

Does aid for trade really improve trade performance?*

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Massimiliano Cali[†] and Dirk Willem te Velde[‡]

Although the concept of aid for trade has quickly gained prominence among aid donors as well as aid recipients, relatively little is known about its impact on trade-related performance. This paper uses statistical evidence to examine the effects of aid for trade on the costs of trading and on the level of and changes in exports. Using data on a large subset of developing countries over time, we find that aid for trade facilitation reduces the costs of trading. We also use a novel identification strategy to compute the impact of aid to economic infrastructure and to productive capacities on exports. The results of this analysis suggest that both aid to economic infrastructure and aid to productive capacity have a positive and significant impact on exports. But in the case of the latter the effects seem to be driven by an allocation skewed towards already well performing sectors. The sectoral analysis reveals that aid to infrastructure is particularly beneficial for mining and manufacturing exports, while it has no effect for tourism and a marginally positive impact in food exports.

Keywords: Aid for Trade, aid effectiveness, trade, exports

JEL Classifications: O10; F10; F35.

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Figure 1 Share of total aid to economic infrastructure and productive sectors

Source: OECD CRS disbursements

This paper aims to help fill this evaluation gap, by undertaking a systematic cross-country and over time evaluation of AfT impact. Through this analysis we aim to develop a better understanding of whether and how AfT can help developing countries trade and improve their economic performance. A relevant antecedent in this respect is the recent work by Brenton and von Uexkull (2008), who use quantitative techniques to examine the systematic effects of product-specific aid for trade on countries' exports. We seek to bring out new evidence, looking at the overall impact of trade-related assistance at the macro level as well as on specific trade-performance indicators. In addition our coverage is wider than that of Brenton and von Uexkull (2008) in that it accounts for all AfT disbursements rather than only for a subset of projects directed to specific products as in Brenton and von Uexkull.

The analysis does not delve into definitional issues around AfT and uses a data-driven definition of AfT. According to this definition, AfT is composed of all the sub-categories of aid to economic infrastructure and aid to productive sectors in the OECD/DAC Creditor Reporting System database (OECD, 2009). This choice does not solve the debate around what types of projects and categories to include in AfT, but it is functional to use the data available in a systematic way.³

The paper is organised as follows. Section 2 reviews the related literature on impact assessment of aid; section 3 examines some of the main channels through which AfT is expected to affect trade performance and presents a simple export demand model to illustrate them. Section 4 develops the empirical framework and describes the data used to test the theoretical hypotheses. Section 5 presents the results of the analysis and section 6 concludes.

2. Aid for Trade effectiveness – related literature

There is a vast empirical literature on the macro relationships between aid, growth and investment, although not specifically on the effect

decline, or whether aid actually improves trade competitiveness through better infrastructure. From an economic point of view, if more support goes via investment and productive uses, rather than to consumption or other projects with less growth potential, this will help to remove or reduce the Dutch disease effects of increased aid, as it is confirmed by Adam and Bevan (2006). They use a computable general equilibrium model to show that aid-funded increases in public investment yield potentially large medium-term welfare gains, as public infrastructure investments offset short-run Dutch disease effects.

Table 1: How aid for trade may address market and governance failures

Broad source / area of failure	Examples of failures	Responses: policies and activities	Role for aid for trade?
Market failures			
Coordination	Externalities ignored Linkages not exploited Complementarities not exploited	Capacity building for	

$$C_{ij} = \frac{\varphi_i Y_j}{\tau_{ij} p_i} \left(\frac{\tau_{ij} p_i}{\Pi_j} \right)^{1-\sigma} \quad (3)$$

where:

$$\Pi_j = \left(\sum_{i=1}^N \varphi_i \tau_{ij}^{1-\sigma} p_i^{1-\sigma} \right)^{\frac{1}{1-\sigma}} \quad (4)$$

is a CES index of the trade costs faced in exporting to j

economic infrastructures I in country i and j (i.e. $\partial f / \partial I_i < 0$ and $\partial f / \partial I_j < 0$). A few studies have already quantified the effects of infrastructure provision on trade, finding a positive correlation.⁶ AfT to country i may affect both b_i and I_i . In particular aid for trade facilitation (A_{TF}) may reduce the time and costs of processing trade (b_i); and aid to economic infrastructure (A_{INFRA}) may increase the level of I_i . To the extent that these types of AfT affect these variables, from (7) we have that $\partial \tau / \partial A_{TF} < 0$ and $\partial \tau / \partial A_{INFRA} < 0$.

In order to make the hypotheses on the relation between exports and AfT explicit, let us assume a simple inverse relation between trade costs and infrastructure and let us re-express total infrastructure in country i as the sum of A_{INFRA} and domestically-financed economic infrastructure I_D

We use both a semi-log (equation 9) and a log-log specification (equation 9') for the test at the macro level:

$$\ln(\text{IC})_{it}^Z = \alpha_i + \beta \text{Atf}_{it-1} + \Gamma Z_{it-1} + \gamma_t + \varepsilon_{it} \quad (9)$$

$$\text{IC}_{it}^Z \quad i \quad \text{Atf}_{it} \quad it \quad \gamma_t \quad \mu_{it}$$

$$E_{it} = \alpha_i + \gamma_1 \text{Apc}_{it-2} + \gamma_2 \text{Ai}_{it-2} + \gamma_3 \text{MP}_{it} + \gamma_4 p_{it} + \lambda_t + \varepsilon_{it} \quad (10)$$

where E is the (log of) exports value in constant prices (country i, time t), Apc is (log of 1 +) aid disbursed to productive capacity and Ai is (log of 1 +) aid disbursed to economic infrastructure, MP is a market potential measure, and p is the level of prices (both in log); α_i country effects, λ_t estimation period effects. Unlike expression (9), we use two year lag for the AfT variables here, as AfT may take some time before affecting the level of exports as their impact is mediated through other variables. On the other hand the impact of AfT on trading costs is more direct and thus a year lag seems more appropriate. The results from (10) are generally robust to including one instead of two lags (results are available upon request). MP is computed as a distance weighted measure of other countries' GDP:

$$= \sum_{j \neq i} \frac{GDP_j}{GDP_j + \text{distance}_{ij}}$$

exports' determinants (e.g. Senhadji and Montenegro, 1999; Santos-Paulino and Thirlwall, 2004).

There are still a couple of potential problems with running specification (10). First, the AfT variables are possibly endogenous to exports. This is the case for example if better performing and/or faster reforming countries tend to receive more AfT than others. This would generate an upward bias in the AfT coefficients. Also, there could be some error in the measurement of the AfT variables, as this is based on voluntary reporting of disbursements by donors to the OECD secretariat. Such error could be caused by inefficiency in reporting and/or misclassification of projects and if it is correlated to (time varying) unobserved characteristics of recipients could make the AfT coefficients inconsistent. In order to control for these potential issues, we use an instrument for AfT based on the degree of respect for civil liberties, as measured by Freedom House (2009). There is consistent evidence that donors tend to give relative more aid to countries which are considered to respect civil liberties and human rights (Alesina and Dollar, 2000; Macdonald and Hodinott, 2004 for Canada). The Millennium Challenge Corporation, one of the major providers of US AfT, explicitly uses Freedom House indicators on respect for civil liberties and for political rights as criteria for recipient countries to be eligible for assistance. Other than being a good predictor of future aid allocation, this variable (civil liberties) is also not related to exports in any meaningful way, thus satisfying the exclusion r

$$\Delta E_{ijt} = \Delta \alpha_{it} + \Delta \lambda_{jt} + \Delta \gamma_{ij} + \Delta E_{ijt-1} + \delta_1 \Delta \text{Apc}_{ijt-1} + \Delta \varepsilon_{ijt} \quad (14)$$

predictive power for Apc (the F-statistics for Apc is below the acceptance level). When we extend the period to 1995-2007, the coefficient of $Ainfra$ increases (although it remains insignificant), while that of Apc turns negative (column 8). Again the F-statistic for Apc is low, and in this case the equation seems to be slightly over-identified.

As we mentioned we would ideally use the REER rather than CPI as a measure of relative prices in the export demand equation (10). The results are robust to using REER instead of CPI, as shown in the comparison between columns 1 and 2 in Table 5 (which have the same samples). In fact the coefficients of the aid variables become slightly more positive and significant when using REER instead of CPI, and the explanatory power of the regression also increases suggesting that REER may indeed be a more appropriate control. However as this variable is available for a limited number of countries, the number of observations is less than halved than then using CPI (although the value of the $Ainfra$ coefficient is remarkably similar to that using the extended sample, cf. Table 5, column 2 with Table 1, column 4). We also test the robustness of the results to using the foreign market potential measure constructed by

restricted one excluding observation with zero value of aid (column 7).

Table 3: Explaining the costs of exports (ln of US \$ per container), fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep	ln(XCost)	ln(XCost)	ln(XCost)	ln(XCost)	ln(Xtime)	ln(Xdocs)	ln(XCost)	ln(XCost)
Sample	Atf>0	Atf>0 & no Egypt	No Egypt	Atf>0	Atf>0	Atf>0	Atf & Atredu>0	All

Table 4: Total exports and aid for trade (1995-2007)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Method	FE	FE	FE	FE	FE IV	FE	FE IV	FE IV
Period	1995-07	1995-07	1995-07	1999-07	1999-07	1999-07	1999-07	1995-07
Sample	Aid>0	All	Aid>0	All	All	As (5)	All	All

Table 5: Total exports and aid for trade (1995-2007), robustness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Method	FE	FE	FE	FE	FE	FE	FE IV
Period	1999-07	1999-07	1995-07	1995-07	1995-07	1999-07	1999-07
Countries	All	All	All	All	Africa	Africa	Africa
Sample	All	As (1)	Aid>0	As (3)	Aid>0	All	All
Aid for infra (t-2)	0.040* (1.76)	0.036 (1.56)	0.014 (1.08)	0.013 (1.02)			
Aid for infra (t-1)					0.050 (1.40)	0.068* (1.97)	0.145 (1.55)
Aid to prod. capacity (t-2)	0.015 (0.80)	0.013 (0.64)	-0.018 (-1.16)	-0.020 (-1.35)	-0.024 (-0.65)	0.045 (1.26)	
CPI		-0.039 (-0.49)	-0.001 (-0.026)	-0.004 (-0.11)	-0.006 (-0.13)	-0.063* (-1.79)	-0.039 (-0.93)
REER	0.293* (1.74)						
Market potential	6.628*** (3.58)	6.583*** (3.40)		5.345*** (5.64)	5.628 (1.21)	5.525 (1.41)	5.276* (1.90)
Mayer mkt potential			0.190 (1.34)				
Observations	369	369	657	657	424	308	324
R-squared	0.576	0.555	0.493	0.510	0.510	0.443	0.405
Countries	48	48	94	94	39	39	39
Excluded instrument							
Civil Liberties (t-3)							-0.327*** (-3.71)
1st stage F-Stat (for Aid for Infra)							13.78***

Dependent variable is value of total exports in constant 2000 US\$. All variables are in log; all

Table 6: Total exports and aid for trade (1996-2007)

Table 7: Sectoral exports and sectoral aid for productive capacity (1985-2006)

Method	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Period	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	Diff GMM
Sample	1995-06	1985-06	1985-06	1995-06	1995-06	1995-06	1995-06	1995-06	1995-06	1995-06
	Aid>0	Aid>0	Aid>0	All	All	Aid>0	All	Aid>0	All	Aid>0
Aid sector (t-1)	0.678*** (9.89)	0.510*** (8.50)	0.713*** (8.43)	0.728*** (9.17)	0.008 (0.61)	0.017 (1.20)	0.014 (1.02)	-0.020 (-1.11)	-0.015 (-0.84)	-0.028 (-0.91)
Aid sector (t-1) sq.	-0.092*** (-6.16)	-0.069*** (-5.38)	-0.081*** (-4.66)	-0.104*** (-5.75)		0.037*** (3.33)	0.030*** (2.86)			
Aid Infra (t-1)	0.031 (1.19)	0.020 (0.88)				3.472*** (5.41)	2.532*** (4.29)			
Market Potential	6.979*** (3.21)	4.845*** (2.89)				-0.046** (-2.11)	-0.035 (-1.60)			
CPI	-0.006 (-0.12)	-0.033 (-1.10)				-12.19*** (-4.63)	-10.44*** (-4.23)			
Pop						0.381*** (4.74)	0.314*** (4.15)			0.304*** (2.63)
Pop squared										
Exports (t-1)										
Country Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sector-year Eff.	YES	YES	NO	NO	YES	YES	YES	YES	YES	NO
Sect.-country Eff	NO	NO	YES	YES	NO	NO	NO	YES	YES	YES
Country-year Eff	NO	NO								
Countries	118	121	129	137	137	121	124	134	137	73
Observations	3943	4579	3337	5041	5041	4097	4661	4404	5041	2349
R-squared	0.763	0.761	0.842	0.789	0.961	0.965	0.961	0.977	0.975	
Arellano-Bond test for AR(2) in first differences										

Dependent variable is the value of sectoral exports (sectors: food, tourism, manufacturing and mining); all variables are in log; Robust t-statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

