Africa and Latin America. Clearly, the difference in GVC participation can be attributed to a host of determinants ranging from institutions to trade policy, exchange rate competitiveness, and investment climate, among others. Empirical evidence supports that factor endowments are important for determining the level of GVC participation, yet they are not sufficient, as other factors including geography, liberal trade policies, foreign direct investment inflows, domestic industrial capacity and political stability are also key determinants of GVC participation (Fernandes et al., 2022). In the context of Africa, several challenges exist and could hinder full participation of African countries in GVCs, including limited infrastructure, political instability in some regions, and low levels of industrialization (Christ & Ferrantino, 2011; Balié et al., 2019; Fernandes et al., 2022). Yet, despite having the lowest GVC indicators, Sub-Saharan African countries still have a large potential to participate in GVCs, given their endowments.



Figure 1: GVC Participation – by region (billion USD)

Source: Authors' own elaboration using EORA database.



Figure 2: Backward GVC Participation – by region (billion USD)

Source: Authors' own elaboration using EORA database.



Figure 3: Forward GVC Participation - by region (USD)

Source: Authors' own elaboration using EORA database.

In this paper, we argue that competition policy is among the main determinants of countries' participation in GVCs. At the production level, competition helps improve the allocation of resources, enhance the business environment for the private sector, remove different distortions and entry barriers and thus attract multinationals or domestic investors. This in turn can increase

GVC participation. Figure 4 shows that, on average, countries adopting a competition law have a higher level of GVC participation (overall, backward, and forward), reaching 10 times higher than their counterparts who do not.



Figure 4: GVC Participation and Adoption of Competition Laws

#### Source: Authors' own elaboration

Note: GVC flows for overall GVC, backward and forward are in USD million (average during the period of analysis). NO stands for no competition law and YES shows that the country has a competition law during the period of analysis. FVA refers to Backward participation, DVX refers to Forward linkages and GVC refers to the sum of both

While Figure 4 provides a correlation from a *de jure* perspective, Figure 5 analyzes the same correlation but from a *de facto* lens. It shows a positive association between the effectiveness of anti-monopoly policies and GVC participation (overall, backward, and forward). A similar conclusion can be drawn from other indices (such as the extent of market dominance and the age of the competition law – the older the law, the higher the level of GVC).

As for Africa, almost all countries in the region have a competition law, and recently there has been a general upward trend in the enforcement of competition laws and policies throughout the continent. Through the introduction of new laws and regulations, the political will to enforce existing laws, and the amendment of existing legislation, several African countries have strengthened their antitrust and competition regimes (Baker Mckenzie, 2024).

The history of competition policy reforms in Africa is closely linked to the broader process of economic liberalization and structural reforms that started in the late 1980s and onwards often, but not always, as part of World Bank and International Monetary Fund structural adjustment programs. During this period, many African economies embarked on a path of market liberalization, as markets were primarily dominated by state-owned enterprises (SOEs). This involved privatization, removing government restrictions on prices, market entry and businesses operations, as well as creating independent regulatory bodies to oversee market competition, ensure fair practices, facilitate private sector activity and protect consumer interests. As part of these broader market reforms, African countries started developing competition policies to complement the liberalization process. The adoption of competition laws in the 2000s marked a key turning point, with the number of countries with competition laws increasing from 12 in 2000

to 31 by 2019. South Africa, Kenya, Côte d'Ivoire, and Tanzania were among the early birds to implement competition policies and set up regulatory bodies, benefiting from early liberalization efforts and more robust institutional frameworks. On the other hand, Nigeria, Ethiopia, Zimbabwe, and Cameroon were slower to adopt and implement effective competition policies, often due to political, economic, or institutional challenges. These countries continue to face difficulties in fully realizing the benefits of competition policy, despite having eventually passed laws or established regulatory bodies (World Bank & African Competition Forum, 2016; Cherif et al., 2020).

Africa has been increasingly integrated into global markets, and has witnessed notable increases in trade volumes in recent decades. As a result, it is gradually starting to play more varied roles in GVCs (Krantz, 2022). Nevertheless, Africa is still recognized for exporting mostly primary goods like crude oil, mining products, and unprocessed agricultural goods. Thus, African countries primarily contribute as an upstream supplier of primary inputs to global value chains (GVCs).

Figure 6 shows the level of overall GVC participation, forward and backward linkages in the top 10 African countries. It is clear that top performers in all GVC indicators tend mostly to be the same, with South Africa and Algeria being the best performers, Egypt and Nigeria in the middle of the list, while Ghana, Kenya and Namibia are in the bottom of the top 10 list. Figure 7 shows the competition indicators in the top 10 performers in Africa. It is evident that top performers in *de jure* competition measures differ from those in the *de facto* variables. South Africa is the best performer in the *de jure* indicator (age of the competition law), while top performers in the *de facto* indicators are Malawi in the market dominance indicator, and Egypt in the effectiveness of antimonopoly policies. Moreover, it can be noticed that some of the top performers in *de jure* indicators, yet this is not the case for the *de facto* variables. South Africa stands as a clear example, as it has one of the oldest competition laws and a robust competition policy that - in line with its industrial policy-aims at strengthening the country's position in GVCs through promoting innovation, supporting small and medium-sized businesses, and encouraging local value addition (Wise, 2004).



Figure 5: GVC Participation and Effectiveness of Anti-Monopoly Policies (a) GVC Participation

Source: Authors' own elaboration.



Source: Authors' own elaboration.

Note: The figures are in the natural logarithm of each indicator.

Figure 7: Competition Indicators in Africa – Top 10 countries



Source: Authors' own elaboration.

Notes: Age is in years, market dominance and effectiveness of anti-monopoly policies are ranked from 1 to 7 (best). GVC variables are averaged over the whole period.

Figure 8 shows a stronger correlation between GVC and the competition age in Africa (panel a) and a weaker one between GVC and market dominance (panel b) on the one hand, and GVC and the effectiveness of anti-monopoly policies on the other (panel c). Thus, the de jure indicators seem to be more correlated with GVC participation in Africa, compared to the de facto dimensions. These correlations can be explained by several factors. First, the de jure measures represent a necessary condition to have a competition policy. In other words, having a de facto competition

cannot be achieved without having first a de jure competition. Second, African countries achieved progress in the de jure aspects (as most of them adopted competition laws) compared to the de facto ones. Indeed, they are still facing several challenges in implementing effective antimonopoly policies. Third, it is important to recall that while the de facto measures are perceptionbased, the de jure ones are factual. Thus, in some cases, the former might not be as accurate as the latter.



Figure 8: Competition Indicators in Africa (a) Age of the law



This previous analysis shows that more competition is associated with more GVC participation, and this applies also to African countries. To test for the validity of these arguments and after having presented these associations, the next section examines the relationship between GVC and competition policy in an empirical way and tries to establish a causal relationship from competition to GVC.

#### 4. Methodology

To examine the relationship between African countries' participation in GVCs and competition policy, we estimate the following relationship:

$$GVC_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 X_{it} + \nu_i + e_{it}$$
(1)

Where GVC refers to global value chains (overall, backward, and forward) participation of country *i* in year *t*. Our main independent variable of interest is competition *Comp*. As it was mentioned before, we use four variables with two measuring the *de jure* and two the *de facto* dimension. For the *de jure* ones, we include a dummy variable that takes the value of one if the country has a competition law and zero otherwise (Youssef and Zaki, 2024). Moreover, we include the age of the competition law (Petersen, 2013). As for the *de facto* variables, we use two variables: the effectiveness of anti-monopoly policies and market dominance.  $X_{it}$  is a vector of time-variant control variables affecting GVC integration (Antràs and Chor, 2022). We mainly include the natural logarithm of the GDP per capita to control for the development level, tariffs to control for trade policies (Cheng et al., 2015; Wang et al., 2019; and Eugster et al., 2022), the real effective exchange rate (REER) as a proxy for competitiveness due to exchange rate policy (Abdou et al., 2024), and the index of financial institutions measuring financial development since better access

to finance is highly needed for both exporters and importers (El Shaarawy and Ezzat, 2023). We also include an index of export diversification (measured by a Theil index<sup>6</sup>) as higher diversification is likely to be associated with higher backward and forward linkages and reflect better institutions (Omgba, 2014). Finally, given that, in several developing countries, competition policies could be violated by the army and its political connections, rendering the investment climate uncertain (Otchere et al., 2020), we include a variable measuring the military risk (between 0 and 6). This variable comes from the International Country Risk Guide and reflects the role of the military in the country. Overall, lower risk ratings indicate a greater degree of military participation in politics and a higher level of political risk.  $e_{it}$  is the error term. These control variables are obtained from the World Development Indicators, the World Bank. The REER comes from Bruegel dataset and the military risk variables comes from the ICRG. Our analysis covers the period from1995 to2018 because of data availability.

Three empirical remarks are worthy to be mentioned. One, we run a panel estimation using fixed effects to control for the unobserved heterogeneity. Two, we extend the analysis in several ways. First, in addition to participation in GVCs (measured at the aggregate level), we distinguish between backward and forward participation. Competition can affect the former through the innovation channel given that less competitive markets have barriers to entry, which might impede imports of foreign products that can leverage innovation. Forward participation is affected by competition laws, mainly through the productivity channel. Indeed, less competitive markets should have, on average, a lower level productivity which can affect both the quality and the quantity of exports. Second, as competition might not have a linear effect on GVCs, we introduce the non-linear effect of competition. This is due to the fact that an excessive level of competition might deter firms from integrating into GVC as they are less likely to earn suitable revenues with smaller market shares (Goto, 2009). Third, we examine the interaction between competition policies and two channels of interest, trade openness and economic diversification, given that competition policy is more effective in the presence of these two factors. Greater trade openness increases GVC participation (Urata and Baek, 2020; Fernandes et al., 2022) and can be complementary to competition policies, given that both make the market more competitive. Moreover, if the economy is not sufficiently diversified (and dominated by natural resources for instance), competition policy will not help improve GVC participation that requires a basis of the manufacturing sector (Smith, 2015). We also show how competition affects both innovation and productivity that were presented in the theoretical literature. Finally, we estimate all models using the sample of African countries to see how competition policy affects this region differently, compared to the whole sample of 112 (both developed and developing) countries.

<sup>&</sup>lt;sup>6</sup> The Theil index signals whether the structure of exports by product of a given country or group of countries differ from the structure of product of the world. Diversification index is computed by measuring absolute deviation of the country share from world structure.

Given the reverse causality between competition and GVC participation, we use the instrumental variable approach as a robustness check. The instruments used are the level of enforcement of the competition policy, the level of trade protectionism and the quality of institutions of the most important trade partner. The rationale is that the better the quality of institutions, the more open trade policy, and the tougher competition policy of the main trade partner, the more likely the country will adopt a competition law and enforce it to align its policy with these key partners. This is in line with the gravity model literature that shows that what matters is the institutional distance between trade partners (Acemoglu, Antràs, Helpman, 2007).

## 5. Empirical Results

## **5.1.Baseline Specification**

Table 1 displays results for our baseline specification, where fixed effects models are estimated for GVC participation and only the competition variables are included (one at a time) as our independent variables with no other controls. The results indicate that *de jure* competition variables (competition law and age of competition law) have a significant positive impact on GVC participation with a larger effect for the existence of competition law. In addition, results show that among the *de facto* variables, only the effectiveness of the anti-monopoly policy has a significant positive effect on GVC participation. In contrast, the extent of market dominance is not statistically significant. After adding the specified control variables, the results in Table 2 confirm the significant positive role of the *de jure* variables in enhancing GVC participation, while the results of the *de facto* variables changed, as market dominance has now a negative significant effect, while the coefficient of effectiveness of anti-monopoly policy became insignificant. These results are in line with the theoretical hypothesis that the existence of a competition law (*de jure* competition) would enhance GVC participation and its benefits (Mondliwa et al., 2021) as it is a necessary but insufficient condition. The results also partially suggest a positive role of *de facto* competition in encouraging GVC participation (Kummritz et al., 2017; World Bank, 2020).

Our control variables have a significant effect on GVC participation with the expected signs, except for the index of financial institutions, which is not statistically significant in the models including the *de jure* competition variables. In line with the literature on the determinants of GVC participation (Kowalski et al., 2015; Tinta, 2017; Okah Efogo, 2020; Fernandes et al. 2022; Zhang et al., 2022; Xu et al., 2023), higher levels of GDP per capita, export diversification, and competitiveness (measured by the real effective exchange rate) enhance integration in GVCs. Moreover, protective trade policies, represented by higher levels of tariffs, negatively affect the degree of countries' participation in GVCs. Military interference in the markets represented by higher military risk is associated with higher GVC participation, but this result is weakly significant only in the model using the age of the competition law. This result is counterintuitive, yet it is of particular interest for African and Arab countries where State actors can hinder

competition and introduce further barriers and distortions to the market (The World Bank, 2016; Arezki et al., 2019) yet the politically connected firms may have a higher chance of overcoming barriers to entry, international trade, and operation. They may also have a higher chance of having easier access to government resources and information, as well as receiving preferential treatment when it comes to cross-border investment or trade issues, thus they could easily integrate in GVC (Aboushady & Zaki, 2023).

	De jure	e Comp.	De facto	o Comp.
	GVC	GVC	GVC	GVC
Law dum.	1.084***			
	(0.0410)			
Law age		0.0955***		
		(0.00159)		
Market dom.			0.00250	
			(0.0144)	
Eff. Anti-Mono.				0.104***
				(0.0155)
Constant	14.00***	13.77***	16.05***	15.62***
	(0.0278)	(0.0187)	(0.0557)	(0.0630)
Observations	2,952	2,856	1,530	1,274
R-squared	0.198	0.567	0.000	0.038
Number of id	123	119	140	139

Table 1: GVC and Competition

Standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

	De jure	e Comp.	De facto Comp.		
	GVC	GVC	GVC	GVC	
Ln(GDP/cap)	2.185***	1.782***	1.231***	1.204***	
	(0.0722)	(0.0639)	(0.0938)	(0.0971)	
Ln(Tariff)	-0.279***	-0.137***	-0.0878***	-0.0860***	
	(0.0276)	(0.0243)	(0.0294)	(0.0297)	
Fin. Inst. Index	1.643***	0.447***	0.0470	0.0105	
	(0.171)	(0.152)	(0.200)	(0.203)	
Exp. Div.	0.163***	0.0537**	0.204***	0.209***	
	(0.0276)	(0.0237)	(0.0233)	(0.0236)	
Ln(REER)	0.128**	0.110**	0.269***	0.272***	
	(0.0582)	(0.0497)	(0.0811)	(0.0821)	
Military Risk	0.0310	0.0324*	0.0844	0.111	
	(0.0205)	(0.0175)	(0.124)	(0.126)	
Law dum.	0.276***				
	(0.0344)				
Law age		0.0533***			
		(0.00215)			
Market Dom.			-0.0701***		
			(0.0176)		
Eff. Anti-Mono.				-5.80e-05	
				(0.0180)	
Constant	-6.229***	-2.301***	3.083***	3.043***	
	(0.613)	(0.551)	(0.829)	(0.852)	
Observations	1,511	1,511	795	795	
R-squared	0.790	0.847	0.415	0.401	
Number of id	94	94	112	112	

Table 2: Baseline Specification

Standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### 5.2.Extensions

#### 5.2.1. Backward vs. forward GVC linkages

To extend our analysis, we differentiate between forward and backward linkages in GVCs. This extension is of particular importance as it shows whether competition policies matter more for backward vs. forward participation. While several developing countries are more integrated through backward linkages, less are integrated in forward linkages. Moreover, some of them can be integrated through forward linkages but export products with limited value added (such as African countries that export primary products). We argue that more competitive policies, given that they improve institutions, might help countries export a more sophisticated value-added that used in other countries' exports. The literature suggests that more sophisticated products require better institutions (including competition policies) (Costinot, 2005), while backward participation is mainly affected by the innovation channel, as mentioned before.

For forward participation, the models are estimated using the Domestic Value Added (DVX) in exports as the dependent variable. As explained previously, DVX is the value added that is

embodied in the exports of other countries. The results are presented in Table 3. Overall, the results suggest a positive significant impact for *de jure* competition variables on forward linkages, except -again- for the effectiveness of anti-monopoly policy, which shows no significant effect. Furthermore, the significance and direction of the effect for all control variables are similar to those presented in the baseline specification model, except for military risk index which shifted from being weakly significant in the baseline model to be insignificant.

	De jure	e Comp.	De facto Comp.		
	DVX	DVX	DVX	DVX	
Ln(GDP/cap)	2.195***	1.794***	1.080***	1.064***	
	(0.0747)	(0.0672)	(0.0958)	(0.0988)	
Ln(Tariff)	-0.287***	-0.148***	-0.0728**	-0.0716**	
	(0.0285)	(0.0256)	(0.0300)	(0.0302)	
Fin. Inst. Index	1.592***	0.425***	0.168	0.142	
	(0.176)	(0.160)	(0.205)	(0.207)	
Exp. Div.	0.167***	0.0613**	0.194***	0.197***	
	(0.0285)	(0.0249)	(0.0238)	(0.0240)	
Ln(REER)	0.226***	0.208***	0.370***	0.373***	
	(0.0602)	(0.0523)	(0.0829)	(0.0836)	
Military Risk	0.0246	0.0256	0.123	0.143	
	(0.0212)	(0.0184)	(0.127)	(0.128)	
Law dum.	0.257***				
	(0.0355)				
Law age		0.0522***			
		(0.00226)			
Market Dom.			-0.0579***		
			(0.0180)		
Eff. Anti-Mono.				-0.00507	
				(0.0183)	
Constant	-7.411***	-3.527***	3.315***	3.239***	
	(0.634)	(0.579)	(0.847)	(0.867)	
Observations	1,511	1,511	795	795	
R-squared	0.783	0.836	0.380	0.371	
Number of id	94	94	112	112	

Table 3: Forward Participation and Competition

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Concerning backward linkages in GVCs, the Foreign Value Added in exports (FVA) is used as the dependent variable. The results (Table 4) do not differ from those of forward linkages. De jure competition policy variables have a positive impact on integration in GVCs. Results of the control variables are similar to that of the backward participation, yet some of the control variables turned out to be insignificant, including the real exchange rate, as well as export diversification in the model using the age of competition variables. In addition, the military risk index turned again to have a positive significant effect on backward participation in the models using *de facto* competition variables.

	De jure	e Comp.	De facto Comp.			
	FVA	FVA	FVA	FVA		
Ln(GDP/cap)	2.126***	1.709***	1.354***	1.314***		
	(0.0751)	(0.0665)	(0.102)	(0.105)		
Ln(Tariff)	-0.296***	-0.149***	-0.115***	-0.113***		
	(0.0287)	(0.0253)	(0.0319)	(0.0322)		
Fin. Inst. Index	1.831***	0.582***	0.0479	0.000808		
	(0.177)	(0.158)	(0.218)	(0.220)		
Exp. Div.	0.149***	0.0345	0.208***	0.215***		
	(0.0286)	(0.0246)	(0.0253)	(0.0256)		
Ln(REER)	-0.0520	-0.0706	0.115	0.116		
	(0.0605)	(0.0517)	(0.0881)	(0.0891)		
Military Risk	0.0447**	0.0462**	-0.0426	-0.0106		
	(0.0213)	(0.0182)	(0.135)	(0.137)		
Law dum.	0.295***					
	(0.0357)					
Law age		0.0556***				
		(0.00224)				
Market Dom.			-0.0736***			
			(0.0192)			
Eff. Anti-Mono.				0.00967		
				(0.0195)		
Constant	-5.716***	-1.643***	1.784**	1.825**		
	(0.638)	(0.573)	(0.900)	(0.924)		
Observations	1,511	1,511	795	795		
R-squared	0.773	0.834	0.391	0.378		
Number of id	94	94	112	112		

Table 4: Backward Participation and Competition

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

So far, the results show that the de jure measures matter more than de facto ones. Three potential explanations can help understand this results. First, as it was mentioned before, the de jure measures are a necessary condition and a guarantee for a competition policy. This is why they can boost GVC. Second, whereas the de jure measures are factual, the de facto ones are perception-based and therefore might be less accurate. Third, for both the de jure and the de facto measures, competition might affect GVC in a non-linear way. The next sub-section tests for this.

#### 5.2.2. Does competition have a non-linear effect on participation in GVCs?

Table 5 shows the results of the estimated models that include the squared term of the continuous competition variables (the age of competition law, the effectiveness of anti-monopoly policies and market dominance)<sup>7</sup> to test for the potential existence of a non-linear relationship between competition and GVC participation. Indeed, the literature suggests that the effect of such policies is non-linear. This has been particularly investigated for the impact of institutions on different

<sup>&</sup>lt;sup>7</sup> This was not done for the existence of a competition law as it is a dummy variable.

outcomes (see Kurul, 2017 and Murphy, 2017). Our findings support the non-linear relationship between all competition variables on the one hand, and GVC participation on the other. For the *de jure* variables, the age of the competition law shows an increasing impact on overall, forward and backward participation in GVCs with an increasing rate. However, both *de facto* competition variables show a positive impact on GVC participation (overall, forward and backward) but for low levels of market dominance and effectiveness of anti-monopoly policy, while this effect turns out to be negative after a certain threshold. This implies that at high levels of *de facto* competition, more intense competition would negatively affect the level of countries' GVC integration. These results are in line with the literature (Humphrey & Schmitz, 2002; Prusak, R., 2017), where fierce competition between businesses may decrease the individual companies' market, especially if demand is limited. In the same vein, this can show how the market is oversaturated. New entrants or small existing businesses may find it difficult to gain a position or to expand in the market due to intense competition, especially with larger businesses with established customer bases. This could also occur if the market is saturated with similar products and services, so no new demand can be created with differentiated products.

#### 5.2.3. Which channels matter?

Previous studies (Abe, 2013; Goodwin & Pierola, 2015; Criscuolo et al., 2016; Hong, 2022) argue that domestic competition-enhancing regulations and trade liberalization boost competition and enhance innovation by firms, which, in turn, would increase GVC participation. Pro-competitive regulations reduce entry barriers and encourage new players, whether domestic or foreign, to enter the market. Also, open markets permit the access to larger markets by domestic firms, which provides opportunities for expansion and growth. Moreover, the empirical literature (Urata and Baek, 2020; Fernandes et al., 2022; Zhang et al., 2022; Böhmecke-Schwafert and Blind, 2023) suggests that trade liberalization and lower trade barriers are associated with higher participation in GVCs. Urata and Baek (2020), using data from the World Bank's Enterprise Surveys that cover 111 countries and 38,966 firms for the 2009–2018 period, show that openness to trade and foreign direct investment inflows, and good governance, featuring more competitive environment identified among other factors, increase the probability of firms' participation in GVCs and the level of such participation. Based on empirical evidence from a panel dataset covering more than 100 countries over the past three decades, Fernandes et al. (2022), showed that liberal trade policies and direct investment inflows are important determinants of GVC participation. Zhang et al. (2022) found that the reduction of tariff-and non-tariff barriers between countries along 'the Belt and Road' (BR) improves the position of China, as well as other countries along BR route, in the GVCs of agricultural products. In addition, Böhmecke-Schwafert and Blind (2023) using a panel dataset from 40 OECD and BRICS countries during the period (2000 - 2015), found that product market regulation has a negative impact on trade that stems mainly from barriers to trade and investment. Yet for the BRICS, their results suggest the contrary. The findings highlight the harmful effects of increasing protectionism and tariff hikes on integration in GVCs.

Moreover, the literature suggests that export diversification has a role in reducing volatility of production and strengthening macroeconomic stability, in addition to its positive effects on growth and employment (Hesse, 2009; Ayom & Malah, 2023), which would expectedly facilitate GVC participation. Avom & Malah (2023) employed instrumental variable quantile regression with sub-regional fixed effects on more than 120 developed and developing countries during the period (1995 – 2018) to investigate the role of export diversification in intensifying a country's participation in global value chains (GVCs). The analysis reveals that export diversification significantly enhances a country's engagement in GVCs. Yet, this result hinges upon the level of resource dependence and level of development, where in resource-poor countries export diversification positively impacts GVC participation at any level regardless of the level of economic development. However, in resource-rich countries, especially developing countries, this relationship takes a U-shape.

To test the validity of these two channels that can amplify the effect of competition, we estimate our models while incorporating interaction terms for competition policy variables with export diversification and tariffs. The objective is to assess whether both variables act as significant transmission channels for the effect of competition on GVC participation. Results (Table 6) indicate that the impact of competition hinges more on the level of export diversification than on tariffs, as the interaction term between competition and exports diversification is significant in all estimations except for that using the age of competition law. On the other hand, the interaction term between competition law. In general, the results imply that more diversified and more open economies tend to experience a lager positive impact for *de jure* competition policy on GVC, but less positive impact for the *de facto* competition variables.

The theoretical literature suggests that competition affects the economy through two channels; productivity and innovation. Table A2 (see Appendix) depicts the effect of competition variables on productivity (measured by labor productivity from the Penn World Tables) and on innovation (measured by patent per capita). The results support the theoretical hypotheses according to which competition (measured by the existence of a competition law, its age, and the effectiveness of anti-monopoly practices) increases innovation and productivity.

		GVC		_	DVX			FVA	
Ln(GDP/cap)	1.809***	1.207***	1.089***	1.823***	1.059***	0.955***	1.734***	1.322***	1.182***
	(0.0646)	(0.0938)	(0.0964)	(0.0679)	(0.0960)	(0.0985)	(0.0672)	(0.102)	(0.104)
Ln(Tariff)	-0.138***	-0.0773***	-0.0591**	-0.149***	-0.0633**	-0.0462	-0.150***	-0.101***	-0.0820***
	(0.0243)	(0.0295)	(0.0293)	(0.0255)	(0.0302)	(0.0299)	(0.0253)	(0.0320)	(0.0317)
Fin. Inst. Index	0.477***	0.0267	-0.0427	0.457***	0.150	0.0922	0.610***	0.0206	-0.0601
	(0.152)	(0.200)	(0.198)	(0.160)	(0.204)	(0.202)	(0.158)	(0.216)	(0.214)
Exp. Div.	0.0466*	0.195***	0.184***	0.0537**	0.185***	0.174***	0.0280	0.196***	0.186***
	(0.0238)	(0.0235)	(0.0233)	(0.0250)	(0.0240)	(0.0238)	(0.0247)	(0.0254)	(0.0252)
Ln(REER)	0.122**	0.276***	0.252***	0.221***	0.376***	0.355***	-0.0597	0.125	0.0937
	(0.0498)	(0.0808)	(0.0800)	(0.0523)	(0.0827)	(0.0818)	(0.0518)	(0.0876)	(0.0866)
Military Risk	0.0340*	0.106	0.177	0.0273	0.142	0.205	0.0477***	-0.0137	0.0652
	(0.0175)	(0.124)	(0.123)	(0.0184)	(0.127)	(0.126)	(0.0182)	(0.134)	(0.133)
Law age	0.0471***			0.0455***			0.0498***		
	(0.00317)			(0.00333)			(0.00330)		
Law age Sq.	0.000142***			0.000152***			0.000130**		
	(5.30e-05)			(5.57e-05)			(5.52e-05)		
Market Dom.		0.189*			0.176*			0.275**	
		(0.102)			(0.104)			(0.110)	
Market Dom. Sq.		-0.0318***			-0.0287**			-0.0429***	
		(0.0123)			(0.0126)			(0.0133)	
Eff. Anti-Mono.			0.601***			0.561***			0.698***
			(0.0992)			(0.101)			(0.107)
Eff. Anti-Mono. Sq			-0.0699***			-0.0659***			-0.0801***
			(0.0114)			(0.0116)			(0.0123)
Constant	-2.569***	2.791***	3.052***	-3.814***	3.051***	3.248***	-1.890***	1.391	1.835**
	(0.558)	(0.833)	(0.830)	(0.587)	(0.852)	(0.848)	(0.581)	(0.902)	(0.897)
Observations	1,511	795	795	1,511	795	795	1,511	795	795
R-squared	0.848	0.420	0.433	0.837	0.385	0.399	0.835	0.400	0.415
Number of id	94	112	112	94	112	112	94	112	112

Table 5: GVC, Competition and Non-Linearity

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

			Market	
	Law dum.	Law age	Dom.	Eff. Anti-Mono.
Competition var.	-0.178	0.0515***	-0.246***	-0.393***
	(0.136)	(0.00458)	(0.0536)	(0.0524)
Ln(Tariff)	-0.301***	-0.178***	-0.110	-0.172*
	(0.0406)	(0.0267)	(0.0982)	(0.0960)
Exp. Div.	0.0811**	0.0752***	-0.0305	-0.289***
	(0.0330)	(0.0269)	(0.0659)	(0.0651)
Competition var.*Exp. Div.	0.136***	-0.00155	0.0579***	0.114***
	(0.0307)	(0.00136)	(0.0155)	(0.0140)
Competition var.*Ln(Tariff)	0.0180	0.00501***	0.00779	0.0275
	(0.0409)	(0.00139)	(0.0255)	(0.0235)
Observations	1,511	1,511	795	795
R-squared	0.793	0.849	0.428	0.462
Number of id	94	94	112	112

Table 6: Competition Channels

Standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: All controls and the constant are included

#### 5.3. What about Africa?

While competition can serve as a mechanism for efficient resource use, innovation, and economic growth, anti-competitive behaviors and structures persist in markets, particularly in developing countries. These often suffer from weaker regulatory frameworks, less effective enforcement mechanisms, widespread corruption, and other structural issues. Africa is no exception, with monopolies — especially state-owned ones — being prevalent and single operators controlling significant market shares in key industries in several countries. Various government actions also create barriers to healthy competition (The World Bank, 2016; Cherif et al., 2020). Most countries in Africa have lower levels of competition compared to other parts of the world (Buthe and Kigwiru, 2020). Consequently, Africa stands to benefit significantly from promoting open and competitive markets, especially as a strategy for achieving sustainable economic growth (The World Bank, 2016). Additionally, African economic transformation can be accelerated by GVC participation, mainly through the gains from productivity enhancement, skills development, export diversification, and more competition. Nevertheless, it is worth noting that Africa captures a modest yet increasing share of global value-added trade and is one of the most integrated regions in GVCs. While Africa's involvement in GVCs is still primarily characterized by forward integration, the rate of backward integration has been rising more rapidly (Conde et al., 2015).

To assess whether competition has a different effect on GVC participation in African countries, we estimate all our regression models using the sample of the African countries. Results in Tables 7 and 8 support the positive impact for competition policy on GVC (overall, forward and backward) participation, as all competition variables have significant positive effect except for the market dominance variable which is not statistically significant due to limited variability in this variable in the sample of African countries.

The control variables show similar effects on GVC participation in Africa. Moreover, military risk shows a highly positive impact on GVC participation (overall, backward and forward), reflecting the specificity of African countries where political connections and state interference seem to help firms to easily access the global market and integrate in GVC (Aboushady & Zaki, 2023).

	De jure	Comp.	De facto	o Comp.				
	GVC	GVC	GVC	GVC				
Ln(GDP/cap)	2.938***	2.609***	1.235***	0.940***				
	(0.170)	(0.160)	(0.239)	(0.243)				
Ln(Tariff)	-0.0285	0.100*	-0.0433	-0.0328				
	(0.0608)	(0.0559)	(0.0685)	(0.0648)				
Fin. Inst. Index	2.415***	0.384	1.817***	1.645**				
	(0.602)	(0.580)	(0.674)	(0.642)				
Exp. Div.	0.0965**	0.0538	0.166***	0.139***				
	(0.0452)	(0.0415)	(0.0489)	(0.0467)				
Ln(REER)	0.127	0.219**	0.0475	0.0653				
	(0.0997)	(0.0917)	(0.156)	(0.149)				
Military Risk	0.0665***	0.0604***	0.438***	0.473***				
	(0.0240)	(0.0218)	(0.161)	(0.153)				
Law dum.	0.495***							
	(0.0639)							
Law age		0.0604***						
		(0.00525)						
Market Dom.			0.0285					
			(0.0430)					
Eff. Anti-Mono.				0.136***				
				(0.0379)				
Constant	-11.83***	-9.365***	2.516	4.565**				
	(1.383)	(1.299)	(1.795)	(1.806)				
Observations	329	329	151	151				
R-squared	0.774	0.812	0.487	0.534				
Number of id	25	25	24	24				

Table 7: GVC and Competition in Africa

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

	De jure	Comp.	De facto	o Comp.	De jure	e Comp.	De facto Comp.	
	DVX	DVX	DVX	DVX	FVA	FVA	FVA	FVA
Ln(GDP/cap)	2.867***	2.570***	0.813***	0.508*	2.825***	2.424***	1.728***	1.436***
	(0.182)	(0.177)	(0.267)	(0.272)	(0.178)	(0.162)	(0.252)	(0.258)
Ln(Tariff)	-0.0303	0.0914	-0.0705	-0.0601	-0.0683	0.0751	-0.0329	-0.0227
	(0.0652)	(0.0617)	(0.0764)	(0.0728)	(0.0639)	(0.0564)	(0.0723)	(0.0688)
Fin. Inst. Index	2.190***	0.298	2.142***	1.967***	2.953***	0.633	1.578**	1.409**
	(0.645)	(0.640)	(0.752)	(0.721)	(0.632)	(0.585)	(0.712)	(0.682)
Exp. Div.	0.0837*	0.0442	0.140**	0.113**	0.113**	0.0637	0.191***	0.165***
	(0.0484)	(0.0458)	(0.0545)	(0.0524)	(0.0475)	(0.0419)	(0.0516)	(0.0496)
Ln(REER)	0.204*	0.287***	0.0770	0.0953	-0.0826	0.0296	-0.205	-0.188
	(0.107)	(0.101)	(0.174)	(0.167)	(0.105)	(0.0925)	(0.165)	(0.158)
Military Risk	0.0571**	0.0520**	0.470**	0.505***	0.0880***	0.0793***	0.415**	0.449***
	(0.0257)	(0.0241)	(0.180)	(0.172)	(0.0252)	(0.0221)	(0.170)	(0.163)
Law dum.	0.479***				0.520***			
	(0.0685)				(0.0672)			
Law age		0.0563***				0.0687***		
		(0.00580)				(0.00530)		
Market Dom.			0.0319				0.0290	
			(0.0480)				(0.0454)	
Eff. Anti-Mono.				0.141***				0.134***
				(0.0426)				(0.0403)
Constant	-11.90***	-9.666***	5.490***	7.610***	-11.26***	-8.290***	-1.617	0.406
	(1.482)	(1.434)	(2.002)	(2.028)	(1.453)	(1.311)	(1.895)	(1.918)
Observations	329	329	151	151	329	329	151	151
R-squared	0.738	0.768	0.363	0.414	0.759	0.815	0.544	0.581
Number of id	25	25	24	24	25	25	24	24

Table 8: Backward and Forward Participation in Africa

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

To assess the nonlinearity between competition and GVC participation in Africa, Table 9 presents the empirical results for the model while adding a squared term for the continuous competition variables. Empirical findings support this non-linear relationship, where *de jure* competition tends to increase GVC participation (overall, backward and forward) in Africa, but with a decreasing rate. Besides, out of the two *de facto* competition variables included, only market dominance shows a nonlinear impact on GVC participation, as it increases the level of GVC participation but at a decreasing rate. Results regarding the direction and significance of the control variables remain similar to the model without the squared term of competition indicators. In addition, the reasons behind the differences between the de jure and the de facto measures still apply.

		GVC			DVX			FVA	
Ln(GDP/cap)	2.511***	1.209***	0.951***	2.474***	0.789***	0.525*	2.325***	1.695***	1.426***
	(0.159)	(0.237)	(0.245)	(0.177)	(0.265)	(0.275)	(0.161)	(0.249)	(0.260)
Ln(Tariff)	0.123**	-0.0160	-0.0298	0.114*	-0.0454	-0.0557	0.0979*	0.000758	-0.0254
	(0.0551)	(0.0692)	(0.0655)	(0.0612)	(0.0775)	(0.0735)	(0.0557)	(0.0726)	(0.0696)
Fin. Inst. Index	1.316**	1.824***	1.630**	1.214*	2.149***	1.946***	1.571**	1.587**	1.423**
	(0.624)	(0.667)	(0.646)	(0.692)	(0.747)	(0.725)	(0.630)	(0.700)	(0.686)
Exp. Div.	0.0695*	0.155***	0.135***	0.0596	0.130**	0.107**	0.0795*	0.178***	0.169***
	(0.0409)	(0.0486)	(0.0480)	(0.0454)	(0.0545)	(0.0539)	(0.0413)	(0.0510)	(0.0510)
Ln(REER)	0.222**	0.0377	0.0674	0.290***	0.0680	0.0983	0.0319	-0.217	-0.190
	(0.0898)	(0.155)	(0.150)	(0.0997)	(0.173)	(0.168)	(0.0907)	(0.162)	(0.159)
Military Risk	0.0557***	0.472***	0.480***	0.0475**	0.501***	0.515***	0.0747***	0.457***	0.443***
	(0.0214)	(0.160)	(0.155)	(0.0238)	(0.180)	(0.174)	(0.0217)	(0.168)	(0.164)
Law age	0.0854***			0.0809***			0.0938***		
	(0.00861)			(0.00956)			(0.00870)		
Law age Sq.	-0.00109***			-0.00107***			-0.00110***		
	(0.000301)			(0.000333)			(0.000304)		
Market Dom.		0.631**			0.585*			0.770**	
		(0.313)			(0.351)			(0.329)	
Market Dom. Sq.		-0.0846*			-0.0776			-0.104**	
		(0.0435)			(0.0488)			(0.0457)	
Eff. Anti-Mono.			0.281			0.355			-8.25e-05
			(0.383)			(0.430)			(0.407)
Eff. Anti-Mono. Sq			-0.0194			-0.0287			0.0180
			(0.0511)			(0.0573)			(0.0543)
Constant	-8.959***	1.703	4.210**	-9.267***	4.744**	7.086***	-7.882***	-2.615	0.735
	(1.278)	(1.824)	(2.039)	(1.418)	(2.044)	(2.289)	(1.291)	(1.913)	(2.166)
Observations	329	151	151	329	151	151	329	151	151
R-squared	0.820	0.502	0.535	0.776	0.376	0.415	0.823	0.563	0.581
Number of id	25	24	24	25	24	24	25	24	24

Table 9: GVC, Competition and Non-Linearity in Africa

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10 presents the empirical results of the model while incorporating two interaction terms: one between competition variables and export diversification, and the second between competition variables and tariff levels, to test for their validity as transmission channels for the impact of competition on GVC participation in Africa. The findings indicate that in Africa, the impact of *de jure* competition indicators relies mainly on the level of export diversification, where *de jure* competition further increases GVC participation in highly diversified economies. Our results suggest that participation in GVCs increases in more competitive markets when tariffs are high. This shows to what extent, in Africa, as tariffs are relatively high, competitive markets might represent a substitute for the international competition implied by lower tariffs. This result is not applicable to *de facto* competition, as results show an insignificant impact for competition variables as well as their interaction terms with the previously mentioned channels.

				Eff.
	Law		Market	Anti-
	dum.	Law age	Dom.	Mono.
Competition var.	0.0210	-0.0222	-0.0374	0.173
	(0.329)	(0.0207)	(0.265)	(0.189)
Ln(Tariff)	-0.124	0.0119	0.138	0.240
	(0.0774)	(0.0623)	(0.297)	(0.225)
Exp. Div.	0.0662	-0.00302	-0.0117	0.00114
	(0.0509)	(0.0431)	(0.162)	(0.151)
Competition var.*Exp. Div.	0.0430	0.0152***	0.0450	0.0288
	(0.0608)	(0.00401)	(0.0415)	(0.0352)
Competition var.*Ln(Tariff)	0.154**	0.0130**	-0.0468	-0.0663
	(0.0735)	(0.00557)	(0.0797)	(0.0536)
Observations	329	329	151	151
R-squared	0.777	0.822	0.494	0.543
Number of id	25	25	24	24

|--|

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### **5.4. Robustness Checks**

To control for the endogeneity between GVC and competition, we instrument the competition policy variable by three main instruments: the corresponding competition variable, tariffs, and the quality of institutions of the main trade partner. The rationale behind the choice of instruments is the following: if the main trade partner has high-quality institutions, adopted a competition law, or has an open trade policy, this should lead the partner country to adopt a less restrictive competition policy.

Table 11 shows the results of the instrumental variables (IV) regressions. It indicates that only de jure aspects of competition policy have a positive significant impact on GVC participation, but the

de facto competition variables show no significant effect. Yet, the results show that we do not reject the null hypothesis of the Sargen-Hansen test implying the validity of instruments used.

Once again, the findings indicate that de jure measures are more significant than de facto ones. First, as previously said, de jure measures are a prerequisite and a guarantee for a policy pertaining to competition. Second, the de facto metrics are based on perception and may be less accurate than the de jure measures, which are fact-based.

	De jur	e Comp.	De facto	Comp.
	GVC	GVC	GVC	GVC
Ln(GDP/cap)	1.362**	1.286***	1.305***	1.994**
	(0.646)	(0.210)	(0.222)	(1.003)
Ln(Tariff)	0.0344	-0.0461	-0.0890	-0.114
	(0.149)	(0.0426)	(0.0562)	(0.0905)
Fin. Inst. Index	2.439***	0.211	1.031	2.283
	(0.859)	(0.358)	(0.727)	(2.419)
Exp. Div.	0.0544	0.0121	0.201***	0.160
	(0.101)	(0.0399)	(0.0615)	(0.128)
Ln(REER)	-0.262	0.0293	0.102	0.161
	(0.197)	(0.0875)	(0.141)	(0.221)
Military Risk	-1.320	0.723***	0.182	-0.0784
	(1.372)	(0.122)	(0.243)	(0.590)
Law dum.	3.005*			
	(1.711)			
Law age		0.0834***		
		(0.0138)		
Market Dom.			-0.381	
			(0.298)	
Eff. Anti-Mono.				-0.742
				(0.850)
Constant	0.777	1.951	3.475**	-2.123
	(4.774)	(1.659)	(1.622)	(6.918)
Observations	519	519	309	309
Number of id	57	57	61	61
Sargan-Hansen statistic	2.442	0.786	1.548	0.551
Chi-sq(2) P-value	0.2949	0.675	0.4613	0.7593

Table 11: IV estimation

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### 6. Conclusion and policy implications

This paper investigates whether competition policy matters for participation in GVCs in different countries, with a special focus on Africa. To do so, we use the EORA dataset on backward and forward linkages and merge it with different indicators pertaining to the *de jure* (existence of competition law and its age) and the *de facto* (market dominance, anti-monopoly measures, etc.) competition policy. Our main findings show that competition policy matters for backward and forward GVC participation and that there is a non-linear relationship between competition and GVC participation. Market diversification and trade liberalization act as transmission channels for this effect. These results remain robust after we control for the endogeneity between GVC and competition both for the de jure measures of competition.

From a policy perspective, there is a lack of evidence on the impact of competition policies and laws on GVC participation in developing countries, especially in Africa. These are constrained by several barriers to competition including barriers to entry, state monopoly in key sectors, corruption, as well as a challenging political economy context. African countries also suffer from institutional and structural weaknesses, which makes them more vulnerable to anticompetitive practices (UNCTAD, 2010; World Economic Forum, 2017; Cherif et al., 2020). This increases uncertainty for foreign investors and limits African countries' integration in GVCs. Thus, to increase their participation in backward and forward linkages, our findings suggest that the structure of the domestic market matters. While de jure competition policies presents a lower baseline and a guarantee for a competitive market, de facto policies implying an effective implementation of the respective laws and regulations and a clear governance framework are indispensable for increasing African countries' participation in GVCs. It is also important to implement effectively the principle of competitive neutrality<sup>8</sup>, to ensure that different actors (public or private) operate under the same conditions. Yet, it is important to note that this distinction is not straightforward. Indeed, Lewkowicz and Metelska-Szaniawska (2020) argue that de facto and de jure institutions can boost or inhibit each other depending on incentives. On the one hand, they can boost each other when they lead to the same desired behavior. On the other hand, they might obstruct each other when they create incentives that lead to contrary decisions.

<sup>&</sup>lt;sup>8</sup> "Competitive Neutrality is a principle according to which all enterprises are provided a level playing field with respect to a state's (including central, regional, federal, provincial, county, or municipal levels of the state) ownership, regulation or activity in the market" (OECD, 2021).

#### References

- [1]. Abe, M. (2013), "Global supply chains: why they emerged, why they matter, and where they are going", in D.K. Elms and P. Low (eds.), Global value chains in a changing world, WTO Publications.
- [2]. Aboushady, N., & Zaki, C. (2023). Are Global Value Chains for Sale? On Business-State Relations in the MENA Region. IDOS Discussion Paper 17/2023.
- [3]. Acemoglu, D., Antràs, P., & Helpman, E. (2007). Contracts and technology adoption. *American Economic Review*, 97(3), 916-943.
- [4]. Aghion, P., Bloom, N., Blundell, R., Griffith, R., & Howitt, P. (2005). Competition and innovation: An inverted-U relationship. *The quarterly journal of economics*, 120(2), 701-728.
- [5]. Aghion, P., Blundell, R., Griffith, R., Howitt, P., & Prantl, S. (2009). The effects of entry on incumbent innovation and productivity. *The review of economics and statistics*, 91(1), 20-32.
- [6]. Aghion, P., Braun, M., & Fedderke, J. (2008). Competition and productivity growth in South Africa. *Economics of transition*, *16*(4), 741-768.
- [7]. Alence, R. (2004). Political institutions and developmental governance in sub-Saharan Africa. *The Journal of Modern African Studies*, 42(2), 163-187.
- [8]. Antràs, P., & Chor, D. (2022). Global value chains. *Handbook of international economics*, 5, 297-376.
- [9]. Ansón, J., Arvis, J. F., Boffa, M., Helble, M., & Shepherd, B. (2020). Time, uncertainty and trade flows. *The World Economy*, 43(9), 2375-2392.
- [10]. Arezki, R., Barone, A., Decker, K., Detter, D., Fan, R. Y., Nguyen, H., & Murciego, G. (2019). *Reaching new heights: Promoting fair competition in the Middle East and North Africa*. World Bank Publications.
- [11]. Avom, D., & Malah, F. Y. (2023). Chapter Eight On The Intensity Of Participation In Global Value Chain: How Important Is Export Diversification?. *Topical Issues in International Development and Economics*, 225.
- [12]. Babool, A. (2007). *The Impact of Domestic Policies on International Competitiveness*. Ph.D. Dissertation, University of Kentucky.
- [13]. Baker Mckenzie (2024). Competition in Africa Report 2024.
- [14]. Baldwin, R. (2017). *The great convergence: Information technology and the new globalization*. Harvard University Press.
- [15]. Balié, J., Del Prete, D., Magrini, E., Montalbano, P., & Nenci, S. (2019). Does trade policy impact food and agriculture global value chain participation of sub-Saharan African countries?. *American Journal of Agricultural Economics*, 101(3), 773-789.
- [16]. Böhmecke-Schwafert, M., Blind, K. (2023). The trade effects of product market regulation in global value chains: evidence from OECD and BRICS countries between 2000 and 2015. *Empirica*, **50**, 441–479. <u>https://doi.org/10.1007/s10663-023-09574-z</u>
- [17]. Bos, J. W., Kolari, J. W., & van Lamoen, R. C. (2013). Competition and innovation: Evidence from financial services. *Journal of Banking & Finance*, 37(5), 1590-1601.
- [18]. Bramati, M. C., Gaggero, A. A., & Solomon, E. M. (2015). International trade and domestic competition: evidence from Belgium. *Review of Industrial Organization*, 46, 383-399.

- [19]. Buccirossi, P., Ciari, L., Duso, T., Spagnolo, G., & Vitale, C. (2013). Competition policy and productivity growth: An empirical assessment. *Review of Economics and Statistics*, 95(4), 1324-1336.
- [20]. Buthe, T., & Kigwiru, V. K. (2020). The spread of competition law and policy in Africa: A research agenda. *African Journal of International Economic Law*.
- [21]. Cherif, R., Dhungana, S., Fang, X., Gonzalez-Garcia, J., Yang, Y., Yenice, M., & Eun Yoon, J. (2020). *Competition, Competitiveness and Growth in Sub-Saharan Africa* (No. 2020/030). International Monetary Fund.
- [22]. Cheng, M. K. C., Rehman, S., Seneviratne, M., & Zhang, S. (2015). Reaping the benefits from global value chains (IMF Working Paper 2015(204)). Washington, DC: International Monetary Fund (IMF). https://doi.org/10.5089/9781513516738.001
- [23]. Cherif, R., Dhungana, S., Fang, X., Gonzalez-Garcia, M. J. R., Yang, Y., Yenice, M., & Yoon, J. E. (2020). *Competition, competitiveness and growth in Sub-Saharan Africa*. International Monetary Fund.
- [24]. Choi, J., Fukase, E., & Zeufack, A. G. (2021). Global value chain participation, competition, and markups. *Journal of Economic Integration*, *36*(3), 491-517.
- [25]. Christ, N., & Ferrantino, M. J. (2011). Land transport for export: The effects of cost, time, and uncertainty in sub-Saharan Africa. World Development, 39(10), 1749-1759.
- [26]. Cigna, S., Gunnella, V., & Quaglietti, L. (2022). Global value chains: measurement, trends and drivers. *ECB Occasional Paper*, (2022/289).
- [27]. Conde, C., Heinrigs, P., & O'Sullivan, A. (2015). Tapping the potential of global value chains for Africa. *Europe*, 57, 50-9.
- [28]. Costinot, A. (2005). Contract Enforcement, Division of Labor and the Pattern of Trade.Mimeo: University of California, San Diego.
- [29]. Criscuolo, C., Timmis, J., & Johnstone, N. (2016). The relationship between GVCs and productivity. In *Background paper prepared for the 2016 OECD Global Forum on Productivity, Lisbon.*
- [30]. Durand, C., & Milberg, W. (2020). Intellectual monopoly in global value chains. *Review of International Political Economy*, 27(2), 404-429.
- [31]. El-Haddad, A., & Zaki, C. (2023). Vulnerability and resilience: crisis transmission channels for GVCs in COVID times. *Economics Bulletin*, 43(4), 1581-1592.
- [32]. Estrin, S., Meyer, K. E., Wright, M., & Foliano, F. (2008). Export propensity and intensity of subsidiaries in emerging economies. *International Business Review*, 17(5), 574-586.
- [33]. Elshaarawy, R., & Ezzat, R. A. (2023). Global value chains, financial constraints, and innovation. Small Business Economics, 61(1), 223-257.
- [34]. Eugster, J., Jaumotte, M. F., MacDonald, M. M., & Piazza, M. R. (2022). The effect of tariffs in global value chains (IMF Working Paper WP/22/40). Washington, DC: International Monetary Fund (IMF).
- [35]. Fernandes, A. M., Kee, H. L., & Winkler, D. (2022). Determinants of global value chain participation: cross-country evidence. *The World Bank Economic Review*, *36*(2), 329-360.
- [36]. Fujita, M. (2011). Value chain dynamics and local suppliers' capability building: an analysis of the Vietnamese motorcycle industry. In *The dynamics of local learning in global value chains: Experiences from East Asia* (pp. 68-99). London: Palgrave Macmillan UK.
- [37]. Gereffi, G., & Luo, X. (2015). Risks and opportunities of participation in global value chains. *Journal of Banking and Financial Economics*, 2(4), 51-63.

- [38]. Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of international political economy*, 12(1), 78-104.
- [39]. Goto, A. (2009). Innovation and competition policy. The Japanese Economic Review, 60(1), 55-62.
- [40]. Goodwin, T., & Pierola, M. D. (2015). Export Competitiveness: Why Domestic Market Competition Matters. Viewpoint; No. 348. World Bank, Washington, DC.
- [41]. Hart, O., & Moore, J. (1990). Property Rights and the Nature of the Firm. *Journal of political economy*, 98(6), 1119-1158.
- [42]. Hermalin, B. E., & Katz, M. L. (2009). Information and the hold-up problem. *The RAND Journal of Economics*, 40(3), 405-423.
- [43]. Hesse, H. (2009). Export diversification and economic growth. *Breaking into new markets: emerging lessons for export diversification*, 2009, 55-80.
- [44]. Hollis, A. (2003). Industrial concentration, output, and trade: An empirical exploration. *Review of Industrial Organization*, 22, 103-119.
- [45]. Hong, H. J. (2022). Effects of Competition Policy on Macroeconomic Outcomes. Journal of Economic Integration, 37(2), 337–376. https://www.jstor.org/stable/27130224
- [46]. Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters?. *Regional studies*, *36*(9), 1017-1027.
- [47]. Karam, F., & Zaki, C. (2019). Why don't MENA countries trade more? The curse of deficient institutions. *The Quarterly Review of Economics and Finance*, 73, 56-77.
- [48]. Kano, L., Tsang, E. W., & Yeung, H. W. C. (2020). Global value chains: A review of the multi-disciplinary literature. *Journal of international business studies*, *51*, 577-622.
- [49]. Kim, D., & Marion, B. W. (1997). Domestic market structure and performance in global markets: Theory and empirical evidence from US food manufacturing industries. *Review of Industrial Organization*, 12, 335-354.
- [50]. Koopman, R., Wang, Z., & Wei, S. J. (2008). How much of Chinese exports is really made in China? Assessing domestic value-added when processing trade is pervasive (No. w14109). National Bureau of Economic Research.
- [51]. Kowalski, P., Gonzalez, J. L., Ragoussis, A., & Ugarte, C. (2015). Participation of developing countries in global value chains: Implications for trade and trade-related policies.
- [52]. Krantz, S. (2024). Africa's Integration into Global Value Chains. Kiel Institute Africa Monitor. Data Story, 28 June 2022, KIEL.
- [53]. Kummritz, V., Taglioni, D., & Winkler, D. E. (2017). Economic upgrading through global value chain participation: which policies increase the value added gains?. *World Bank Policy Research Working Paper*, (8007).
- [54]. Lanz, R., & Piermartini, R. (2018). Specialization within global value chains: The role of additive transport costs (No. ERSD-2018-05). WTO Staff Working Paper.
- [55]. Lewkowicz, J., Metelska-Szaniawska, K. (2020). De Jure/De Facto Institutions. In: Marciano, A., Ramello, G. (eds) Encyclopedia of Law and Economics. Springer, New York, NY. <u>https://doi.org/10.1007/978-1-4614-7883-6\_661-3</u>
- [56]. Mondliwa, P., Roberts, S., & Ponte, S. (2021). Competition and power in global value chains. *Competition & Change*, 25(3-4), 328-349.
- [57]. OECD (2018). Making global value chains more inclusive in the MED region: The role of MNE-SME linkages. Draft background note prepared for the workshop "Business linkages in the MED region: Policies and tools", 17-18 April 2018, Beirut, Lebanon.

- [58]. OECD (2021). Recommendation of the Council on Competitive Neutrality. OECD Legal Instruments. Webpage: <u>https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0462</u>.
- [59]. Okah Efogo, F. (2020). Financial development and African participation in global value chains. *Financing Africa's Development: Paths to Sustainable Economic Growth*, 33-52.
- [60]. Omgba, L. D. (2014). Institutional foundations of export diversification patterns in oilproducing countries. *Journal of Comparative Economics*, 42(4), 1052-1064.
- [61]. Organisation for Economic Co-operation and Development (OECD). (2013). *Interconnected Economies: Benefiting from Global Value Chains (Preliminary Version)*. OECD Publishing.
- [62]. Park, S. H., Lundquist, K., & Stolzenburg, V. (2023). Global Value Chains for Inclusive Development. World Trade Organization, Webpage: <u>https://www.wto.org/english/res\_e/booksp\_e/10\_gvc23\_ch7\_dev\_report\_e.pdf</u>.
- [63]. Petersen, N. (2013). Antitrust law and the promotion of democracy and economic growth. *Journal of competition law and economics*, 9(3), 593-636.
- [64]. Polder, M., & Veldhuizen, E. (2012). Innovation and competition in the Netherlands: Testing the inverted-U for industries and firms. *Journal of Industry, Competition and Trade*, 12, 67-91.
- [65]. Prusak, R. (2017). The impact of the level of market competition intensity on enterprises activities in area of intellectual capital. *Management*, 21(2), 49-61.
- [66]. Smith, F. (2015). Natural resources and global value chains: What role for the WTO?. International Journal of Law in Context, 11(2), 135-152.
- [67]. Sturgeon, T. (2009). From commodity chains to value chains: Interdisciplinary theory building in an age of globalization. In: Bair J (ed) *Frontiers of Commodity Chain Research* (pp. 110-135). Stanford: Stanford University Press.
- [68]. Taglioni, D., & Winkler, D. (2016). *Making global value chains work for development*. World Bank Publications.
- [69]. The World Bank Group (2016). Breaking Down Barriers: Unlocking Africa's Potential through Vigorous Competition Policy. Washington, DC: World Bank Group.
- [70]. Tinta, A. A. (2017). The determinants of participation in global value chains: The case of ECOWAS. *Cogent Economics & Finance*, 5(1), 1389252.
- [71]. United Nations Conference on Trade and Development (UNCTAD). (2013). World Investment Report 2010—Investigating in Low-Carbon Economy. New York and Geneva: United Nations.
- [72]. United Nations Industrial Development Organization (UNIDO). (2018). Global value chains and industrial development: Lessons from China, South-East and South Asia.
- [73]. Urata, S., & Baek, Y. (2020). *The determinants of participation in global value chains: A cross-country, firm-level analysis* (No. 1116). ADBI Working Paper Series.
- [74]. Wang, X., Liu, Z., Lv, Y., & Zhao, C. (2019). Trade Barriers and Participation in the Global Value Chain: An Empirical Study Based on Anti-dumping toward China. China & World Economy, 27(2), 86-106.
- [75]. Wise, M. (2004). Competition law and policy in South Africa. *OECD Journal: Competition Law and Policy*, 5(4), 7-69.
- [76]. World Bank (2020). *World Development Report 2020*. Trading for development in the age of global value chains. World Bank: Washington D.C.
- [77]. World Bank & African Competition Forum. (2016). Breaking Down Barriers: Unlocking Africa's Potential through Vigorous Competition Policy.

- [78]. World Economic Forum (2017). Africa Competitiveness Report 2017. World Economic Forum, the International Bank for Reconstruction and Development/ the World Bank and the African Development Bank, Geneva.
- [79]. Xu, L., Jing, J., & Wu, C. (2023). Impact of Financial Development on the Position in Global Value Chain: An Analysis from the Research and Development Intensity Perspective. Available at SSRN 4525690.
- [80]. Yang, Y. (2021). A Survey of The Hold-Up Problem In The Experimental Economics Literature. *Journal of Economic Surveys*, 35(1), 227-249.
- [81]. Youssef, J. (2023). Streamlining Development into Macroeconomic Conditions: Which Ones Induce Structural Change. (*mimeo*)
- [82]. Youssef, J. and Zaki, C. (2024) "A. Decade of Competition Policy in Arab Countries: A De jure and De facto Assessment", *International Journal of Economic Policy in Emerging Economies*, vol. 19(1), pages 56-85.
- [83]. Zhang, Z., Gao, Y., & Wei, T. (2022). The Impact of Trade Barrier Reductions on Global Value Chains for Agricultural Products in China and Countries along the 'Belt and Road'. *World Trade Review*, 21(2), 224-248.

# Appendix

Angola	Mauritania	
Botswana	Mauritius	
Burundi	Morocco	
Cameroon	Mozambique	
Chad	Namibia	
Cote		
d'ivoire	Niger	
DR Congo	Nigeria	
Djibouti	Rwanda	
Egypt	Senegal	
Gambia	Sierra Leone	
Ghana	South Africa	
Kenya	South Sudan	
Lesotho	Swaziland	
Liberia	Tanzania	
Madagascar	Togo	
Malawi	Tunisia	
Mali	Uganda	
	Zambia	

#### Table A.1.: List of African countries

Table A2: Competition, Productivity and Innovation

	Ln(Patent per capita)	Ln(Labor productivity)
Law dummy	0.358***	0.106***
	(0.0693)	(0.0196)
Law age	0.0203***	0.0148***
	(0.00476)	(0.00135)
Market Dom.	-0.0498	-0.00697
	(0.0422)	(0.0110)
Eff. Anti-Mono.	0.0117	0.0312***
	(0.0441)	(0.0106)
Observations	1,014	1,515

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Each cell represents a regression where the dependent variable is either patents or labor productivity and the independent variables include the control variables used throughout the paper and one of the competition variables.