Does Aid for Trade Diversify the Export Structure of Recipient Countries?[1]

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Abstract

The importance of aid for trade as a tool for facilitating trade, economic growth, and social development has received attention since the concept was introduced in 2005. While one of the main targets of aid for trade is export diversification, reflecting the fact that the exports of many developing countries are concentrated in a small range of items, there have not been many efforts to measure the effect of aid for trade on export structure. This study, therefore, attempts to trace the relationship between aid for trade and 133 aid recipients' export structure between 1996 and 2013. Using the Herfindahl–Hirschman Index (HHI) to measure the degree of export concentration, the findings suggest that, total aid for trade has reduced the concentration level in the short-run. In the long-run, on the other hand, aid for trade has had no significant effect on export structure of recipient countries. Only aid for building productive capacity, which is one of the three categories of aid for trade, contributes to lower concentration. Yet, this change is not caused by an increase in export diversity but by the redistribution of shares of existing products of a similar sophistication level.

Keywords: aid for trade, aid effectiveness, official development assistance (ODA), export diversification, export concentration, export sophistication

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1. Introduction

Aid for trade is a type of official development assistance that is intended to support the efforts of developing countries to develop and expand their trade. Although aid for trade has formed part of development assistance for decades, its origin as a formal initiative by the World Trade Organization (WTO) to recognize the role of international trade in development goes back to the 2005 Hong Kong Ministerial Meeting of the Doha Round. The objective of aid for trade is to support developing countries, especially Least Developed Countries (LDCs), to "build the supply-side capacity and trade-related infrastructure that they need to assist them to implement and benefit from World Trade Organization (WTO) Agreements and more broadly expand their trade" (WTO, 2005, para. 57).

Are financial resources put forward for aid for trade yielding returns in developing world? To maximize its usage, a key concept to improve the management of aid resources that has been receiving much attention is aid effectiveness. Aid effectiveness measures the extent to which an aid activity attains its goals and has been included as one of the key criteria for the evaluation of development assistance by the Development Assistance Committee (DAC) of the OECD since 2000. As a result, there is active empirical research on aid effectiveness at a macroeconomic level conducted both in academia and relevant institutions (Bourguignon and Sundberg, 2007; Rajan and Subramanian, 2008; and Hansen and Tarp, 2000). Aid for trade also falls inside the scope of aid effectiveness discourse. There are numerous studies and concerns over how effective aid for trade is in terms of trade enhancement of developing countries.

By definition, the degree of aid effectiveness varies depending on what is chosen as the policy objectives of the aid program. For example, aid can be regarded as effective by donors while the recipients regard it as a failure if what they want to achieve with aid is different. In this regard, the OECD emphasizes the issue of "ownership" and "alignment" in recipient countries for finding an appropriate objective measure for aid effectiveness. Ownership refers to the extent to which a country's leadership is fully committed to development and aid initiatives set by itself. Meanwhile, alignment refers to how much "the donors base their overall support on partner countries' national development strategies, institutions and procedures" (OECD, 2008, 3). Considering these two principles of aid effectiveness set by the OECD which is a forum covering a vast majority of important donors and recipients, it clear that both parties agree that it is more appropriate to give more weight to policy objectives set from the recipient's perspective when assessing the effectiveness of aid for trade.

Against this background, the results of a survey conducted jointly by the WTO and the OECD in 2011 are instructive. While both donor and recipient countries all agreed that aid for trade should realize both trade and development objectives, what recipients picked as the most wanted outcome of aid for trade is export diversification. As shown in Figure 1, about 60% (51 out of 84 countries that responded) chose diversified exports more important than increased exports and increased trade (OECD/WTO, 2011b, 94).

One reason that developing countries value export diversification is that many face severe export concentration. As shown in Figure 2, in many low-income countries the top three commodities make up a major share of their total exports. While the world average is a little below 50%, the export structure of many low-income countries is highly concentrated. For some countries, the situation is so severe that the top three commodities make up more than 90% of their total exports. Even though many governments have put a high priority on diversifying exports, a substantial number of developing countries continue to rely on only a few export

commodities (OECD/WTO, 2011a, 21). Given such relatively concentrated export structures, many developing countries face substantial risks such as a deterioration in their terms of trade, exchange rate shocks, etc. Export diversification therefore is one of the most crucial components in measuring the effectiveness of aid for trade from the viewpoint of recipient countries.

Export diversification, for which a diversification of production is a necessary condition, forms an essential part of economic development, since it implies that productivity in a variety of industries is increasing (Feenstra and Kee, 2004). In other words, recipient countries regard export diversification as one of the most important objectives since it is linked to almost all other development goals such as increased exports, economic growth, and poverty reduction (Newfarmer et al., 2009; Hesse, 2008; Mejía, 2011; Cadot et al., 2011; Herzer and Nowak-Lehmann, 2004; Feenstra and Kee, 2008; Imbs and Wacziarg, 2003; Lall et al., 2006; Hummels and Klenow, 2005; Parteka and Tamberi, 2013).

For this reason, the present study focuses explicitly on assessing the effectiveness of aid for trade on export diversification. To be more precise, the study empirically investigates the link between aid for trade and measures related to export diversification. Specifically, the analysis of export diversification focuses on two aspects: the degree of trade concentration and the degree of trade diversity. To gauge the degree of trade concentration level, the Herfindahl-Hirschman Index for exports is used, while the number of exported products is used as a proxy for export diversification. Alternative variables are used for robustness checks. The study includes in the analysis all aid recipients for which data is available. Specifically, the dataset includes 133 countries which received aid for trade and covers the period from 1996 to 2003.

The results of the analysis can be summarized as follows. The system GMM estimation suggests that aid for trade as a whole appears to have a significant effect on export structure in the short-run. In particular, some categories, such as aid for trade targeting production capacity building, aid for trade policy and regulations reduce the level of export concentration. These results are based on annual data, and to consider the longer-term effects, the same GMM regressions are performed using the three-year average of the HHI. The results suggest that in this case, overall aid for trade does not have a significant positive impact on reducing export concentration. In contrast to the results using the annual data, this time, only aid for building productive capacity remains effective while aid targeting trade policy and regulations loses significance.

The remainder of the paper is organized as follows. Section 2 layouts the previous findings on the relationship between aid and trade. Section 3 outlines the estimation model, while Section 4 describes the data used for the analysis. Section 5 then presents the results as well as various robustness checks. Section 6 explorers the possible links between aid for trade and export sophistication based on the results in Section 5. Finally, Section 7 concludes by summarizing the results and considering some policy implications.

2. Literature Review

Foreign aid – not only aid for trade but also other types of aid – potentially enhances trade by raising recipient countries' income. Further, aid also potentially boosts trade by strengthening political and economic links between the donor and recipient countries and reducing transaction costs (Suwa-Eisenmann and Verdier, 2007). Aid for trade aims to stimulate trade in a similar manner, but possibly more effectively, since it directly targets trade-related

activities. Examples of aid for trade include aid for infrastructure investments or the reform of trade policy and regulations, which can lower the logistical and administrative costs of trade, or aid to boost the productive capacity of industries to raise export competitiveness.

Numerous studies have sought to examine the effect of aid for trade on trade. As in the case of studies in many other areas of development aid, different econometric techniques and sets of data have attempted. Several studies find that aid for trade has a positive on export performance. Using a computational general equilibrium (CGE) model to calculate average trade costs between pairs of countries, Ivanic et al. (2006) find that aid for trade translates into reductions in bilateral trading costs that cumulatively add up to a 0.2 percent reduction in global trading costs. This is about ten times larger than the trading cost reductions resulting from tariff cuts due to trade liberalization over the period 1995–2004. Meanwhile, Helble et al. (2012), using a gravity model, find that aid for trade is correlated with an increase in aid recipients' exports. Both studies, however, focus on bilateral trade flows and therefore capture only part of the impact of aid for trade, since they do not take aid for trade from multilateral donors into account and because they do not consider spillovers of aid for trade on the exports to countries other than the donor country.

This shortcoming is – at least partly – addressed in studies such as those by Cali and Te Velde (2011), Razzaque and Te Velde (2013), and Vijil and Wagner (2012), who investigate the impact of aid for trade on recipients' total export. These three studies also find a positive relationship between aid for trade and export amounts. Moreover, they divide aid for trade into three categories based on its purpose, namely, to support the building of trade-related infrastructure, to support productive capacity building, and to help with trade policy and regulations. This analysis by category makes it possible to examine whether different uses yield different outcomes. All three papers find that support for trade-related infrastructure has a significant positive, while no significant impact is found in the case of support for building productive capacity.

In addition to considering the overall impact of aid for trade on total export by dividing aid for trade into sub-components, another contribution of these three studies is that they recognize the problem of endogeneity. As highlighted in the aid literature (see, e.g., Dalgaard et al., 2004), aid allocation is endogenous to the circumstances of recipient countries. To resolve this issue, which may lead to biased estimation results, studies adopt system generalized method of moments (GMM) estimation and include a lagged dependent variable – the log of total exports in this case – as in conventional GMM estimation. The results show a high coefficient close to 1 for lagged total exports, which, as Roodman (2008) warns, is a sign that the design of the GMM model may be invalid. Thus, although these studies make efforts to tackle the endogeneity issue, the robustness of the results is questionable.

Meanwhile, other studies raise doubts whether aid for trade has a clear impact on export performance. For instance, employing difference-in-differences (DID) regression of country-sector exports on aid flows, Brenton and von Uexkull (2009) find a correlation between sectors receiving aid and sectors showing stronger performance. They argue, however, that this correlation may be the result of aid being allocated to sectors that are already performing well. Meanwhile, Hühne et al. (2014) examine the heterogeneous impact of aid for trade across countries in different income groups and find that aid for trade has a significant positive impact only among middle-income countries. Finally, reviewing the empirical literature on the impact of aid for trade, Cadot et al. (2014) conclude that aid spent on hard and soft infrastructure has at best a mixed impact on trade costs and time to export.

What most of these studies have in common is that they use the value of exports as the outcome variable. Yet, aid for trade has many other policy objectives. One of these is export diversification and to the best of the author's knowledge, there are no studies that explicitly examine the relationship between aid for trade and export diversification of recipient countries for all recipients or at least a large sample of recipient countries. The three studies that probably come closest to this topic consider the link between aid in general – that is, not only aid for trade – and export diversification. The first of these, by Osakwe (2007), focusing on a sample of 31 African countries, finds that aid has a negative impact on the real exchange rate, so that it leads to a further concentration in trade. He uses the share of manufactures in total exports as a diversification measure. However, his study only focuses on African countries and his results may not be sufficiently robust due to too many instruments. Hühne et al. (2015) expand the sample to all recipients and investigates the impact of aid for trade on manufactured goods and primary commodities separately. Their paper concludes that aid for trade increases manufactures while having no significant effect on primary goods. The third study is that by Munemo (2011), which uses data on 69 countries and finds that there is no simple linear correlation between aid and export diversification. Rather, the important determinant is the amount of aid relative to GDP. As he notes, due to exchange rate appreciation through the large influx of foreign capital, aid recipients' exports become more expensive in the world market. This anti-export bias associated with aid is also known as Dutch disease. Therefore, for countries heavily dependent on aid (i.e., where aid accounts for more than 20% of GDP), there is a negative correlation between aid and diversification, while for countries for which aid does not exceed 20% of GDP the correlation is positive. The two dependent variables he uses are the share of manufactures in total exports and the Herfindahl-Hirschman Index, which yield mutually consistent results.

3. Estimation Method

3.1. Determinants of a nation's export diversification

This section discusses factors that are linked to export diversification and builds the estimation model incorporating these factors. To start with, how is aid for trade, which is the main interest of this study, related to export diversification process? Aid for trade in any of the three areas considered here − trade-related infrastructure, building productive capacity, and policy and regulations − can help diversification of exports by tackling obstacles in both production and export processes. Aid spent on infrastructure allows faster movement of goods so that the overall costs of production as well as of exports can be reduced. To give an example, new storage facilities funded by aid may allow perishable goods to be added to a country by export basket, while new transportation networks may connect previously isolated regions to the global market. As a result, a country may be able to export some new products to the global market. Aid spent on productive capacity building may allow improvements in the quality of existing products or result in new products for export through investment and innovation. Aid for trade targeting policies and regulations may help to expand administrative capabilities. For example, training of trade officials may help to improve their understanding of the general rules of trade and enable them to deal with trade issues such as non-tariff barriers or regional trade agreements. As a result of lower tariffs or the removal of non-tariff barriers, a country may be able to export more products.

Other than aid for trade, macroeconomic factors that account for export structure also need to be incorporated into the model. These are taken from previous studies on a nation's path

to export diversification. First of all, GDP per capita is commonly regarded as a factor related to export diversification. For example, Imbs and Wacziarg (2003) find that as countries' per capita income increases, their production structure tends to become more diversified. Similarly, Cadot et al. (2011) argue that the export concentration follows a U-shaped pattern. That is, countries first diversify and then specialize again at a certain point. Highlighted by Cadot et al. (2011), this turning point tends to come quite late in countries' development process measured by GDP per capita around 22,000 USD in PPP. Thus, for the purpose of this study, it is assumed that the export structure of both low and middle-income countries tends to diversify during their development and that income has a linear relation to export diversification.

Next, the size of the economy must be considered. Parteka and Tamberi (2008) suggest that larger economies may have a higher chance of export diversification. Thus, the population which is commonly used to measure the size of an economy is included in the model as one potential determinant of diversification.

Apart from the level of GDP, another factor that determines the degree of production diversity, and hence export diversity, is a country's natural endowments. If a nation is endowed with abundant natural resources, factors of production are likely to be concentrated in natural resources sectors. There is less incentive to develop manufacturing sectors so that dependency on a handful of natural resources continues and a country cannot change its highly-concentrated export structure (Sachs and Warner, 1995). Many studies, including Habiyaremye and Ziesemer (2006), show that resource-rich countries tend to have more concentrated export structures. To take countries' natural resources dependency into account, the share of natural resources rents, consisting of the sum of oil rents, natural gas rents, coal rents, mineral rents, and forest rents, in total GDP is included in the empirical analysis below.

Following the paper by Burnside and Dollar (2000) which estimate a robust positive relationship between the interaction of aid and institutional quality with GDP growth rate, the model includes institutional quality. The better the governmental administration and legal settings are, the lower the cost and time it takes for trading for diverse industries. Therefore, institutional quality is expected to have psitive relations to export diversification. Among various measures of institutional quality, government effectiveness from the World Governance Indicator is used. This index is based on "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. (World Bank, "Government Effectiveness")."

The diversity of exported products is determined by the availability of capital which is a crucial production input. The amount of foreign direct investment inflow is included in the model as a control variable to incorporate the capital into the analysis. Inward FDI also serves as a measure of openness and is expected to be positively correlated with export diversity (Gourdon, 2010, Amighini and Sanfilippo, 2014).

Other essential macroeconomic variables that affect the export structure such as inflation rate and trade openness are also included. In sum, the specification to estimate the role of aid for trade in export diversification while controlling for the variables just described is as follows:

(1)

$$\ln Diversification_{jt} = p\ln Diversification_{jt-1} + \beta_1 \ln GDPPC_{jt-1} + \beta_2 \ln Population_{jt-1} + \beta_3 \ln NaturalResources_{jt-1} + \beta_4 \ln GovernmentEffectiveness_{jt-1} + \beta_5 \ln FDI_{jt-1} + \beta_6 lnInflation_{jt-1} + \beta_7 TradeOpenness_{jt-1} + \beta_8 \ln AID_{jt-1} + \beta_9 Dummy(AID)_{jt-1} + \alpha_j + \alpha_t + \varepsilon_{jt}$$

where subscript *j* denotes the country and *t* the time, and α_j and α_t are country and time fixed-effects, respectively. ln*AID* denotes the log of the total amount of aid for trade or the amount of trade received in a particular subcategory. Following the estimation model of Cali and Te Velde (2011), a dummy variable for aid for trade is included to account for countries that did not receive aid for trade. Adding this dummy means that it is possible to retain all observations, while estimating the elasticity of aid for trade and the constant term for no-aid recipient separately.

3.2. Identification strategy

There are several problems that need to be addressed before the regression can be performed. As widely noted (see, e.g. Osei et al., 2004), the causality between aid flows and trade flows can run both ways. While this paper is concerned with the causal link from aid for trade to exports, it is also possible that trade affects the allocation of aid. To identify the correct direction, one-year lags of variables, including the one-year lag of the dependent variable, are used as explanatory variables. To further eliminate any potential endogeneity, generalized method of moment (GMM) estimation following Blundell and Bond (1998) is employed in addition to the benchmark ordinary least squares (OLS) model. Two-step system GMM is adopted in which the second and the third lagged regressors are used as instruments for the first difference equations to avoid having too many instruments and weak instruments.[1]

As highlighted by Roodman (2008), there are three things that need to be kept in mind when using GMM to evaluate the impact of aid. The first is autocorrelation. Roodman notes that when tested with the Arellano-Bond estimator, the GMM results presented by many studies fail

[1] For the optimal number of instruments, different lag choices (one to four year lags) are attempted. If the lag is only one, it may not be free from autocorrelation problem. If lags are too deep, the number of observations will be small while the number of instruments becomes large as this paper only consider 18 years of annual data and 6 periods in terms of three-year interval data. In addition, as it takes usually two to five years for ODA projects to be implemented, the most sensible lag choice must fall in between. Hansen J statistic, which cannot be below 0.1 or too big close to 1, is also taken into account when deciding the proper lag level.

to pass the autocorrelation test. This is a crucial point, because autocorrelation can cause endogeneity biases when lagged values are used as instruments. The second issue is the validity of instruments. Under the system GMM, there is a risk of overfitting the endogenous variables, or instrument proliferation. If the number of instruments exceeds the number of total countries, this would be a sign of too many instruments. He suggests that the perfect Hansen J statistic is a sign of instrument proliferation and the number of instruments is too large. As one method to keep the number of instruments below the number of countries, instrumental variables can be "collapsed." The default GMM option creates one instrument for each time period, variable, and lag distance so that if the sample size is small, overidentification occurs and leads to biased estimation. The collapse option creates one instrument for each variable and lag distance to minimize the number of instruments even in the small sample size. Lastly, many studies in the aid literature ignore the problem of multicollinearity by putting highly correlated variables together in the same equation. One example Roodman gives is the use of aid relative to GDP and its squared term together. He proposes to test the variables of interest individually. Consequently, the equation used in this study contains only one aid variable.

4. Data

4.1. Data sources

The present study relies on three databases for the construction of the panel used for the analysis, namely one database containing trade data by product and country to calculate the dependent variable, another for the amount of aid by sub-category and recipient country, and the last for the control variables. Specifically, the UN COMTRADE database is used to obtain trade data for the period 1996–2013 to construct the dependent variable. Products are classified in terms of the 1992 Harmonized Commodity Description and Coding System (HS).[2] There are two reasons for using the HS nomenclature instead of other systems such as the Standard International Trade Classification (SITC). The first is that the HS system provides more detailed categories (the 6-digit HS system has 5,019 products, while the 5-digit SITC has 3,121 products), so that the HS system is better suited to capture changes in product diversity. The second reason is that HS codes are more relevant for import data. This is important since this study uses import data to capture countries' exports, because export data provided by developing countries often is less accurate and sometimes missing. Using import data therefore provides higher accuracy and better coverage. Furthermore, the likelihood that of missing data is almost zero, since one country's data is accumulated from many countries' import data. At worst, export data collected using mirror data over-represent the weight of countries that report import data and do not account for countries which did not report import data. However, in most cases, countries with missing import data are developing countries and their share in world trade is very small.

Next, aid data are taken from the OECD's Creditor Reporting System (CRS), in which all member donors in the Development Assistance Committee (DAC) report their aid activities at the project level. While development funding from non-DAC member donors such as China is rapidly increasing, the lack of a reliable and universal database covering the period examined here mean that development funding from non-DAC countries is not included in this study. The sample used in this study includes all 136 countries which received development aid as defined

[2] Since the scope of the paper is from 1996, the HS 1992 edition is used for consistency. Some countries did not adopt the 1996 version immediately and the data is only available on the basis of the 1992 version throughout the period.

by the OECD from DAC member countries or organizations (see Table 1 for a full list of countries included in the regressions). 3 countries are dropped due to lack of control data so that the total number of countries covered equals 133.

All the control variables, with the exception of government effectivness, which is extracted from the Worldwide Governance Indicators, are from the World Development Indicators by the World Bank. All the control variables from the World Development Indicators are logged to adjust skewed distribution across the sample countries. However, there are negative values for inflow of FDI and inflation rate. Thus, the constant value k is added to these two variables and then logged so that the skewness of the new logged variable is zero. Government effectiveness is already provided by the World Governance Indicator database as a standardized index so that it ranges from -2.5 to 2.5.

4.2. Measuring the degree of export diversification

Next, the measure of the degree of export diversification is presented. One of the most common indices used to measure the level of concentration – such as the level of market concentration or, in this case, export concentration – is the Herfindahl–Hirschman Index (HHI). This shows the extent to which exports are concentrated using the sum of the squared shares of each individual commodity i. A country with only one export product will have an HHI of 1, while a country whose exports are equally divided across all the commodities it exports will result in a small number close to 0 (since the number of product categories in the HS 1992 is 5,037, the smallest possible value in the case here will be 1/5,037). If aid for trade is effective in fostering diversity in recipient countries' exports, more aid for trade should be associated with a lower HHI. However, this index is relative to country j's number of active line of products (N_{jt}) at year t. To make this index comparable across time and countries regardless of, it is normalized to range from 0 to 1. The normalized HHI of country j is calculated using the following formula where N is the maximum number of products, 5,037 and same for all countries:

(2)
$$\mathrm{NHHI_{jt}} = \frac{(\Sigma_{it}\left(\frac{X_{ijt}}{X_{jt}}\right)^2 - 1/N)}{1 - 1/N}$$

One problem with the HHI is that it cannot distinguish the two types of diversification – that is, diversification in terms of the number of products and diversification in terms of a more even distribution of shares. For example, a country exporting more products but with a skewed share distribution can have same the HHI as a country exporting fewer products with an equal share distribution. Therefore, in order to capture both aspects of diversification, the effect of aid for trade on total value of exports, X_{jt}, as well as the number of export products X_{ijt}, must be additionally examined.

4.3. Construction of the aid for trade variables

To define the scope of aid for trade in this paper, the purpose coding system of the Creditor Reporting System (CRS) jointly produced by the OECD and the World Bank in 1967 is

utilized. Under this CRS purpose coding, aid for trade comprises three sectors: economic infrastructure, building productive capacity, and trade policy and regulations (see Supplementary Materials Section 1 for a complete list of purpose codes). Aid for economic infrastructure includes aid for communications, energy, transport and storage, while aid for building productive capacity covers aid for sectoral development in the fields of banking and financial services, business and other services, agriculture, forestry, fishing, mineral resources and mining, construction, and tourism. Finally, aid targeting trade policy and regulations refers to aid used for trade policy and administrative management, regional trade agreements (RTAs) and multilateral negotiations, and trade education/training. Since aid for trade targeting trade policy and regulations is explicitly related to trade, it is also called narrow aid for trade. On the other hand, not all aid for economic infrastructure and building productive capacity can be classified as aid for trade, since aid projects falling under these categories do not necessarily always affect trade and can be mostly for domestic purposes. However, since countries' infrastructure and production capacity potentially have a great effect on trade, these aid categories are often included in aid for trade more broadly defined. It is this broad definition of aid for trade including all three sectors that will be employed in this study. Using this definition, aid for economic infrastructure and building productive capacity makes up more than 95% of aid for trade, while aid for trade policy and regulations makes up less than 5%. This can be attributed to the nature of infrastructure and capacity building projects, which require larger sums of financial resources

Aid data are actual disbursements in current US dollars. Negative values, which arise when net inflows are negative due to the repayment of ODA loans, are dropped, so that only positive inflows are included in the analysis.

According to this definition of aid for trade, the top 10 aid for trade recipients during 1996 and 2013 are India, Vietnam, China, Afghanistan, Iraq, Turkey, Indonesia, Egypt, Bangladesh and Morocco. These 10 big developing countries account for more than 41% of total aid for trade disbursed. Top 20 countries receive more than 61%. The highly-skewed distribution of aid for trade yields Gini coefficient of 0.7 among the recipient countries. Total aid for trade disbursed between 1996 and 2013 are shown as a scatter plot in Figure 3 along with the standard deviation of normalized HHI. Among these big recipients, Iraq, Egypt, and Afghanistan show a considerable variance in their concentration index measured by normalized HHI in this period. In contrast, the standard deviations of other big recipients are relatively small as most of these countries already had low concentration index close to 0 throughout the period.

4.4. Summary statistics

Summary statistics of the variables used in the regression analysis are presented in Table 2. To start with, aid for economic infrastructure and building productive capacity are relatively larger than aid for trade policy and regulations. Next, looking at the no aid dummies, only 1% of countries received no trade for economic infrastructure and productive capacity building, meaning that 99% did. On the other hand, only about 77% of counties received aid for trade policy and regulations. Thus, aid for trade policy and regulations is comparatively small not only in terms of the amount but also in terms of the number of recipients.

With respect to HHI index, there are different patterns across recipient countries. Some countries such as Syria, Rwanda, Uganda, Oman, Uzbekistan, Iran, Central African Rep., and Egypt have shown a constant decrease in their export concentration over this period. On the other

hand, some countries have more concentrated export structure. Examples are Azerbaijan, Kazakhstan, Venezuela, Bhutan, Congo, and Iraq. Another group of countries such as Niger, Turkmenistan, Equatorial Guinea, Burundi, Mali, Guinea-Bissau, and Timor-Leste have fluctuating export structure throughout 1996 and 2013. Last trend is observed among big developing countries. As they already have diversified export structure from the initial year, their HHI remains stably low over time. As these countries are big, they usually also are big recipients of aid for trade. Such countries are Vietnam, China, India, Indonesia, Brazil, and Bangladesh. Normalized HHI of some selected countries representing each pattern are shown in Figure 4.

5. Results

5.1. Results using annual data

Turning to the empirical analysis, the results of the benchmark OLS specification are presented Table 3. In the table, each column shows the results for the total aid for trade and its various subcategories, where these are classified in terms of their purpose, the type of flows, and whether aid is bilateral or multilateral, as described above. Starting with the results in column (1), the coefficient on the total aid for trade variable (lnAID t-1) is negative and significant (at the 10% level), taking a value of -0.023. This indicates that a 100% increase in aid for trade reduces export concentration as measured by the HHI by 2.3%. Similarly, aid for productive capacity building on column (3) shows a coefficient of -0.021 although the significance level is weaker at 10%. Looking at the control variables – i.e., variables not related to aid –, no variables significantly influence the HHI.Finally, in all columns, the coefficient on the lagged dependent variable ($\ln DEP_{t-1}$) is large and highly significant, implying that export diversity greatly depends on past values, after country fixed effects are controlled for through the use of country dummies. Hence, it is highly likely that autocorrelation and endogeneity are present, meaning that the OLS results are not reliable.

Table 4 shows the results obtained when using GMM estimation to address the potential autocorrelation and endogeneity. Starting with column (1), the table shows that the impact of overall aid for trade on export diversity is still significant. The magnitude almost doubled compared to the OLS result, reaching 0.051. Moreover, as in the OLS estimation, the coefficient on the aid for productive capacity building is significant as well, along with aid for trade policy and regulations. A 100% increase in each of these categories is respectively associated with a reduction in the HHI by 5.2%, and 6.8%. Only aid for economic infrastructure in column (2) remains insignificant.

As in the OLS results in Table 2, the coefficients on the lagged dependent variable are high and significant, meaning that the HHI depends on past values even in the GMM specification. However, unlike the OLS estimation results, the GMM results can be checked for autocorrelation (AR2) using the Arellano-Bond test, which suggests that the null that errors are serially correlated can be safely rejected.

Next, to examine the impact of aid for trade on HHI found in columns (1), (3), and (4) in Table 4 in terms of extensive margin, the number of exported products are used as dependent variables instead of the HHI. The reason is that a lower concentration of exports can come about in two ways: a more equal distribution among existing products (intensive margin); and an increase in the number of products (extensive margin). Table 5 shows the results. It indicates that none of the aid for trade and it sub-sector had a significant impact on the number of exports. This implies that the reduction in the HHI brought about by aid for trade is the result of a

redistribution of the shares of existing exports and does not reflect an increase in export volume or variety.

One possible explanation is that while most of developing countries increase their export variety as shown in Figure 5, 10 big countries such Argentina, Brazil, Chile, China, Mexico, Ukraine, Venezuela, and Zimbabwe expressed in dash-dot line have slightly smaller number of products. Also, many countries have severe fluctuations on the number of products so that there is no consistent pattern between aid for trade and the extensive margin.

5.2. Results using three-year interval data

One shortcoming of the GMM results presented above is that they only capture the effect of aid for trade provided two years earlier, since the instruments are lagged by two years. In the case of aid for economic infrastructure, however, some infrastructure projects may take more than two years from the initial disbursement to be completed so that their impact may not be clear using annual data. Similarly, productive capacity, which is a prerequisite for the improvement of developing countries' ability to export, also may be developed only in the medium to long run. Therefore, a lag of two or three years may not be sufficiently long to capture the effect of aid for trade. For this reason, the GMM results presented above may underestimate the effect of aid for trade, since they only capture the short-term effect of aid for trade, while the true impact is likely to be visible only in the longer run.

To address this issue, the annual data are substituted with the average of three-year interval data of all the variables, following Kimura and Todo (2010). Using the three-year interval data does not only allow observing the longer-term patterns, but also allows smoothing out short-term fluctuations in trade performance and aid flows. The annual data consist of 18 years from 1996 to 2013, so the three-year average data have six observations for each country. Consequently, the number of total observations is much smaller than the annual panel (only about a quarter). Taking two lags for the GMM estimation when using the three-year interval data is equivalent to measuring the effectiveness of aid for trade which was disbursed two three-year intervals earlier. This way, the model can trace the impact of aid for trade after four to eight years. The results using the three-year interval are displayed in Table 6.

Column (1) indicates that the coefficient on total aid for trade ($\ln AID_{t-1}$) is statistically not meaningful. In other words, receiving more aid for trade does not enhance the diversity of export in the longer run. Unlike the significant short-run results of the regression using annual data, the longer-run results suggest that the effect of aid for trade does not last long. Nevertheless, as seen in column (3), the coefficient for aid for productive capacity building, is still significant at 5% and the magnitude is bigger compared to the short-run result. The other sub-components of aid for trade, namely aid for trade policy and regulation loses significance in the long run. Among the control variables, government effectiveness is strongly associated with diversification in the long-run. This is in line with many previous findings emphasizing the importance of governance and institutional quality for development.

Again, in order to further dissect how aid for trade and its sub-components lowers the export concentration, the count of products is used as the dependent variable. Unlike in the result from the annual data in Table 5, total aid for trade as well as all the three sub-components increase the number of products (columns (1), (2), (3) and (4) of Table 7). Combining the result of Table 6 and Table 7, aid for trade in productivity capacity building diversifies export baskets by introducing new line of products. If aid for trade for productive capacity building rises by 100%, the number of exported products increases by 2.9%. That is, if an average country

receives two times more than the current aid for trade, it can export 50 more products as the average count of export products is 1712. Total aid for trade, aid for economic infrastructure and aid for trade policy and regulations also have a weak correlation to new lines of export at 10%. However, the fact that they do not lead to lower concentration of HHI implies that the value of new exports is unsubstantial. The results in Table 7 must be viewed with caution as the AR2 scores are below 0.1 or marginally over 0.1.

5.3. Robustness checks without outliers

One more thing to consider, on top of the short-run versus the long-run effect, is the existence of outliers. As shown in the summary statistics in Table 2, the maximum value for the log of aid for trade targeting policy and regulations is relatively large compared to the mean and the standard deviation. Based on the three-sigma rule, about 4-5% of the sample (109 observations in the annual panel and 30 observations in the three-year interval data) can be regarded as outliers. The results for the GMM regressions without outliers are presented in Table 8.

The first three columns show the results from the annual data, while the latter two columns show the results from the three-year average data. Starting with the results in the first three columns showing the results using annual data, total aid for trade and aid for trade policy have a significant effect even when outliers that received a large amount of aid for trade for trade policy and regulations are excluded. Thus, the results from the annual data are not affected much by outliers and suggest that small recipients also benefit from aid for trade policy and regulations, which is the smallest category of aid for trade. Nevertheless, the coefficients are also found to be of a smaller magnitude and weaker significance as those presented in columns (1) and (4) of Table 4. Thus, countries which received less aid for trade benefited less compared to large recipients. Result of column (4) in Table 8 suggests that aid for productivity capacity continues to be significant among smaller recipients.

Another type of outliers is war-experiencing countries. A war may paralyze the government or industries so that aid program implementations or exporting may be disrupted. Then, the effects of aid for trade would be undermined. In addition, donor countries can allocate an unusually large amount of aid for trade, especially in the economic infrastructure sector during or in the aftermath of a war for the nation-building purpose. This is a highly likely scenario when the top 10 recipient countries of aid for trade are considered. The list includes countries such as Afghanistan, DR Congo, and Iraq during the war periods. Thus, it is necessary to check the robustness of results without the countries having warfare.

Taking the war data from Gleditsch et al. (2002) and(Gleditsch et al., 2002); Melander et al. (2016), from the Uppsala Conflict Data Program website, the countries in a state of war with more than 1,000 battle-related deaths in a given year are dropped from the sample. The results are presented in Table 9. Compared to the results of Table 4 with all the observations, the significant effects of aid for trade variables remain significant. This is also true for three-year interval data. Thus, the effect of aid for trade happens to be not so different between war-experiencing countries and those which are not.

The last type of outliers which may behave differently are the “new donors”. Recently, there have been many developing countries which actively participate in the South-South cooperation or Triangular cooperation as a donor of ODA. Still, these countries continue to receive ODA from more developed countries so that they take a role as both donor and recipient. Table 10 presents the robustness check of different sample excluding the new donors such as

China, Brazil, and South Africa. The list of newly emerging donors which consists mostly of upper-middle income countries and large developing countries is taken from the website "aiddata.org".

Again, the result is consistent with the benchmark GMM results from Table 4 and Table 6. Thus, it can be concluded that aid for trade and some of its subcomponents lowers the concentration of export of smaller, and lower income countries.

5.4. Other sub-categories of aid for trade

Besides the three sectors which fall under aid for trade using the OECD's CRS purpose code, aid for trade can be disaggregated in different ways other than by its purpose (Cassimon and Van Campenhout, 2007; Claessens et al., 2009; Gounder, 2001; Marchesi and Missale, 2013). For example, there are two types of official development assistance (ODA) flows. In order to be considered as ODA, financial flows from one government to another must be either in the form of a grant or a concessional loan. Grants are ODA that does not require any repayment, while concessional or "soft" loans are loans where the grant element must be at least 25% and the interest rate must be below the prevailing market rate.

In addition to the two types of ODA flows, namely grants and loans, a third type of financial flows called Other Official Flows (OOFs) is examined in the regression. Strictly speaking, OOFs are not ODA, since they are neither grants nor concessional loans. However, OOFs often pursue similar goals as ODA and as such are reported in terms of their purpose, just like ODA. OOFs in trade-related sectors therefore are likely to have similar effects as aid for trade (OECD/WTO, 2011b, 49). Consequently, although OOFs are not included in the total aid for trade above, they are examined as a separate type of flow.

Finally, aid can be provided either by a single government or by an international organization, so that depending on the type of donor, it can be classified as bilateral or multilateral aid.

In terms of financial types, aid for trade in grant form is a little larger than aid in the form of loans. As mentioned above, a considerable amount of OOFs is disbursed to aid recipients. Although the average value is about 40% of total aid for trade, some countries received more OOFs than ODA in trade-related sectors. Bilateral donors spend two times more than multilateral donors on aid for trade.

In sum, the following aid variables are used. In addition to the total value of aid for trade, and three sub-components by purpose (economic infrastructure, productive capacity building, and trade policy and regulations) which are discussed above, two are by type of financial flow (grant or loan); and two are by donor type (bilateral or multilateral donors); finally, OOFs for trade, which do not fall under the banner of aid, are used as a further variable.

Table 11 illustrates how different sub-categories of aid for trade affect the normalized HHI. Using the annual data, aid in grant form in column (1) is effective while aid in loan in column (2) is not. Both bilateral and multilateral aids affect the export structure. In the long run, on the contrary, none of them have any significant effect on reducing the concentration level. Other official flows for trade sectors which are not included in aid for trade appear to be insignificant in the GMM estimation (column (5) and (10)).

As a final robustness check, the issue of aid fungibility is investigated by looking at other types of aid. As aid for trade may be used for other purpose or other aid such as social and multi-sector aid may be used for trade-related sectors. For this reason, the estimations in Table 12

include both aid for trade and other aid. Column (1) shows that the coefficients of both aid for trade and other aids are negative and significant at 10%. Thus, aid for trade stays significant in the short run even the substitution effect between sectors or fungibility problems are considered. Since the aid for trade is insignificant in the benchmark of three-year interval data, it continues to be insignificant even after other aid is added in the estimation (column (3)).

5.5. Discussion

Taken together, the various results can be interpreted as follows. In the short run, total aid for trade and most of the aid for trade sub-categories significantly reduce export concentration but does not necessarily increase the export diversity. The analysis using the annual data showing the short-run effects of aid for trade suggests that in the short-run, it is more difficult to develop new lines of export but it is more efficient to balance the distribution of existing exports to reduce the risk of highly concentrated export structure.

To sums up the long-run effect using the three-year averages, only one sub-categories such as aid for trade for productive capacity building are found to be significant. The likely reason is that such aid helps to raise the international competitiveness of a country's industries, and such effects last longer than other types of aid for trade.

Unlike the short-run results, the fall in export concentration associated with aid for trade is a result of increased diversity in the longer run. The impact of aid for production capacity building is significant even among smaller recipients, that is, after excluding the major recipients or new donor countries, while aid for infrastructure and trade policy is not. This implies that aid given to industries such as agro-forestry, manufacturing, and mining, which falls under productive capacity building, helps to raise the quality of export products and lower production costs and thus helps to generate new exports.

6. Aid for Trade and Export Sophistication

In the earlier sections, the effect of aid for trade on export diversification was measured using the HHI and the count of products. The results using the HHI showed that the impact of aid for trade on export concentration is limited in that it redistributes the shares of existing products in the short run. Meanwhile, aid for trade contributes to export diversification by increasing the number of products as well as by evening out the share in the long-run. However, a shortcoming of these two indices is that they treat all commodities, from coffee to cars, identically. While it is important for countries to increase the variety of products they export and decrease export concentration in order to reduce the risks associated with depending on only a small number of export products and markets, many developing countries also seek to export more sophisticated products with higher value added.

To incorporate the value-added associated with changes in the export structure, four other trade indices are used as dependent variables. They are *EXPY* constructed by Hausmann et al. (2007), the economic complexity index (*ECI*) constructed by Hausmann et al. (2014), the share of manufactured goods in total exports, and the number of export destinations.

Starting with *EXPY*, which many previous studies, such as Jarreau and Poncet (2012), use to measure the export sophistication of an economy, it measures the weighted average of another measure invented by the authors called *PRODY* for country j, where the weights are the shares of the product i (X_{ij}) in the country's total exports (X_j). The formula is:

(3)
$$EXPY_{jt} = \sum_i \frac{X_{ijt}}{X_{jt}} \times PRODY_{it}$$

where $PRODY_i$ is:

(4)
$$PRODY_{it} = \sum_j \left(\frac{X_{ijt}/X_{jt}}{(\sum_j X_{ijt})/X_t} \times GDP\ per\ capita_j \right)$$

PRODY of product *i* accounts for the income levels of countries ($GDP\ per\ capita_j$) which export product *i*, so if a product has a high *PRODY,* it is exported mainly by high-income countries and vice versa. *PRODY* is calculated as a weighted average of the GDP per capita of the countries exporting product *i*, where the weights are the revealed comparative advantage ($\frac{X_{ij}/X_j}{(\sum_j X_{ij})/X}$) of each country in that product. *PRODY* and *EXPY* are based on the premise that rich countries export products that tend to be exported by other rich countries and those products are likely to yield more income than those exported by poor countries. A higher *EXPY* means a country exports more goods that are exported by higher income countries, implying that it has a more sophisticated export basket requiring higher levels of productivity and technology.

The regression results using *EXPY* as the dependent variable show that aid for trade and all of its sub-components do not have any impact on export sophistication.[3] The results further explain what kind of structural change receiving more aid for trade brings about. The short-run results using the annual data in Section 5.1 suggested that aid for trade in a few sub-categories only causes a restructuring of existing products without increasing the export diversity. Since there is no change in *EXPY* linked with aid for trade, the shifting of export shares occurs among products with a similar level of *PRODY* in the short run. The same result is obtained for the long-run effect using the three-year average data, showing that aid for trade has no effect on export sophistication measured by *EXPY.* This suggests that the new exports generated either at the intensive margin or extensive margin by aid for trade have a similar level of sophistication with existing exports. Thus, aid for trade does not lead to export sophistication either in the short-run or in the long-run.

In addition to exporting more sophisticated products with higher profitability, many developing countries are also concerned with declining terms of trade as a result of relying on primary commodities (Bloch and Sapsford, 2000; Harvey et al., 2010; Prebisch, 1950). Inelasticity of supply curve of agricultural products leads to greater price fluctuation driven by demand. Thus, the last measure is the share of manufactured goods in total exports since many developing countries greatly depend on primary commodities, which are vulnerable to price shocks and therefore deteriorating terms of trade. Having a higher share of manufactured exports may signify that the country's exports are diversifying from agricultural based or resource based exports to manufacturing goods.

Using the share of manufactured goods in total exports as the dependent variable, the estimation results indicate that, in the short run, aid for trade does not lead to a diversification of

[3] The results are presented in supplementary tables, which are available from the author on request.

exports from commodities to manufactured goods.

While this study is mostly concerned with the diversification of product variety, the importance of geographical diversification should also not be ignored, given that previous studies have found that the benefits of diversification depend on the export destination (Amurgo-Pacheco, 2008; Baliamoune-Lutz, 2011). It has been argued when a country's productivity in making a product increases, it can start export the product, and as productivity continues to grow, the product can be exported to a greater number of markets, increasing the intensive margin. Therefore, the final test here is to examine the impact of aid for trade on diversification measured in terms of the number of export destinations. The results indicate that the effect of aid for trade on market diversification is not significantly different from zero in the annual data. The result is plausible, since market access is determined not by supply-side trade constraints, which aid for trade aims to tackle, but also by other factors such as diplomatic ties, tariff and non-tariff barriers, and physical and cultural distance. Using the three-year average data, the estimations have low Hansen J Statistics so that it cannot provide meaningful analysis.

7. Conclusion

The present study attempted to investigate whether aid for trade helps countries to diversify their exports. Using GMM estimation to avoid endogeneity issues that have plagued much of the aid literature, the analysis found some evidence that aid for trade is associated with export diversification (measured using the HHI). Unlike previous studies, the present study considered the concept of aid effectiveness from the recipients' point of view and measures the effectiveness of aid for trade from the new perspective of export diversification. The reason for focusing on export diversification is that some of the indicators used in previous studies – such as changes in export volumes or trade costs – do not sufficiently capture the needs and policy goals of developing countries and do not necessarily contribute to economic development.

It should be noted that the data used for the analysis have some shortcomings. For instance, the OECD data on aid for trade used here is not complete in the sense that they do not cover some "newly emerging" donor countries such as China as well as some newly established multilateral agencies. Moreover, the OECD data does not have a good coverage of its members in the earlier years. According to the *CRS User's Guide* (OECD, n.d., "coverage ratio"), the coverage ratio varies over time and the guide recommends not to use disbursement flows before 2002, because the annual coverage is below 60%. Despite the low coverage, because there are no alternative sources of aid data classified by categories and in order to guarantee a sufficient number of year observations for the estimation, especially with the three-year interval data, the study had to rely on the data from the OECD database. It would have been desirable to use data covering a longer time-span, which would have helped to measure the long-term impact of aid for trade more accurately. However, the coverage of the OECD's data on aid before the 1990s is even more limited so that the study focuses only on the period from 1996 onward.

Overall, the findings suggest that aid for trade only has limited effects in terms of trade diversification. This may cast doubt on whether spending limited ODA funds on aid for trade is the best use of such funds or whether they should be spent on other sectors such as social development. However, there are a number of reasons why the analysis here found only a limited impact. Many studies such as Cadot et al. (2011) argue the importance of extensive margin in the path of diversification cone as proven by their decomposition of Theil index. However, aid for trade does not create many opportunities for new products by reducing fixed trade cost. Rather,

they may have been invested only in sectors that were already performing well. For instance, loans and OOFs continue to have no significant impact on diversification or concentration throughout all specifications. As these financial flows entail pay-back conditions, governments are more careful in using the money and only investing in promising sectors. This in turn will lower the variable trade costs of successful industries but not the fixed costs of new industries. Therefore, while implementing aid for trade projects financed by loans, investing in new industries is too risky. Thus, export diversification may have low priority.

Second, aid for trade may take longer to have an effect than the analysis here allowed for. Due to data constraints, this study only looked at the impact of aid for trade after a few years. However, the effects of aid for trade may manifest themselves only after a longer period, as shown by the contrast between the results using annual data and those three-year interval data with respect to extensive margin or the number of active export lines.

Aid for trade may create various positive social and economic externalities that go beyond the specific areas of intervention such as technology transfers, networks among key trade-related institutions, and the dissemination of best practice. Therefore, continuous efforts to evaluate and monitor aid for trade activities are needed to improve their effectiveness and to produce the best possible development path for the international community.

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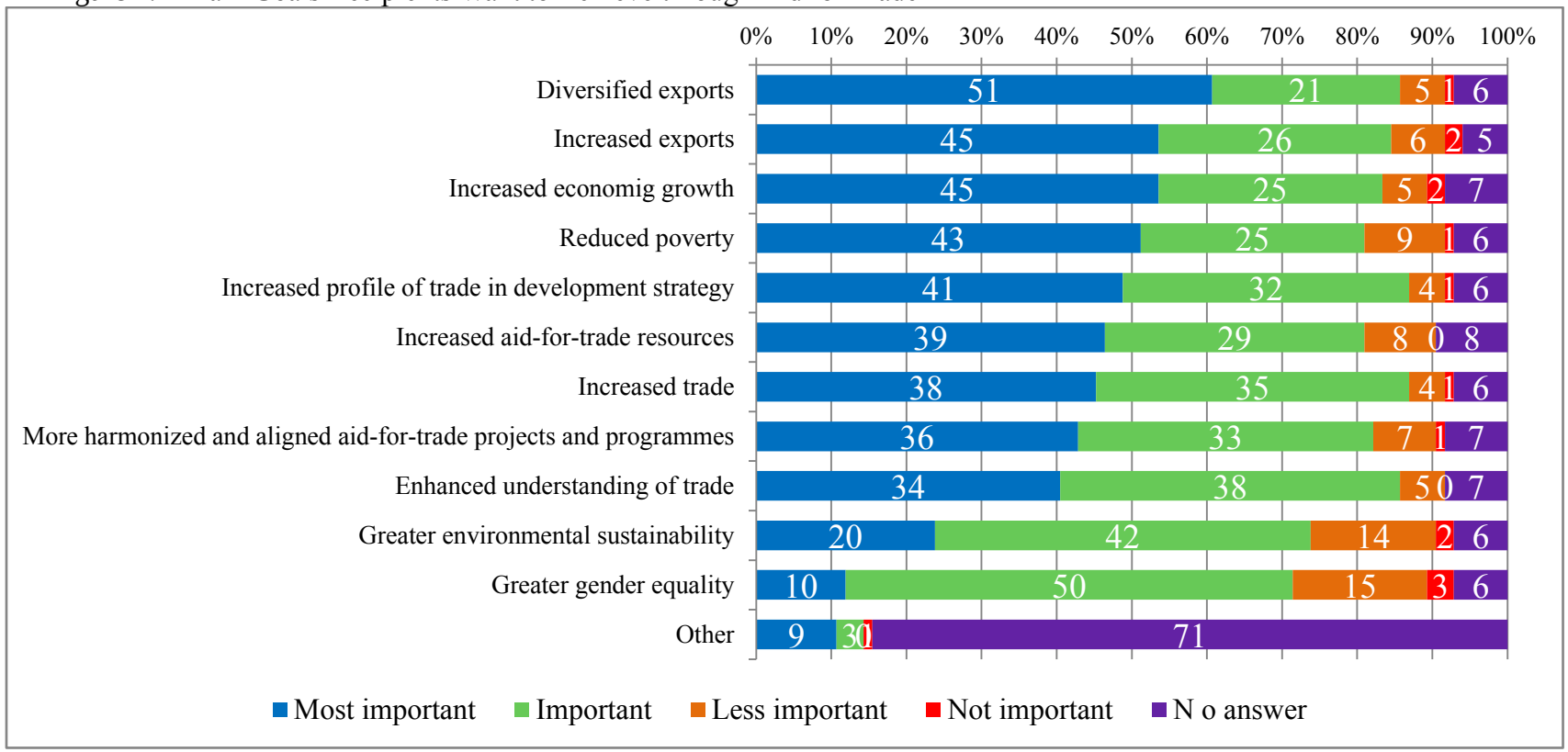
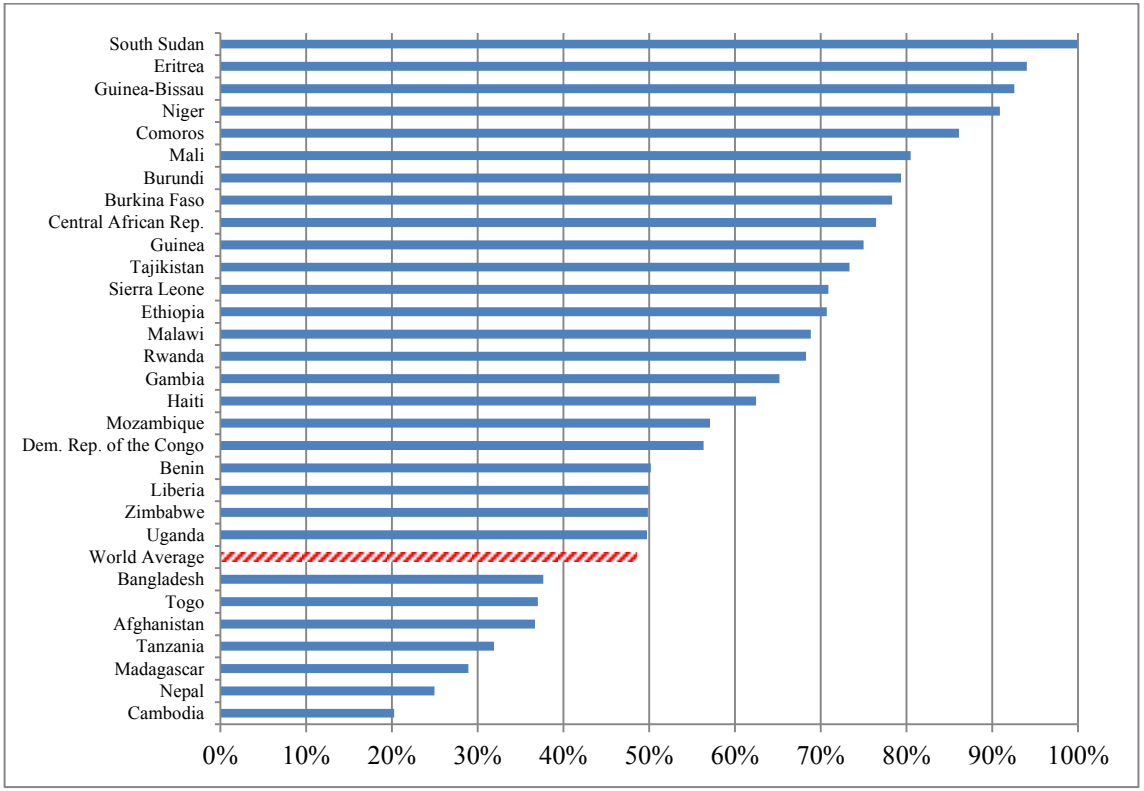
Figures and Tables

Figure 1. Main Goals Recipients Want to Achieve through Aid for Trade



Source: *Aid for Trade at a Glance 2011: Showing Results*, WTO/OECD, 2011, p. 94. The original question recipients were asked is: "How do you define the success of aid for trade in your country?"

Figure 2. Share of Top Three Exports in Total Exports, Low Income Countries (2012)



Note: Shares are calculated using 6-digit HS 1992 mirror data. Low income countries are countries with a per capita GDP of less than US$1,000.

Figure 3. Standard Deviation of Normalized HHI and the Total Aid for Trade between 1996 and 2013

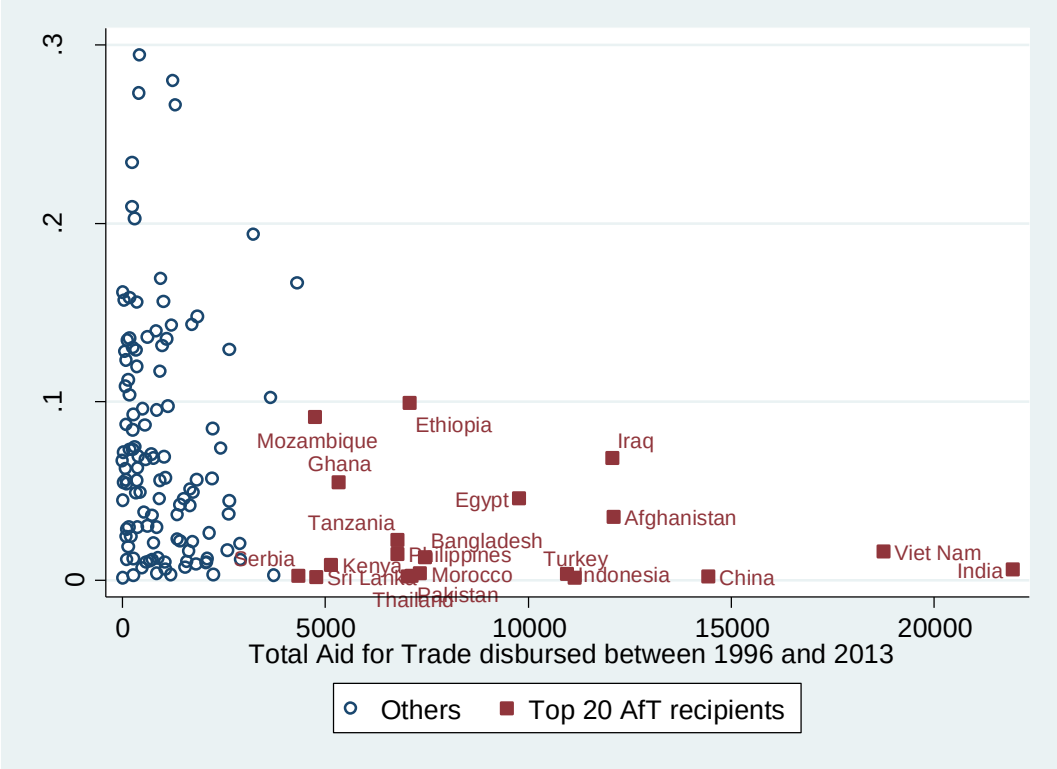


Figure 4. Changes in Normalized HHI for Selected Countries between 1996 and 2013

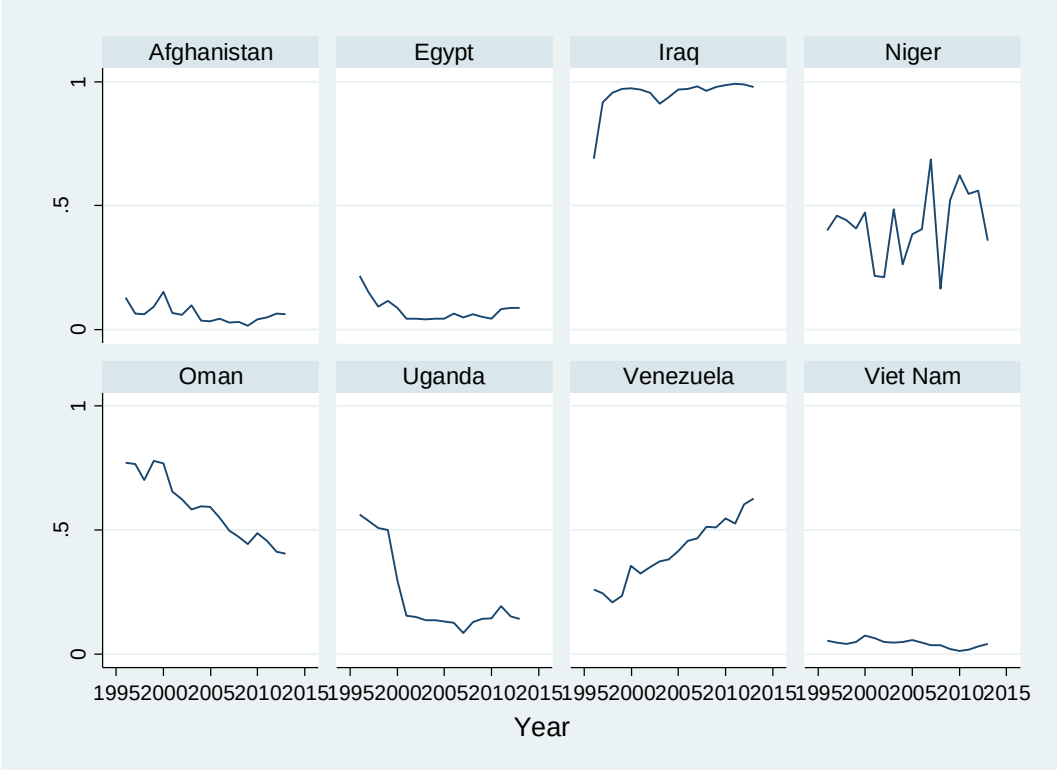


Figure 5. Changes in Number of Active Export Lines between 1996 and 2013

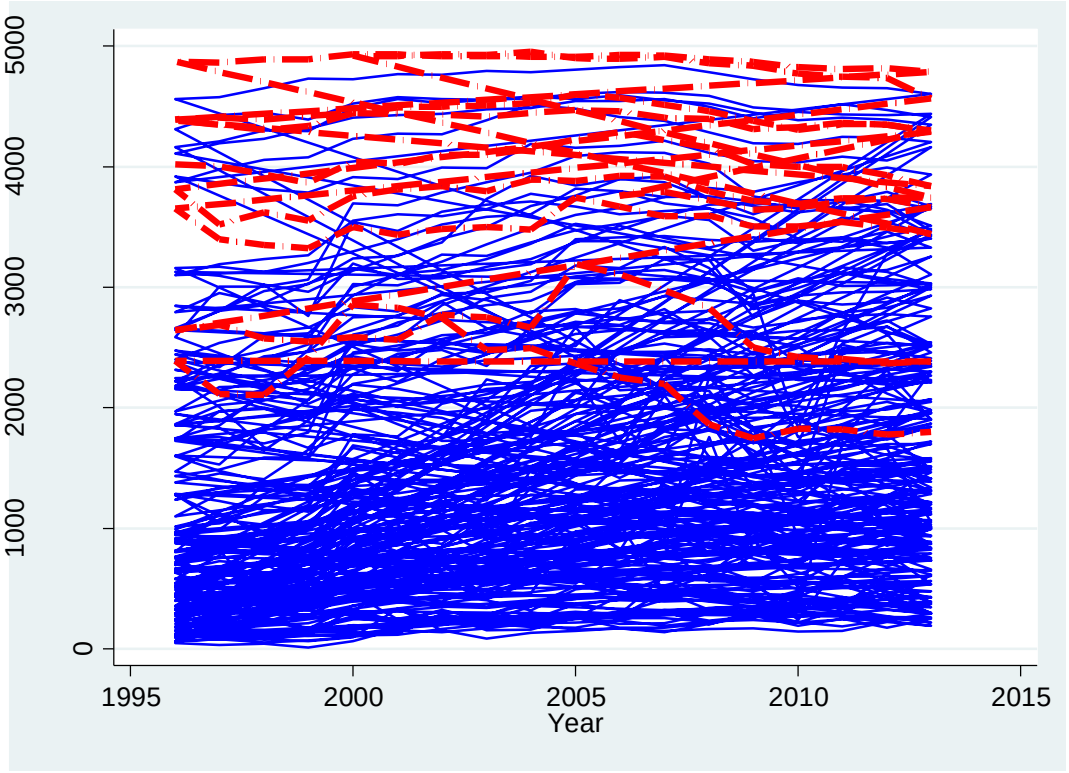


Table 1. Data Availability (133 countries)

Country	Years	Country	Years	Country	Years
Afghanistan	10	Gabon	16	Panama	16
Albania	16	Gambia	16	Papua New Guinea	8
Algeria	16	Georgia	15	Paraguay	16
Angola	16	Ghana	16	Peru	16
Argentina	16	Guatemala	16	Philippines	16
Armenia	16	Guinea	16	Rep. of Moldova	15
Azerbaijan	15	Guinea-Bissau	16	Rwanda	16
Bahrain	7	Guyana	16	Saint Lucia	15
Bangladesh	16	Haiti	14	Saint Vincent and the Grenadines	15
Barbados	13	Honduras	16	Samoa	16
Belarus	7	India	16	Saudi Arabia	10
Belize	16	Indonesia	16	Senegal	16
Benin	16	Iran	16	Serbia	6
Bhutan	16	Iraq	9	Seychelles	16
Bolivia	16	Jamaica	12	Sierra Leone	16
Bosnia Herzegovina	16	Jordan	16	Slovenia	5
Botswana	12	Kazakhstan	16	Solomon Isds	15
Brazil	16	Kenya	16	South Africa	12
Burkina Faso	16	Kiribati	15	Sri Lanka	16
Burundi	16	Kyrgyzstan	16	Sudan	1
Cote d'Ivoire	16	Laos	16	Suriname	16
Cabo Verde	14	Lebanon	16	Swaziland	11
Cambodia	16	Lesotho	12	Syria	11
Cameroon	16	Liberia	16	Tajikistan	15
Central African Rep.	16	Libya	7	Macedonia	16
Chad	16	Madagascar	16	Thailand	16
Chile	16	Malawi	16	Timor-Leste	2
China	16	Malaysia	16	Togo	16
Colombia	16	Maldives	11	Tonga	15
Comoros	16	Mali	16	Trinidad and Tobago	13
Congo	16	Mauritania	16	Tunisia	16
Costa Rica	16	Mauritius	16	Turkey	16
Croatia	13	Mexico	16	Turkmenistan	6
Cuba	16	Mongolia	16	Uganda	16
DR Congo	16	Montenegro	6	Ukraine	7
Djibouti	11	Morocco	16	Tanzania	16
Dominica	16	Mozambique	16	Uruguay	16
Dominican Rep.	16	Namibia	12	Uzbekistan	14
Ecuador	16	Nepal	16	Vanuatu	15
Egypt	16	Nicaragua	16	Venezuela	16
El Salvador	16	Niger	16	Viet Nam	16
Equatorial Guinea	4	Nigeria	16	Yemen	10
Eritrea	15	Oman	13	Zambia	14
Ethiopia	2	Pakistan	16	Zimbabwe	16
Fiji	16				

Note: The maximum number is 16, since the period from 1996 to 2013 spans 18 years and two-year lags are used as instrument.

Table 2. Summary Statistics

Variable	Description	Obs.	Mean	S.D.	Min.	Max.
Control Variables						
Log of GDP per capita	Log of GDP per capita in current U.S. dollars	1890	7.39	1.19	4.62	10.06
Log of population	Log of population	1891	15.76	1.92	11.15	21.03
Log of % of GDP from natural resources	Log of total natural resources rents GDP	1884	1.44	1.89	-6.29	4.42
Government Effectiveness*	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	1892	-0.44	0.62	-2.25	1.60
Log of FDI	Log of net inflows of foreign direct investment (>10% voting stock)	1892	24.03	2.84	0.00	26.51
Inflation	Log of Inflation, GDP deflator (annual %)	1890	3.67	0.29	1.39	7.89
Log of Trade Openness	Log of Trade (% of GDP)	1882	4.30	0.46	2.80	6.02
Aid for Trade Variables						
Log of aid for trade	Log of the sum of official development aid disbursed for 200 and 300 of the CRS code	1892	3.74	1.67	0.00	7.96
Log of aid for economic infrastructure	Log of aid disbursed for Transport and Storage, Communications, Energy Generation and Supply	1892	2.95	1.82	-0.70	7.79
Log of aid for building productive capacity	Log of aid disbursed for Banking and Financial Services, Business and Other Services, Agriculture, Forestry, Fishing, Industry, Mining, Construction, and Tourism	1892	2.96	1.53	0.00	7.36
Log of aid for trade policy and regulations	Log of aid disbursed for 331. Trade Policy and Regulations	1892	0.61	0.84	-0.06	5.80
Log of aid for trade in grant form	Log of grants disbursed for 200 and 300	1892	3.10	1.45	-0.01	7.93
Log of aid for trade in loan form	Log of loans disbursed for 200 and 300	1892	2.55	2.05	-1.11	7.91
Log of other official flows for trade	Log of other official flows disbursed for 200 and 300	1892	1.82	2.29	-0.50	8.42
Log of aid for trade from bilateral donors	Log of aid disbursed for 200 and 300 by bilateral donors	1891	3.46	1.61	-0.01	7.96
Log of aid for trade from multilateral donors	Log of aid disbursed for 200 and 300 by multilateral donors	1891	1.80	1.91	-0.87	6.83
Log of aid other than aid for trade	Log of the sum of official development aid disbursed except for 200 and 300 of the CRS code	1892	4.96	1.66	0.13	9.86
No Aid Dummies						
No aid for trade	1 if log of aid for trade=0, 0 if otherwise	1892	0.00	0.04	0.00	1.00
No aid for economic infrastructure	1 if log of aid for economic infrastructure=0, 0 if otherwise	1892	0.01	0.12	0.00	1.00
No aid for building productive capacity	1 if log of aid for building productive capacity=0, 0 if otherwise	1892	0.01	0.08	0.00	1.00
No aid for trade policy and regulations	1 if log of aid for trade policy and regulations=0, 0 if otherwise	1892	0.23	0.42	0.00	1.00
No aid for trade in grant form	1 if log of aid for trade in grant form=0, 0 if otherwise	1892	0.00	0.05	0.00	1.00
No aid for trade in loan form	1 if log of aid for trade in loan form=0, 0 if otherwise	1892	0.22	0.41	0.00	1.00
No other official flows for trade	1 if log of other official flows for trade=0, 0 if otherwise	1892	0.48	0.50	0.00	1.00
No aid for trade from bilateral donors	1 if log of aid for trade from bilateral donors=0, 0 if otherwise	1892	0.00	0.04	0.00	1.00
No aid for trade from multilateral donors	1 if log of aid for trade from multilateral donors=0, 0 if otherwise	1892	0.32	0.47	0.00	1.00
Trade Variables						
Log of export as share of GDP	Log of (exports of goods and services divided by GDP)	1882	21.98	2.14	15.97	28.49
Log of number of export products	Log of number of export products based on HS 1992, 6 digit	1892	7.20	0.88	4.19	8.51
Log of HHI	Log of HHI from mirror data based on HS 1992, 6 digit	1892	-2.25	1.21	-5.36	-0.01
Log of EXPY	Log of EXPY from mirror data based on HS 1992, 6 digit	1889	8.84	0.58	6.59	10.32

*Note: The Worldwide Governance Indicators were updated every two years between 1996 and 2002 and have been updated annually since. To increase the sample size, data for missing years (1997, 1999, 2001) are obtained through linear interpolation. Then, the institutional quality is then normalized to range from 0 to 5.

Table 3. Impact of Aid for Trade on the Log of the HHI, OLS

	(1)	(2)	(3)	(4)
		Aid for trade by category		
	Ln(*Total Aid for Trade*)	Ln(*Aid for Econ. Infrastructure*)	Ln(*Aid for Prod. Capacity*)	Ln(*Aid for Trade Policy*)
lnAID_{t-1}	-0.023**	-0.011	-0.021*	-0.016
	[0.011]	[0.008]	[0.011]	[0.013]
No-aidDummy $_{t-1}$	-0.158	0.002	-0.063	-0.029
	[0.100]	[0.054]	[0.071]	[0.022]
ln*DependentVar* $_{t-1}$	0.583***	0.584***	0.582***	0.582***
	[0.019]	[0.019]	[0.019]	[0.019]
ln$GDPPC_{t-1}$	-0.005	0.000	0.002	0.002
	[0.035]	[0.035]	[0.035]	[0.035]
ln$Population_{t-1}$	0.119	0.116	0.130	0.100
	[0.154]	[0.154]	[0.155]	[0.153]
ln$NaturalResources_{t-1}$	-0.003	-0.003	-0.002	0.000
	[0.019]	[0.019]	[0.019]	[0.019]
Gov. Effective $_{t-1}$	-0.042	-0.046	-0.047	-0.052
	[0.040]	[0.040]	[0.040]	[0.040]
lnFDI_{t-1}	-0.002	-0.002	-0.002	-0.003
	[0.004]	[0.004]	[0.004]	[0.004]
ln$Inflation_{t-1}$	-0.007	0.002	-0.003	0.005
	[0.025]	[0.025]	[0.025]	[0.025]
ln$Openness_{t-1}$	-0.065	-0.070	-0.067	-0.073*
	[0.043]	[0.043]	[0.043]	[0.042]
Constant	-2.381	-2.417	-2.632	-2.192
	[2.433]	[2.428]	[2.444]	[2.415]
N	1892	1892	1892	1892
R Squared	0.367	0.366	0.366	0.366
Adj. R Squared	0.31	0.308	0.309	0.309

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 4. Impact of Aid for Trade on the Log of the Normalized HHI Using the Annual Data, GMM

	(1)	(2)	(3)	(4)
		Aid for trade by category		
	Ln(*Total Aid for Trade*)	Ln(*Aid for Econ. Infrastructure*)	Ln(*Aid for Prod. Capacity*)	Ln(*Aid for Trade Policy*)
ln*AID* $_{t-1}$	-0.051**	-0.015	-0.052*	-0.068***
	[0.023]	[0.021]	[0.027]	[0.025]
No-aidDummy $_{t-1}$	-0.083	-0.048	-0.038	-0.026
	[0.090]	[0.043]	[0.063]	[0.044]
ln*DependentVar* $_{t-1}$	0.745***	0.753***	0.732***	0.765***
	[0.073]	[0.075]	[0.069]	[0.065]
ln*GDPPC*$_{t-1}$	-0.116	-0.083	-0.085	-0.074
	[0.090]	[0.079]	[0.105]	[0.078]
ln*Population*$_{t-1}$	0.108	0.026	0.112	0.006
	[0.110]	[0.087]	[0.129]	[0.078]
ln*NaturalResources*$_{t-1}$	0.006	0.024	0.022	0.044
	[0.059]	[0.056]	[0.061]	[0.048]
Gov. Effective $_{t-1}$	-0.127	-0.189	-0.121	-0.183
	[0.143]	[0.150]	[0.154]	[0.149]
ln*FDI*$_{t-1}$	-0.008	-0.008	-0.008	-0.007
	[0.006]	[0.007]	[0.009]	[0.007]
ln*Inflation*$_{t-1}$	-0.039	-0.03	-0.048	-0.027
	[0.039]	[0.035]	[0.040]	[0.040]
ln*Openness*$_{t-1}$	-0.173	-0.094	-0.200	-0.128
	[0.176]	[0.168]	[0.182]	[0.169]
Constant	-0.071	0.373	-0.337	0.731
	[1.852]	[1.643]	[2.378]	[1.664]
N	1892	1892	1892	1892
Instruments	46	46	46	46
Hansen	0.22	0.201	0.182	0.153
AR2	0.348	0.365	0.351	0.404

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 5. Impact of Aid for Trade on the Log of Number of Products Using the Annual Data, GMM

Dependent Variables	Log of Number of Products		
	(1)	(2)	(3)
	Aid Variables ($\ln AID_{t-1}$)		
	Ln(*Aid for Trade*)	Ln(*Aid for Prod. Capacity*)	Ln(*Aid for Trade Policy*)
$\ln AID_{t-1}$	-0.006	0.003	-0.007
	[0.012]	[0.013]	[0.009]
$No\text{-}aidDummy_{t-1}$	0.018	0.062	-0.001
	[0.027]	[0.043]	[0.021]
$\ln DependentVar_{t-1}$	0.783***	0.744***	0.728***
	[0.070]	[0.082]	[0.070]
$\ln GDPPC_{t-1}$	0.041	0.067	0.068
	[0.048]	[0.051]	[0.044]
$\ln Population_{t-1}$	0.133**	0.173***	0.174***
	[0.056]	[0.063]	[0.049]
$\ln NaturalResources_{t-1}$	-0.038	-0.043*	-0.044**
	[0.023]	[0.022]	[0.019]
$Gov.\ Effective_{t-1}$	0.165**	0.197***	0.186***
	[0.064]	[0.070]	[0.054]
$\ln FDI_{t-1}$	-0.001	-0.001	-0.001
	[0.006]	[0.005]	[0.005]
$\ln Inflation_{t-1}$	-0.023	-0.021	-0.024
	[0.017]	[0.016]	[0.018]
$\ln Openness_{t-1}$	-0.070	-0.039	-0.028
	[0.067]	[0.068]	[0.063]
Constant	-0.313	-1.009	-0.960
	[0.883]	[0.899]	[0.799]
N	1892	1892	1892
Instruments	46	46	46
Hansen	0.029	0.072	0.121
AR2	0.911	0.861	0.851

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year dummies.

Table 6. Impact of Aid for Trade on the Log of the Normalized HHI Using the Three-Year Interval Data, GMM

	(1)	(2)	(3)	(4)
	Ln(*Total Aid for Trade*)	Ln(*Total Aid for Trade*)		
		Ln(*Aid for Econ. Infrastructure*)	Ln(*Aid for Prod. Capacity*)	Ln(*Aid for Trade Policy*)
lnAID_{t-1}	-0.048	-0.012	-0.080**	-0.067
	[0.035]	[0.029]	[0.033]	[0.058]
$No\text{-}aidDummy_{t-1}$	0.089	0.631	-0.046	-0.019
	[0.060]	[1.097]	[0.339]	[0.056]
ln$DependentVar_{t-1}$	0.909***	0.889***	0.908***	0.912***
	[0.049]	[0.051]	[0.044]	[0.050]
ln$GDPPC_{t-1}$	0.031	0.008	-0.002	0.005
	[0.047]	[0.051]	[0.049]	[0.069]
ln$Population_{t-1}$	0.104	0.022	0.063	0.014
	[0.079]	[0.074]	[0.094]	[0.061]
ln$NaturalResources_{t-1}$	-0.056	-0.036	-0.028	-0.03
	[0.055]	[0.054]	[0.059]	[0.044]
$Gov.\ Effective_{t-1}$	-0.295***	-0.274**	-0.248**	-0.290**
	[0.111]	[0.114]	[0.107]	[0.116]
lnFDI_{t-1}	0.0	-0.002	0.003	-0.003
	[0.014]	[0.012]	[0.014]	[0.014]
ln$Inflation_{t-1}$	0.098	0.230***	0.073	0.149
	[0.087]	[0.074]	[0.085]	[0.100]
ln$Openness_{t-1}$	-0.105	-0.136	-0.055	0.01
	[0.159]	[0.141]	[0.177]	[0.198]
Constant	-1.737	-0.769	-0.986	-0.89
	[1.454]	[1.376]	[1.394]	[1.752]
N	475	475	475	475
Instruments	34	34	34	34
Hansen	0.81	0.694	0.656	0.447
AR2	0.624	0.519	0.635	0.665

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and period dummies.

Table 7. Impact of Aid for Trade on the Log of Number of Products Using the Three-Year Interval Data, GMM

	(1) Ln(*Total Aid for Trade*)	(2) Ln(*Aid for Econ. Infrastructure*)	(3) Ln(*Aid for Prod. Capacity*)	(4) Ln(*Aid for Trade Policy*)
ln*AID* $_{t-1}$	0.030*	0.020*	0.020*	0.029*
	[0.016]	[0.011]	[0.011]	[0.017]
No-aidDummy $_{t-1}$	-0.282	0.017	0.017	-0.019
	[0.540]	[0.033]	[0.033]	[0.190]
ln*DependentVar* $_{t-1}$	0.859***	0.860***	0.860***	0.850***
	[0.047]	[0.050]	[0.050]	[0.042]
ln*GDPPC*$_{t-1}$	0.014	0.000	0.000	0.004
	[0.038]	[0.033]	[0.033]	[0.044]
ln*Population*$_{t-1}$	0.026	0.034	0.034	0.032
	[0.021]	[0.023]	[0.023]	[0.021]
ln*NaturalResources*$_{t-1}$	0	-0.003	-0.003	0.000
	[0.011]	[0.010]	[0.010]	[0.010]
Gov. Effective $_{t-1}$	0.02	0.039	0.039	0.04
	[0.047]	[0.044]	[0.044]	[0.050]
ln*FDI*$_{t-1}$	-0.004	-0.004	-0.004	-0.004
	[0.006]	[0.004]	[0.004]	[0.005]
ln*Inflation*$_{t-1}$	-0.063	-0.068*	-0.068*	-0.057
	[0.046]	[0.040]	[0.040]	[0.049]
ln*Openness*$_{t-1}$	0.086	0.099	0.099	0.138
	[0.097]	[0.086]	[0.086]	[0.153]
Constant	0.405	0.398	0.398	0.235
	[0.358]	[0.370]	[0.370]	[0.545]
N	475	475	475	475
Instruments	34	34	34	34
Hansen	0.712	0.786	0.786	0.64
AR2	0.092	0.1	0.1	0.089

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and period dummies.

Table 8. Impact of Aid for Trade on the Log of the Normalized HHI without Large Recipients, GMM

Data Type	Annual Data			Three-year Interval Average Data	
	(1) Ln(*Total Aid for Trade*)	(2) Ln(*Aid for Prod. Capacity*)	(3) Ln(*Aid for Trade Policy*)	(4) Ln(*Aid for Prod. Capacity*)	(5) Ln(*Aid for Trade Policy*)
$\ln AID_{t-1}$	-0.039*	-0.038	-0.052*	-0.073**	-0.086
	[0.023]	[0.028]	[0.028]	[0.034]	[0.074]
$No\text{-}aidDummy_{t-1}$	-0.085	-0.044	-0.024	0.018	-0.015
	[0.083]	[0.060]	[0.045]	[0.352]	[0.052]
$\ln DependentVar_{t-1}$	0.766***	0.758***	0.781***	0.911***	0.919***
	[0.071]	[0.071]	[0.067]	[0.050]	[0.052]
$\ln GDPPC_{t-1}$	-0.091	-0.071	-0.061	-0.007	-0.005
	[0.080]	[0.091]	[0.071]	[0.045]	[0.070]
$\ln Population_{t-1}$	0.059	0.063	-0.031	0.012	0.019
	[0.106]	[0.123]	[0.077]	[0.104]	[0.069]
$\ln NaturalResources_{t-1}$	0.02	0.026	0.052	0.008	-0.027
	[0.063]	[0.067]	[0.049]	[0.062]	[0.048]
$Gov.\ Effective_{t-1}$	-0.166	-0.176	-0.210	-0.227*	-0.272**
	[0.133]	[0.141]	[0.139]	[0.115]	[0.119]
$\ln FDI_{t-1}$	-0.008	-0.008	-0.006	0.001	-0.001
	[0.006]	[0.008]	[0.007]	[0.013]	[0.012]
$\ln Inflation_{t-1}$	-0.038	-0.041	-0.023	0.05	0.133
	[0.036]	[0.039]	[0.036]	[0.111]	[0.119]
$\ln Openness_{t-1}$	-0.104	-0.117	-0.104	-0.035	0.038
	[0.157]	[0.173]	[0.145]	[0.181]	[0.205]
Constant	0.173	-0.075	1.088	-0.167	-0.967
	[1.757]	[2.150]	[1.599]	[1.535]	[1.839]
N	1827	1827	1827	459	459
Instruments	46	46	46	34	34
Hansen	0.279	0.251	0.163	0.696	0.541
AR2	0.455	0.462	0.483	0.664	0.678

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year and period dummies.

Table 9. Impact of Aid for Trade on the Log of the Normalized HHI without Countries in a War, GMM

Data Type	Annual Data			Three-year Interval Average Data	
	(1) Ln(*Total Aid for Trade*)	(2) Ln(*Aid for Prod. Capacity*)	(3) Ln(*Aid for Trade Policy*)	(4) Ln(*Aid for Prod. Capacity*)	(5) Ln(*Aid for Trade Policy*)
ln*AID* $_{t-1}$	-0.061***	-0.052*	-0.066***	-0.090**	-0.032
	[0.020]	[0.027]	[0.021]	[0.043]	[0.064]
No-aidDummy $_{t-1}$	-0.066	0.043	-0.022	-0.382	-0.071
	[0.086]	[0.084]	[0.043]	[0.263]	[0.062]
ln*DependentVar* $_{t-1}$	0.735***	0.732***	0.769***	0.923***	0.901***
	[0.067]	[0.074]	[0.067]	[0.046]	[0.076]
ln*GDPPC*$_{t-1}$	-0.095	-0.035	-0.031	-0.021	-0.022
	[0.069]	[0.092]	[0.073]	[0.062]	[0.091]
ln*Population*$_{t-1}$	-0.023	0.042	-0.075	0.067	-0.05
	[0.088]	[0.113]	[0.076]	[0.081]	[0.073]
ln*NaturalResources*$_{t-1}$	0.068	0.064	0.087*	-0.023	0.013
	[0.048]	[0.051]	[0.045]	[0.055]	[0.054]
Gov. Effective $_{t-1}$	-0.096	-0.076	-0.141	-0.221**	-0.262**
	[0.127]	[0.154]	[0.138]	[0.106]	[0.120]
ln*FDI*$_{t-1}$	-0.005	-0.002	-0.003	0.005	-0.002
	[0.010]	[0.015]	[0.011]	[0.014]	[0.015]
ln*Inflation*$_{t-1}$	-0.041	-0.046	-0.024	-0.041	0.059
	[0.042]	[0.046]	[0.037]	[0.125]	[0.160]
ln*Openness*$_{t-1}$	-0.185	-0.181	-0.145	0.051	0.033
	[0.167]	[0.171]	[0.161]	[0.177]	[0.217]
Constant	1.733	0.109	1.613	-0.896	0.43
	[1.727]	[2.283]	[1.787]	[1.361]	[2.175]
N	1767	1767	1767	416	416
Instruments	46	46	46	34	34
Hansen	0.609	0.485	0.494	0.89	0.511
AR2	0.494	0.501	0.554	0.506	0.619

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year and period dummies.

Table 10. Impact of Aid for Trade on the Log of the Normalized HHI without "New Donors", GMM

Data Type	Annual Data			Three-year Interval Average Data	
	(1) Ln(*Total Aid for Trade*)	(2) Ln(*Aid for Prod. Capacity*)	(3) Ln(*Aid for Trade Policy*)	(4) Ln(*Aid for Prod. Capacity*)	(5) Ln(*Aid for Trade Policy*)
$\ln AID_{t-1}$	-0.060**	-0.064**	-0.072**	-0.081**	-0.103
	[0.027]	[0.032]	[0.032]	[0.035]	[0.069]
$No\text{-}aidDummy_{t-1}$	-0.074	-0.038	-0.015	-0.265	-0.04
	[0.093]	[0.067]	[0.047]	[0.371]	[0.060]
$\ln DependentVar_{t-1}$	0.735***	0.729***	0.755***	0.899***	0.895***
	[0.072]	[0.070]	[0.071]	[0.061]	[0.050]
$\ln GDPPC_{t-1}$	-0.133	-0.082	-0.074	0.009	0.002
	[0.118]	[0.130]	[0.102]	[0.063]	[0.070]
$\ln Population_{t-1}$	0.142	0.128	0.034	0.088	0.004
	[0.131]	[0.142]	[0.109]	[0.125]	[0.067]
$\ln NaturalResources_{t-1}$	-0.011	0.026	0.03	-0.036	-0.031
	[0.069]	[0.065]	[0.059]	[0.062]	[0.047]
$Gov.\ Effective_{t-1}$	-0.081	-0.093	-0.141	-0.244*	-0.328**
	[0.159]	[0.173]	[0.170]	[0.144]	[0.128]
$\ln FDI_{t-1}$	-0.008	-0.008	-0.007	0.004	-0.003
	[0.008]	[0.011]	[0.008]	[0.016]	[0.015]
$\ln Inflation_{t-1}$	-0.036	-0.046	-0.026	0.066	0.133
	[0.047]	[0.044]	[0.050]	[0.089]	[0.091]
$\ln Openness_{t-1}$	-0.229	-0.238	-0.186	-0.197	-0.063
	[0.202]	[0.203]	[0.191]	[0.173]	[0.198]
Constant	-0.138	-0.38	0.57	-0.85	-0.354
	[2.429]	[2.776]	[2.158]	[1.766]	[1.721]
N	1705	1705	1705	429	429
Instruments	46	46	46	34	34
Hansen	0.465	0.244	0.251	0.68	0.475
AR2	0.338	0.344	0.39	0.619	0.74

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year and period dummies.

Table 11. Impact of Other Sub-Categories of Aid for Trade on the Log of the Normalized HHI, GMM

Data Type	Annual Data					Three-year Interval Average Data				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Aid for trade by flow		Aid for trade by donor			Aid for trade by flow		Aid for trade by donor		
	Ln(*Aid for Trade in Grant Form*)	Ln(*Aid for Trade in Loan Form*)	Ln(*Bi-lateral Aid for Trade*)	Ln(*Multi-lateral Aid for Trade*)	Ln(*OOFs for Trade*)	Ln(*Aid for Trade in Grant Form*)	Ln(*Aid for Trade in Loan Form*)	Ln(*Bi-lateral Aid for Trade*)	Ln(*Multi-lateral Aid for Trade*)	Ln(*OOFs for Trade*)
lnAID_{t-1}	-0.081***	-0.013	-0.050**	-0.048*	-0.014	-0.053	0.005	-0.041	0.001	-0.019
	[0.027]	[0.020]	[0.022]	[0.026]	[0.017]	[0.038]	[0.027]	[0.041]	[0.027]	[0.028]
$No\text{-}aidDummy_{t-1}$	-0.118	-0.02	-0.071	-0.057	0.07	0.092*	0.140*	-	0.077	-0.051
	[0.086]	[0.047]	[0.121]	[0.046]	[0.066]	[0.055]	[0.076]	-	[0.059]	[0.062]
ln$DependentVar_{t-1}$	0.741***	0.759***	0.732***	0.770***	0.772***	0.912***	0.913***	0.905***	0.912***	0.874***
	[0.071]	[0.073]	[0.073]	[0.070]	[0.072]	[0.043]	[0.053]	[0.052]	[0.053]	[0.057]
ln$GDPPC_{t-1}$	-0.122	-0.113	-0.133	-0.046	-0.059	0.008	0.05	0.026	0.054	0.044
	[0.094]	[0.092]	[0.100]	[0.074]	[0.072]	[0.050]	[0.060]	[0.058]	[0.061]	[0.059]
ln$Population_{t-1}$	0.081	0.074	0.074	0.078	0.002	-0.034	-0.027	0.09	-0.043	0.057
	[0.113]	[0.093]	[0.100]	[0.118]	[0.069]	[0.070]	[0.089]	[0.079]	[0.062]	[0.056]
ln$NaturalResources_{t-1}$	0.031	0.02	0.006	0.039	0.044	0.009	0.017	-0.053	0.024	-0.03
	[0.057]	[0.055]	[0.060]	[0.053]	[0.049]	[0.045]	[0.054]	[0.055]	[0.038]	[0.046]
Gov. Effective $_{t-1}$	-0.14	-0.103	-0.137	-0.214	-0.128	-0.300***	-0.321**	-0.285***	-0.306***	-0.318**
	[0.148]	[0.164]	[0.145]	[0.145]	[0.135]	[0.102]	[0.126]	[0.106]	[0.114]	[0.124]
lnFDI_{t-1}	-0.006	-0.008	-0.007	-0.01	-0.006	0.003	0.001	0.001	-0.003	-0.002
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.012]	[0.013]	[0.014]	[0.014]	[0.012]
ln$Inflation_{t-1}$	-0.039	-0.042	-0.042	-0.032	-0.018	0.128	0.086	0.118	0.088	0.099
	[0.043]	[0.043]	[0.043]	[0.040]	[0.036]	[0.092]	[0.087]	[0.093]	[0.102]	[0.126]
ln$Openness_{t-1}$	-0.179	-0.17	-0.155	-0.148	-0.044	0.045	0.091	-0.11	0.009	0.063
	[0.188]	[0.183]	[0.187]	[0.156]	[0.160]	[0.174]	[0.181]	[0.145]	[0.195]	[0.160]
Constant	0.401	0.269	0.43	-0.402	0.26	-0.296	-0.972	-1.596	-0.288	-2.028
	[2.024]	[1.679]	[1.878]	[1.987]	[1.510]	[1.201]	[1.410]	[1.328]	[1.472]	[1.375]
N	1892	1892	1887	1887	1892	475	475	474	474	475
Instruments	46	46	46	46	46	34	34	33	34	34
Hansen	0.228	0.145	0.27	0.221	0.164	0.884	0.623	0.801	0.584	0.627
AR2	0.331	0.366	0.355	0.379	0.312	0.731	0.643	0.651	0.609	0.704

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year and period dummies.

Table 12. Impact of Other Aid on the Log of the Normalized HHI, GMM

Data Type	Annual Data		Three-year Interval Average Data	
	(1)	(2)	(3)	(4)
ln*Aid For Trade* $_{t-1}$	-0.039*		0.000	
	[0.022]		[0.029]	
ln*Other Aid* $_{t-1}$	-0.062*	-0.059*	-0.083	-0.078
	[0.033]	[0.034]	[0.060]	[0.061]
No-AfT Dummy $_{t-1}$	-0.083		0.133*	
	[0.087]		[0.071]	
ln*DependentVar* $_{t-1}$	0.726***	0.714***	0.927***	0.917***
	[0.074]	[0.073]	[0.049]	[0.050]
ln$GDPPC_{t-1}$	-0.16	-0.166	-0.012	-0.011
	[0.115]	[0.124]	[0.055]	[0.063]
ln$Population_{t-1}$	0.195	0.183	0.106	0.063
	[0.145]	[0.147]	[0.071]	[0.093]
ln$NaturalResources_{t-1}$	-0.002	-0.003	-0.046	-0.026
	[0.063]	[0.065]	[0.051]	[0.055]
Gov. Effective $_{t-1}$	-0.087	-0.021	-0.258**	-0.299**
	[0.158]	[0.179]	[0.102]	[0.119]
lnFDI_{t-1}	-0.008	-0.007	0.000	-0.001
	[0.008]	[0.010]	[0.015]	[0.013]
ln$Inflation_{t-1}$	-0.035	-0.049	0.055	0.051
	[0.039]	[0.049]	[0.083]	[0.101]
ln$Openness_{t-1}$	-0.21	-0.233	-0.106	-0.05
	[0.179]	[0.191]	[0.153]	[0.179]
Constant	-0.684	-0.519	-0.953	-0.606
	[2.168]	[2.386]	[1.227]	[1.566]
N	1892	1892	474	475
Instruments	49	43	37	31
Hansen	0.22	0.1	0.736	0.552
AR2	0.34	0.352	0.593	0.646

Note: Standard errors are in square brackets. *, **, and *** denote statistical significance at the 10, 5, and 1% level, respectively. The variable at the top of each column represents the variable used for ln*AID*. ln*DependentVar* refers to the lag of the dependent variable. All regressions include country dummies and year and period dummies.