

## **Effectiveness of Aid for Trade (AfT): Evidence from Bangladesh**

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*Non-emergency foreign aid can flow for any reason (starting from addressing humanitarian need to seeking political support of the recipient country) however; economically it makes more sense if it flows for trade, which can make a country strong economically. Bangladesh being one of the countries with low per capita GDP is trying hard to increase its output and in that process trade can be quite helpful. In fact, in last two decades the country has registered a huge increase in GDP per capita led by export (of both goods and services). This current paper using data between 2003 and 2013 tries to explore the role of foreign aid in developing trade capacity for Bangladesh. Based on the model proposed by Cali and Te Velde (2011) we found that AfT has a positive impact on export of Bangladesh. All three sub types of trade aid namely, AfT for trade policy and regulations, aid for improving economic infrastructure and aid for building productive capacity affect growth of export positively.*

**Field of Research:** Trade and growth

### **1. Introduction**

The term, Aid for Trade (AfT) was first introduced at the WTO Ministerial Conference in Hong Kong in 2005, although aid given to enhance trade capacity is nothing new. The main purpose of this portion of aid is to increase international trade scenario for developing and least developed countries. Recent studies (OECD & WTO, 2011 among others) show that, AfT manifests significant impact on growth of some developing countries through improvement in physical infrastructure, increased competition, job creation, providing reliable inputs, and capacity building, increasing availability of various products, access to more markets and so on.

Significance of trade in growth process is well accepted among both policy makers and academicians. There is great amount of evidence in literature that shows are positive links between openness to trade and economic performance. Some developing countries have succeeded in benefitting from the expansion of global markets but some others fall victim of globalization. The process of economic growth is hampered when a country has weaknesses in terms of lack of resources, poor infrastructure, weak productive capacity and technological base, low competitiveness, corruption, political disharmony, unstable economic environment and so on. Such weakness restricts a country to efficiently produce and distribute goods even for their own consumption. Aid targeted for trade is expected to remove some of these bottlenecks to produce benefits of trade for the recipient country.

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Bangladesh is a growing country and a recipient of aid from various donor countries. Since its independence in 1971, it received a good amount of aid in different forms. The flow was strong in 1970's and early 1980's however, it dried up subsequently. Though it will be little optimistic to claim that Bangladesh has used aid money quite efficiently, nevertheless its positive impact on local economy is beyond question. This paper aims to shed some light on this issue by evaluating the impact of AfT on the economy's growth. We will try to identify the main components of AfT (trade related infrastructure, trade productive capacity and trade policy and regulation) for Bangladesh and to what extent it contributed to export of goods and services. We are not aware of any quantitative study done on Bangladesh using advanced econometric technique. In that sense, this will be an addition to empirical literature.

Main objective of this study is to provide some quantitative evidence on the possible effects of AfT on growth. The study tries to create and establish an empirical link between different categories of AfT and its impact on export of goods and services from Bangladesh. Finding of such study is important for policy makers as if found effective they can argue for more aid otherwise they can look for reasons of ineffectiveness to remove them. Donor countries can also use findings of such research to assess their program effectiveness. We are aware of one such previous study done on Bangladesh which is mostly qualitative. This proposed study uses better econometric techniques for strong conclusions.

This paper is organized as follows. Section one was introduction, Section two takes us on the history of AfT, Section three reviews the literature on AfT. Section four discusses on the role of trade in the development process of Bangladesh, which is AfT Bangladesh experience. Section five develops the empirical framework and describes the data set. Section six presents the results of the analysis. Usual concluding remarks are at the last section.

### **2. Aid for Trade: Historical Perspective**

Aid for Trade (AfT) is a kind of development assistance given especially to developing and least developed countries for recipient's trade related development, like infrastructure building, capacity building, trade related adjustments, improving trade related regulations and so on. AfT is expected to help a country by increasing exports of goods and services, by taking advantage of liberalized trade and increased market access. Official Development Assistance (ODA), a similar concept normally pursues the agenda of enhancing the level of development of a recipient country.

The following table gives percentage of AfT relative to total ODA. Donors are OECD members in the development assistance committee (DAC) and recipients include all developing countries.

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**Table 1: AfT Disbursements and Proportions (to all developing countries by DAC donors, million USD at 2012 constant prices)**

Year	AfT	ODA	AfT/ODA (%)
2002	28770.0	61600.3	46.7
2003	36402.2	73021.9	49.9
2004	42095.3	75319.7	55.9
2005	49832.9	104614.6	47.6
2006	53521.9	100265.7	53.4
2007	58518.9	92.46.2	63.6
2008	66184.0	104136.5	63.6
2009	69807.6	99869.5	69.9
2010	77376.7	108037.3	71.6
2011	74189.2	105855.6	70.1
2012	73216.4	101393.1	72.2
Total	629915.1	1026160.4	61.4

Source: OECD

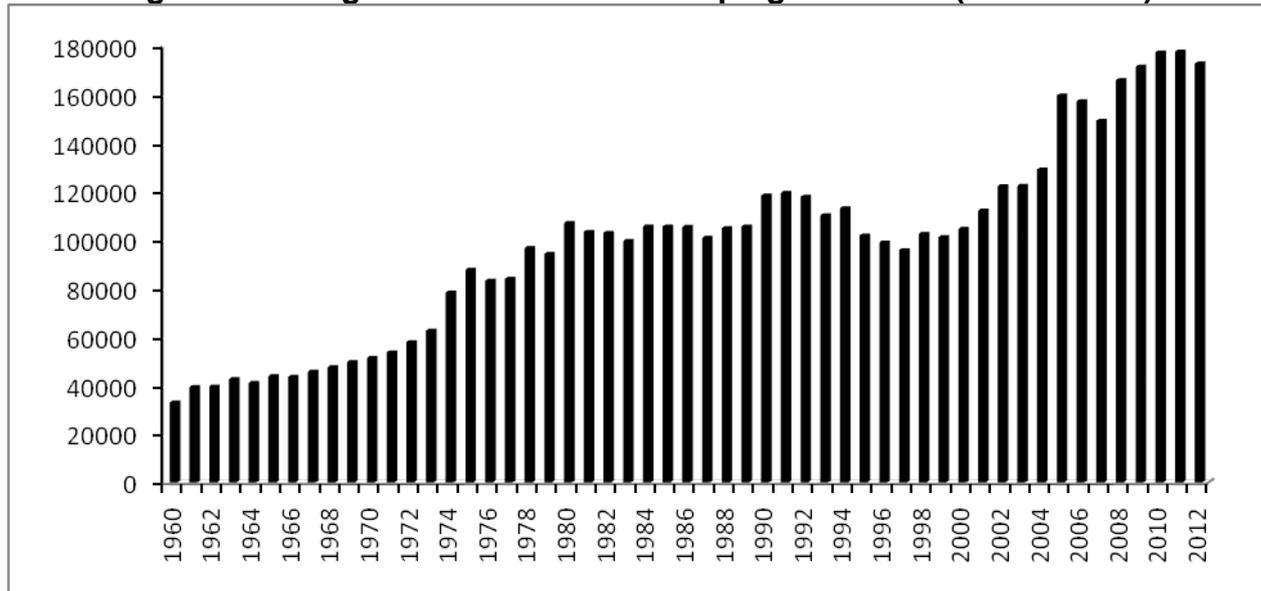
Regarding classification in 2006, the WTO AfT Task Force, (European Commission, 2009) stated that "Projects and programs should be considered as AfT if these activities have been identified as trade-related development priorities in the recipient country's national development strategies". They identified 6 types of Trade Related Assistance (TRA) activities

- 1) Trade policy and Regulations - e.g. training, explaining rules and regulations.
- 2) Trade development - e.g. investment promotion, analysis/institutional support for trade, market analysis and development.
- Wider AfT agenda:
- 3) Trade-related infrastructure - physical infrastructure including e.g. transport and storage, communications and energy generation and supply.
- 4) Building productive capacity – productive sectors such as agriculture, forestry, fishing, industry, mineral resources and mining (not marked as Trade development).
- 5) Trade-related adjustment - e.g. contributions to government budget for implementation of recipients own trade reforms and adjustments to trade policy measures by other countries.
- 6) Other trade-related needs - other trade related support identified as such by beneficiaries and not captured under the categories above.

Now shifting attention to numbers; AfT flows increased from \$20,558 million in 2006 to \$32,086 million in 2010, which makes an average annual growth rate of 12% between these two periods. Donors include both OECD and non-OECD countries. By region, Sub-Saharan Africa is the largest recipient. By income group, lower-middle-income countries (LMICs) were the largest recipient. By sector, transport and storage received most.

The Figure 1 below shows the foreign aid flows to all developing countries, the chart shows an increasing trend on the aid flow in all the developing countries, indicating the importance of aid flow.

Figure 1: Foreign Aid flow to All Developing Countries (Million USD)



### 3. Literature Review

Neoclassical economists are motivated by the notion that free trade encourages economic growth mostly by restricting wasteful use of scarce resources (classical Ricardian comparative advantage argument, see Viner, 1937). However, that is not quite conforming to literature. While export promotion policies are widely regarded as having played an important role in the growth of East Asian countries (e.g., Westphal, 1990) empirical evidence of the relevance of productivity spillovers from exporting is a matter of continuing debate (see. Bayoumi, Coe & Helpman, 1999).

Existence of dynamic gains from trade has been questioned in many studies (see Helpman & Krugman 1985; Krugman & Obstfeld 2006; Rodriguez 2007 among others). Theoretically, dynamic gains from trade liberalization are due to increased market access for exports with the inherent scope for economies of scale, which leads to increasing returns and eventually gathering of human and physical capital. This foreign exposure obtained by export sector in conjunction with higher returns, inspires entrepreneurship and raises productivity of factors above their pre-liberalized levels, which then pushes the economy forward. According to advocates of openness, the positive externalities associated with the transmission and diffusion of new ideas or knowledge and adoption of more efficient production techniques and management systems generates dynamic efficiencies, which lowers the incremental capital-output ratio and thereby improves economic performance (McCulloch & Winters et al. 2003).

Previous studies showed impact of AfT in developing nations vary depending on their economic environment, infrastructural development, availability of physical and human capital and other liberal policies. Effectiveness of AfT or aid disbursements depends on sectoral distribution; on the types of trade policy and regulations, aid to trade development and trade facilitation. Helble, Mann, & Wilson (2009) analyze the effects of various categories of AfT; trade development assistance, productive capacity building, trade policy assistance, and infrastructure on bilateral trade. Their findings suggest there are high marginal returns to projects that target trade policy and regulatory reform: US\$1 of AfT targeted at trade policy and regulatory reform could increase trade by US\$700.

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Cali & Te Velde (2011) assess the impact of different types of AfT flows on the economic environment of recipient countries. Using panel data for 130 developing countries, they found that AfT reduced the time required and cost to import during the period 2005-2009. In addition, AfT had a significant positive impact on total exports between 2002 and 2007.

Helble, Mann, & Wilson (2012) found that this assistance enhances the trade performance of recipient countries, particularly exports. Other studies using gravity model of trade in analyzing the effect of aid include Bourdet & Nilsson (1997); Osei, Morrissey & Lloyd (2004) and Wagner (2003). However, they all considered only the effect of aid on donor exports. These researchers found a positive correlation between donor aid and donor country exports. McPherson & Rakowski (2001) used a multi-equation system and found that the impact of aid on GDP per capita growth is positive but indirect through investment. Gomanee et al. (2002) find that every one percentage point in the ratio of aid to GNP contributes one-third of one percentage point to growth in a sample of sub-Saharan African countries. Clemens et al. (2004) split aid into different types and identified the types of aid that could plausibly stimulate growth in the short run, which include budget and balance of payments support, investments in infrastructure and aid for productive sectors. The study found that these types of aid have a large positive effect on short-term growth.

There are not many in-depth studies done on the effectiveness of AfT initiative in Bangladesh. Few reports showed that there is positive impact on growth of export of goods and services due to AfT. Following the various elements of the ICTSD/SAWTEE methodology Khatun, Hossain & Dewan (2013) showed the results of AfT are somewhat mixed for Bangladesh. They acknowledged that AfT has addressed some significant supply side constraints and has contributed to enhance export competitiveness in a few key sectors for the country's socio-economic development. However, they also acknowledged that the country could not include private sector stakeholders sufficiently into AfT funded projects.

### 4. ODA in Bangladesh: An Overview

Bangladesh has made major progress through a high and steady economic growth of around 6 percent during the past decade. However poverty level is still high as the recent most (2010) Household Income and Expenditure Survey (HIES) of Bangladesh reveals that 31.5 percent of its population lives below the poverty line and cannot afford the nutritional requirement of 2,122 calories per day (BBS, 2011). Trade can be a good force behind its growth by creating more opportunities in terms of job creation, increasing productivity of human capital, enhancing their skills for new machineries to pull it out from the status of poverty.

The volume of ODA to Bangladesh has increased both in terms of commitments and disbursements, though, as a share of GDP, it decreased from 5.8 percent in 1981 to 1.6 percent in 2011. Loans constituted 49 percent of all foreign aid in the first decade after independence (1971–80), but this share increased to 68 percent in the period 2000–13. In terms of types of aid, project aid and budget support received the highest allocation during the. During 1971–80, commodity and food aid constituted 42 percent and 32 percent of the total aid to Bangladesh, respectively, as the country developed (during 2001–12), they accounted for only 4 percent and 2 percent of total aid, respectively. Conversely, the share of project aid grew from 26 percent during 1971–80 to 94 percent during 2000–10. Such increase indicates that the country is making progress and bearing the loan by itself, dependency on aid has reduced, and further dependency on food aid has remarkably gone down too, showing a positive scenario for Bangladesh.

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Bangladesh received a substantial amount of trade-related assistance, even before the institutionalization of AfT in 2005 (Table 2). AfT commitments have been increasing at the global level in the post-Hong Kong Ministerial period. Average global AfT commitments increased 47 percent between the base period 2002–05 and the recent period 2006–11 (Table 2). By contrast, total AfT commitments to Bangladesh only increased by 35 percent between the two periods. The share of global AfT flowing to Bangladesh has decreased from 3.11 percent to 2.86 percent.

**Table 2: Global AfT commitments vis-à-vis Bangladesh  
(USD million, constant 2010 prices)**

Sector /Time period	Global ( average per year and growth)			Bangladesh ( average per year and growth)		
	2002-05	2006-11	Growth (%)	2002-05	2006-11	Growth (%)
Economic infrastructure	13,288.39	20,359.64	53.21	518.58	746.62	43.97
Building productive capacity	10,858.14	15,143.76	39.47	250.82	287.02	14.43
Trade policies and regulations	768.04	1138.01	48.17	5.96	14.35	140.67
Total	24,914.57	36,641.41	47.07	775.36	1047.99	35.16

Source: OECD CRS database

Global disbursements sector wise of AfT increased by approximately 67 percent during 2002–05 and 2006–11, this indicates the importance of AfT globally. After the Hong Kong ministerial the flow of aid disbursement increased globally. But we see AfT disbursement declined by almost 29 percent in Bangladesh during the same period (Table 3). A sectoral breakdown shows us that disbursements towards both economic infrastructure and productive capacity show the percentage decrease of 20 percent and 45 percent, respectively. The year 2003 exhibits the largest amount of disbursement, totaling USD 712 million, while in 2006 large cuts in the two major sectors (economic infrastructure and capacity-building) led to the lowest disbursement total of USD 264.29 million (OECD CRS database). This however can be taken as a complement to Bangladesh considering its success in managing its growth.

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**Table 3: Global AfT disbursements vis-à-vis Bangladesh  
(USD million, constant 2010 prices)**

Sector /Time period	Global ( average per year and growth)			Bangladesh ( average per year and growth)		
	2002-05	2006-11	Growth (%)	2002-05	2006-11	Growth (%)
Economic infrastructure	7,861.53	13,987.06	77.92	312.07	249.66	-20.00
Building productive capacity	7,795.73	12,164.03	56.03	235.68	130.07	-44.81
Trade policies and regulations	508.40	811.12	59.54	1.53	12.01	686.03
Total.	16,165.66	26,962.21	66.79	549.28	391.74	-28.68

Source: OECD CRS database

The sectoral disbursement of AfT in Bangladesh reveals that, the total volume of AfT has increased since 2002, the yearly average growth rate during 2006–11 is negative (-28.68 percent), indicating a decline in AfT for Bangladesh.

**Figure 2: AfT by regions (share of Bangladesh and South & central Asia, (Constant Prices, 2012 USD millions)**

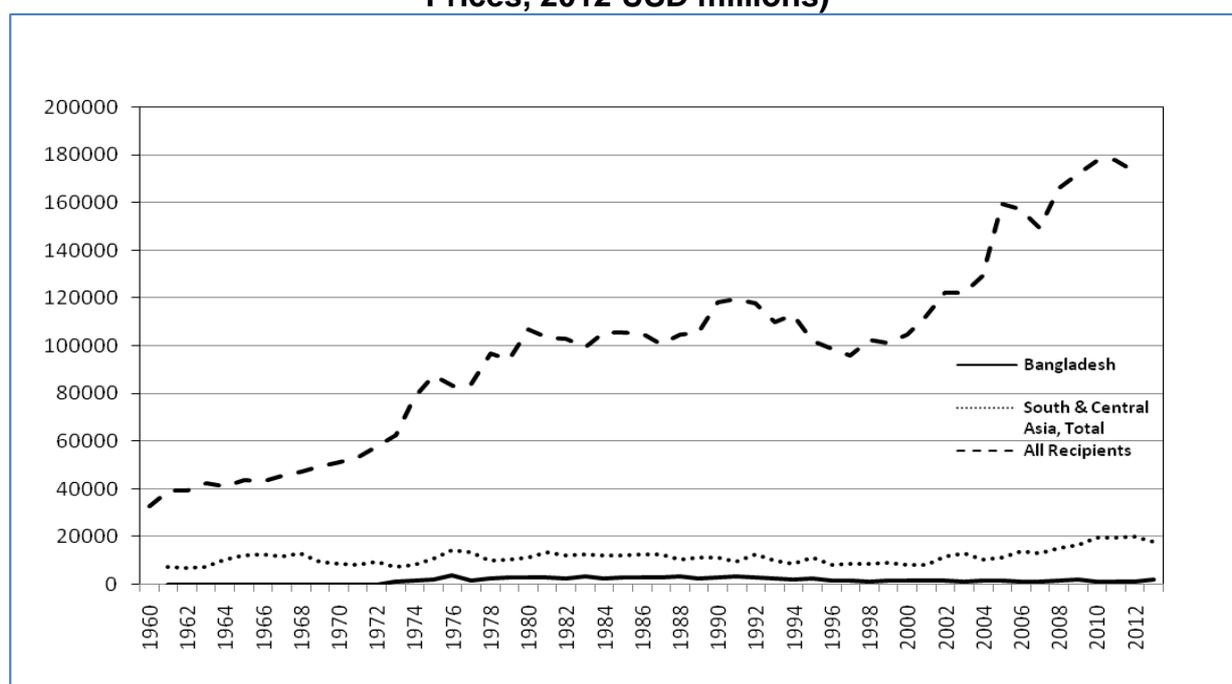
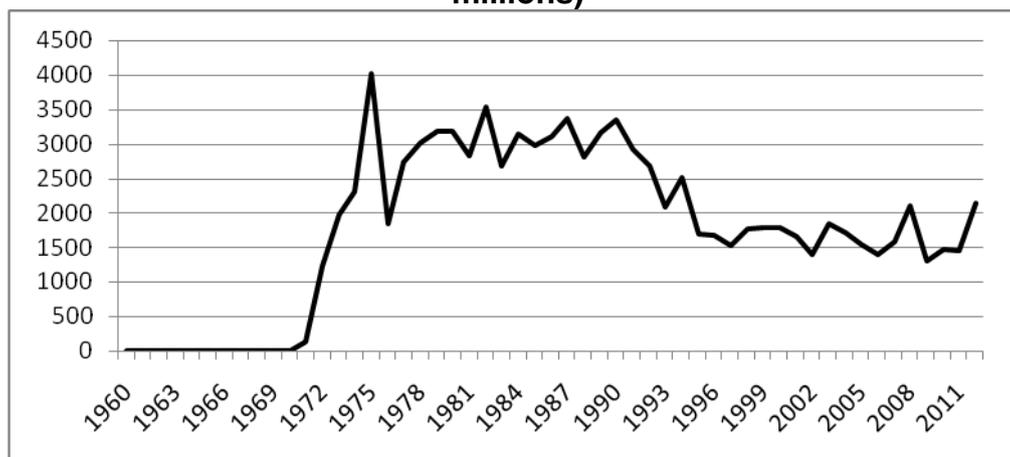


Figure 2 shows share of AfT of Bangladesh compared to South Asian countries, and the world. Figure 3 below shows variations of aid flows in Bangladesh with an overall downward trend.

**Figure 3: Aid flow in Bangladesh from all donor countries. Constant Prices (2012 USD millions)**



### 5. Description of Data

In Bangladesh, national databases do not account for AfT projects separately; flow of ODA is overseen by Economic Relations Division (ERD) under the ministry of Finance. The Aid Effectiveness Unit (AEU) located within the ERD monitors AfT as a part of its overall ODA related activities. Organization for Economic Cooperation and Development (OECD) manages a data set on aid flows to developing countries that are comparable to all six categories of trade related assistance identified by the WTO. We collected data from the OECD Creditor Reporting System (CRS). This data base has covered a number of AfT activities from 1994 to 2013 as seen that data until 1994 have substantial gaps. However we see that total AfT disbursement sector wise started from the year 2002 till 2013. Therefore we limited our attention between 2003 and 2013 only. Creditor Reporting System (CRS) reports comparable data of aid commitments and disbursements over time and across countries. Our analysis is based on disbursement of aid on sectoral basis. We use different types of AfT data from this database, including AfT policies and regulation, AfT on building productive capacity, and aid for economic infrastructure and so on.

Finally, data on exports and other variables are collected from the World Development Indicators (WDI) managed by the World Bank.

### 6. Empirical Framework and Analysis of Results

In this study, we based our model on Cali & Te Velde (2011) which was followed in Martinez-Zarzoso, Nowak-Lehmann and Kai (2014) among others. Their model is an augmented export demand model. The model is comprehensive as it includes many dimensions of the problem. After providing sufficient theoretical motivation they identified a number of variables to be included as explanatory in base line model. Those are:

- Cost of trading measured by doing ease to business index
- Market potential measured as a distance weighted measure of other countries' GDP
- Population
- Government effectiveness to control for the institutional strength of the country measured by Consumer Price Index (CPI)

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These variables, while contributory for a cross country analysis are all not important for country specific exercise. Therefore we could not make full use of these variables in our regression. Doing ease to business index is maintained by World Bank and is published every year. However, due to not having enough observations for Bangladesh we could not include that in our regression. Market potential as defined varies with each country but does not vary much for a particular country. Therefore we had to exclude that from our list. We initially included CPI but later on found that highly correlated with other variables. So we dropped it. We included growth of GDP (DGDP) as a proxy of recipient country's economic strength and ability to export. Since population (POP) and GDP are highly correlated and we had to pick one, we picked the one which is more reflective of economic mobilization.

Along with these two base line variables we included total aid received (Total) and three categories of AfT normally extended to Bangladesh. Those are:

- a) Trade policy and regulations (TPR)
- b) Economic infrastructure (energy, transport & telecoms) (EI) and
- c) Building productive capacity (BPC)

Considering all these our final regression equation looked like

$$EGS = \alpha + \beta_{1t}(DGDP) + \beta_{2t}(CPI) + \beta_{3t}(BPC) + \beta_{4t}(EI) + \beta_{5t}(TPR) + \beta_{6t}(Total) + \varepsilon_t$$

Here the symbols have their usual meanings. We found it more convincing that the right hand side variables will have additive effects rather than a multiplicative one; hence, we did not apply log transformation as used in Cali & Te Velde (2011). Descriptive statistics of the variables used is given in the following table:

**Table 4: Descriptive statistics of variables used**

	BPC	CPI	DGDP	EGS	EI	TPR	TOTAL
Mean	187.107	83.0466	4.15E+9	1.3E+10	320.870	7.98892	1575.23
Median	167.652	80.5553	4.1E+09	1.4E+10	310.833	5.58374	1405.25
Maximum	370.960	117.588	5.4E+09	2.1E+10	663.865	29.9600	2595.78
Minimum	62.1166	56.8238	2.6E+09	7.1E+09	189.360	1.03498	933.133
Std. Dev.	88.7785	20.4880	8.8E+08	4.7E+09	127.809	8.89329	458.237
Observations	11	11	10	11	11	11	11

The table below presents correlation coefficients among different variables used.

**Table 5: Correlation matrix of important variables**

	BPC	CPI	EI	TPR	TOTAL	POP	DGDP
BPC	1.00000	-0.261813	0.555703	-0.030530	0.205358	-0.370755	-0.409693
CPI		1.000000	0.420991	0.316686	0.847587	0.989953	0.965673
EI			1.000000	-0.123518	0.787972	0.328680	0.334715
TPR				1.000000	0.314911	0.362667	0.309070
TOTAL					1.000000	0.792095	0.785671
POP						1.000000	0.969448
DGDP							1.000000

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Regression results are presented in the following table. Results show that all variables have expected sign except Total, which captures the total aid flow in Bangladesh. Aid directed for trade (TPR, EI and BPC) all positively affect export figures. In that respect, we can say that those portions of aid have more or less achieved their targets. However non-AfT related aid has negative impact on export. This is not surprising as in many cases aid is given for humanitarian purpose or to fulfill political agenda. While the first type of aid can affect the overall development parameters of the country but the second type of aid is more likely to increase corruption or substandard type behavior in one way or other. All diagnostic have expected nice values indicating soundness of results.

**Table 6: Regression output dependent variable Export of Goods and Services (EGS)**

Dependent Variable: EGS

Sample (adjusted): 2003 2012

Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.24E+10	1.71E+09	-7.255734	0.0054
Trade policy and regulations	1.89E+08	29261101	6.464292	0.0075
Economic infrastructure	31320392	4929693.	6.353416	0.0079
Building productive capacity	13137116	4182339.	3.141093	0.0516
Total aid received	-19234505	3132540.	-6.140226	0.0087
D(GDP)	6.098200	0.995994	6.122725	0.0088
Consumer Price Index	2.13E+08	31006169	6.873502	0.0063
R-squared	0.998067	Akaike info criterion	42.32933	
Adjusted R-squared	0.994202	Schwarz criterion	42.54114	
S.E. of regression	3.41E+08	Durbin-Watson stat	3.096836	
F-statistic	258.2075			
Prob(F-statistic)	0.000371			

Following export we ran a regression using total import as dependent variable using same set of independent variables. Although this is not the question that we tried to answer in this paper yet we ran the regression to check the validity of the claim that foreign aid sometimes are tied with import requirement and helps donor countries more than the recipient countries. Results obtained are given in the following table. Results show that aid either total or AfT components are not good to explain import. Only Building Productive Capacity (BPC) component of AfT helps import. This reveals a nice picture for Bangladeshi economy. This however does not disprove the hypothesis that aid is extended by donor to encourage their export. It just tells that such is not the case for Bangladesh.

**Table 7: Regression output dependent variable Import of Goods and Services (IGS)**

Dependent Variable: IGS

Sample (adjusted): 2003 2012

Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.53E+10	4.93E+09	-7.168179	0.0056
Trade policy and regulations	91595520	84562245	1.083173	0.3580
Economic infrastructure	26333134	14246419	1.848404	0.1617
Building productive capacity	39741371	12086625	3.288045	0.0461
Total aid received	-21867221	9052792.	-2.415522	0.0945
D(GDP)	9.603093	2.878344	3.336325	0.0445
Consumer Price Index	4.18E+08	89605350	4.669958	0.0185
R-squared	0.996271	Akaike info criterion	44.45179	
Adjusted R-squared	0.988812	Schwarz criterion	44.66360	
S.E. of regression	9.86E+08	Durbin-Watson stat	2.724594	
F-statistic	133.5675			
Prob(F-statistic)	0.000992			

Import in Bangladesh is mostly determined by factors not included in this model (expect probably the growth of GDP). When GDP increases then overall economic condition increases and as a result demand for imported goods also increase. Following reverse causality this may also mean that due to increase in economic affluence Bangladesh needs more capital goods and thus import figure gets bigger. But whatever the reason may be (we have not really addressed this question here, hopefully will be addressed in a subsequent study) components of AfT are not a big contributor to import of the country.

## 7. Conclusion

The quantitative analysis undertaken in this study suggests that AfT positively affects export of goods and services of Bangladesh. At disaggregated AfT categories, there is a positive relationship between aid given for economic infrastructure, AfT policy and regulation and aid for building productive capacity. These findings are little different from Khatun, Hossain & Dewan (2013) who found that some selected sectors experienced positive effect of AfT. Here we have found positive results irrespective of the recipient sectors. These findings can help Bangladeshi policy makers to make decision regarding use of aid money. To the extent that AfT can influence impact on trade-related performance depends not only on disbursement of aid flow to particular sectors but also other facilities associated with it. In addition, the lack of evidence for the beneficial impact of assistance to productive sectors calls for a closer scrutiny of such assistance. This paper also helps or gives idea for future research to see the impact of AfT on the imports of the Bangladesh economy. However Trade sector is a broad branch in our economy and to conclude whether AfT has positive or adverse effect need further research.

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