

Influence of Aid-for-Trade on exports: A disaggregated analysis for Pakistan

Muhammad Shahid Waheed

Research Assistant at Population Research Centre (PRC) IBA

Email: economaths13@gmail.com

Abstract

The Aid-for-Trade (AfT) though has been widely acknowledged as a reliable source for promoting trade and, in particular, exports in aid recipient developing countries, its effectiveness in this regard has yet to be established. Using panel data of Pakistan's top 60 trade partner nations which is covering 90% of trade flows, and the random-effect panel Gravity model, this study examines whether the sub-categories of AfT boost export flows of Pakistan to both AfT-Donor and Non-Donor during the period 2005 to 2017. Overall, Aid-for-Trade has a considerable negative impact on Pakistan's exports, according to the findings. Only help in the sectors of "industry, fishing, and tourism" has had a major and favorable impact on Pakistan's bilateral exports. "The areas of transportation and storage, communication, energy, trade policy and regulations, business and other services, banking and finance, agriculture, forestry, mineral and resource extraction, and tourism have a negative impact on Pakistan's bilateral exports." In comparison to non-donor countries, total trade flows in terms of exports are reduced as a result of aid. As a result, Aid Donor Countries benefit more from the Aid-for-Trade scheme than Pakistan (the Aid-Recipient Country).

KEYWORDS: Aid for Trade; Official-development-assistance; Aft initiative; AfT effectiveness; Aid Donors.

INTRODUCTION

Finding out if aid for trade (AfT) promotes export growth in the recipient nation is the main objective of this study. Furthermore, On the basis of the outcome of the research, recommendations are made as to how better use of AfT resources may improve its effectiveness. While AfT has shown to be a popular technique for increasing a region's exports, its usefulness for a comprehensive country analysis is controversial. This study, which fills this gap, focuses on the impact of AfT's on Pakistan.

Aid for trade aims to support developing economies in boosting their trading capabilities so they can benefit from trade activities. Since it was launched at the 2005 WTO Ministerial Declaration in Hong Kong, the Aid for Trade concept has gained traction as a plan for economic growth through free trade. In any event, there is insufficient evidence that the AfT boosts trade (Vijil& Wagner 2012, Cal&teVelde 2011). Similarly, several studies show that the relationship between aid and development is either positive, negative or effective with certain conditions (Malcolm et al. 2001; Gomanee et al. 2002; Rajan et al 2008; Doucouliagos et al 2009; Burnside et al 2000). Few studies (Cal&teVelde, 2011, Ferro et al. 2014) have attempted to investigate regional export performance after the launch of Aid for Trade in certain regions. However, research focusing on Asian countries is becoming increasingly rare. In its 2017 report, the WTO said that it was important that Asian countries got the most funding out of the five geographical groups from 2006 to 2015. If the Aid for Trade program works to increase Pakistan's exports, it will be defended and recommended to be continued. If it doesn't, it will be recommended that it should be stopped.

This study examines, at a detailed level, the effects of aid for trade on Pakistan's bilateral exports to its trading partners, both aid donors and non-donors. It adds to the body of knowledge by filling a gap in the quantitative assessment of Aid-for-Trade. In addition, the impact of all main categories of AfT is investigated in order to acquire a better understanding of the mechanisms that underpin Aid for Trade effectiveness. The addition of economic factors aims to improve the estimation of the link between AfT and Bilateral Exports.

LITERATURE REVIEW:

The literature on AFT is fast growing in the field of trade facilitation. Most of the AfT-related studies focused on analyzing the effectiveness of AfT as a whole. Few of these research have looked at the impact of explicit AfT instruments. Analysts have focused on

AfF policies and regulations, as well as infrastructure aid, among the numerous AfT categories. Aid to production capacity and trade development, on the other hand, has gotten little attention. Various studies have been conducted in various nations. Some studies include a large number of emerging and developed countries, and some of them concentrate on small developing economies or a single country. Few studies have looked into the disparities in Aid for Trade adequacy between the productive and non-productive sectors. Data accessibility and availability continue to be a major concern in leading studies related to Aid for Trade. The OECD and CRS databases are used in the majority of investigations. Aid for Trade can be effective at both the macro and micro levels, according to the literature, although the results vary substantially depending on the sort of intervention. There are significant policy ramifications of these findings. Unquestionably, empirical data indicates that improving trade performance may be especially possible by focusing on Aid for Trade flows.

The majority of the literature assessed by Cadot et al. (2014) was composed of international research projects. On the other hand, a number of recent studies, including those by AdugnaLemi (2017), Kimm and Roberts (2015), Martnez et al. (2017), Lucy and Nasiri (2015), and Mendez and Velde (2017), suggest that Aid for Trade has a significant negative impact on export. According to a number of studies, including Lehmann et al. (2013) and Lucy and Nasiri (2015), Aid for Trade has no impact on exports. According to Helble et al. (2009), the Aid for Trade programme boosts exports in recipient nations. On the other hand, according to Tuna et al. (2013), rules and help for trade have a detrimental impact on export. Helble et al. (2009) found that AfT development boosts exports in recipient countries. Similarly, Iwanow and Kirkpatrick (2007), Helble et al. (2009), Perez & Wilson's (2010), Cal and TeVelde (2011) Massimiliano et al. (2011), Alberto and Wilson (2012), JE Sohn (2013), Tuna et al. (2013), AdugnaLemi (2017), Martnez et al. (2017), concluded that economic infrastructure aid increases recipient country exports. The aid for administration, training, and education, according to Helble et al. (2009) and AdugnaLemi (2017), increases exports in the recipient nations. The exports of aid recipient countries are positively and significantly impacted by assistance for transportation, ICT, banking, business, and energy, according to Ferro et al. (2014) and Perez & Wilson (2010). The studies by Cal and TeVelde (2011), Massimiliano et al. (2011), Tuna et al. (2013), and Pettersson and Johansson (2013) all came to the same conclusion: aid for the development of productive capacity had a favourable but insignificant effect on recipient nation exports. Only the Martnez et al. (2017) result is noteworthy, and it also has favourable ramifications for exporters. Iwanow and Kirkpatrick (2007) assert that assistance with regulatory reform increases exports from the recipient nation.

Using the Random-Effect approach on a panel of 102 developing nations from 2002 to 2017, Kim, et al. (2020) discovered that AfT had a conditional impact on exports in recipient nations. AfT has a higher impact in countries with better governmental capability and a stable economic environment.

Hoekman, et al. (2020) used the Random-Effect Penal estimate on 35 exporting and 53 importing nations over the period 2002-2015 and found that aft have weak results with total trade. While Aft (given to services, particularly infrastructure), has a favorable impact on recipient nations' bilateral item exports to donor countries.

Gnangnon (2019) employed a two-step GMM approach on an imbalanced panel data sample of 121 developing nations from 2002 to 2015. The findings demonstrate that AfT inflows positively and significantly increase recipient nations' low and high export ratios, but not their medium export ratio. AfT inflows in LDCs affect low levels positively while negatively affecting middle and high levels. The cumulative AfT inflows have a sizable beneficial influence on the three export ratios for both the total sample and LDCs.

Research Design; Data, Model and Methodology

The gravity equation, which was used in the study, is now frequently used to explain the flow of bilateral trade. Neither the Heckscher-Ohlin model nor Ricardo's theory of comparative advantage discuss total bilateral trade flows (especially in the empirical case of more than two countries). The Panel Random-Effect Model, which was previously taken from Cal and teVelde (2011) and altered as needed for this research, was employed in this investigation. We employ the standard gravity model, which considers trade flows in terms of economy size, information, and transportation costs. We employ a panel-dataset of 60 partner countries to examine the influence of Aid-for-Trade on Pakistan's bilateral exports to trade partner nations from 2005 to 2017. It includes aid donor countries and other top export partners. In this analysis, we used the OECD's "Query-Wizard-for-International-Development-Statistics" to get net and disaggregated Aid-for-Trade disbursement statistics for 2016, which are accessible at the "Query-Wizard-for-International-Development-Statistics" website (QWIDS). Appendix-A shows a list of Pakistan's partners country which bilateral trade is used in this study (which covers 90 percent of Pakistan's exports). Following in the footsteps of its forerunners in analyzing the impact of AfT (Brazys, 2013; Bearce et al., 2013; Osei, Morrissey, and Lloyd, 2004), this study uses data from the AfT and its sectors up to a two-year lag because some sectors require time to see results after the AfT project is implemented.

Our estimates are based on conventional factors such the exchange rates, GDP, population, and trade costs of the two trade partner nations, as well as distance between them and concessions on market access such as GSP+. We utilize the log-log model for our estimations to control the variance of the error component; therefore by applying natural log to the general model of export, we get the following regression:

$$\begin{aligned} \ln Export_{ijt} = & \beta_0 + \beta_1 \ln AfT_{ikt-x} + \beta_2 \ln DonorDummy_{jt} + \beta_3 \ln GSPP_{ijt} + \beta_4 \ln EXR_{it} \\ & + \beta_4 \ln EXR_{jt} + \beta_5 \ln GDP_{it} + \beta_6 \ln GDP_{jt} + \beta_7 \ln Dist_{ij} + \beta_9 \ln Pop_{jt} + \beta_{10} \ln CX_{it} \\ & + \beta_{13} \ln CM_{jt} + \gamma_i + \theta_t \\ & + \varepsilon_{ijt} \end{aligned} \quad (3.1)$$

The gravity model has been supplemented with the inclusion of AfT, exchange rates of both exporting and importing nations, the costs of export and import in recipient countries of donors, the costs of export and import in donors, and dummy variables like GSP+ and assistance donor countries.

Data Sources

The data came from the OECD, World Bank Doing Business Report, UN COMTRADE, and WDI datasets. The dependent variable was total bilateral exports, and data for these exports came from the UN COMTRADE Database (HS, 2002 commodity classifications). Our primary explanatory variable, Aid-for-Trade (ODA, disbursements), is data from the OECD/DAC creditor reporting system (CRS). The AfT Task Force was established by the World Trade Organization (WTO), and it theoretically divided AfT into six main categories and described the aid for trade as "project and programme aids focusing on trade-related projects and development plans in Aid recipient countries.":

However, AfT is divided into following activities which has been assigned different codes:

- 1) Code- 210; economic infrastructure Transportation and storage
- 2) Code-220; communication
- 3) Code-230; energy generation and supply
- 4) Code-240: Banking and Financial Services
- 5) Code-250; Business and other services
- 6) Code-311; Agriculture
- 7) Code-312; Forestry

- 8) Code-313; Fishing
- 9) Code-322; Mineral Resource and Mining
- 10) Code-321; Industry
- 11) Code-332; Tourism

Even if more monies have been pledged from donors, these categories existed prior to the AfT program of 2005. We utilize a dummy variable called "donor-dummy" to represent individual donor country trade flows.

The World Bank's Doing Business project database, which has eleven sub-indicators for the cost of trading across borders, is where the information on transaction costs of trade is collected. The World Bank determines the costs of product trade by sea transportation for both exports and imports in order to evaluate the data. The fees assessed per 20-foot container in US\$ are measured as trading costs, which are referred to as the cost of exports (CX) and the cost of imports (CM) in this study. Their methods attempt to capture the true cost of commerce in the absence of customs charges and tariffs. A dry cargo of (20-foot; fully loaded Container) with no military dangerous objects was required to supply the marketable products. Only formal transactions and costs are included for the cost of exports and imports and no trade tax or tariff is included.

The GDP and population (in million) of the country are used to calculate the size of the economy, as well as the exchange rate, which is obtained from the WDI data bank. GDP is expressed in 2010 US dollars. The data for distance between Pakistan and the trading partners countries is procured from the CEPPI-World Economy, while other gravity model related variables are taken from Head and Mayer (2013). If Pakistan receives GSP+ or any other equivalent concession from a partner country, we utilized the GSP+ dummy with the value "0", otherwise "1".

Results

We'll begin by analyzing the effects of aid given in the category of "Building Productive Capacity," where the business and other services component has a much greater impact on exports to non-donor countries while having a negligibly smaller negative impact on exports. The communication sector has a negative but minor impact on Pakistan's exports. With communication aid, the donor-dummy coefficient tells us about the Exports flow, which is higher in Aid-Donor countries. The fishing sector has a favorable and considerable impact on Pakistan's exports. The fishing business exports a higher

percentage of its products to aid-donor countries. The AfT given to Forestry has a minor but significant detrimental influence on Pakistan's exports. A 1000 percent increase in this type of aid will only cut exports by 9% at most. Aid for banking and financial services has a negligible negative influence on Pakistan's exports, resulting in a higher proportion of exports to non-donor nations. As a result, Aid-Donors benefit more from this type of aid. The aid-for-trade given to the agriculture sector has a negative and significance effect on Pakistan's exports, the outcome is captured at the first lag, and we discovered that Agriculture-AfT enhanced Pakistan's exports compared to Aid-Donor countries with the use of the donor dummy. Aid to industry has a favorable and considerable impact on Pakistan's exports, with export flows to non-donor nations being relatively higher. Aid to the sectors of "Mineral Resources & Mining" and "Business and other services" has a small but detrimental impact on Pakistan's export growth. Aid-donor countries receive a higher proportion of these sectors' exports.

Following that, we discuss the results of aid given to "economic infrastructure" components, in which aid supplied to communications has a negative impact on exports. In this type of aid, Aid-Donor countries receive a higher proportion of Pakistan's imports than Non-Donor countries. Aid to the energy sector has a negative and considerable influence on Pakistan's exports. With a first lag, aid supplied to "Transport and Storage" has a major negative influence on Pakistan's exports; export-flows are relatively greater to non-donor countries.

Now we'll talk about the results of the "Trade Policy and Regulation" sector. Its sub-categories are irrelevant to us. According to the findings, this factor for aid has a negative and considerable impact on Pakistan's exports. With this kind of aid, exports are moving more frequently to non-donor nations.

The impact of aggregate AfT is shown in table-3E. According to the research, Pakistan's exports are negatively impacted by AfT, with an average 1.7% decline in exports for every 100% increase in AfT. One the one hand, it has a negligible and detrimental effect on exports by donor nations, as an average 100% increase in AfT will reduce exports by 0.5%, respectively.

The findings demonstrate that Pakistan's exports are significant and favourably correlated with its partners' GDP across all metrics. This implies that a 1% increase in Pakistan's own GDP will not result in a higher increase in exports than a 1% increase in the GDP of its trade partners. The population of a partner country is the productiveness of the masses in that country, which is growing in lockstep with their population, negatively impacting our exports. The distance between Pakistan and its trading partners has a statistically significant negative impact on exports. If the estimation is done by taking variables into

account at level, the importing cost of a partner country has a favourable effect on Pakistan's exports, but this impact is minor with the first and second lags. This conclusion can be explained by arguing that Pakistan has a competitive advantage in its partner's markets over its competitors, and that an increase in import costs for its partners discourages exports from other nations more than exports from Pakistan. The findings also demonstrate that GSP+ has a strong favorable influence on Pakistan's exports. Pakistan is increasing its exports to nations where it receives GSP+ status and other benefits.

Conclusion:

AfT, according to several international trade organizations and assistance donor countries, plays a critical role in the development of aid recipient countries through supporting export-related marketing. Despite this, the effectiveness of AfT, particularly in the receiving country of Pakistan, has not been sufficiently demonstrated due to a lack of evidence. To close this gap, the impact of sector-specific AfT on Pakistan's bilateral exports has been explored.

The findings of this study show that aid supplied to different industries has a varying impact on Pakistan's bilateral exports. AfT (as a whole) has a considerable and negative influence on Pakistan's bilateral exports, yet it is regarded as little. Only aid received in the sectors of "Industry, Fishing, and Tourism" has a positive impact on Pakistan's bilateral exports, while aid received in the sectors of "Transport & Storage, Communication, Energy, Trade Policy & Regulations, Business & Other Services, Banking & Finance, Agriculture, Forestry, Mineral & Resources, and Tourism" has a negative impact. Aid to "Energy, Trade Policy and Regulations, Agriculture and Forestry" has had a substantial impact.

When we looked at the sectors rather than the sub-sectors, additional research reached the same conclusions for other domains. The empirical result that aid given to Trade Policy & Regulation has a stronger influence on exports is supported by an Asian Development Bank (ADB) report (2012). Cali and teVelde (2011) discovered that while aid in the subcategory of "energy" had a negative effect on exports in this study, aid in the domain of economic infrastructure was entirely favourable to the development of exports. According to research on low-income nations, only productive capacity is useful for exports. Nevertheless, in our study, it has a detrimental influence on exports to the recipient nation.

Future studies will need to go into further detail regarding the precise efficacy of AfT and the proper distribution of trade-related ODA by sector. In other words, it's important to

find out which forms of aid—such as those given to industry, agriculture, fisheries, forestry, and other sectors of the economy—have the biggest effects on Pakistan's trading performance. The most effective AfT policy and regulation for Pakistani exports should also be investigated, such as trade facilitation, trade-related adjustment, and regional trade agreements. It will be easier to determine the best specific sector of AfT that each country requires in order to promote bilateral trade if other countries in the same region are looked at as well. Finally, AfT should be continued, but with a focus on specific sorts of aid adapted to the recipient country's trade performance.

Policy Recommendation:

- The conclusions of this study's analysis suggest that Pakistan's government should coordinate with other nations on trade issues, resulting in a bigger influx of trade aid into the country and an increase in the country's exports.
- The purposeful attempts by recipient nations for help for trade are understandable in light of the current trade tensions between the United States and China, which are limiting donor countries' ability to give resources/funds for aid for trade.
- The findings also imply that efforts to attract trade aid should be highly focused, with a focus on improving help in components such as transportation and storage, communication, fisheries, and industry and trade policy and regulation.
- The government should concentrate its policy on attracting trade aid in order to boost exports. These findings, which can be applied to all developing countries, suggest that developing countries should seek out the largest proportion of available trade aid.

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Appendix

Table 2(A): LM test

Breusch and Pagan Lagrangian multiplier test for random effects

`lnexport[Partner,t] = Xb + u[Partner] + e[Partner,t]`

Estimated results:

	Var	sd = sqrt(Var)
lnexport	9.25912	3.04288
e	.1676306	.4094271
u	5.736615	2.395123

Test: `Var(u) = 0`

`chibar2(01) = 4343.31`
`Prob > chibar2 = 0.0000`

Table 2(B): Hausman test

`. hausman fe re`

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
<code>Intotalall~s</code>	.0092189	.0095918	-.0003729	.
<code>donarcountry</code>	-.0029354	-.0046535	.0017181	.
<code>lngdpp</code>	-.2388089	-.2890374	.0502286	.0069489
<code>lngdpj</code>	1.151986	1.066519	.0854661	.0342525
<code>lnpopj</code>	-.9634717	-.5932555	-.3702162	.141529
<code>lner</code>	-.0580787	-.0503903	-.0076883	.0076743
<code>lnexr_p</code>	-.0105177	-.0230093	.0124916	.
<code>gsp_fta</code>	.3868033	.3929234	-.0061202	.
<code>lncxi</code>	-.0317562	-.0557638	.0240076	.0059157
<code>lncmj</code>	.1814453	.1699587	.0114865	.0107824

`b = consistent under Ho and Ha; obtained from xtreg`
`B = inconsistent under Ha, efficient under Ho; obtained from xtreg`

Test: `Ho: difference in coefficients not systematic`

`chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)`
`= 8.97`
`Prob>chi2 = 0.5352`
`(V_b-V_B is not positive definite)`

Table: 3(A)

Building Productive Capacity									
	LnAgriculture			LnBanking&Finance			Lnbusinessand Others		
	Level	1st lag	2nd lag	level	1st lag	2nd lag	level	1st lag	2nd lag
	-0.001	- 0.062* *	- 0.059*	-0.002	-0.006	-0.013	-0.013	0	-0.015
DonarDumy	-0.008	-0.005	0.011	-0.008	-0.007	0.005	-0.011	-0.008	0.01
lnGDPi	-0.081	0.11	0.525	-0.105	0.106	0.576*	-0.136	0.158	0.681*
lnGDPj	1.158* **	0.941* **	0.942* **	1.159* **	0.943* **	0.911* **	1.159* **	0.953* **	0.935* **
lnDistance	- 1.640* **	- 1.621* **	- 1.697* **	- 1.641* **	- 1.622* **	- 1.695* **	- 1.640* **	- 1.623* **	- 1.700* **
lnPOPj	- 0.970* **	- 1.659* **	- 2.276* **	- 0.975* **	- 1.666* **	- 2.181* **	- 0.979* **	- 1.663* **	- 2.247* **
lnEXR_j	- 0.058*	- 0.119* *	-0.033	- 0.058*	- 0.119* *	0.004	- 0.059*	- 0.120* *	-0.012
lnEXR_i	-0.127	0.135	-0.026	-0.103	0.013	0.012	-0.141	-0.056	0.104
GSP+	0.395* **	0.307* **	0.308* **	0.393* **	0.299* **	0.320* **	0.389* **	0.306* **	0.307* **
lnCXi	0.014	0.036	0.285	0.007	-0.002	0.418*	-0.048	0.015	0.448
lnCMj	0.171*	0.055	0.101	0.171*	0.059	0.119	0.174* *	0.06	0.117
_cons	6.089	9.497* *	8.706*	6.096	9.837* *	9.933* *	6.171	9.688* *	8.520*
Obs.	780	720	660	780	720	660	780	720	660
R-squared	0.983	0.984	0.986	0.983	0.984	0.986	0.983	0.984	0.986

Source: Author's Calculations

Notes:

*significance (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)*

Table: 3(B)

Building Productive Capacity									
	LnFishing			LnForestry			LnIndustry		
	level	1st lag	2nd lag	level	1st lag	2nd lag	level	1st lag	2nd lag
	-0.001	0.004	0.009* **	-0.001	- 0.009* **	0	0.01	-0.021	0.035*
DonarDummy	-0.007	-0.009	0.009	-0.007	-0.008	0.006	-0.009	-0.005	0.007
lnGDPi	-0.155	0.048	0.479	-0.133	0.137	0.545	-0.073	0.194	0.445
lnGDPj	1.158* **	0.936* **	0.918* **	1.154* **	0.885* **	0.944* **	1.167* **	0.937* **	0.942* **
lnDistance	- 1.642* **	- 1.621* **	- 1.699* **	- 1.640* **	- 1.603* **	- 1.699* **	- 1.644* **	- 1.616* **	- 1.698* **
lnPOPj	- 0.968* **	- 1.637* **	- 2.187* **	- 0.959* **	- 1.587* **	- 2.268* **	- 1.000* **	- 1.668* **	- 2.268* **
lnEXR_j	- 0.057*	- 0.115* *	0.007	- 0.057*	- 0.107*	-0.03	- 0.061*	- 0.119* *	-0.028
lnEXR_i	-0.11	0.049	-0.078	-0.08	-0.011	-0.047	-0.184	0.02	0.018
GSP+	0.400* **	0.316* **	0.315* **	0.400* **	0.306* **	0.310* **	0.391* **	0.286* **	0.309* **
lnCXi	-0.024	-0.014	0.22	0.006	0.013	0.285	-0.017	0.062	0.231
lnCMj	0.167*	0.054	0.12	0.169*	0.057	0.103	0.171*	0.068	0.105
_cons	6.071	10.041 **	9.902* *	6.084	10.773 **	9.419* *	6.072	9.863* *	9.072* *
Obs.	780	720	660	780	720	660	780	720	660
R-squared	0.983	0.984	0.986	0.983	0.985	0.986	0.983	0.984	0.986

Source: Author's Calculations
*significance (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)*

Notes:

Table: 3(C)

Building Productive Capacity						
	LnMineralResources			LnTourism		
	level	1st lag	2nd lag	level	1st lag	2nd lag
	0.004	-0.002	-0.009	0.004	-0.002	0
DonarDummy	-0.008	-0.008	0.003	-0.003	-0.008	0.006
lnGDPi	-0.108	0.101	0.591*	-0.111	0.009	0.789**
lnGDPj	1.159***	0.948***	0.946***	1.158***	0.924***	0.923***
lnDistance	-1.641***	-1.623***	-1.701***	-1.641***	-1.616***	-1.705***
lnPOPj	-0.974***	-1.667***	-2.253***	-0.972***	-1.648***	-2.172***
lnEXR_j	-0.058*	-0.120**	-0.023	-0.058*	-0.114**	0.017
lnEXR_i	-0.101	0.007	-0.126	-0.109	0.08	-0.078
GSP+	0.394***	0.303***	0.315***	0.394***	0.297***	0.320***
lnCXi	0.006	-0.005	0.269	0.001	-0.014	0.575*
lnCMj	0.171*	0.057	0.105	0.171*	0.061	0.12
_cons	6.114	9.744**	9.211**	6.076	9.942**	9.454**
Obs.	780	720	660	780	720	660
R-squared	0.983	0.984	0.986	0.983	0.984	0.986

Source: Author's Calculations

Notes:

*significance (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)*

Table: 3(D)

Economic Infrastructure									
	LnCommunications			LnEnergy			LnTransportation& Storage		
	Level	1st lag	2nd lag	level	1st lag	2nd lag	level	1st lag	2nd lag
	-0.007	0.001	-0.002	-0.015	-0.033*	-0.055**	0.009	-0.027*	0.004
DonarDummy	-0.006	-0.008	0.005	-0.007	-0.006	0.022	-0.009	-0.01	0.005
lnGDPi	-0.106	0.063	0.422	-0.057	0.089	0.538	-0.151	0.066	0.736*
lnGDPj	1.159*	0.948*	0.948*	1.156*	0.943*	0.937*	1.141*	0.949*	0.916*

	**	**	**	**	**	**	**	**	**
lnDistance	- 1.641* **	- 1.622* **	- 1.699* **	- 1.639* **	- 1.621* **	- 1.699* **	- 1.632* **	- 1.620* **	- 1.690* **
lnPOPj	- 0.974* **	- 1.672* **	- 2.263* **	- 0.966* **	- 1.669* **	- 2.245* **	- 0.911* **	- 1.678* **	- 2.221* **
lnEXR_j	- 0.058*	- 0.121* *	-0.031	- 0.057*	- 0.120* *	-0.017	-0.052	- 0.123* *	-0.007
lnEXR_i	-0.103	0.02	-0.027	-0.131	0.072	0.055	-0.16	0.055	-0.236
GSP+	0.394* **	0.297* **	0.313* **	0.394* **	0.300* **	0.306* **	0.404* **	0.295* **	0.309* **
lnCXi	0.006	-0.03	0.21	0.039	-0.009	0.277	-0.028	-0.049	0.437*
lnCMj	0.171*	0.06	0.103	0.172*	0.06	0.11	0.172*	0.065	0.127
_cons	6.072	9.678* *	9.536* *	6.208	9.014* *	7.495	6.038	8.956* *	9.531* *
Obs.	780	720	660	780	720	660	780	720	660
R-squared	0.983	0.984	0.986	0.983	0.984	0.986	0.983	0.984	0.986

Source: Author's Calculations

Notes:

*significance (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)*

Table: 3(E)

Trade Policy & Regulation , Total Aft						
	LnTradePolicy and Regulations			LnTotalallSectors		
	level	1st lag	2nd lag	level	1st lag	2nd lag
	-0.017**	-0.016**	-0.009	0.005	-0.004	-0.017***
DonarDummy	-0.007	0	0.013	-0.01	-0.01	0.003
lnGDPi	-0.125	0.092	0.427	-0.239	0.146	0.033
lnGDPj	1.159***	0.945***	0.946***	1.152***	0.950***	0.932***
lnDistance	-1.641***	-1.621***	-1.699***	-1.634***	-1.623***	-1.701***
lnPOPj	-0.975***	-1.665***	-2.268***	-0.963***	-1.675***	-2.238***
lnEXR_j	-0.058*	-0.119**	-0.03	-0.058*	-0.121**	-0.014
lnEXR_i	-0.075	0.065	-0.048	-0.011	-0.039	0.097
GSP+	0.394***	0.297***	0.312***	0.387***	0.300***	0.312***
lnCXi	-0.004	-0.013	0.218	-0.032	-0.008	-0.087
lnCMj	0.171*	0.062	0.104	0.181**	0.06	0.104
_cons	6.22	8.309*	8.454*	6.046	9.635**	9.863**
Obs.	780	720	660	780	720	660
R-squared	0.983	0.984	0.986	0.983	0.984	0.986

Source: Author's Calculations

Notes:

significance (* $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)**

Table 4: Matrix of correlation

Variable s	Trad e	Impo rt	Expo rt	GDP j	GDP i	Distanc e	POP j	POP i	CX i	CM i	CX j	CM j	ER j	ER i	Total Aft
Trade	1														
Import	0.944	1													
Export	0.96	0.852	1												
GDPj	0.587	0.633	0.555	1											
GDPi	0.034	0.032	0.036	0.079	1										
Distance	-0.194	-0.177	-0.177	0.227	0	1									
POPj	0.257	0.307	0.244	0.53	0.031	0.043	1								
POPi	0.032	0.03	0.033	0.076	0.982	0	0.032	1							
CXi	-0.036	-0.03	-0.038	-0.08	-0.949	0	-	-	1						
CMi	-0.009	-0.018	-0.007	-0.027	-0.507	0	-	-	0.31	1					
CXj	-0.208	-0.235	-0.155	-0.186	-0.155	-0.11	0.128	-	0.15	0.081	1				
CMj	-0.234	-0.261	-0.188	-0.199	-0.166	-0.08	0.199	-	0.16	0.08	0.96	1			
ERj	-0.11	-0.185	-0.074	-0.162	0.015	-0.124	0.257	0.021	-	-	0.16	0.223	1		

ERi	0.033	0.029	0.037	0.081	0.942	0	0.032	0.957	-	-	-	-	0.016	1	
Total AfT	0.084	0.071	0.115	0.171	0.311	0.083	0.042	0.334	-	-	-	-	-	0.304	1

Source: Author's Calculations

Notes: significance (*) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)**