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Aid for Trade: Boosting exports in emerging economies

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This study delves into the impact of Aid for Trade (AfT) disbursements, examining their aggregate influence and effects, when considered as distinct subcategories, on the export activities of emerging economies (EEs). Additionally, the study determines whether this impact differs based on whether these exports are directed towards countries that provide aid (29 donor countries) or those that do not (157 non-donor countries). The study focuses on a specific cohort of 24 EEs, examining data from 2002 to 2019. This timeframe was selected due to the widespread availability of variables used in the analysis, ensuring consistency across the selected period. The analysis employs gravity models with ordinary least squares (OLS) fixed-effects and Poisson pseudo-maximum likelihood (PPML) fixed-effects methods. The findings reveal that not only does AfT have an overall positive and significant impact on the exports of EEs to donor and non-donor countries, but its subcategories, Aid for Economic Infrastructure (AfEI) and Aid for Building Productive Capacity (AfBPC), exhibit similarly positive effects. Furthermore, it becomes evident that AfT and AfEI exert a more pronounced influence on exports to donor countries than to non-donor countries. In the case of AfBPC, differences in the results between OLS and PPML estimations suggest potential variations in its impact depending on the importing country. While the influence of Aid for Trade Policies and Regulations (AfTPR) subcategory was generally deemed insignificant, the PPML model revealed a negative and significant impact on exports to donor countries.

Keywords: Aid for Trade, emerging economies, international trade

Aid for Trade (AfT), introduced in 2005, aims to solve trade-related challenges by providing economic aid to enhance trade-related infrastructure, production capacity and policies. AfT falls under Sustainable Development Goal 8, emphasising sustainable economic development and job creation. Theoretical underpinnings highlight the necessity of reducing trade costs and improving domestic supply to enhance developing nations' participation in global trade. Various studies demonstrate the positive impact of AfT on export diversification and trade efficiency, although with some conflicting findings. Quantitative

analyses reveal that AfT significantly reduces trade costs and facilitates exports, particularly through improving infrastructure and trade policies. However, the effectiveness of AfT remains debated, with divergent opinions regarding its impact on recipient countries' exports and the role of donor countries' interests. Despite these debates, AfT continues to play a crucial role in promoting global trade and economic growth, although its specific impact on emerging economies (EEs) remains underexplored. Investigating AfT's influence on EEs' trade performance is essential to understand its potential benefits and dynamics in this context.

The 'Gravity Equation' has long been fundamental in analysing international trade, originating from *Tinbergen (1963)* and further developed by *Anderson (1979)*. This equation explains trade patterns based on factors such as gross domestic product and distance between trading partners, evolving into the modern structural gravity model. *Silva and Tenreyro (2006)* introduced the Poisson pseudo-maximum likelihood (PPML) method, offering a more robust estimation technique for the gravity model than for traditional methods. Subsequent research applied PPML to cross-sectional and panel data, providing accurate estimations.

This study aims to investigate the impact of AfT on the exports of EEs to donor and non-donor countries, using data from the Centre for Prospective Studies and International Information and the OECD, spanning from 2002 to 2019, and applies ordinary least squares fixed-effects and PPML fixed-effects methods in gravity models for analysis. The results demonstrate a positive effect of AfT on exports to donor countries, with varying impacts across different AfT subcategories. However, the influence of AfT on exports to non-donor countries remains consistent but generally lower than exports to donor countries. The study emphasises the importance of tailoring aid programmes to meet the unique needs of recipient countries, considering different impacts based on the importer's donor status. The research contributes to understanding AfT dynamics and suggests policy recommendations for improving trade outcomes for EEs. Further exploration into additional variables and qualitative aspects of policy implementation is necessary for a comprehensive understanding of AfT's effectiveness.

1. Introduction

Trade, particularly exports, is pivotal for fostering economic growth. Trade acts as a catalyst for development, not only by boosting a country's economy but also by

enabling global integration and improving international competitiveness. The challenges faced by emerging economies (economies positioned between developing and developed countries) and developing countries in the realm of international trade are diverse and include issues such as trade barriers, inadequate infrastructure, supply-side limitations, external economic shocks and limited access to resources. These difficulties hinder their capacity to participate effectively in global trade and leverage the opportunities presented by e-commerce. To tackle these challenges, the international community has recognised the significance of Aid for Trade (AfT), an initiative designed to help countries in overcoming domestic hurdles, in integration into the global economy and in attaining export driven growth.

The AfT initiative, introduced in 2005, marks a significant step in harmonising trade policies with development assistance. The initiative acknowledges the obstacles less developed countries face in implementing trade liberalisation and adapting to the ever-evolving global trade system. By offering financial support for factors able to enhance trade performance, such as infrastructure, trade agreements and trade-related services, AfT serves as a critical instrument for promoting sustainable, efficient and inclusive economic development. AfT operates within three primary categories: economic infrastructure (EI), building productive capacity (BPC) and trade policies and regulations (TPR). These categories encompass various subfields, each serving as a channel for delivering aid.

The effectiveness of AfT remains a subject of ongoing debate. Opinions differ on the significance of the programme in promoting export driven economic growth. The role of AfT in international trade, particularly in emerging economies (EEs), continues to evolve and demands further exploration. To gain an in-depth understanding of the dynamics and potential benefits of AfT for EEs, this study aims to examine the impact of AfT disbursements on exports, both overall and within distinct subgroups. Additionally, the study assesses this impact, based on whether exports are directed towards donor or non-donor countries. To achieve these objectives, a gravity model is employed for estimation, considering trade costs and various other factors. The choice of estimation method, the Poisson pseudo-maximum likelihood (PPML), is discussed in detail due to its suitability for addressing challenges related to zero-trade observations and heteroskedasticity. To the best of the author's knowledge, there has been no prior examination of the distinct impact of AfT allocated to the EEs on their exports; consequently, the novelty of this study lies in filling this gap and making a unique contribution to the existing literature.

This study delves into the multifaceted world of AfT, exploring its impact on trade performance, especially for EEs. By examining the nuances of this initiative and its varying effects on exports, we can gain an in-depth understanding of its influence on international trade and how it contributes to the economic growth of

countries, particularly in the context of EEs. The study is structured as follows. Section 1 introduces the research. Section 2 reviews the previous literature on this topic. Section 3 examines the methodology. Section 4 presents the results. Finally, Section 5 concludes the study.

2. Literature review

In today's world, exports may have a significant impact on people's standard of living and are becoming increasingly relevant in supporting and sustaining growth in developing and developed countries. Thus, promoting trade and export performance is critical for most countries' economies. Correspondingly, developing countries and EEs are facing trade-related difficulties such as trade barriers (tariffs and non-tariff barriers), infrastructure (roads, ports and telecommunications), supply-side restraints and challenges such as external shocks and scarce resources, all of which hinder their ability to engage efficiently in international trade and to enjoy the benefits offered by e-commerce *(Kiute et al., 2015).* Thus, the international community has placed a strong emphasis on AfT to help those countries overcome domestic challenges, integrate into the global economy and achieve export-driven growth. The AfT is one of the main attempts to support the international trade of developing countries. This initiative focuses on overcoming limitations by financing the factors that may result in trade improvement.

2.1. The Aid for Trade (AfT) concept

The AfT is a recent global initiative that provides economic aid to assist developing nations in enhancing their trade-related infrastructure, production capacity and policies. Ministers at the 2005 WTO Hong Kong Ministerial Conference acknowledged the need to go beyond simply increasing market access; thus, the AfT initiative was introduced by the global community in December 2005 *(Hallaert, 2013).* The ministers introduced an initiative to help developing countries by building supply-side and trade-related infrastructure. This infrastructure would enable these countries to implement and benefit from WTO agreements and expand their trade on a broad scale. Currently, AfT is part of SDG[1]

[1] Sustainable Development Goals refer to a set of 17 international objectives outlined by the United Nations in 2015, aiming to tackle diverse social, economic and environmental issues and foster global sustainable development.

8, aimed at encouraging sustainable, efficient and inclusive economic development, offering full and productive jobs and stable employment for all. *Udvari (2014)* and *Hynes–Holden (2016)* stated that the WTO introduced the AfT initiative to better align trade policy and development aid in response to several countries' inability to implement the liberalisation mechanism and to adapt to the current international trade system. *Hallaert (2013)* concluded that trade aid will help WTO members in enforcing unilateral trade and customs reforms and regional treaties, which necessitate changes in the trade and customs regime. Concurrently, *Ghimire et al. (2016)* described the AfT as an activity that is focused on the amount of assistance given to sectors that specifically improve the EI and other export-friendly services. Since AfT is meant to make trading easier, *Stiglitz and Charlton (2006)* considered it a prerequisite for trade reforms, access to markets in developing countries and a catalyst for increasing exports. Since its establishment in 2005, AfT has gained considerable importance and became a critical component of international aid designed to help developing countries attain greater self-sufficiency, boost their trade performance and enhance their bargaining role in global negotiations *(Kiute et al., 2015).*

According to the OECD-CRS database, AfT is described as aid flowing into sectors that strengthen the recipient country's capacity to enhance and facilitate trade. These sectors are grouped into three main categories by the OECD: EI, BPC and TPR. Each of the sectors contains subfields that play a role in the channel for the AfT (Table 1).

Table 1

Categories of Aid for Trade and their subfields

AfT categories	Subfields
Economic infrastructure (EI)	Transport and storage
	Communications
	Energy
Building productive capacity (BPC)	Banking and financial services
	Business and other services
	Agriculture
	Forestry
	Fishing
	Industry
	Mineral resources and mining
	Tourism
Trade policies and regulations (TPR)	Trade policies and regulations and trade-related adjustment

Source: Own construction based on OECD–CRS.

EI encompasses subcategories including transport and storage, communications and energy. Another classification, BPC, consists of subfields such as banking and financial services, business and other services, agriculture, forestry, fishing, industry, mineral resources and mining and tourism. The final category, TPR, includes trade policies and regulations and trade-related adjustment, specifically covering assistance for customs authorities, tariff adjustments and the simplification and harmonisation of international import and export processes, including customs evaluation, licensing procedures, transactions and insurance.

2.2. Theoretical underpinnings of the AfT initiative

Given the obstacles highlighted in various studies, it becomes clear that it is essential to tackle trade costs, domestic supply shortages and operational challenges to unleash the complete potential of developing nations in the realm of global trade. According to the OECD-WTO publication AfT at a Glance 2015 *(OECD/WTO, 2015),* trade costs are a major barrier to developing countries enhancing their export competitiveness and productivity. Furthermore, *Hynes and Lammersen (2017)* discussed that domestic supply shortages and operational costs are the primary reasons for the failure of trade expansion and development in many of the poorest developing countries. *Prowse (2006)* concluded that without an approach to increase supply capacity, decrease transport costs, promote the flow of goods over borders, link farmers to markets and so on, trade opportunities cannot be completely used, and the future profits from trading may not be maximised.

Cali and Te Velde (2011) noted that the effect of aid on exports can be determined by how the aid provided to promote trade lowers production costs within an economy. When aid is focused on more efficient uses, which lower labour, capital and/or transport costs, this would help turn the forecast towards lowering marginal costs. *Ojeaga (2014)* stated that output will grow if companies' marginal costs of production decline as a result of foreign aid. It is presumed in the *Dixit–Stiglitz (1977)* model that certain companies only operate in their home market. These businesses do not cover the costs of transportation. If companies want to sell in a global market, they will face a great deal of trade costs, including shipping and tariffs.

According to the New Trade Theory, trade can be increased when firms produce and sell not only in the domestic market but also in foreign countries where their technologies and factor endowments are similar, since their average costs of production decrease and they enjoy increasing returns to scale. Since the 2000s, a

'New New Trade Theory' has emerged and concentrated on firm-level exports. According to *Melitz (2003)*, a new source of trade advantages emerged. When trade barriers are eliminated to encourage competition, low-productivity businesses, previously protected by trade barriers, are pushed to leave the market, allowing high-productivity enterprises to expand their output volume. Thus, a country's overall average production increases. Meanwhile, higher international entry costs, according to *Helpman et al. (2008)*, trigger the competitiveness barrier, rendering it more difficult for local firms to enter the global market. Similarly, exporters' trade costs, such as shipping and other export costs, make it impossible for companies to begin exporting. Lower trade costs are also likely to be linked to a more diverse export base, and increased productive capacity can be favourably correlated with export diversification *(Masunda, 2020).*

Several scholars endeavoured to investigate the impact of specific AfT subgroups. According to *Vijil and Wagner (2012)*, infrastructure efficiency is strongly associated with infrastructure assistance. *Lanz et al. (2016)* noted that transportation costs increase due to insufficient infrastructure, cumbersome border processes and poor logistic systems. Meanwhile, *Ojeaga (2014)* stated that aid toward infrastructure investments made a significant contribution to exports, and aid used for the development of infrastructure is expected to create an encouraging atmosphere that will facilitate trade by reducing the cost of trade facilitation. Furthermore, *Udvari (2017)* noted that AfT is aimed at improving the trading infrastructure in developing nations, thus potentially increasing their exports. According to *Buys et al. (2010)*, road upgrades may have a significant positive impact on trade volumes. Moreover, *Ojeaga (2014)* discussed that aid directed specifically at promoting exports such as trade credits extension proved to add positively to exports, and consequently, aid channelled to industries that might increase production capacity is likely to be useful in facilitating trade. *Moreira (2010)* pointed out that steadily falling tariffs raise competition on the one hand while reducing tariff collections in developing countries on the other. The relationship with export tends to be more stable and on a larger scale as aid is directed towards TPR *(Helble et al., 2012)*. *Aderibigbe (2022)* stated that enhancement of border efficiency proves effective in boosting exports from Nigeria. Furthermore, *Masunda (2020)* noted that TPR is linked to increased export diversification, to the degree that AfT helps improve competitiveness and lower trade costs. AfT improves developing countries' export efficiency by improving access to markets, reducing supply-side restrictions and developing trade policies in aid-receiving countries *(Ghimire et al., 2016)*.

There are diverging opinions regarding the effectiveness of AfT. *Hühne et al. (2014)* stated that AfT is most required in Sub-Saharan Africa to help recipient countries further integrate into global markets. Furthermore, the authors discover that total AfT is more successful in supporting East Asian and Latin American

exports than Sub-Saharan African ones. Although the findings of *Kiute et al. (2015)* were not statistically significant, they nonetheless supported the optimistic view that AfT can encourage trade. This suggests that the possible effect of AfT on export output could be unappreciated due to unaccounted factors, at national or global level, not taken into consideration in the report. Their study revealed a variety of noteworthy and contradictory scenarios about the effectiveness of AfT, revealing that the programme has not been entirely successful in achieving the desired effects of supporting developing countries' exports. Aid inflows may harm a country's international competitiveness by causing actual exchange rate appreciation. Thus, exportable production will be discouraged at the recipient nation *(Hühne et al., 2014).* Countries in Sub-Saharan Africa are reportedly experiencing significant challenges in their financial markets due to alterations in the net aid flows they receive, according to *Klutse et al. (2022).* However, *Ghimire et al. (2016)* called for increasing export-oriented international aid for developing countries as widespread trade gains are still to be realised in many countries.

Several researchers express scepticism about the precise application of financial assistance donations. *Easterly (2003)* stated that supplying aid to a nation will promote a strong relationship between the two nations, with the donor country driving the search for resources and other country-specific interests in the recipient country. If a significant reserve of a resource is found, it might lead to cooperation between the two nations, strengthening the claim that aid is primarily altruistic and encouraging aid to promote trade. Moreover, *Ojeaga (2014)* noted that if foreign aid is given primarily for altruistic purposes, it will have a significant impact on the recipient nation's growth if it is used properly. According to *Udvari (2014)*, in China, one of the world's biggest exporters, the European Union has launched more AfT programmes than Sub-Saharan Africa. Meanwhile, *Kapás (2023)* proposed that countries transitioning into stable democracies receive greater aid from donors than those that persist as autocracies. Finally, *Udvari (2014)* supported the argument that, despite the fact that AfT has some high standard goals, donor countries' economic, political and strategic ambitions are more critical than their actual needs.

2.3. Quantitative underpinnings of the AfT initiative

Our discussions have centred on the crucial influence of trade costs on international trade. Numerous researchers have undertaken quantitative analyses to provide substantive insights into this phenomenon. For example, *Dennis and Shepherd (2011)* measured the effects of trade facilitation on export diversification for a group of 246 developing countries. According to their findings export costs,

business entry costs and foreign transportation costs all have a negative impact on export diversification. These results indicate that if AfT is effective in lowering trading costs, it would be able to assist developing countries in diversifying their exports. The authors' model reveals that total AfT has a significant impact on export diversification at the 5% level, suggesting a favourable effect on export diversification. Using panel data for 99 developing countries from 2004 to 2009, *Busse et al. (2012)* indicated that trade aid is closely linked to reduced trade costs and therefore can play a significant role in assisting developing countries profit from trade. According to *Gnangnon and Roberts (2017)*, a 1% growth in AfT is correlated with a 7.3-point increase in export diversification at the intensive margin and a 1.16-point increase in export quality improvement. Furthermore, in his research, *Gnangnon (2019)* stated that an additional 1 US dollar AfT increases the shares of exports of low- and high-skilled and technology-intensive manufacturers in total primary export products by 0.136% and 0.056%, respectively.

In the exploration of AfT initiatives and their impact on trade efficiency, recent studies yielded compelling insights. In a study of the relationship between various aid-for-trade groups and trade efficiency, *Helbe et al. (2012)* discovered that a 1% rise in AfT could result in a USD 415 million rise in global trade. *Hühne et al. (2014)* found that doubling the aid can result in a 10% increment in recipient exports. Furthermore, *Cali and Te Velde (2011)* reported that increasing AfT facilitation by $1 million resulted in a 6% decrease in the cost of packaging, loading and shipping. *Naito (2016)* found a similar result: transportation costs would decline as a result of AfT. Meanwhile, *Ojeaga (2014)* determined that aid had a major influence in four industries, with AfT and business support programmes, education, agriculture and infrastructure adding 15, 16, 17 and 22 percentage points to trade.

Various researchers attempted to examine the effects of distinct aid-for-trade subcategories and presented empirical findings. By analysing the impact of AfT through its EI channel, *Ferro et al. (2014)* found that a 10% rise in aid to transportation, information and communication technology (ICT) and energy services is correlated with increases in manufactured goods exports from recipient countries by 2.0%, 0.3% and 6.8%, respectively. Moreover, *Cali and Te Velde (2011)* investigated the shifts in export volume by including 100 developing countries in the study. AfT support for the growth of EI leads to increased exports, according to their econometric findings. *Pettersson and Johansson (2013)* came to similar results: the advancement of trade infrastructure contributes to expanded exports. According to *Vijil and Wagner (2012)*, a 10% increase in aid for upgrading trade infrastructure results in a 1.22% increase in the recipient's exports. Infrastructure programmes such as roads, harbours and airports are frequently financed by multilateral and bilateral funding. Firms' transportation expenses can

be lower as a result of this. Furthermore, *Helble et al. (2012)* noted that a 1% increase in TPR aid contributes to an 818 million USD increase in global trade. By contrast, *Masunda (2020)* stated that although AfT's impact on infrastructure, policy and regulation is minor, AfT's impact on productive capacity is highly relevant at the 0.01 level. According to the results, AfT could raise exports by 0.067% with a 1% increase in productive capacity. Moreover, *Masunda (2020)* revealed that for export diversification, only AfT is devoted to productive capacity matters. The findings indicate that a 1% increase in the AfT dedicated to production capacity would result in a 0.02% decrease in export concentration and thus a 0.02% growth in export diversification, ceteris paribus. According to *Ferro et al. (2014)*, a 10% rise in aid for banking services is correlated with increases in manufactured goods exports from recipient countries by 4.7%.

There are several researchers who analyse the effect of AfT based on country groups. For example, *Cali et al. (2011)*, at a more regional level, found that AfT benefits the small countries of the Caribbean Islands. Furthermore, *Udvari (2014)* determined that if a country belongs to the ACP[2] category, exports to the EU are higher[3], while this trend is reversed in the case of the least developed countries. According to the results of her research, if the country is part of the ACP group, a 1% increase in AfT assistance leads to a 1.18% increase in their exports to the EU. By contrast, *Lee and Oh (2022)*, who studied the impact of AfTPR, noted that this type of aid has a positive and significant impact on the exports of CLMV[4] and, in general, Asian countries, while the impact is insignificant for the regions of Europe and Africa.

Researchers have obtained empirical results that present conflicting findings. Many authors believe that countries that receive AfT to improve their exports and thus become more competitive in global markets have seen a rise in exports. For example, *Ghimire et al. (2016)* stated that the AfT has a positive effect on developing countries' export earnings. However, in the research *of Hühne et al. (2014)*, for the low-income group of recipient nations, the significantly positive impact on recipients' exports does not apply. Instead, results suggest that AfT supports the exports of middle-income economies, which are less reliant on aid to address supply constraints. *Helble et al.'s (2012)* findings indicate a small but significant correlation between AfT facilitation and greater trade flow. By contrast, despite having a positive coefficient, the empirical data of *Kiute et al. (2015)* show that the effect of AfT on export performance is insignificant. Given the overall bilateral assistance, *Nowak-Lehmann et al. (2013)* noted that the effect of the aid on recipient exports is insignificant.

[2] African, Caribbean, and Pacific Group of States.
[3] The ACP and EU have special relationships governed by the Cotonou Agreement.
[4] Cambodia, Laos, Myanmar, and Vietnam.

The findings regarding the influence of AfT on exports and the extent to which this impact is contingent on donor countries constitute another area of conflicting perspectives. *Bearce et al. (2013)* conducted their research on the United States' aid activities, and their findings show that an increment of a dollar in AfT results in a 65-dollar increase in trade in the recipient country, although this effect could be greater in the case of poorest nations. The authors determined that AfT provided by the US results in export expansion, not only in recipient countries but also in the United States. In addition, *Wagner (2003)* demonstrated that exports of the donors increased more than those of the recipients as a result of the disbursement of foreign aid (ODA) to developing nations, while Lloyd et al. (2000) concluded that the contrary was true. However, according to the *OECD/WTO (2013)*, every dollar spent on AfT results in an increase of approximately 8 dollars in exports from all developed nations and a 20-dollar rise in exports from the poorest countries. Meanwhile, *Zhang and Martínez-Zarzoso (2021)* found that in the short term, every 1 USD spent on foreign aid leads to an average increase in donors' exports ranging from 0.27 to 1.24 USD. By contrast, *Helble et al. (2012)* concluded that AfT is more closely correlated with recipient countries' exports than with their imports, implying that AfT increases recipient countries' balance of payments. Concurrently, *Hühne et al. (2014)* estimated that a doubling of overall AfT would mean that recipient exports would increase by 5% and recipient imports would increase by 3%. This supports the results of *Helble et al. (2012)* and disproves the sceptical opinion that donors give AfT to boost their own export interests.

AfT has been shown to have positive effects on trade in a number of cases, including infrastructure improvement, trade barrier reduction and increased productive capacity. Although the results may differ from nation to nation and region to region, the primary objective of AfT is to improve countries' capacity for beneficial international trade. However, it is relevant to recognise that a number of factors, such as the distinctive circumstances of recipient countries and the dynamics of the global economy, affect the effectiveness of AfT. The literature review shows that although there are disagreements and obstacles regarding the efficacy of AfT, the contribution of the programme to developing nations' export-driven economic growth continues to be a crucial and dynamic facet of global trade and development policy. Thus, AfT is vital in advancing global trade and economic growth. Still, the role of AfT in the international trade of EEs remains largely unexplored. To shed light on this gap in knowledge, it is essential to investigate how EEs are integrated into the AfT initiative and the extent of its influence on their trade performance. By addressing this knowledge gap, we may better understand the dynamics and potential benefits of AfT in the context of EEs' international trade. In the following section, the author is undertaking empirical calculations to determine the impact of AfT in general, and that of its categories

separately, on the exports of EEs and explore how this impact varies depending on whether the importing country is a donor or non-donor.

3. Methodology

In the realm of international trade, the 'Gravity Equation' has consistently demonstrated a remarkable and enduring pattern across different nations and research methodologies. The concept of gravity models was originally introduced by *Tinbergen (1963). Anderson (1979)* laid the theoretical foundation for this model, offering a comprehensive understanding of its principles. Essentially, the classic gravity equation of international trade offers a framework for explaining trade patterns based on the gross domestic product of the home and partner nations, with a direct proportional relationship. Simultaneously, it takes into account a trade barrier in the form of the distance between these nations, where the relationship is inversely proportional.

Over the course of history, the gravity model has undergone significant advancements, and in contemporary research, the structural gravity model is used predominantly. The structural gravity equation can be concisely represented as follows:

$$X_{ij} = \frac{Y_i E_j}{Y}\left(\frac{\varphi_{ij}}{\Omega_i P_J}\right)^{(1-\sigma)} \quad (1)$$

where X_{ij} pertains to the exports originating from country *i* and destined for country *j*. By contrast, Y_iEj/Y signifies the hypothetical level of seamless trade that would occur between countries *i* and *j* in the absence of any trade-related costs. Meanwhile, the term $(\varphi_{ij}/\Omega_i P_j)^{(1-\sigma)}$ captures the multifaceted impact of trade costs, which create a divergence between the actual trade and the frictionless, idealised one.

As per the insights of *Baldwin and Taglioni (2014)*, the gravity model demonstrates strong performance when applied to bilateral trade encompassing a wide array of goods, including final products and intermediate inputs, especially in situations involving numerous countries. Additionally, *Greaney and Kiyota (2020)*, in their study, concur that the structural gravity equation effectively represents bilateral trade, particularly for final goods and intermediate inputs.

The most prevalent technique for gravity model estimation involves linearisation through logarithms, followed by ordinary least squares (OLS) estimation of the resultant log-linear model. However, this approach, although relatively straightforward, presents certain challenges. First, the log-linearised

model is not suited for observations with zero trade, posing a limitation. Furthermore, in the presence of heteroskedasticity, the OLS estimator for the log-linearised model can exhibit bias and inefficiency. Jensen's inequality points out that when the total expected trade surpasses the actual trade, it raises what is known as the 'adding-up' issue. Models dealing with additive quantities measured in arbitrary units, such as trade, production or population, must adhere to this characteristic for meaningful unit changes. Log-linearisation also encounters complications when dealing with zero-trade observations, resulting in various less-than-ideal solutions, such as the removal of zero-trade pairs from the dataset, the addition of small constant values and the application of non-linear adjustments to the dependent variable.

Addressing these issues, *Silva and Tenreyro (2006)* proposed the use of the Poisson pseudo-maximum likelihood (PPML) estimation method for directly estimating the gravity model in its multiplicative form. Their work underscores substantial evidence suggesting that estimation methods relying on the log-linearisation of the gravity equation are likely to cause significant misspecification issues. These issues persist regardless of whether fixed effects are incorporated into the model, as recommended by Anderson and van *Wincoop (2003)*. In contrast, models estimated through PPML exhibit no signs of misspecification. This approach initially found application in cross-sectional data analysis. Subsequently, *Westerlund and Wilhelmsson (2009)* extended the examination to panel data and compared the outcomes of OLS and PPML techniques when applied to simulated and real data. The authors' findings corroborate the preference for Poisson estimation, and they specifically advocate the use of Poisson fixed-effects estimation as the method of choice for estimating the gravity equation. In the context of the PPML method, *Arvis and Shepherd (2013)* emphasised that it stands as the sole quasi-maximum likelihood estimator, capable of preserving the total flows between the estimated and actual bilateral trade matrices. Their argument in favour of adopting Poisson as the standard gravity model estimator gains substantial support from theoretical and empirical evidence. Additionally, *Siliverstovs and Schumacher (2009)* conducted an empirical examination to delve into the disparities between the outcomes produced by the OLS and PPML estimation methods and to compare their results with the conclusions drawn by *Silva and Tenreyro (2006).* Their empirical findings align closely with those of *Silva and Tenreyro (2006)*, reinforcing the merits of PPML estimation for the gravity model and advocating its preference over alternative methods. Furthermore, employing panel data, *Silva and Tenreyro (2011)* conducted an investigation into the performance of the PPML estimator within the context of a constant elasticity model. This analysis is particularly relevant when dealing with a dependent variable that contains a significant proportion of zero values, a common characteristic of trade data employed in gravity equation estimation.

Consequently, *Silva and Tenreyro (2011)* arrived at the same conclusion as in their previous work: the PPML estimator stands as a promising tool for appraising constant elasticity models such as the gravity equations.

The main aim of this study is to explore the extent AfT disbursements, both in their entirety and when considered as distinct subgroups, influence the exports of EEs. Moreover, the study seeks to discern whether this impact varies if exports are directed towards donor or non-donor countries. In pursuit of these objectives, two major databases were employed for the analysis. The initial source is the Centre for Prospective Studies and International Information (CEPII) database, which furnishes data pertaining to trade cost variables essential for the gravity model estimations. Additionally, trade statistics for EEs, too, were sourced from this database. The second source is the OECD's Query Wizard for International Development Statistics (QWIDS), from there data on AfT disbursements were extracted. A sample of 24 aid-recipient EEs was selected as the focus of this study. Subsequently, two distinct panel datasets were generated. The first dataset comprises the 24 EEs and 29 importing nations that are donors. The second dataset includes the same 24 EEs but expands to encompass 157 importing nations that are non-donors. The study examines data from 2002 to 2019, aligning with the availability of AfT records starting in 2002 *(Cali and Te Velde, 2011)* and leveraging the latest data from the CEPII database up to 2019. Calculations are conducted at 2-year intervals to accurately capture trends over the selected timeframe. The comprehensive list of variables and their respective sources is delineated in Table 2.

Table 2

List of variables and their sources

Variables	Names of variables	Sources
X	Export of EEs (dependent variable)	CEPII
DIST	Distance	CEPII
AfT	Aid for Trade disbursed to EEs	OECD QWIDS
AfEI	Aid for Economic Infrastructure disbursed to EEs	OECD QWIDS
AfBPC	Aid for Building Productive Capacity disbursed to EEs	OECD QWIDS
AfTPR	Aid for Trade Policies and Regulations disbursed to EEs	OECD QWIDS
CNTG	Contiguity	CEPII
LANG	Language	CEPII
CLNY	Colony	CEPII
RTA	Regional Trade Agreements	CEPII
CRIS	Global Financial Crisis dummy	

Source: Own construction.

This study adopts the methodology recommended by *Yotov et al. (2016)* and builds upon the approach used by *Fertő et al. (2023)*. As an initial step, panel data with a 2-year interval was employed, and OLS estimations with fixed effects were conducted. This approach was selected to address outward and inward multilateral resistance terms, as defined in the following formula:

$$lnX_{ij,t} = \pi_{i,t} + \chi_{j,t} + \beta_1 lnDIST_{ij} + \beta_2 AfT^m + \beta_3 CNTG_{ij} + \beta_4 LANG_{ij} + \beta_5 CLNY_{ij} + \beta_6 RTA_{ij} + \beta_7 CRIS + \varepsilon_{ij,t} \quad (2)$$

where the natural logarithm of bilateral trade from an exporting emerging country i to an importing country j at time t is denoted as $lnX_{ij,t}$. Furthermore, trade cost factors of the gravity model have been involved, where the natural logarithm of the geographical distance between the two countries is characterised as $lnDIST_{ij}$, while shared border, official language, historical colonial ties and regional trade agreements are expressed through binary dummy variables identified as $CNTG_{ij}$, $LANG_{ij}$, $CLNY_{ij}$ and RTA_{ij}. Additionally, AfT^m stands for AfT and its subgroups Aid for Economic Infrastructure (AfEI), Aid for Building Productive Capacity (AfBPC) and Aid for Trade Policy and Regulation (AfTPR), are disbursed from all donors to the EEs. Furthermore, to account for the influence of the global financial crisis, a dummy variable denoted as *CRIS* is introduced into the equation. To manage observed and unobserved characteristics associated with exporters and importers that can impact bilateral trade, exporter- and importer-time fixed effects are introduced as $\pi_{i,t}$ and $\chi_{j,t}$,. Finally, $\varepsilon_{ij,t}$ accounts for the error term. Notably, the preferred approach for estimation used in this study is the PPML method, as illustrated in the following equation:

$$X_{ij,t} = exp(\pi_{i,t} + \chi_{j,t} + \beta_1 lnDIST_{ij} + \beta_2 AfT^m + \beta_3 CNTG_{ij} + \beta_4 LANG_{ij} + \beta_5 CLNY_{ij} + \beta_6 RTA_{ij} + \beta_7 CRIS) \times \varepsilon_{ij,t} \quad (3)$$

The utilisation of the PPML method is motivated by its capacity to handle issues related to heteroskedasticity and the complexities associated with zero trade flows in bilateral trade data. To implement this method effectively, exporter- and importer-time fixed effects are integrated into estimation (3) in a multiplicative format. This approach is particularly valuable in addressing the specific challenges posed by the data and in achieving more robust and reliable results.

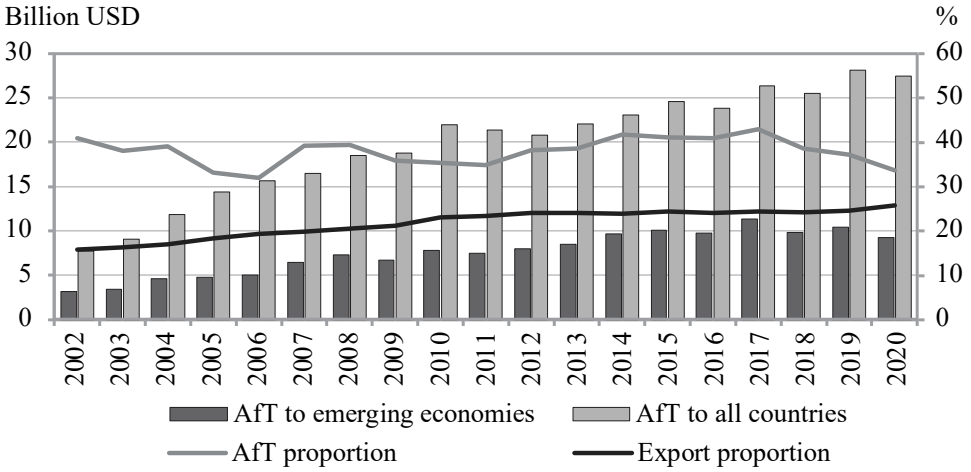
4. Results

Prior to delving into the examination of the computational outcomes, it is necessary to have a look at descriptive statistics. First, Figure 1 describes the comprehensive disbursement of AfT amounting to USD 377 billion, distributed

among all countries, as well as the specific disbursement of USD 144 billion to the 24 EEs included in our sample, spanning from 2002 to 2020. The figure elucidates the ratio of disbursements directed towards the EEs in relation to the overall AfT, along with the ratio of exports from those countries compared to global exports. As the graphical representation demonstrates, the disbursements of AfT to all countries and EEs manifest a positive trajectory. On average, EEs have been recipients of 38% of the total trade assistance, making up 24% of global exports. In other words, EEs receive approximately one-third of AfT and contribute about one-fourth to the total global exports. This highlights the significant share of AfT allocated within the framework of our sample.

Figure 1

Aid for Trade disbursements to all countries and emerging economies (billion USD, left scale), along with the relative proportion directed toward emerging economies within the total AfT disbursement and the relative proportion of exports of emerging economies within world exports (%, right scale)



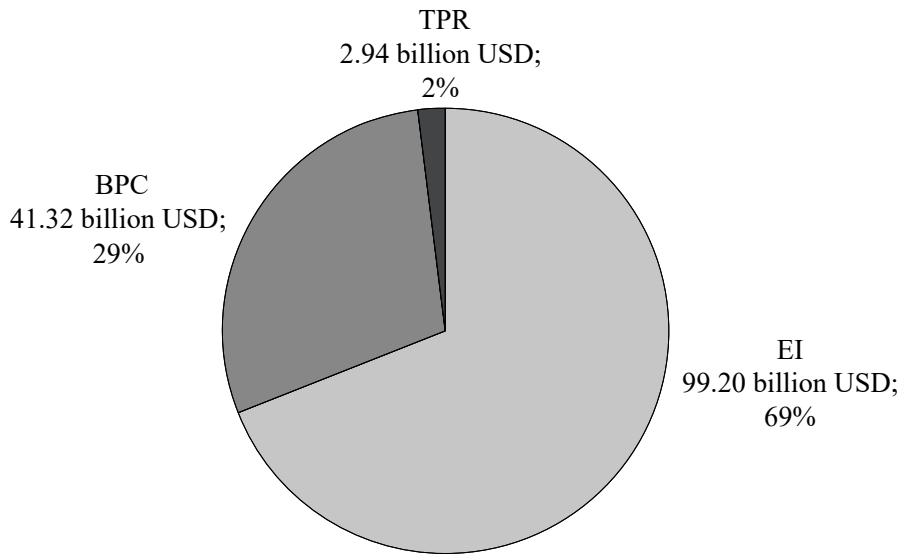
Source: Own construction based on the OECD QWIDS and World Bank databases.

Figure 2 provides a visual representation of the apportionment of AfT disbursements to EEs categorised within their respective subgroups. As depicted in the figure, during this period, a predominant 69% of the aid has been directed toward the EI subgroup, representing a substantial sum of USD 99.2 billion. Following closely, there is the allocation of AfBPC, which constitutes 29% of the total share and amounts to USD 41.32 billion. Finally, EEs have received a comparatively modest 2% of their AfT disbursements via the TPR subgroup. These observations offer a comprehensive understanding of how AfT funds are allocated across diverse subgroups of EEs. Analysing the consequences of these

distributions on international trade and formulating policy recommendations based on our findings can greatly enhance our overall analysis.

Figure 2

Distribution of Aid for Trade disbursements to emerging economies by subgroups, 2002–2020



Source: Own construction based on the OECD QWIDS database.

Tables 3 and 4 present the descriptive statistics and results of OLS fixed-effects and PPML fixed-effects estimations regarding the impact of exports from EEs to donor countries. The top side of Table 3 reveals the historical properties of the variables by using data from the original dataset. The table, which highlights the relevant characteristics, shows that AfT varies and fluctuates significantly between economies. Natural logarithm of AfT has a mean of approximately 18.5, a significant standard deviation of approximately 1.92 and a wide range from approximately 10.965 to 21.941. This pattern remains valid for its subcategories. These tables provide insights into the influence of various aid categories on these exports. Additionally, the dataset shows a significant variance in trade volumes for the trade variable, which has a mean trade value of approximately 3.3 million and a large standard deviation of nearly 17.8 million. The dataset encompasses a broad range of trade operations, representing varying degrees of economic activity and trade links. This range, extending from 0 to approximately 452.3 million, highlights this diversity. The lower part of the table presents the pairwise correlation analysis and demonstrates that trade volumes are inversely connected with geographic distance and positively correlated with AfT and its subcategories,

contiguity and RTA between EEs and donor nations. According to Table 4, AfT in general has not only a positive and significant impact but also its subcategories, AfEI and AfBPC, exhibit similar effects. Notably, there are distinctions between the results obtained from OLS and PPML estimations. OLS results suggest a positive, yet insignificant impact of AfTPR, while in the PPML estimations, this impact is negative and significant. Moreover, OLS results reveal that the impact of AfEI on exports to donor countries exceeds that of AfBPC. However, PPML results propose the opposite scenario. The remaining variables generally yield expected results, with the exception of the 'crisis' variable when AfBPC is included in the PPML estimations, demonstrating a positive and significant impact. Another disparity between the results in the table pertains to the 'colony' variable. OLS results suggest an insignificant impact of colonial ties between emerging recipient and donor countries on exports, while PPML results assert that this impact is positive and significant.

Tables 5 and 6 offer insights into the descriptive statistics and the results of OLS fixed-effects and PPML fixed-effects estimations regarding the influence of exports from the EEs to non-donor countries. As evident in Table 5, the dataset pertaining to non-donor countries contains over five times as many observations as that of donor countries. The situation for the trade variable shows that EEs that export to non-donor countries engage in extensive trade. The substantial standard deviation of around $4.7 million highlights significant variability or dispersion around this mean, while the mean value of approximately $503.5 million reflects the typical trading volume. The value range of $0 to over $385 million illustrates the wide range of trade transactions in the dataset and demonstrates the diversity of trade values. In the meantime, the pairwise correlation analysis indicates that trade with non-donor countries is positively correlated with AfT and its subcategories, contiguity, sharing a common language and participation in regional trade agreements, while it is negatively correlated with distance and financial crises. Similar findings as for donor countries, Table 6 reveals the impact of AfT in general, as well as its subcategories, AfEI and AfBPC, showing a positive and significant effect on the exports of emerging recipient countries to non-donor countries. However, in contrast to the previous analysis, this time neither OLS nor PPML results indicate any significant impact of AfTPR on exports to non-donor countries. Both methodologies confirm a consistent outcome: the impact of AfBPC is greater than that of AfEI when the importer is a non-donor country. Regarding the other variables, we observe significant and anticipated results, except for the 'crisis' variable. Notably, there are discrepancies among the results presented in the various models. Models with the inclusion of AfEI with the PPML method and AfBPC with the OLS method suggest a negative and significant impact of a crisis on exports from EEs to non-donor countries, while the remaining models propose a positive impact, which is significant, too.

Table 3

Summary Statistics and Pairwise Correlation Analysis for Panel Data of 24 Exporter Emerging Economies and 29 Importer Donor Countries

Variable	TRADE	lnDIST	lnAFT	lnEI	lnBPC	lnTPR	CNTG	LANG	CLNY	CRISIS	RTA
Summary Statistics											
Observations	6960	6960	6873	6844	6873	6815	6960	6960	6960	6960	6960
Mean	3030889.8	8.872	18.5	17.547	17.504	13.923	0.006	0.083	0.009	0.2	0.27
Standard Deviation	17822604	0.674	1.92	2.529	1.694	1.919	0.076	0.276	0.092	0.4	0.444
Minimum	0	2.468	10.965	8.901	10.829	8.607	0	0	0	0	0
Maximum	4.523e+08	9.877	21.941	21.869	20.736	19.471	1	1	1	1	1
Pairwise correlation analysis											
TRADE	1.000										
lnDIST	–0.066***	1.000									
lnAFT	0.062***	–0.109***	1.000								
lnEI	0.066***	–0.137***	0.949***	1.000							
lnBPC	0.061***	–0.096***	0.917***	0.790***	1.000						
lnTPR	0.023*	–0.037***	0.668***	0.596***	0.672***	1.000					
CNTG	0.273***	–0.217***	–0.012	–0.004	–0.015	–0.024**	1.000				
LANG	–0.016	0.070***	0.032***	0.012	0.040***	0.010	–0.023*	1.000			
CLNY	–0.015	–0.072***	0.023*	0.025**	0.025**	0.025**	–0.007	0.141***	1.000		
CRISIS	–0.006	0.000	0.026**	–0.001	0.083***	0.010	0.000	0.000	0.000	1.000	
RTA	0.024**	–0.280***	0.107***	0.120***	0.079***	0.025**	0.091***	–0.038***	–0.050***	–0.042***	1.000

Note: ***p<0.01, **p<0.05, *p<0.1.
Source: Own construction.

Table 4

OLS Fixed Effects and PPML Fixed Effects Estimations for Exports from Emerging Economies to Donor Countries

	OLS	PPML	OLS	PPML	OLS	PPML	OLS	PPML
Distance	–1.013**	–0.490**	–1.015**	–0.492**	–1.013**	–0.490**	–0.999**	–0.480**
	(0.047)	(0.032)	(0.047)	(0.032)	(0.047)	(0.032)	(0.047)	(0.032)
Aid for Trade	0.590**	0.326**						
	(0.060)	(0.026)**						
Aid for EI			0.499**	0.276**				
			(0.051)	(0.022)				
Aid for BPC					0.453**	0.615**		
					(0.089)	(0.038)		
Aid for TPR							0.061	–0.281**
							(0.056)	(0.069)
Contiguity	1.021**	1.327**	1.015**	1.323**	1.021**	1.327**	1.075**	1.354**
	(0.214)	(0.092)	(0.214)	(0.092)	(0.214)	(0.092)	(0.215)	(0.093)
Language	0.577**	0.185**	0.576**	0.184**	0.577**	0.185**	0.565**	0.184**
	(0.065)	(0.050)	(0.065)	(0.050)	(0.065)	(0.050)	(0.063)	(0.050)
Colony	0.432	1.531**	0.428	1.530**	0.432	1.531**	0.438	1.538**
	(0.343)	(0.167)	(0.343)	(0.167)	(0.343)	(0.167)	(0.344)	(0.168)
RTA	0.189**	0.616**	0.183**	0.620**	0.189**	0.616**	0.193**	0.608**
	(0.055)	(0.050)	(0.055)	(0.050)	(0.055)	(0.050)	(0.055)	(0.050)
Crisis	0.308	–0.619+	0.938	–0.177	–0.157	1.008**	–1.001	–3.217**
	(0.921)	(0.341)	(0.969)	(0.736)	(0.758)	(0.341)	(0.828)	(0.746)
Constant	5.942**	11.312**	7.318**	8.574**	8.463**	5.530**	14.338**	17.509**
	(1.153)	(0.639)	(1.256)	(0.675)	(1.665)	(0.787)	(0.979)	(1.202)
Observations	6825	6854	6796	6825	6825	6854	6772	6795
R2	0.828	0.981	0.828	0.982	0.828	0.981	0.831	0.981
Exporter-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RESET test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses, + p<0.10, * p<.05, ** p<.01

Source: Own construction.

Table 5

Summary Statistics and Pairwise Correlation Analysis for Panel Data of 24 Exporter Emerging Economies and 157 Importer Non-Donor Countries

Variable	TRADE	lnDIST	lnAFT	lnEI	lnBPC	lnTPR	CNTG	LANG	CLNY	CRISIS	RTA
Summary Statistics											
Observations	37680	36513	37209	37052	37209	36895	36240	36753	36753	37680	37473
Mean	503474.73	8.831	18.5	17.547	17.504	13.923	0.03	0.132	0.093	0.2	0.128
Standard Deviation	4760708.1	0.789	1.919	2.529	1.694	1.918	0.17	0.338	0.291	0.4	0.334
Minimum	0	3.491	10.965	8.901	10.829	8.607	0	0	0	0	0
Maximum	3.85E+08	9.886	21.941	21.869	20.736	19.471	1	1	1	1	1
Pairwise correlation analysis											
TRADE	1.000										
lnDIST	–0.094***	1.000									
lnAFT	0.036***	–0.035***	1.000								
lnEI	0.040***	–0.042***	0.949***	1.000							
lnBPC	0.035***	–0.040***	0.917***	0.790***	1.000						
lnTPR	0.019***	–0.015***	0.668***	0.596***	0.672***	1.000					
CNTG	0.179***	–0.371***	0.012**	0.009*	0.021***	0.004	1.000				
LANG	0.052***	–0.172***	–0.016***	–0.039***	0.002	–0.012**	0.093***	1.000			
CLNY	–0.003	–0.072***	0.056***	0.058***	0.049***	0.029***	0.016***	0.293***	1.000		
CRISIS	–0.009*	0.000	0.026***	–0.001	0.083***	0.010*	0.000	0.000	–0.001	1.000	
RTA	0.121***	–0.330***	0.046***	0.046***	0.044***	0.020***	0.294***	0.213***	0.016***	–0.010**	1.000

Note: ***p<0.01, **p<0.05, *p<0.1.
Source: Own construction.

Table 6

OLS Fixed Effects and PPML Fixed Effects Estimations for Exports from Emerging Economies to Non-Donor Countries

	OLS	PPML	OLS	PPML	OLS	PPML	OLS	PPML
Distance	–1.545**	–0.733**	–1.544**	–0.733**	–1.545**	–0.733**	–1.547**	–0.745**
	(0.019)	(0.046)	(0.019)	(0.046)	(0.019)	(0.046)	(0.019)	(0.046)
Aid for Trade	0.279**	0.191**						
	(0.045)	(0.047)						
Aid for EI			0.234**	0.162**				
			(0.038)	(0.040)				
Aid for BPC					0.691**	0.310**		
					(0.052)	(0.059)		
Aid for TPR							0.002	0.015
							(0.115)	(0.044)
Contiguity	0.123+	0.125*	0.121+	0.124*	0.123+	0.125*	0.109	0.119*
	(0.069)	(0.053)	(0.070)	(0.053)	(0.069)	(0.053)	(0.069)	(0.053)
Language	0.739**	0.176**	0.736**	0.176**	0.739**	0.176**	0.740**	0.200**
	(0.036)	(0.058)	(0.036)	(0.058)	(0.036)	(0.058)	(0.036)	(0.057)
Colony	0.369**	0.600**	0.367**	0.600**	0.369**	0.600**	0.367**	0.595**
	(0.042)	(0.075)	(0.042)	(0.075)	(0.042)	(0.075)	(0.042)	(0.075)
RTA	0.419**	0.203**	0.421**	0.204**	0.419**	0.203**	0.428**	0.190**
	(0.035)	(0.073)	(0.035)	(0.073)	(0.035)	(0.073)	(0.034)	(0.073)
Crisis	2.517**	1.048**	3.917**	–3.737**	–2.498**	1.432**	3.578**	0.605*
	(0.810)	(0.310)	(0.820)	(0.551)	(0.808)	(0.493)	(0.970)	(0.303)
Constant	10.359**	15.464**	11.334**	16.119**	5.944**	14.201**	14.658**	17.824**
	(1.080)	(1.050)	(0.957)	(0.910)	(1.144)	(1.144)	(1.737)	(0.790)
Observations	31979	34858	31849	34711	31979	34858	31773	34565
R2	0.778	0.926	0.779	0.926	0.778	0.926	0.781	0.931
Exporter-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RESET test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Standard errors in parentheses, + p<0.10, * p<.05, ** p<.01								

Source: Own construction.

These findings align with the results of previous studies such *as Helbe et al. (2012)*, *Ojeaga (2014)* and *Ghimire et al. (2016)*, which demonstrate an overall positive impact of the AfT on recipients' exports. Additionally, our results support the conclusions of *Hühne et al. (2014)*, suggesting the effectiveness of AfT in countries not heavily dependent on it and categorising emerging nations as such.

Conversely, our findings contradict the results of *Kiute et al. (2015)* and *Nowak-Lehmann et al. (2013)*, who reported insignificant outcomes. Furthermore, our results for AfEI align with the assertions of *Cali and Te Velde (2011)*, *Vijil and Wagner (2012)*, *Pettersson and Johansson (2013)*, *Ferro et al. (2014)*, *Ojeaga (2014)* and *Udvari (2017)*, supporting the claim that aid directed towards EI positively impacts exports. Regarding the positive impact of AfBPC, our results correspond with those of *Masunda (2020)*. Finally, our findings for AfTPR differ from those of *Helble et al. (2012)* and *Hühne et al. (2014)* and partially align with the results of *Lee and Oh (2022)*, who found an insignificant AfTPR impact for the European and African regions.

Finally, when comparing the disparities in the impact of AfT depending on whether the importer is a donor or a non-donor, the results indicate that AfT exerts a more substantial influence on exports from EEs to donor countries than to non-donor countries. This trend is observed for AfEI, too. Regarding AfBPC, the results diverge. The findings from OLS fixed effects suggest that the impact of AfBPC is greater when the importer is a non-donor, while the PPML fixed effects present a contrary perspective, asserting that the impact is higher when the importer is a donor country. Furthermore, the calculations yield largely insignificant impacts for AfTPR, with the exception of the model using PPML estimation, showing a negative and significant impact on exports from the EEs to donor countries (Table 4). These results suggest that aid receiving emerging countries are more likely to engage in trade with donor nations than with non-donor countries.

5. Conclusion

In conclusion, in the contemporary global landscape, exports serve as vital benchmarks of a nation's economic well-being, significantly impacting the standards of living of its people. Emerging and developing countries face diverse challenges in international trade, including trade barriers, inadequate infrastructure, supply-side limitations, economic shocks and limited resource access, hindering effective global participation. The international community recognised the significance of AfT and introduced the AfT initiative in 2005, designed to help countries overcome domestic hurdles, in their integration into the global economy, and attain export driven growth. According to literature review, the impact of AfT on trade performance varies across different contexts.

The 'Gravity Equation' is a foundational concept in international trade, providing a reliable framework for understanding trade patterns. Over time, the gravity model evolved, with a current emphasis on the structural gravity model in contemporary research. Traditional techniques such as log-linearisation and OLS have limitations, especially with zero-trade observations. The PPML method, proposed in the literature, is a more robust approach, addressing misspecification issues for accurate estimations.

In the current study, the primary objective was to investigate how AfT disbursements, both in their entirety and when analysed as separate subcategories, impact the export activities of EEs. Determining if this influence varies depending on these exports being directed toward countries that provide aid (donor countries) or to those that do not (non-donor countries) was another aim. The research focused on a sample of 24 aid-recipient EEs.

The findings shed light on the substantial portion of AfT allocated to EEs, with an average of 38% of total trade assistance being channelled into this group. This study highlights the overwhelming allocation of AfT to the EI subgroup within EEs, followed by BPC, while trade policy and regulation receive a comparatively minor share. Furthermore, it became evident that AfT, in its entirety, as well as its subcategories (AfEI and AfBPC), exert a positive and significant influence on exports from EEs to donor countries. However, differences emerged in the results of OLS and PPML estimations, particularly with respect to AfTPR. In contrast, when exporting to non-donor countries, the results remained consistent, revealing a positive and significant impact of AfT in general, along with its subcategories. However, AfTPR did not appear to significantly influence exports to non-donor countries.

The research also emphasised the importance of examining the influence of AfT when considering if the importer is a donor or non-donor. It was evident that AfT and AfEI have a more substantial impact on exports to donor countries than to non-donor countries. In the case of AfBPC, the results diverged between OLS and PPML estimations, suggesting that its impact could vary depending on the importer. The influence of AfTPR was generally insignificant, except for a negative and significant impact on exports to donor countries identified in the PPML model.

This study contributes to our understanding of how international development aid, specifically AfT, impacts the exports of EEs, suggesting valuable implications for policymakers. The study highlights the complexity of aid dynamics and the need to consider various subcategories and perspectives when assessing the effects of AfT. Policymakers can take into consideration a number of recommendations based on the research findings to improve the effectiveness of the AfT initiative and encourage the sustainable development of EEs. First, there is a suggestion to

further diversify aid allocation, matching it to the increasing trend of AfT disbursements while taking EEs' particular needs into account. Second, given the sizeable portion of AfT these economies devote to EI, policymakers might think about keeping or sharpening this emphasis to promote sustainable development. It is also advised to maximise AfBPC, with an emphasis on figuring out which relevant industries or activities add the most to productive capacity. Finally, given that the impact of AfT and its subcategories varies depending on whether the importer is a donor or non-donor country, policymakers should adjust aid programmes to better meet the particular requirements and distinctive features of these groups.

The displayed findings highlight opportunities for further exploration and more targeted policies to boost trade outcomes for EEs. There is a chance that the study might have focused on a narrow range of variables, possibly ignoring other relevant variables that could affect the results. Considering a larger range of factors, such as institutional factors, technology and innovation, corruption and transparency and financial stability, could yield a more comprehensive understanding. Moreover, broadening the range of countries included in the study can similarly yield beneficial outcomes. The effectiveness of AfT can be greatly impacted by the qualitative aspects of policy implementation, which may not be sufficiently explored in this study. It is essential to comprehend the implementation challenges that exist on the ground.

Appendix

Table A1

List of emerging economies used in the analysis

Argentina	Egypt	Mexico	South Africa
Bangladesh	India	Morocco	Thailand
Brazil	Indonesia	Nigeria	Türkiye
Chile	Iran	Pakistan	Ukraine
China	Malaysia	Peru	Venezuela
Colombia	Mauritius	Philippines	Vietnam

Source: Own construction.

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