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Trade facilitation and Global Value Chains harmony

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In recent decades, the development and expansion of Global Value Chains (GVCs) have offered the production process an international scale, with an increasing number of countries contributing to the production of a single final product. The prominence of emerging economies in global value chains is on the rise, despite persisting disincentives that hinder the growth of international trade. Hence, to mitigate these impediments and foster international trade growth, the Aid for Trade initiative is launched. This study seeks to discern the nexus between the implementation of the Aid for Trade initiative in emerging economies and its prospective influence on the performance of these nations within global value chains. Existing literature expresses a positive outlook on the influence of aid for trade on global value chains, attributing this impact to the reduction of trade costs across various sectors involved in these chains.

Keywords: aid for trade, global value chains, emerging economies

1. Introduction

Over the past few decades, due to the increasing impact of globalization, certain phases of production that were previously localized have now become dispersed across different geographical locations. Global value chains (GVCs) denote a series of activities involved in manufacturing a product or delivering a service, ultimately sold to consumers. Each step contributes value to the final product, with at least two steps being conducted in different countries. When a company engages in at least one step within a GVC, it is considered part of the chain. With the rapid internationalization of production, new countries have been able to join GVCs, diminishing the dominance of major economies that previously controlled core positions. Consequently, more countries are now active participants in GVCs, with developing nations increasingly involved in various production stages. GVCs are increasingly seen as a potential avenue for emerging economies to achieve development, as highlighted in the research of Hanson (2012) on the integration of developing countries into the global economy and the rise of south-south trade within GVCs. Gereffi (2014) also underscores the expanding role of emerging economies in GVCs and the growing importance of GVCs for their economic and social welfare. Emerging economies, positioned between developing and developed nations, are subject to shifting categorizations as emerging markets, assessed periodically by various global financial organizations using diverse criteria. In line with the findings of Jangam and Rath (2021), there has been an increase in GVC involvement for emerging market economies from 34.8% in 1995 to 49.3% in 2011. However, participation in GVCs poses challenges for emerging economies. Aid for Trade serves as a key tool to address these challenges.

The Aid for Trade Initiative aims to bolster international trade in developing countries by addressing constraints through assistance and enhancement of trade-related factors. Introduced in December 2005 at the WTO Ministerial Conference in Hong Kong (Hallaert 2013), the initiative seeks to help developing nations build supply-side and trade-related infrastructure necessary to implement and benefit from WTO agreements, thereby expanding their trade opportunities. Emerging countries require technological and financial support to integrate and compete in foreign markets. Obstacles such as outdated or inadequate infrastructure, limited access to trade finance, compliance with diverse requirements, and complex border procedures pose costs for companies from emerging economies seeking to operate in foreign markets.

This paper examines the intersection between the implementation of the Aid for Trade initiative in emerging economies and its potential impact on these nations' performance within global value chains. Following this introduction, Section 2 reviews the existing literature on this topic, analyzing factors across three categories: Economic Infrastructure, Capacity Building, and Trade Policy and Regulations. Section 3 provides conclusions.

2. Literature Review

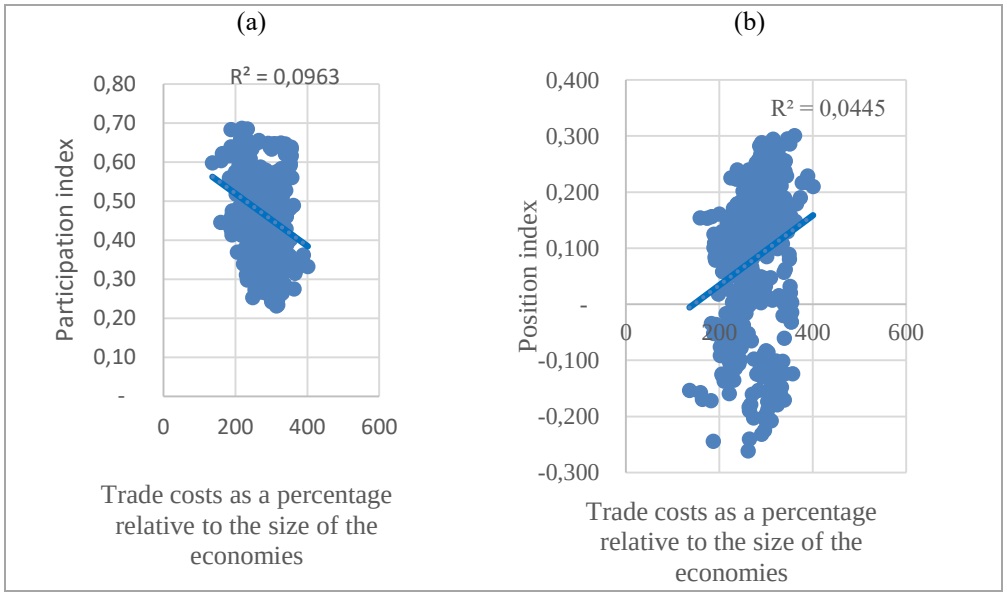
Global value chains emerged due to the deregulation and liberalization of international trade (Herr–Dünhaupt 2019). Several individuals might conflate the concepts of Global Value Chains and Global Supply Chains. The distinction between a value chain and a supply chain lies in their respective functions. A supply chain entails the coordination of all entities engaged in meeting customer demands, whereas a value chain comprises a series of interconnected operations utilized by a company to gain a competitive edge (Adewole–Struthers 2019). The GVC concept enjoys perception across various industries. The manufacture of goods such as transportation equipment and electrical devices is where the GVC concept is most well-known. However, the value chain approach may also be used to resource-based businesses. Aside from resource extraction, additional activities in the value chain encompass transportation and logistics. This type of conceptualization applies to the production of ores and minerals as well as agriculture. By taking part in GVCs, emerging economies may get access to new and often more profitable markets. This gives them the opportunity to add value to their own industries, create jobs, and raise income levels.

A country's participation in GVCs can be evaluated by adding its forward and backward linkages. The proportion of foreign value added in a nation's total exports is used to measure backward participation, whereas the proportion of domestic value contributed in exported intermediate products - which are then used by businesses in other nations for their exports – is used to measure forward participation. The GVC participation index specifies a preliminary understanding of a nation's total involvement in GVCs by aggregating these metrics and reflecting the degree of participation and its relative contribution in the global economy. However, merely examining a nation's relative participation rate is insufficient to comprehend how it participates in the networks of production (OECD/WTO 2015).

Countries' participation in high or low value-added activities matters as well. For a long time, economists have highlighted the advantages of international trade for economies, irrespective of the degree of added value connected to their product or field of specialization. Despite this, there is frequently a bias in favour of high value-added activities within GVCs in policy debates (Shepherd 2016). Low value-added activities, including assembly in manufacturing or commodity production in resource-based industries, are common points of entry into GVCs. Unlike in the manufacturing sector, rising through the ranks in resource-based value chains is typically more difficult (Shepherd 2016). In addition, OECD/WTO (2015) includes the structural attributes of nations, such as their size, location, and manufacturing proportion to GDP, as the primary factors influencing participation.

As illustrated in Figure 1, depicting the correlation between trade costs, sourced from the UNESCAP-World Bank dataset, and two key indices – the value chain participation index (a) and position index (b) sourced from the UNCTAD Database for the Aid for Trade recipient emerging economies for the available period of 1995-2018 – it becomes evident that trade costs play a substantial role in shaping value chain dynamics. Regarding the association between trade costs and the Participation Index (a), a clear negative correlation is evident, indicating that higher trade costs tend to correspond with lower levels of Global Value Chain (GVC) engagement in emerging economies. Conversely, the relationship between trade costs and the Position Index demonstrates a positive trend, suggesting that emerging economies with elevated trade costs are typically situated at the initial stages of production. According to Nyagadza et al. (2022), typical barriers that have been so evident in the emerging economies when it comes to employing the control, ownership, and supremacy of resources through the implementation of the 4IR technological dynamics encompass inadequate ICT infrastructure, radio frequency licensing, inadequate distribution of electricity in many rural areas of Africa, and development of skills, among others. Through their analysis of the Middle East and North Africa (MENA) region, Dovis and Zaki (2020) identified numerous significant barriers. The most pressing concerns are those related to political instability, insufficient electrical supply, restricted financial access, widespread corruption, high tax rates, and informal sector activities. Remarkably, these challenges are similar to those noted by businesses in other countries such as Latin America and the Caribbean and Eastern and East Asia and Pacific, where the main constraints include tax rates, competition from the informal sector and financial accessibility.

Figure 1. Trade costs and GVC participation/position indices in AfT recipient EEs, 1995–2018



Source: own construction

Note: Trade costs are shown in relation to (a) the value chain participation index and (b) the position index. Data are based on the UNESCAP-World Bank dataset for trade costs and the UNCTAD Database for GVC indices

Moreover, according to OECD/WTO (2015), economies' capacity to incorporate efficiently with the global economy is significantly impacted by the quality of transportation, telecommunications, and financial services, as well as border procedures, customs policies, and business and regulatory frameworks. Furthermore, Bamber et al. (2014) highlighted five aspects that influence developing nations' competitiveness with regard to GVCs: production capacity, infrastructure and services, business environment, trade and investment policy, and industry institutionalization. In general, economic infrastructure, building productive capacity and trade policy and regulation stand out prominently as primary barriers to GVC integration. Meanwhile, these elements represent focal points within the aid-for-trade initiative as well.

2.1. Economic Infrastructure

The arrangement of international trade is progressively centered on GVCs and can be enabled by enhancements in transportation, the revolution in information and telecommunications (ICT), and energy. The closeness to markets, which inevitably diminishes trade expenses, along with effective logistics and robust institutions, emerges as the primary catalysts for involvement in GVCs (Pathikonda–Farole 2017).

According to Mayer and Milberg (2013), the primary focus of infrastructure aid appears to be on transportation, which includes improvements to ports, railways,

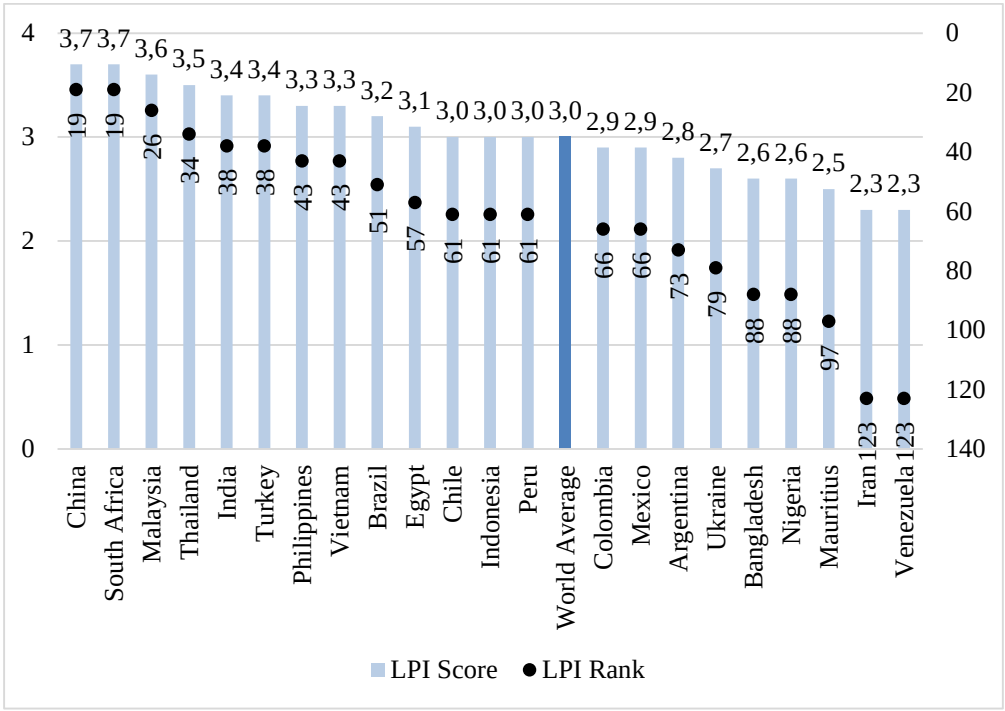
and road networks. Furthermore, a certain amount of the assistance in this category flows toward the development of electrical and communication infrastructure. Moreover, Bamber et al. (2014) emphasize the importance of infrastructure cost and quality, as well as the availability of border services. According to OECD/WTO (2015), improving trade facilitation and infrastructure quality is expected to have a substantial impact on global value chain integration. Poor infrastructure and inefficient border crossing processes might substantially raise the cost of product movement from point of origin to final location. Prolonged transit times caused by inadequate infrastructure decrease the efficiency of commodities movement to ports, while poor road conditions raise maintenance costs and decrease the lifespan of transportation vehicles. Furthermore, delays in customs processes for exports might impair product quality or result in the loss of perishable items (Bamber et al. 2014). Moreover, Lanz and Piermartini (2021) also emphasize that the importance of transportation infrastructure and simplified border processes in promoting international trade across supply chains cannot be ignored. Delays or inefficiencies in these areas increase inventory holding costs, impede quick reactions to moves in consumer demand, and limit the timely replacement of damaged parts. According to their results, robust transportation infrastructure provides a competitive advantage at the initial stages of production, known as upstream industries.

GVCs become impracticable in contexts with poor trade facilitation, such as those widespread in certain regions, since items, including components and parts, cannot be transported across borders quickly, reliably, and inexpensively (Shepherd 2016). Enhancing the trade facilitation and logistics framework emerges as a significant priority for emerging nations looking to increase their participation in GVCs. Investigating the upgrading experiences in cut flower GVC in East Africa, Keane (2019) highlights how insufficient logistical capacities might limit enterprises' capacity to adapt to diverse marketplaces and exploit prospects for advancement. Furthermore, Arvis et al. (2016) emphasize the critical importance of logistics performance in influencing a country's trade costs and, as a result, its ability to integrate into global value chains.

The Logistics Performance Index (LPI) is a significant measuring tool designed by the World Bank to assess the performance of logistics and trade facilitation measures in various nations (Arvis et al. 2023). This instrument provides insights into customs clearance efficiency, infrastructure quality, ease of shipping preparations, logistics service competency, tracking capabilities, and shipment timeliness. The LPI uses questionnaires of worldwide freight forwarders and logistics professionals to rate nations' logistical environment on a scale of 1 to 5, with higher ratings indicating greater performance. The LPI, which is widely used by policymakers, corporations, and researchers, assists in identifying areas where logistics infrastructure needs to be improved and allows for cross-country performance comparisons (Arvis et al. 2023). Figure 2 presents the Logistics Performance Index alongside the corresponding rankings of Aid for Trade recipient emerging economies, where data is available for the latest year, 2023, as sourced from the World Bank Database. The figure depicts variations in performance among selected countries. While the majority exhibit indexes higher than the world average, several emerging countries still perform below this benchmark. Notably, China and

South Africa lead with an LPI of 3.7, securing the 19th position out of 139 countries with available data. They are closely followed by Southeast Asian nations and Turkey. Conversely, Iran and Venezuela exhibit the lowest LPIs for 2023, standing at 2.3, and occupying the 123rd position in the ranking.

Figure 2. Logistics Performance Index and rankings in AfT recipient EEs, 2023



Source: own construction
Note: The Logistics Performance Index is shown on the left scale, while rankings are on the right scale. Data are based on the World Bank Database

In addition, the use of modern energy-saving technologies can also help developing countries improve the efficiency of their manufacturing processes (Yao et al. 2020). According to Dovis and Zaki (2020), electricity is a significant barrier for companies in the MENA region. Enhancing infrastructure, notably in the generation and distribution of electrical power, in that region would allow enterprises to specialize in more complex product lines, thanks to a steady and sustainable energy supply. Furthermore, by investigating thirty-six countries during the period of 1995-2014, Yao et al. (2021) found a positive correlation between energy efficiency and value-added trade.

Thus, economic infrastructure, including transportation, ICT, and energy, is vital for participation in GVCs. Funds in infrastructure aid are crucial for reducing trade costs and promoting GVC integration. Challenges like poor infrastructure hinder participation, emphasizing the need for improvements in logistics performance. Improving infrastructure, particularly in electricity generation and distribution, is

critical for enabling enterprises to thrive in GVCs. The positive relationship between energy efficiency and value-added trade underscores the importance of modern energy technologies in economic development and GVC participation.

2.2. Building Productive Capacity

Aid towards building productive capacity seems to be diverse, including cooperative aid, provision of infrastructure and equipment, as well as training efforts. Shepherd (2016) states that Aid for Trade programs allocate considerable funds towards developing productive capacities, emphasizing the importance of continuing this trend within a broader framework aimed at establishing policies for industry and human capital development, which will facilitate medium-term growth and progress. Furthermore, Bamber et al. (2014) also identify four broad elements that are critical to the growth of productive capacity in all industries: national innovation systems, standards, certification systems, and human capital. According to Nyagadza et al. (2022), capacity building is crucial for controlling support and regulations associated with strategic innovation. Furthermore, Lanz and Piermartini (2021) reveal that efficient institutions offer a competitive advantage in the later stages of the manufacturing process, which are often known as downstream activities.

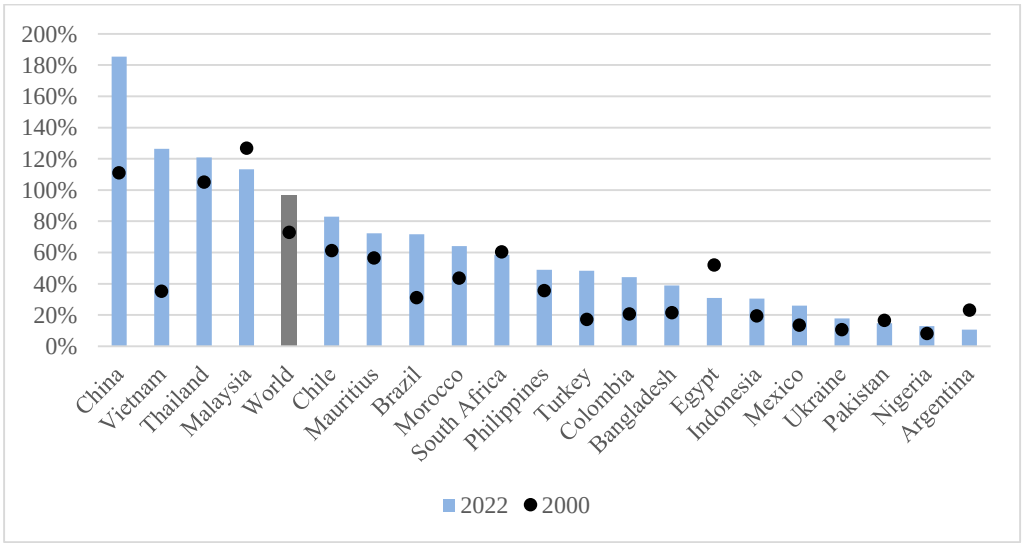
Agriculture is one of the most important sectors of the economy. Since aid organizations are already heavily involved in the agricultural sector, the importance of the sector to both developed and developing economies is demonstrated by the growing amount of funds that are allocated towards this area (Bamber et al. 2014). Farmers in emerging nations have better chances of obtaining inputs like fertilizers and seeds when trade costs in the agriculture industry are reduced. Consequently, this has the potential to boost productivity and encourage larger-scale manufacturing, which would assist the processing industries. Bamber et al. (2014) emphasize that the modern agriculture system has evolved into a sophisticated agro-foods system, led by major retail chains operating in international markets. Customers' demands for high-quality goods that adhere to precise requirements heighten supplier competitiveness as they compete to keep their places in supply chains.

Improving employee skills and productivity is crucial to raising their level of competitiveness not only in local economies but also in GVCs. First, aid might be provided to employees so they can increase their output by investing in technology and training, which will increase their efficiency and competitiveness along the value chain (Mayer–Milberg 2013). Similar to this, prioritizing aid efforts on the services sector – that is, on skill development and training programs – can increase a nation's involvement in GVCs and provide observable advantages including better R&D services, financial services, and marketing capacities (Banga 2013). Additionally, Mayer and Milberg (2013) stress that employee welfare and economic growth can be strengthened by aid programs that encourage the development of producers with backward links or that generate synergistic clusters of economic activity. Nonetheless, it is important to acknowledge that merely enhancing employee efficiency or bargaining power would not be adequate if global markets cannot be reached, underscoring the need of strategic industrial policy and market connections in aid initiatives. All of these statements have one thing in common: maximizing the benefits

of involvement in local and global economies, concentrated aid programs that aim to improve worker productivity, skills, and market connectedness is essential.

The access to financial resources has an important role in enabling the integration of individuals or businesses into GVCs. According to Bamber et al. (2014), financial resources, including bank funding, collateral, credit registries, and bankruptcy laws, are essential for investments to fulfil GVC requirements. Furthermore, Dovis and Zaki (2020) highlight that bank funding gives businesses the chance to grow and incorporate into GVCs, however, self-financing could have limitations in terms of quantity and sustainability. Figure 3 presents the domestic credit to the private sector by banks, represented as a percentage of gross domestic product (GDP), for the years 2000 and 2022, the latest available year, across emerging economies that are recipients of Aid for Trade, where data is available. The analysis highlights notable trends and variations in bank financing among these economies. Notably, China emerges as the most significant recipient of bank financing in 2022, followed by Vietnam, Thailand, and Malaysia, all of which surpass the global average. Conversely, Malaysia, South Africa, Egypt, Pakistan, and Argentina exhibit a decrease in bank financing from 2002 to 2022, contrasting with an overall increase observed in other countries. Vietnam stands out with the most significant surge, experiencing an exponential rise from approximately 35% in 2002 to 126% in 2022. According to El-Said et al. (2015) insufficient funds might limit small and medium-sized businesses' (SMEs') ability to engage in GVCs in a successful way. Thus, improving financial access may substantially increase the possibility that businesses will integrate into GVCs, supporting development and economic progress.

Figure 3. Bank credit to private sector (% of GDP) in AfT recipient EEs, 2000 vs. 2022



Source: own construction

Note: The percentage ratio of bank credit to the private sector to GDP is compared between 2000 and 2022. Data are based on the World Bank Database

We can notice that investment in agriculture is particularly crucial, as evidenced by the growing allocation of funds to this sector, which has the potential to enhance productivity and spur manufacturing growth. Improving employee skills and productivity is essential for competitiveness, with aid efforts focusing on technology adoption, training, and skill development in the services sector. Access to financial resources is also pivotal for integrating individuals and businesses into GVCs, with bank funding playing a significant role in enabling growth and integration. These aid programs collectively aim to maximize the benefits of participation in local and global economies by enhancing worker productivity, skills, and market connections.

2.3. Trade Policy and Regulation

A variety of studies emphasize how crucial trade facilitation and effective border crossings are to strengthening global value chains (GVCs) and advancing trade. The seamless operation of GVCs might be negatively impacted by inefficient border crossings that impede the prompt distribution of goods and services to their designated recipients (Bamber et al. 2014). Trade facilitation is becoming increasingly important for the smooth flow of products across borders as GVC operations expand. Hoekman and Shepherd (2015) state that enhanced trade facilitation helps businesses of all sizes by encouraging exports by lowering bottlenecks and logistical challenges. Furthermore, clearing up formal obstacles at borders promotes both importing and exporting economies while also facilitating integration into value chains. According to OECD/WTO (2015), certain policies that promote links within value chains and increase the overall efficiency of trade regulations include advance rulings, accelerated border procedures, and transparent import/export fees. Thus, encouraging economic growth, facilitating integration into GVCs, and helping businesses of all sizes throughout regions all depend on improving trade facilitation, lowering administrative barriers, and automating border operations.

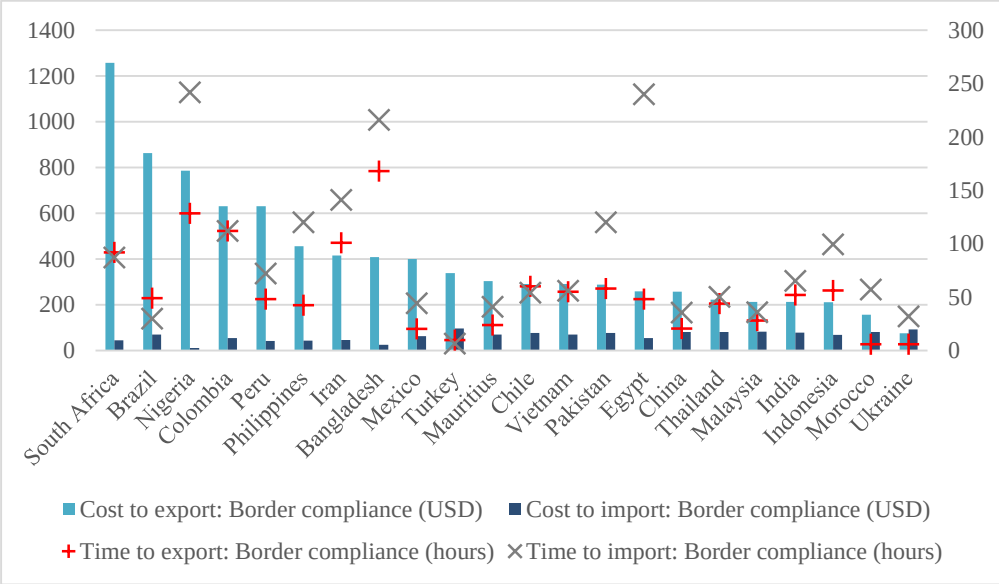
A number of factors, from the complexity of trade laws and regulations to the level of quality of a country's infrastructure, affect how businesses integrate into GVCs. The establishment of a national quality infrastructure, which includes certification, testing, standardization, and other associated activities that are essential for companies intending to engage in GVCs, is mainly the responsibility of the public sector (Shepherd 2016). Meanwhile, companies' feasibility of integration is highly dependent on the business environments in which they function; this is especially true in the MENA region, as demonstrated by Dovis and Zaki's (2020) research. According to them, a firm's possibility of integrating into GVCs is considerably hampered by elements like the number of procedures needed for fundamental company operations, lengthy procedures including managing insolvencies, and bureaucratic obstacles as paperwork requirements. Smaller businesses and companies in high tariff industries suffer additional difficulties that increase the obstacles to joining GVCs (Dovis−Zaki 2020).

According to OECD/WTO (2015), the increasing fragmentation of production in an international level highlights the need of an open, predictable, and transparent trade and investment policy, which calls for an encouraging atmosphere

for both domestic and foreign enterprises. On the other hand, a nation's competitiveness in international markets is diminished by tariffs, restrictions on imports, and ineffective border processes, which hinder both domestic manufacturers and foreign suppliers (Bamber et al., 2014 and OECD/WTO, 2015). Moreover, according to Keane (2019), a company's willingness to engage in intra-regional exports is highly influenced by institutional and governmental constraints, such as labour and customs laws. These factors are considered in the Aid for Trade Policy and Regulations channel. According to the finding of Wang and Xu (2018), there is a significant and positive relationship between the improvement of export quality and Aid for Trade Policy and Regulations. They emphasize that the impact of Aid for Trade is gradual, steadily increasing through cumulative impacts over time.

Figure 4 illustrates Doing Business indicators, including border compliance costs in USD and the time taken in hours to export and import for emerging economies that are recipients of Aid for Trade, based on the latest available data from 2019. The figure highlights significant variations in these indicators across countries. With the exception of Ukraine, a common trend is observed wherein border compliance costs for exports exceed those for imports. Among the countries analysed, South Africa, Brazil, Nigeria, Colombia, and Peru exhibit the highest border compliance costs for exports, while Ukraine demonstrates the lowest. Conversely, Turkey demonstrates the highest border compliance costs for imports, while Bangladesh records the lowest. In terms of the time required for border compliance for exports, Bangladesh exhibits the highest duration at 168 hours, followed by Nigeria at approximately 128 hours, while Ukraine and Morocco record the lowest duration at 6 hours each. Conversely, the longest durations for border compliance for imports are observed in Nigeria, Egypt, and Bangladesh, at 241, 240, and 216 hours respectively, whereas Turkey records the shortest duration at 6.5 hours. Overall, there is a significant amount of variance among the examined emerging economies with regard to the costs associated with border compliance and the time required to import and export goods, based on the data provided in the graph. Some nations exhibit comparatively cheap costs and effective procedures; however, others have notable obstacles, especially with extended processing timeframes and elevated costs associated with compliance. This implies that there could be chances for focused interventions and changes meant to simplify border processes and lower trade expenses, improving these nations' competitiveness in the international market.

Figure 4. Border compliance costs and time for trade in AfT recipient EEs, 2019



Source: own construction
Note: Border compliance costs (USD) are shown on the left scale, and time (hours) on the right scale. Data cover both export and import processes based on the World Bank Database

Thus, we can highlight the critical role of trade facilitation in bolstering global value chains and advancing trade. Enhanced trade facilitation promotes exports, lowers logistical challenges, and fosters integration into value chains. Factors like trade laws, infrastructure quality, and business environment complexity affect GVC integration. Institutional and governmental constraints, such as labor and customs laws, impact companies' willingness to engage in exports. The significant variations in border compliance costs and time required for exports and imports among emerging economies underscore the need for focused interventions to simplify border processes and enhance competitiveness in the international market.

3. Conclusion

The complex relationship between trade aid programs and emerging nations' incorporation into global value chains (GVCs) illustrates the complexity of modern international trade dynamics. This paper has presented an in-depth examination of the several aspects of this connection, shedding light on the possibilities and challenges associated with promoting growth in the economy globally.

A broader variety of nations have taken an active role in the global production of goods and services, which represents a significant shift from the traditional models of international trade that were caused by the introduction and spread of GVCs. The rise of GVCs is uninterrupted despite the ongoing obstacles and disincentives that are present in many emerging nations, which call for drastic steps to promote trade and economic expansion. Leading in carrying on these strategies is the Aid for Trade

initiative, a deliberate attempt to offer targeted support with its objectives of strengthening trade infrastructure, building productive capacity, and reforming trade laws and regulations.

It appears evident that developing infrastructure is essential to enable nations to engage in GVCs. In addition to lowering trade costs, funding in essential sectors like energy, information and communication technology (ICT), and transportation also improve logistical efficiency and encourage increased connectivity, which strengthens the integration of emerging economies into the vast networks of global chains. In addition, the development of production capacity is a crucial step towards GVC integration. This calls for an integrated approach that includes efforts to strengthen standards and certification programs, expand innovative ecosystems, and develop a trained labour force. Investing in these fundamental pillars will help emerging economies become more competitive and increase their capacity to create value in global value chains. Furthermore, the domain of trade policy and regulation has paramount importance in shaping the course of GVC integration. Improving the smooth flow of products and services across borders and increasing the operating efficiency of GVCs requires a number of initiatives, including simplifying border processes, lowering trade obstacles, and promoting openness in trade legislation.

Overall, the conclusions presented in this paper highlight the complex relationship that exists between trade assistance programs and the incorporation of emerging economies into global value chains. Trade aid initiatives have the potential to stimulate emerging economies' involvement in GVCs and promote inclusive growth on a global level by addressing infrastructure limitations, fostering productive capacities, and improving trade policy and regulatory frameworks. To achieve these goals, nevertheless, continued study into the complex dynamics of this connection and how best to maximize trade assistance measures in the context of GVC integration will be required.

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