

THE EFFECT OF AID-FOR-TRADE ON TRADE OPENNESS,
TRADE FLOWS, AND EXPORTS

by
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Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Political Science
Texas Christian University
Fort Worth, Texas

May 8, 2023

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ABSTRACT

Previous research has highlighted the export increases that the Aid-for-Trade foreign aid program has precipitated in aid recipient countries. Here I argue that trade openness is the real variable of interest to measure if Aid-for-Trade is accomplishing its goal to remove supply and trade related barriers particularly in least developed countries. I run gravity model regressions on directed dyadic data of donor-recipient country pairs between 2002 and 2019. The data analysis for Aid-for-Trade allocations from the US, UK, Germany, France, and EU to 45 states in Sub-Saharan Africa does not support that Aid-for-Trade is increasing trade openness, export growth, or bilateral donor-recipient trade flows. This suggests that more Aid-for-Trade funding should be allocated to the neediest countries or that a new aid program or development program should be implemented.

Keywords: Aid-for-Trade, Aid for Trade, Trade Openness, Trade-to-GDP Ratio, Export Growth, Exports, Trade, Foreign Aid, World Trade Organization, WTO, Sub-Saharan Africa, Official Development Assistance, ODA, Economic Growth, Development, United States, United Kingdom, France, Germany, European Union

Introduction

Through Aid-for-Trade (AfT) funding in 2009, land border crossing times between Zambia and Zimbabwe drastically decreased. Instead of truck drivers waiting nearly 5 days to pass through the different facilities in both countries, the AfT-backed One Stop Border Post in Chirundu reduced the processing times to under 1 day. This investment allowed more efficient and less expensive trade between their countries, making them more competitive in their region overall. According to the Zimbabwean Ministry of Industry and Commerce, the speedier crossings also had other positive externalities, such as reducing the spread of HIV/AIDS, as drivers had less time to solicit sex workers while waiting to cross the border (Zimbabwe Ministry of Industry and Commerce 2011).

But on a larger scale, does Aid-for-Trade really help developing countries overcome “supply-side and trade-related infrastructure obstacles” to more effectively participate in trade (WTO 2022)? How does AfT effect trade openness, trade flows, and exports in developing countries? The Chirundu border post is just one example of a project financed under the umbrella of AfT, a concept floated at the 2001 Doha Round of the World Trade Organization (WTO) and adopted at its 2005 Hong Kong Ministerial Conference. Ideally, developed countries and associated organizations commit foreign aid for specific project purposes in recipient countries such as negotiating trade agreements, improving port infrastructure, or creating a platform for small farmers to sell products to larger buyers (Aid for Trade at a Glance 2017). As the global economy continues to expand, it is important to include developing countries in the progression. To that end, trade openness, export growth, and bilateral trade relationships with donors signify integration into the international market and trade liberalization.

This paper is structured to discuss the background of foreign aid, trade and development, the AfT agenda, and previous findings about AfT. Then I discuss the theory behind measuring my dependent variables: trade openness, export growth, and bilateral combined trade flows. I test the theory by using the gravity model of trade to control for common factors that affect trade flows. My data is directed dyadic data of donor-recipient pairs that uses country-years as the unit of analysis; I consider donor-recipient relationships between the United States, United Kingdom, Germany, France, and the European Union and 45 countries in Sub-Saharan Africa (SSA) from 2002-2019.

Literature Review

I. Development and Aid

Developing countries want to experience economic growth to reap the expected benefits and change it brings. Most notably, development alleviates poverty, as all wages rise proportionally and incomes become more sufficient to live on (Dollar and Kraay 2002). In addition to the economic benefit, standards of living should improve, as literacy rates increase and the populace gets healthier (Stiglitz 1998). The more developed and thus wealthy a country becomes, the more influence it might have in regional and international politics. Least developed countries are those defined by the United Nations (UN) that score beneath thresholds that signify they have extremely low income per capita, few human assets (affected by access to healthcare and education), and high economic and environmental vulnerability (LDC Identification Criteria & Indicators | Department of Economic and Social Affairs n.d.). LDCs are clearly the countries most in need of development.

In the past, countries have tried various strategies to create internal economic development. Import substitution industrialization (ISI), based on the notion that nations should manufacture their own goods and restrict foreign imports of those goods, was supposed to bolster the industrial sectors and create growth in developing countries. However, in practice these impacts were seldom seen, as tariffs and small scale production hindered export volumes necessary for growth (Irwin 2021). The policies of the Washington Consensus that attempted to liberalize trade in developing countries by having them copy the institutions of advanced countries also failed to achieve its goals, because this one size fits all policy does not work well for all developing countries (Lin and Rosenblatt 2012). Similarly, government spending has been a popular development strategy in the past, but levels were often not significant enough to create the desired effects (Bose, Haque, and Osborn 2007). For instance, in Tanzania public expenditures were unproductive in the long run, although they did not inhibit economic growth either (Josaphat P. Kweka and Morrissey, Oliver 2000).

Currently, foreign direct investment (FDI), official development assistance (ODA), and/or non-governmental aid are given to developing countries in order to assist their development. FDI is the “category of international investment that reflects the objective of a resident entity in one economy to obtain a lasting interest in an enterprise resident in another country” (OECD Glossary of Statistical Terms - Foreign direct investment Definition n.d.). Most often, these are in labor intensive industries, so the multinational corporation engaged in FDI benefits from relatively cheap labor costs, while citizens have a new source of income that has multiplicative effects as spending increases (Adeniyi et al. 2012; Borensztein, De Gregorio, and Lee 1998; Iamsiraroj 2016). ODA, commonly referred to as simply “aid” or “foreign aid” is provided by individual countries, groups of countries, or international organizations to target

countries to help their development. Econometric analyses show that although there may be initial negative effects of ODA, in the long-run, especially with strong institutions in recipient countries, it spurs development (Driffield and Jones 2013; Van Dan and Binh 2019). ODA encompasses money targeted toward economic and social infrastructure, production, debt relief, and humanitarian aid, among others (Official development assistance (ODA) - ODA by sector - OECD Data n.d.).

However, ODA does not always signal good things to come in recipient countries. With the institutional instability in SSA, a region with a high density of developing countries and LDCs, there are high risks of corruption in distributing ODA funds (Admassu 2020). This fungible aspect can lead to ODA being redirected to purposes that it was not initially intended for (Bearce et al. 2013). Aid has also been criticized for not achieving growth, or even inhibiting it (Easterly 2003; Moyo 2009).

Targeted aid, even when in smaller quantities than non-targeted aid, is usually more effective by various measures. Specifically targeted democracy aid has been shown to have a positive effect on democratization (Scott and Steele 2011). Bypass aid, in the form of goods and services given directly to individuals, rather than through governments, is associated with a quelling of civil unrest under autocratic regimes (DiLorenzo 2018).

Among the many different forms of ODA, Aid-for-Trade has emerged as a mechanism for states and international organizations to provide financial aid for the purposes of trade capacity building. Unlike ODA, which is fungible and easily wasted, AfT commitments are contingent upon the funds being used for specific projects. AfT also holds the potential to combat gender inequality that can be perpetuated by untargeted traditional aid (Gamberoni and

Reis 2011). Before discussing AfT further, I explain why the trade it seeks to stimulate is important.

II. Trade and Growth

A common strategy for achieving economic growth in less developed countries is through trade. It is long-established in mainstream economics that trade leads to economic growth. Countries that trade more grow quicker, and growth can also be propelled by better institutions (Dollar and Kraay 2003, 2004). Trade increases incomes in trading countries, largely through the investment in labor and physical capital and rising output from the capital (Frankel and Romer 1999). Benefits of trade can also be seen in poverty reduction in poorer countries, a key moral justification for globalization (Dollar and Kraay 2004). Not only does trade lead to economic growth, but it improves human welfare across the board, with an increased variety of products, lower priced goods, and technological progress (Van den Berg and Lewer 2007).

However, trade also has the potential to exacerbate pre-existing issues of human concern. The gains from trade are often enjoyed by those at the top of the global value chain (like large firms with multiple suppliers and producers) instead of being evenly distributed to those workers who help create the additional value (Mayer and Milberg 2013). Advancing free trade may also come at environmental costs. Well known examples include the shrimp-turtle and tuna-dolphin cases arbitrated by the WTO, where Malaysia and Mexico, respectively, objected to the United States restricting or labelling seafood imports due to their production methods – using nets that also caught turtles and dolphins. While after some years the US prevailed in each case, these incidents where nondiscriminatory trade is elevated to such a high status illustrate the sometimes dubious ethical quandaries a hard line on free trade can create (WTO | dispute settlement - DS381 n.d.). Preserving the environment for generations to come is core to the internationally

recognized Sustainable Development Goals, as they also seek to raise global standards of living. Questions remain as to if development and climate action can be reconciled, but the UN and WTO are committed to achieving all 17 goals.

Mainstream economics considers trade necessary for developing states not just in terms of importing and exporting goods and services, but also in terms of improving the quality of life in those states through increased wealth and technological progress. To support lower- and middle-income countries in maximizing trade efficiency and increasing volume, wealthy countries introduced the AfT program at the 2001 WTO Doha Development Round, and officially implemented it at the 2005 Hong Kong Ministerial Conference.

III. Aid for Trade (AfT)

While FDI and ODA apply to a wide range of investment and assistance interests, Aid for Trade is specifically targeted to remove internal trade barriers in recipient countries. By removing those barriers in conjunction with each round of the WTO attempting to eliminate other tariff and non-tariff barriers, exporters in developing countries should be able to better participate in global trade, hopefully leading to the end goal of poverty alleviation in the country. AfT functions as a part of ODA and is also known as “Trade Capacity Building.” AfT funds go toward trade policy and regulation, economic infrastructure, productive capacity building, and adjustment assistance (WTO n.d.). Aid to the first category helps recipient countries negotiate and implement new trade policies or agreements, aid to the second category improves things like roads, communication, and energy generation, aid to the third category helps recipients become more competitive in exports via more efficient supply chains or businesses, and aid to the last category helps to offset any losses, for instance declining terms of trade, associated with trade liberalization (WTO n.d.). Ideally, AfT provided by already developed countries is an

opportunity to meaningfully help developing countries, increasing their exports and creating new jobs for their residents (Stiglitz and Charlton 2006).

In 2019, a quarter of all ODA money, \$46.6 billion was given in AfT projects. From 2006 to 2017, nearly \$410 billion of AfT had been disbursed and over 178,000 projects implemented, 62,030 of which were in Africa. The median budget per project amounted to \$98,400 – not much in the grand scheme of global financial flows (Aid for Trade at a Glance 2019: Economic Diversification and Empowerment 2019; Aid for Trade Key Facts 2021).

IV. Effects of AfT

Some studies suggest that AfT has had positive effects in recipient countries since its initial inception. Cali and te Velde (2011) find that AfT reduces the costs of trading and has an “overall positive and significant impact on exports” in recipients due wholly to the resources allocated for economic infrastructure, rather than being caused by what one may expect, building productive capacity. Other analyses have resulted in more metered endorsements of the program, concluding that AfT has a positive impact on trade, but the magnitude of this impact is uncertain (Silva and Nelson 2012). The dependent variables in these studies were trade flows and suggest that if the recipients decide to take less protectionist measures, and therefore more open positions, bilateral trade between themselves and the donors may greatly increase. When looking at just AfT allocations from the United States (US), evidence suggests that the money has boosted recipients’ exports multilaterally (Bearce et al. 2013). Trade policy and regulation seems to have an outsized impact – although it receives the least amount of money, “estimates indicate that a doubling of Aid-for-Trade in this category would be associated with a 10% increase in recipient exports” (Meyer, Nunnenkamp, and Hühne 2013).

While those studies lauded benefits of AfT, some newer studies have a less favorable viewing. Lemi (2018) claims the only component of AfT to improve recipient exports is education about and training for trade. AfT is also thought to be ineffective in and of itself in promoting recipient exports, unless the recipient already has a stable economic environment and effective government, which presents a challenge to the success of the agenda in countries with political instability (C. Kim, Chae, and Oh 2020). However, AfT finds a current champion in Gnanon (2019, 2021) who finds not only does it diversify the products that the developing countries export, thus leading to more integration into a global system, but also that trade flows developed from it can contribute to reducing inflation, which has been a goal of many citizens around the world who face economic hardships due to rising inflation since its pandemic-induced acceleration in 2020.

Theory

Few of these prior studies focused on the direct effects of AfT on trade openness, the primary dependent variable of this paper. Trade openness is a concept that is measured as the trade-to-GDP ratio, summing a nation's total volume of exports and imports over a period and dividing that number by the gross domestic product during that same period. The measure shows how important globalized trade is to an economy, and works well for smaller countries, since it is harder for them to be self-sufficient than larger countries with more labor and productive capabilities (Harris and Nef 2008). Developing countries tend to be smaller, so trade openness can act as an indicator for economic growth and general trade liberalization. Trade openness is a key component to economic growth, and such growth is thought to improve global standards of living and foster peace, objectives of most multinational organizations (Babalola and Shittu

2020). Previous research has seldom dealt with the determinants of trade openness (Bilgin and Şeker 2021; Osei, Sare, and Ibrahim 2019). Previous papers on AfT have focused on explaining its effects on export and import flow growth and export diversification (Gnangnon 2019; Hühne, Meyer, and Nunnenkamp 2014; Y. R. Kim 2019; Pettersson and Johansson 2013). While I will also look at the effects of AfT on exports and trade flows, my main focus is on finding out what effect, if any, AfT has on trade openness. I choose to look at the trade policy and regulation portion of AfT since it has been regarded as effective in increasing exports relative to its size, showing promise to be effective in other metrics.

I theorize that AfT should increase trade openness. AfT should directly increase recipients' trade capacity and efficiency through the programs it supports, like lowering time spent at border crossings, building road and port infrastructure, and assisting recipients in negotiating favorable trade agreements, which should therefore increase volumes of exports (Moreno 2009; Suwa-Eisenmann and Verdier 2007). These increases will have two especially important effects. Chiefly, their increase will raise the numerator of the trade-to-GDP ratio, by definition. The investment into labor and capital that it takes to create new trade agreements, build capacity, and reduce costs will inject outside money into the national economy, also increasing their GDP, the denominator of the trade-to-GDP ratio. While this may seem to pose a problem of a stable ratio if both numerator and denominator increase, if AfT is successful in the long run, the lagging effects of rising imports and exports should outpace the immediate and one-time impacts of implementing trade facilitation prior to the usefulness of the effects. Part of the increase in import and export flows will certainly be bilateral between the donor and recipient, providing both with benefits. The donor will enjoy cheap imports that provide revenue to the recipient, and the recipient will become a new market for certain donor exports as well. While an

increase in bilateral flows can be a good thing, they should not come at the cost of stopping the recipient's additional trade expansion multilaterally. It is both the bilateral and multilateral increase in trade that should result in an increase in trade openness, which promotes economic growth which leads to its role in creating a better world.

Thus, I hypothesize three effects related to AfT:

H1: Countries that receive more (less) AfT should experience higher (lower) trade openness.

H2: Countries that receive more (less) AfT should experience higher (lower) overall export growth.

H3: Countries that receive more (less) AfT from a particular donor should experience higher (lower) combined import and export flows with the donor.

Research Design

To test the effects of AfT on trade openness, I examine AfT allocations from the United States, European Commission (EC), Germany, and France to countries in sub-Saharan Africa (SSA) from 2001-2019. These four entities have been the largest donors of AfT to SSA since the inception of the program in 2005. European Union (EU) countries and the EC may implement complementary projects, each giving to different areas that as a whole improve trade capacity in the recipient. The 33 LDCs as defined by the United Nations in SSA receive a huge number of AfT commitments each year. I use the donor-recipient-year unit of analysis and ordinary least squares (OLS) regression and year fixed effects to test my hypotheses. I derive my results with STATA, version 13.

This paper uses three key dependent variables. To test H1 and the relationship between AfT and trade openness, *Trade Openness* measures trade as a percentage of GDP and is taken from the World Bank's "trade in % of GDP" indicator. To test H2, I use the dependent variable *Export Growth*, which measures year over year percent change in exports of goods and services using data from the World Bank. Finally, to test H3, *Combined Trade Flows* measures combined import and export flow data from the IMF's Direction of Trade Statistics database.

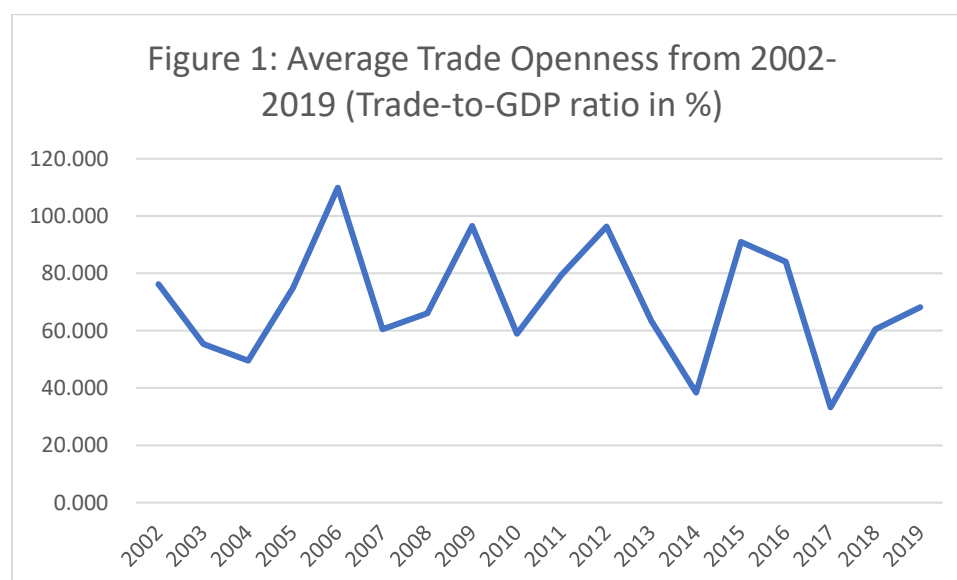
The key independent variable, *Aid for Trade*, measures AfT disbursements in a given year between pairs of donors and recipients. US, EC, Germany, and France AfT statistics come from the OECD Creditor Reporting System (CRS). Yearly commitments in constant 2020 USD towards trade policies, trade regulations, and trade facilitation (under CRS code 331) by each entity to countries the Organization for Economic Cooperation and Development (OECD) defines as being in Sub-Saharan Africa are extracted for analysis.

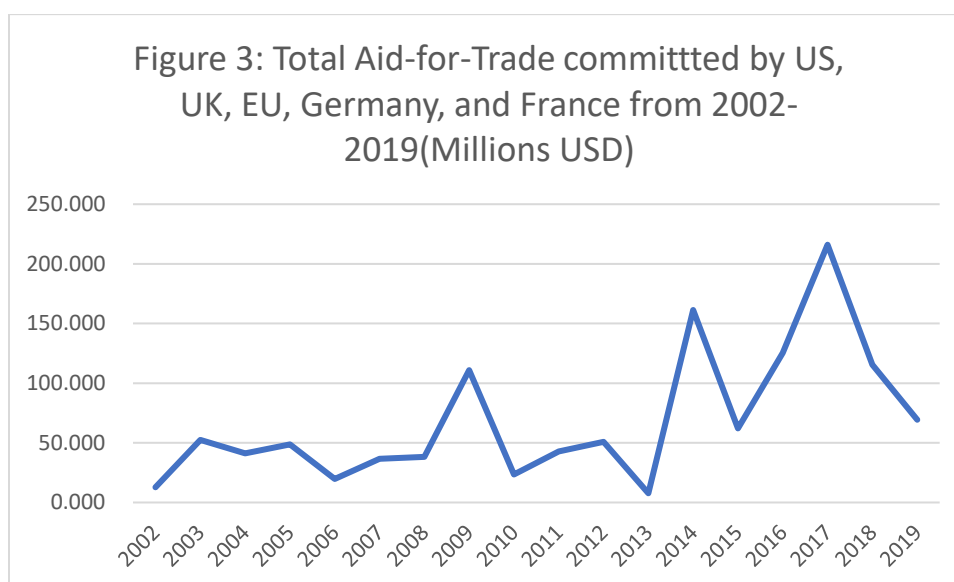
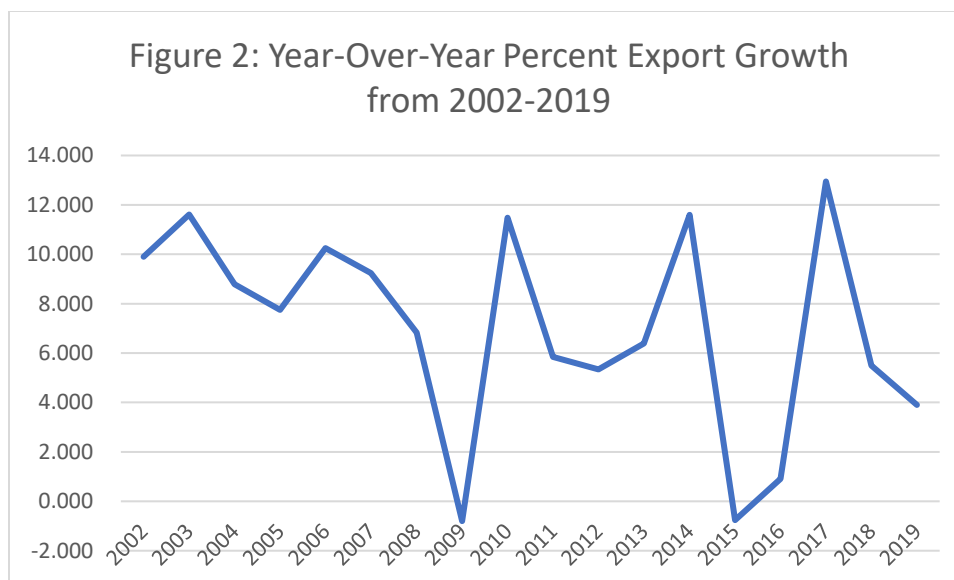
In my tests, I use directed dyadic data, defined by donor-recipient pairs-years. To control for other causes of trade I use a gravity model. "The gravity model effectively explains the volume of trade between pairs of countries as a positive function of the size of the two economies and a negative function of the distance between them" (Van den Berg and Lewer 2007). It is widely used because of how in large part, it explains real observed trade flows. Thus, in my models *Distance* measures the distance in kilometers between the most populated cities in donor and recipient countries. *Combined GDP* is also included to control for the size of each economy. These values come from the comprehensive Gravity dataset from the French Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). Other controls include the dummy variables *Landlocked*, to account for landlocked geography of the recipient countries, *Island* to control for small-island status, and *Colonized* to control for the effect of former colonial

relationships (e.g. France and Gabon). I lag my regressions by 2, 3, and 5 years and include year fixed effects to control for the effects of time.

Results

Before discussing the regression results, I first begin with a descriptive look at the data. As Figure 1 shows, average trade openness over time in SSA remains relatively stable, perhaps growing by a few percentage points in nearly two decades. This near non-movement that seems to trend only slightly down from 2002-2019 is important in explaining why some regression results are insignificant, as there are only minor changes in trade openness as a dependent variable. Figure 2 graphs average year over year export growth in SSA. Any trend is quite erratic, plunging and skyrocketing in given years. While Figure 3 also has its ups and downs, total yearly AfT allocations to SSA seem to increase over time, indicating stepped-up commitment to the program by donor countries.





Bivariate Results

The bivariate models examining the relationship between AfT and my dependent variables of interest do not show any strong relationships and are depicted in Table 1 below. H1 states that higher amounts of AfT should lead to higher levels of trade openness and is tested in Model 1.1 using the equation below.

However, a simple bivariate regression shows AfT to actually have negative, not statistically significant coefficients on trade openness, contrary to the implications of the hypothesis, regardless of how many years lag is considered. None of those results were significant at any level. Considering the trend in Figure 1, I do not find it surprising that no causal effect can be inferred.

Model 1.2 examines the bivariate relationship of AfT on recipient country year over year export growth; the 2-year lagged result comes up as significant but is quite different from the 3- and 5-year lagged results. The sign change on the coefficient between the 2- and 3-year lag lead me to believe that this very basic model is understandably suffering from omitted variable bias and lack of control variables and that any relationship between AfT and export growth is tenuous.

The effect of AfT on combined trade flows also returns insignificant results, as shown in Model 1.3 and contrary to my expectations. Donor-recipient pairs do not seem to be growing their bilateral relationships in any quantifiable way, although my model does not account for strengthened political or institutional ties. The null results may also be caused by the type of AfT I tested or that the large amount of LDCs in SSA may not be as suited to benefit from AfT as middle-income countries like those in Asia (Meyer, Nunnenkamp, and Hühne 2013).

Given the lack of a clear relationship between my three key independent variables of interest, I decided to include a fourth independent variable, *Total Recipient Exports*, using IMF Direction of Trade Statistics data on each recipient's annual free on board exports to partner countries measured in millions of USD, as shown in in Model 1.4. As previously stated, several existing studies of AfT effectiveness examined the effects of AfT on export growth. My theory argues that to truly achieve the intended goals of AfT that such aid should go beyond simply

increasing recipient exports, and admittedly such non-results are troubling for AfT as a program. But, does AfT, as others have previously found, contribute to export growth in SSA? Interestingly, when measuring the recipients' global exports (not just with donors), I find that AfT has a significantly positive effect for all lagged variations. This is in line with earlier research that finds AfT boosts export volumes (Bearce et al. 2013; Cali and te Velde 2011; Meyer, Nunnenkamp, and Hühne 2013). However, this finding is not particularly helpful in examining if AfT fulfills the spirit of its mission; trade openness looks at the importance of trade in an economy, whereas overall exports are bound to grow volume-wise but may not change the relative engagement of countries in the worldwide market. In fact, the WTO reports that in 2020 and 2021, LDCs remained only .93% of global exports, a paltry sum that is unfortunately typical for the economies of those countries (WTO 2022). With these bivariate results, we expect the same general trends when including controls.

Table 1: Bivariate Models of Aid for Trade Effectiveness

	Model 1.1 <i>(Trade Openness)</i>	Model 1.2 <i>(Export Growth)</i>	Model 1.3 <i>(Combined Trade Flows)</i>	Model 1.4 <i>(Total Recipient Exports)</i>
<i>AfT 2-year lag</i>	-.1084 (.1408)	-.7573*** (.1903)	3310.167 (5251.951)	175.6557*** (51.8850)
<i>AfT 3-year lag</i>	-.1141 (.1408)	.1268 (.1928)	1331.249 (5086.692)	154.2167*** (47.2423)
<i>AfT 5-year lag</i>	-.2247 (.1521)	.2957 (.2131)	-15186.63*** (5780.425)	111.7628*** (42.7793)
<i>Adjusted R2</i> <i>(for 2-year lag)</i>	.0134	.0072	.0219	.0140

*p< .10, ** p<.05, *** p<.01, standard errors are in parentheses

Multivariate Results

To control for a variety of predictors of trade and trade openness, I also run several multivariate regressions. Table 2 depicts these models and their results using the basic equation:

$$\begin{aligned} & \textit{Trade Openness} / \textit{Export Growth} / \textit{Combined Trade Flows} / \textit{Total Recipient Exports} \\ = & \beta_1 \textit{AfT} + \beta_2 \textit{LogDistance} + \beta_3 \textit{LogGDP} + \Delta_1 \textit{Landlocked} + \Delta_2 \textit{Island} + \Delta_3 \textit{Colonized} \end{aligned}$$

Model 2.1 examines the relationship between AfT and trade openness, of which H1 predicts that countries with higher amounts of *AfT* should experience higher levels of *Trade Openness*. With a 2-year lag imposed, *AfT* actually had a negative effect on *Trade Openness*, significant at the .10 level. Over time, trade openness remained steady on average across the SSA countries which could explain the non-results as noted above. The only significant control variable was *Island*. Only Madagascar, São Tomé and Príncipe, the Seychelles, Mauritius, and Cabo Verde turned on this variable, and the positive regression coefficient indicates that they had higher trade openness on average than their continental counterparts.

Model 2.2 tries to explain year over year export growth with the gravity model of AfT. Figure 2 shows the erratic movement of average percent increases in export growth. There is actually negative growth in 2009, which can be attributed to the financial collapse the previous fall and winter. While *AfT* has a positive effect on *Export Growth* in this regression, the result is insignificant. Considering the statistical significance of positive correlations between *Landlocked* and *Colonized* that seem to defy common logic and the results of the next models, I doubt that this model explains much.

The next regression, Model 2.3, also returned an insignificant coefficient for *AfT* on *Combined Trade Flows*. However, both *Landlocked* and *Island* have highly significant negative effects on trade, which comports with basic reasoning. The logarithmic *Combined GDP* between donor-recipient pairs has a strong positive correlation with trade flows as one would expect, given that GDP is calculated with a country's net exports. This result caused me to also create Model 2.4 looking at the relationship between *AfT* and *Total Recipient Exports*.

Interestingly, I do find a significant positive relationship between *AfT* and *Total Recipient Exports* with a lag of 2 years. Many variables are significant at the 1% level in this regression in the expected direction. *AfT* and logarithmic combined GDP were positively associated with total exports, while *Landlocked*, *Island*, and *Colonized* status were negatively associated.¹ This is in line with findings of previous research of the effect of *AfT* on exports. Considering the non-results of Model 2.2 on export growth, it is possible that as *AfT* expenditures generally increased over time (Figure 3), export volumes also increased around the world, although the growth rates did not. Even though exports may have grown, I remember that LDCs around the world still account for less than 1% of the world's exports.

Table 2: Multivariate Models of Aid for Trade Effectiveness

	Model 2.1 <i>(Trade Openness)</i>	Model 2.2 <i>(Export Growth)</i>	Model 2.3 <i>(Combined Trade Flows)</i>	Model 2.4 <i>(Total Exports)</i>
<i>AfT 2-year lag</i>	-.3903* (.220547)	.1639 (.2984)	-1120.06 (5309.904)	231.4379*** (82.8651)
<i>Landlocked</i>	-2.598 (8.5863)	2.6021** (1.196)	-681566*** (251893)	-12244.48*** (3151.036)
<i>Island</i>	25.0404* (14.17416)	.8763 (1.9487)	-814094.6* (420112)	-14150.28*** (5256.519)

¹ I also include a lagged dependent variable of the recipient's prior year exports. This lagged DV washes away the magnitude of these effects; predictably, one year's exports are typically the same or a bit higher as the prior year's exports.

<i>Colonized</i>	16.2139 (18.0497)	9.7715*** (3.4373)	50807.96 (462440.1)	-388.1426 (5782.604)
<i>Distance Log</i>	12.0658 (11.6279)	-.6757 (1.9482)	538213.6 (352316.9)	6423.121 (4426.316)
<i>GDP Log</i>	4.2908 (3.2603)	-5.0277 (4.141)	496754.6*** (74121.44)	17570.86*** (1156.7)
<i>Adjusted R2</i>	.1050	.0107	.0967	.1771

*p< .10, ** p<.05, *** p<.01, standard errors are in parentheses

Conclusion

Although trade facilitation Aid for Trade in theory should increase recipients' trade openness, export growth, and trade flows with donors, I do not find support for these hypotheses in the data. These results suggest that AfT may not work as the WTO initially intended. While it may be increasing exports, I believe that this indicator alone does not indicate that the program is helping LDCs in SSA to trade by removing barriers. If that were so, trade would become more important to the economies of each country, growing more each year after receiving AfT funding, and perhaps manifesting in higher volumes of trade with donors. Instead of raising the success of low income SSA countries, AfT may be better suited for middle income countries, especially those in Asia (Meyer, Nunnenkamp, and Hühne 2013). The AfT agenda is not working well to advance the mission of the WTO in expanding free trade among member states. Perhaps more funds should be targeted to low-income countries, targeted in different ways, or another type of program created entirely. Remember that AfT in 2019 was only 23% of all ODA to the tune of \$46.6 billion. Considering that LDCs and lower income countries received only 31% of AfT in 2019, compared to the lower-middle income countries 40% of disbursements, I suggest increasing the percent and volume of AfT aimed at LDCs to see if a higher amount might bring about more tangible effects on trade openness (Aid for Trade Key Facts 2021).

There are limitations to my findings; further analyses could consider analyzing the whole of AfT, rather than a small piece of the pie in trade policy and regulation measures. However, I would still expect proportionally similar results. Trade openness as a measure itself may not be entirely representative of trade liberalization, and a better measure of the concept may be developed in the future. While I attempt to control for various factors via the gravity model, including other variables to account for institutional arrangements, such as the type of government or internal armed conflicts happening, may give better insight into the effects of AfT. Further research could consider the effects of AfT in South America and Asia, the other main regions of focus. Undoubtedly, certain projects that AfT has funded have been individually successful, like the Chirundu land crossing. But considering the overall scheme of the neediest countries in the world in SSA, attempting to facilitate international trade by removing barriers in recipient countries through AfT has not proved fruitful.

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