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Trade Facilitation Indicators

THE POTENTIAL IMPACT OF TRADE FACILITATION ON DEVELOPING COUNTRIES' TRADE

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Abstract

Trade Facilitation Indicators: The Potential Impact of Trade Facilitation on Developing Countries' Trade

This report presents the findings of the OECD indicators for assessing the impact of specific trade facilitation measures on developing countries' trade. Sixteen trade facilitation indicators (TFIs) have been constructed, corresponding to the main policy areas under negotiation at the WTO, with the aim to estimate the impact of addressing specific hurdles in the trade and border procedures of a given country. The policy areas that seem to have the greatest impact on trade volumes and trade costs not only for imports but also to export performance are the availability of trade-related information, the simplification and harmonization of documents, the streamlining of procedures and the use of automated processes. The combined effect of improvements in these areas is greater than the simple sum of the impact of individual measures, reaching almost 14.5% reduction of total trade costs for low income countries, 15.5% for lower middle income countries and 13.2% for upper middle income countries.

Keywords: trade facilitation, trade costs, trade flows, customs, transparency, simplification, WTO

JEL classification: F13, F14, H83, L51

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Executive Summary

This paper presents findings from the OECD analysis of indicators for assessing the relative economic and trade impact of specific trade facilitation measures on one hundred and seven countries at various stages of development. An earlier phase of this work produced estimates of the trade impact of trade facilitation measures for OECD countries (OECD Trade Policy Paper no.118) showing that trade facilitation measures have the potential to reduce overall trade costs by almost 10%. The purpose of the estimation is to understand the economic importance and relevance of trade facilitation measures so as to provide a basis for prioritising trade facilitation actions by governments and mobilising technical assistance and capacity building efforts for developing countries in a more targeted way.

Sixteen trade facilitation indicators (TFIs) have been constructed, corresponding to the main policy areas under negotiation at the WTO, in order to estimate the impact of those policy areas on trade volumes and trade costs in all WTO member countries and observers. These sixteen indicators are composed of some ninety-seven variables, whose values are drawn from publicly available data and subsequently fact-checked with concerned governments. Of the one hundred and seven countries examined, ninety-six are WTO members and eleven WTO observers. The coverage is fairly wide, including twenty-one low income, thirty-two lower-middle income, thirty-nine upper-middle income and fifteen high income countries. In order to account for differences in income, geography and level of development, which could result in differing outcomes as to the relative impact of trade facilitation measures, the assessment considered several groups of countries defined on the basis of income, geographic and economic partnership criteria.

The econometric analysis reveals that enhancing trade facilitation has a positive impact on trade flows. We also find that the most significant trade facilitation measures (i.e. those that have the highest impact on trade volumes) are *information availability*, harmonisation and simplification of *documents*, *automated* processes and risk management, streamlining of border *procedures* and good *governance and impartiality*. Sector specific analysis shows that these indicators are particularly significant for manufactured goods but results are less consistent across groups for agricultural goods. The latter finding may be driven by the poor data availability on variables accounting for specificities of agricultural goods.

For low income countries, the trade facilitation area that leads to the most significant increases in trade flows is the harmonisation and simplification of *documents.* The same outcome applies to the Sub-Saharan African group of countries. For lower-middle and upper-middle income countries the strongest impact comes from the streamlining of *procedures*, the same applies for the Asia, Latin America and Caribbean, Eastern Europe and Central Asia groups of countries.

The impact of the TFIs is significant not only in specifications concerning developing countries as importers, but equally so when developing countries are exporting to the rest of the countries (developing and developed economies) in the overall sample. Improving the efficiency of export procedures and addressing border bottlenecks on the export side are important components of trade facilitation measures. This result confirms that improvements

in the trade facilitation environment of developing countries are essential for increasing their export performance.

Where matters concern overall trade costs, measures to harmonise and simplify *documents* and the use of *automated processes* are the greatest contributors for low income countries: the former has the potential of reducing trade costs by approximately 3% and the latter by 2.3%. For lower-middle income countries the harmonisation and simplification of *documents* could potentially reduce costs by 2.7% and the streamlining of *procedures* by 2.2%, while for upper-middle income countries the streamlining of *procedures* could bring cost reductions of 2.8% and the use of *automated* processes and risk management another 2.4%. If all the TFIs are added within the same regression, their cost reduction potential would reach almost 14.5% of the total costs for low income countries, 15.5% for lower middle income countries and 13.2% in the case of upper middle income countries. The combined effect of trade facilitation improvements is thus greater than the simple sum of the impact of individual measures, confirming the importance of undertaking trade facilitation reform in a comprehensive manner rather than simply focusing on isolated measures.

The use of individual trade facilitation indicators should enable countries to better assess which trade facilitation dimensions deserve priority. More precise results would be subject to the improvement of the information available in the current database of measures.

I. Introduction and objectives

Trade facilitation refers to policies and measures aimed at reducing trade costs by improving efficiency at each stage of the international trade chain. According to the WTO definition, trade facilitation is the "*simplification of trade procedures",* understood as the "*activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade*".[1] This is the definition underpinning WTO negotiations on trade facilitation, while wider definitions, such as those used by UNCTAD or APEC, may include, in addition to customs and transit issues, transport, banking and insurance, business practices and telecommunications. Whatever the definition and scope, existing economic analysis of trade facilitation usually draws on the notion of ***trade transaction costs*** and seeks to assess the benefits of (efficiency-enhancing) trade facilitating measures by estimating the costs of inefficiency in the various policy areas influencing the movement of goods.

The OECD work on trade facilitation indicators (TFIs) was undertaken to measure the relative economic and trade impact of trade facilitation measures currently under negotiation in the World Trade Organization (WTO) on trade flows and trade costs in all WTO member countries. Contrary to previous studies which sought to quantify the overall impact of trade facilitation, the primary aim of this work has been to estimate the impact at the macro level of addressing *specific* facilitation hurdles in the trade procedures of given countries; and provide an indication of the net benefits of *specific* measures at the micro level, focusing on trade facilitation dimensions which directly depend on public sector involvement. The purpose of the estimation was to understand better the relative economic importance and relevance of various trade facilitation measures for OECD and non-OECD countries in order to a) provide a basis for prioritising trade facilitation actions by governments; b) better focus advocacy efforts; c) provide additional support for the successful conclusion of the ongoing WTO negotiations; d) mobilise technical assistance and capacity building efforts for developing countries in a more targeted way.

The first phase of the work [OECD Trade Policy Paper no.118] analysed the trade facilitation indicators for OECD countries and Hong Kong, China and identified areas that impact the most on trade flows and trade costs. The current, second phase of the work focuses on non-OECD countries [scoping paper TAD/TC/WP(2011)12], in line with the call from the OECD Trade Facilitation Experts meeting that took place in October 2010 [TAD/TC/WP(2010)34], stressing the importance of the indicators for non-OECD countries, not only in light of the challenge of implementation of any future WTO agreement, but more generally as they seek to improve the efficiency of their border processes and further integrate into global markets.

1. For the purposes of the Doha Round negotiations, discussions aim to "*clarify and improve relevant aspects of Articles V, VIII and X of the GATT 1994 with a view to further expediting the movement, release and clearance of goods, including goods in transit*".

II. The structure of the work and the dataset

The first step to composing specific indicators for each trade facilitation measure or family of measures amenable to economic analysis was to identify the key elements making up each indicator. The current structure of the WTO negotiation process was followed closely in order to maintain the relevance of the resulting indicators for negotiators, implementing authorities and donors. The Draft Consolidated Negotiating Text (DCNT) on trade facilitation includes 12 families of measures, covered in 12 articles of the draft agreement:[2]

Article 1 Publication and Availability of Information (covering publication; information available through Internet; enquiry points; and notification)

Article 2 Prior Publication and Consultation (covering intervals between publication and entry into force; opportunity to comment on new and amended rules; and consultations)

Article 3 Advance Rulings

Article 4 Appeal Procedures

Article 5 Other Measures to Enhance Impartiality, Non-Discrimination and Transparency (covering conditions applied to import alerts; detention of shipments; and test procedures)

Article 6 Disciplines on Fees and Charges Imposed on or in Connection with Importation and Exportation

Article 7 Release and Clearance of Goods (including pre-arrival processing; separation of release from final determination and payment of Customs duties, taxes, fees and charges; risk management; post clearance audits; average release times; authorised operators; and expedited shipments)

Article 8 Consularization

Article 9 Border Agency Cooperation

Article 10 Formalities Connected with Importation and Exportation (covering their periodic review; reduction; and harmonisation with international standards; the acceptance of copies of documents; use of single windows; disciplines on pre-shipment inspection and customs brokers; and temporary admission of goods)

Article 11 Freedom of Transit

Article 12 Customs Cooperation

These twelve families of measures have been re-organized, in order to take into account similarities between measures, underlying shared components, as well as areas where further distinctions were warranted. Another indicator, meant to capture elements of good governance and impartiality of border administrations, was also added.

2. Negotiating Group on Trade Facilitation, *WTO Draft Consolidated Negotiating Text*, TN/TF/W/165/REV.14, 17 December 2012. The text also includes three more articles: Art.13 on Institutional Arrangements; Art.14 on National Committee on Trade Facilitation; and Art.15 on Cross-Cutting Matters; and a Section II on Special and Differential Treatment Provisions for Developing Country Members and Least Developed Country Members.

This reorganisation resulted in the following sixteen indicators on import, export and transit trade:

a.	Information availability	[Art.1+2]
b.	Involvement of the trade community	[Art.2]
c.	Advance Rulings	[Art.3]
d.	Appeal Procedures	[Art.4]
e.	Fees and charges	[Art.6] [3]
f.	Formalities – Documents	[Art.7+10]
g.	Formalities – Automation	[Art.7+10]
h.	Formalities – Procedures	[Art.5+7+10] [4]
i.	Cooperation – Internal	[Art.9§1 and 2]
j.	Cooperation – External	[Art.9§3+12]
k.	Consularization	[Art.8]
l.	Governance and Impartiality	
m.	Transit fees and charges	[Art.11]
n.	Transit formalities	[Art.11]
o.	Transit guarantees	[Art.11]
p.	Transit agreements and cooperation	[Art.11]

The four transit-specific indicators were developed explicitly for this second phase of the work. While the first phase of the trade facilitation indicators work did not consider feasible the estimation of a separate, statistically robust transit indicator within the OECD sample[5], transit trade was recognised as a significant issue for developing landlocked and transit countries. Although GATT Article 5.2 institutes "*freedom of transit through the territory of each contracting party … for traffic in transit to or from the territory of other contracting parties"*, transit trade is often beset by a wide array of administrative, technical and logistical problems (UN-OHRLLS, 2007).

Most measures reflected in the variables (single window, fees and charges, etc.) draw on the definitions of the WTO Negotiating Group on Trade Facilitation, to be found in the *Draft Consolidated Negotiating Text* (TN/TF/W/165/REV.14). Annex 1, listing the 78 import/export variables and the 19 transit variables, indicates, where appropriate, the DCNT Article linked to each variable and provides additional annotations to explain the scope and coverage of the variables. The variables seek to reflect not only the regulatory framework in the concerned countries, but delve, to the extent possible, into the state of implementation of various trade facilitation measures. Slight variations from the list of variables used for the OECD sample are due to the need for adjusting the composition of the indicators to reflect developing country specificities, including differences in the business, administrative and infrastructure environment, and data collection difficulties.[6]

3. Indicator (e) Fees and charges refers only to Article 6.1 and does not include any variables related to Article 6.2 (Penalties).

4. Indicator (h) Formalities – Procedures does not include any specific variables related to "expedited shipments".

5. Including only four landlocked countries and not identifying separately the countries of transit involved.

6. Like for the OECD sample, some variables for which data were scarce across the whole non-OECD sample were dropped from the list of variables.

Data to calculate the import/export TFIs [indicators (a) to (l)] for non-OECD countries were collected by the Secretariat from publicly available sources (Customs websites, official publications such as Customs Codes, annual reports, public databases, etc.) for nearly all WTO Members and Observers that had not been included in the previous phase of the work[7]. Annex 2 provides a short description of the sources used. Each country's dataset was checked for accuracy and for filling in missing data with respective capitals, although a number of data gaps remain at this stage despite the verification process. This resulting database contains information for 107 non-OECD countries, of which 96 are WTO Members and 11 WTO Observers. The database provides a very wide coverage of countries, including 21 low income, 32 lower middle income, 39 upper middle income, as well as 15 high income non-OECD countries. This is a representative sample of countries covering all continents, including landlocked countries, least developed countries as well as major emerging economies, and also several high-income non-OECD countries. The list of covered countries is included in Annex 3.

With respect to transit trade measures [indicators (m) to (p)], publicly available data on the specific status of implementation are very limited. Such transit information was thus collected through questionnaires. In the case of selected Sub-Saharan Africa countries, this was done through a direct collaboration with the USAID Trade Hubs for West Africa and Southern Africa, while for selected Asian countries data was drawn from the UN ESCAP Asia-Pacific Trade Facilitation Forum 2012 Survey on Trade Facilitation and Paperless Trade[8]. Information on transit measures was collected for 27 countries in Sub-Saharan Africa and Asia, the list of which is given in Annex 5.

Contrary to the OECD sample, which covered a relatively homogeneous group of high income countries, sharing many governance, infrastructure, structure of production and trade links characteristics relevant for trade facilitation, the current sample includes countries with widely varying characteristics in terms of income, geography and level of development. In order to reflect these varying characteristics which may result in differing outcomes as to the relative impact of the trade facilitation indicators, several groups of countries (as opposed to individual countries) were formed according to a number of income, geographic, as well as economic partnership criteria. With respect to income, countries were grouped according to the World Bank's classification of low income (LICs), lower middle income (LMICs), upper middle income (UMICs) and high income countries (HICs), respectively. In what concerns geographical groupings, the following regions were selected: Sub-Saharan Africa (SSA), Middle East and North Africa (MENA), Asia, Latin America and the Caribbean (LAC), Eastern Europe (non-OECD) and Central Asia (EAC). Several economic partnership groupings were selected, including APEC Member countries and ECOWAS countries. A separate grouping is constituted by landlocked and transit countries, for which the transit analysis is conducted. The lists of country groups are given in Annexes 4 and 5.

7. The Secretariat was not able to collect data on trade facilitation measures from public sources or directly from the concerned countries' administrations for a number of countries including Egypt, Djibouti, Tajikistan, or Uzbekistan. Furthermore, the database does not include countries such as the Democratic Republic of Congo or Lao People's Democratic Republic, for which the absence of data on trade flows does not allow to estimate the impact of trade facilitation.

8 30-31 October 2012, Colombo, Sri Lanka. The survey sought to establish the readiness and progress made in implementing trade facilitation in countries of Asia and the Pacific, in particular with regard to single window, paperless trading and transit facilitation. Respondents included government ministries/agencies, private sector and other entities (e.g. research institutes in the concerned countries). The questionnaire form is available at *http://www.unescap.org/tid/projects/ tfforum12.asp*.

III. The impact of the TFIs on trade flows and trade costs

Following the construction of the indicators, their impact on trade flows and trade costs is estimated. This quantitative analysis allows observing which areas of trade facilitation lead to higher changes in trade flows and trade costs, respectively. There are several reasons for which it proves important to test the impact of the TFIs on both trade flows and trade costs. First, data on trade flows are much richer than the available data on estimated trade costs and they also allow accounting in the analysis for zero trade flows, while in the case of a pair of countries that do not trade with each other, trade costs appear as infinite[9]. Second, the trade costs estimates are a geometric average of trade costs in both directions, while in the case of trade flows analysis the direction matters (i.e. it is possible to distinguish between trade from country i to country j versus trade from country j to country i). This is very important from a policy perspective, as it allows observing whether a change in trade flows is due to trade facilitation actions taken by the importer country, the exporter country, or both trading partners simultaneously. Third, the trade costs estimates used are derived from inter- and intra-national trade flows (Novy, 2008). We can think that trade flows can increase through trade facilitation measures due to lower trade costs. However, since trade costs are derived from trade flows themselves, it is difficult to obtain an independent impact of such costs on trade flows. Moreover, it is possible that the TFIs are affecting flows through some other measure than the *ad valorem* trade cost measure alone. In order to assess the TFIs impact on both trade costs and trade flows, it seems thus sensible to do so in separate specifications. Nevertheless, the analysis on trade flows and trade costs does not allow organising the indicators in a preferential implementation order, i.e. sequencing of interventions. In order to do this, additional data on the implementation dates of the different measures would be needed.

Regressions are run for goods trade in different sectors at aggregated levels[10], but also separately for the agriculture and manufacturing sectors. It is possible that different product groups react differently to improvements in trade facilitation performance. Indicators are calculated for the most recent period, but the gravity model for trade flows is run over the period 2002-10[11].

The impact of the TFIs on bilateral trade patterns

The impact of the TFIs is first tested on bilateral trade flows through a gravity trade model. The "classical" trade gravity model, in which trade is regressed on a number of time-invariant trade impediments/promoters such as incomes, physical, cultural and administrative distance, is augmented by introducing the computed TFIs. The model tests the direction of change in bilateral trade following improvements in the TFIs. In line with existing literature, we account

9 Such cases are therefore not included in the UN ESCAP-World Bank trade costs dataset we use (Arvis et al., 2013).

10. Bilateral trade data values are drawn from WITS COMTRADE database, in the SITC Rev.3 nomenclature. The following sectors are included: agriculture, manufacture, mineral fuels and mining products. The "classical" gravity variables are drawn from the CEPII Gravity dataset.

11. TFIs for non-OECD countries are built with the latest information available. In order to enlarge the number of observations, take into account for multilateral resistance and price variation, a panel over the period 2002-10 is considered. From the way the indicators are built and considering that we do not control at this stage for the rate of implementation of measures, many of the categories within the TFIs can be viewed as relatively stable over this period. A cross-section for the year 2009 is run as a robustness check.

for the fact that bilateral trade flows between two countries depend not only on the specific costs of trading bilaterally between them, but also on the importance of those costs relative to the ones linked to trading with the rest of the world.[12]

The objective of this quantitative assessment is to exploit the possibility of differentiated impacts of trade facilitation measures on trade, across the selected country groups. This will allow highlighting whether priorities differ across such groups. As discussed above, various criteria are considered for grouping developing countries: income groups (3), geographic groups (5), as well as regional economic partnership groups (2 examples). While the analysis of the OECD country sample estimated the impacts of the trade facilitation indicators considering bilateral trade between the OECD countries and Hong Kong, China only, the present analysis considers bilateral trade between all the countries in the TFIs database, including the OECD countries for which the TFIs were calculated in the previous study. A possible asymmetric impact of TFIs on exports and imports is also accounted for, by including in the gravity model the country groups alternatively as exporters and importers.[13] This will permit observing whether it is not only the TFIs performance on the importer-side (exporter-side) that matters, but also if the trading partner's trade facilitation performance is equally important for bilateral trade. The analysis including the four transit indicators is conducted separately for the group of landlocked and transit countries (details in Annex 8). Each specification undergoes different checks in order to test for robustness.

Across all specifications, the results are stable for the "classical" variables of the gravity equation, which bear the expected signs and are statistically significant. The most statistically meaningful results on the impact of the measures on trade flows are obtained when all sectors all included. The measures that seem to have the highest and most robust impact across developing countries, i.e. the low and middle income country groups, are (a) *Information Availability*, (f) *Formalities - Documents*, (g) *Formalities – Automation*, (h) *Formalities – Procedures*, and (l) *Governance and Impartiality*. Less robust results are obtained for consultations, advance rulings, appeal procedures, fees and charges, and border agencies cooperation – external and internal, where we also encounter the most prevalent data difficulties. Measures covering (h) *Formalities and procedures*, (f) *Formalities and documents*, (l) *Governance and impartiality* result equally important for manufacturing trade. More consistent results for (b) *Involvement of the trade community*, (c) *Advanced rulings* and (d) *Appeal procedures* are obtained at the manufacturing sector level. An important result that is worth highlighting is the fact that indicator (l) *Governance and Impartiality* exerts a very high impact when the importer countries sample is restricted in the regressions to lower and upper middle income countries.

A particularly noteworthy result of the analysis is that the impact of the TFIs is significant not only in specifications concerning developing countries as importers, but equally so when developing countries are exporting to the rest of the countries (developing and developed economies) in the overall sample. Improving the efficiency of export procedures and

12. We therefore adopt Baier and Bergstrand's (2009) approach which consists of computing "multilateral resistance" (MR) terms based on bilateral trade cost data between all country pairs and the size of one economy relative to the size of all others (details on the methodology and specifications are provided in Annex 7).

13. Saslavsky and Shepherd (2012) use such restrictions to their total sample to highlight the importance of trade facilitation (illustrated through the LPI) on selected trade of final goods and intermediates for Asian countries as exporter and importers, as well as for North-South and South-South trade. Our gravity specifications are ran by limiting each time the sample of exporters and importers alternatively to our selected groups, having as trading partners all the other countries.

addressing border bottlenecks on the export side are important components of trade facilitation measures. This result confirms that improvements in the trade facilitation environment of developing countries are essential for increasing their export performance. Moreover, the estimated results in the case of imports are not only important for the direct impact on imports themselves, but also for the significant effects that this can have on the domestic market and the export competitiveness through the access to necessary imported intermediate goods.

A last specification accounts for the TFIs as a bilateral measure, by introducing the geometric average of the individual country indicators. This is done with the purpose of singling out the importance of simultaneous actions on the sides of both exporter and importer countries. The sets of measures resulting important for bilateral trade flows from this specification are in line with the results from the previous specifications (Appendix 2).

Results are less consistent across the different groups in the case of agricultural trade, where the coefficient signs for some of the TFIs result contrary to expectations or the estimated impacts are not significant. This could be largely explained by the fact that the design of the indicators includes few agricultural sector specific variables, such as the distinction between perishable and non-perishable goods and that, with respect to those, available data was scarce. However, the model seems to fit rather well to the agricultural sector of lower and upper middle income countries, where indicators: (a) *Information availability*, (c) *Advance rulings*, (f) *Formalities-documents*, (g) *Formalities-automation*, (h) *Formalities-procedures* and (l) *Governance and impartiality* are positive and significant.

Trade flows impacts by income country groupings

When low income countries are tested, the *Formalities* group of indicators, (f) *Documents*, (g) *Automation* and (h) *Procedures* seem to have the most important impact on trade flows (Appendix 2). With respect to both middle income countries groups, indicators (h) *Formalities-Procedures*, (f) *Formalities- Documents*, (l) *Governance and Impartiality*, and (a) *Information Availability* seem to have the strongest impact. When the importers sample is restricted to lower or upper middle income countries, indicator (c) *Advance Rulings* has a positive and significant coefficient. In the case of lower middle income countries, (b) *Involvement of the trade community* and (d) *Appeal procedures* exert a significant impact on trade. Results are generally confirmed at the manufacturing trade level (Appendix 2).

Trade flows impacts by geographical and regional country groupings

The impact of the TFIs is further tested for selected geographical groups[14]. The measures that seem to matter most for Sub-Saharan Africa are: (f) *Formalities – documents*, (l) *Governance and impartiality* and (g) *Formalities – automation*. Indicators (b), (c), (d) and (e) also result very important for the Sub-Saharan Africa (SSA) region; the same set of indicators impacts in a positive and significant way manufacture and agriculture trade. For Asian countries, results point to *Formalities* indicators: (h) *Procedures*, (f) *Documents* and (g) A*utomation*. Indicators (a), (b), (d) are also important for this group; results are not consistent here for (c) *Advance rulings* and (e) *Fees and charges*. Interestingly, for Latin America and the Caribbean (LAC) countries and for Eastern Europe non-OECD and Central Asia countries (EAC), results are relatively similar in terms of the sets that have the highest impact, namely (h) *Formalities – procedures*, (f) *Formalities – documents* and (a) *Information availability*. (c) *Advance rulings* and (e) *Fees and charges* are also important for the LAC

14. Similarly, the importer (exporter) sample is restricted alternatively to these groups. For each of the geographical groups, we also test the impact of trade facilitation measures on intra-regional trade.

group. Results for the manufacture and agriculture sectors in the case of MENA and EAC groups are more ambiguous (Appendix 2).

Interesting results are obtained when testing the impact of the TFIs on intra-regional trade for each of the geographic groups (e.g. countries in the SSA region trading only with SSA countries). For the SSA region, indicators: (f) *Formalities – documents*, (l) *Governance and impartiality*, and (g) *Formalities – automation* result equally statistically significant, as in the specification where SSA countries trade with all the other economies. A major factor behind the low level of intra-African trade has indeed been identified as the wide range of prevailing trade facilitation constraints (African Union, 2012). Recent literature states that the measures currently discussed in the framework of the WTO Negotiations on Trade Facilitation have also the potential to reduce informal cross-border trade (Lesser and Moisé, 2009). The model seems to fit very well also to the data for Asia and LAC regions.

Two examples of regional economic partnerships, APEC and ECOWAS, have also been tested. For the APEC group, the most important sets of measures result to be (g) *Formalities – automation*, (h) *Formalities – procedures* and (b) *Involvement of the trade community*. For the ECOWAS group, the most important sets of measures seem to be (f) *Formalities – documents* and (l) *Governance and impartiality*, following thus a similar pattern to the Sub-Saharan Africa group (Appendix 2).

Less robust results for some of the remaining indicators do not necessarily mean that those indicators are not relevant for trade facilitation, but that data gaps for the developing countries sample do not allow firm conclusions to be drawn at this stage.

Trade flows impacts for landlocked developing countries

A similar gravity specification, augmented with the transit indicators, is tested for the group of landlocked developing countries. The specification is tested on the overall landlocked countries sample available in our database (i.e. countries in Sub-Saharan Africa and Asia regions altogether), in order to increase the number of observations and take advantage of higher data variability. The differentiated impact of transit measures on imports and exports of landlocked developing countries is tested, as in the case of the import/export TFIs. Results are given in Appendix 3.

At the overall goods trade level, the most statistically significant results are obtained for indicators (n) *Transit formalities* and (p) *Transit agreements and cooperation* (Appendix 2 and Appendix 3). Results are fairly similar and robust at the manufacturing sector level. Interesting results are worth noting for the differentiated impact on imports and exports. When landlocked countries are exporting, indicator (o) *Transit guarantees* yields statistically significant results. Some of the import/export TFIs equally seem to exert a strong impact on landlocked countries' trade, particularly the *Formalities* indicators (h) *Procedures*, (g) *Automation*, (f) *Documents*, and indicator (a) *Information availability*.

Regarding the transit analysis, further work could aim at improving the quality of the right-hand side variables (i.e. trade flows for landlocked developing countries) not only by trying to fill some of the gaps in bilateral flows missing data, but also by trying to find proxy estimates for transit trade data. This could lead to more meaningful regression estimations. Once having improved trade data availability, further work can be concentrated on the form of the specification. A linear form of the specification was used by adding the facilitation measures characterising the different parts of the cross-border shipment, from the exporter (importer) through the transit country (countries) until reaching its trading partner. It is possible that there are more synergies between the indicators characterising the importer,

exporter and transit countries. These could be explored through possible interactions between the import/export TFIs, the transit TFIs, and infrastructure indices.

The impact of the TFIs on trade costs

The impact of the TFIs is also tested against trade costs. The exercise is based on the premise that the trade facilitation measures identified should decrease bilateral trade costs. Trade costs estimates are drawn from the UN ESCAP-World Bank Trade Cost database, in which Arvis et al. (2013) use the methodology developed by Novy (2008) and adapt it to developing countries' data constraints. According to the Novy (2008) equation, trade costs can be inferred from bilateral and intra-national trade, pointing to how much more expensive it is to trade at an international level compared to the intra-national level (see details in Annex 9). This is a comprehensive measure of trade costs, capturing not only international transport costs and tariffs, but also a wider range of trade costs that make it harder to trade goods between rather than inside countries (e.g. border infrastructure, customs and clearance procedures, behind-the-border regulatory measures, differences in business and investment climates) (Shepherd, 2010; Duval and Utoktham, 2011). The calculated trade costs between two trading partners are a geometric average of trade costs in both directions. Trade costs calculated on the basis of this methodology are regressed against "classical" variables such as distance, common border, common language, and tested for the introduction of the TFIs (as detailed in Annex 10). As for trade flows, regressions are run for the total economy for different sectors at aggregated levels[15].

The impact of the TFIs on trade costs is tested for the same country groups as in the trade flows section. The trade costs data sample is alternatively restricted to countries in each selected country group and all their trading partners. The results for trade flows are generally confirmed for trade costs as well (Appendix 4). The measures with the highest impact on trade flows seem to be having an equally strong impact on the reduction of trade costs, although for each country group the ranking can differ. These slightly different impacts can be explained by the fact that, while trade costs are taken as a function of bilateral determinants only, in the case of trade flows the importance of the costs of trading bilaterally relative to the costs of trading with the rest of the world and the sizes of the other economies are also accounted for. Moreover, as explained above, while in the case of trade flows it is possible to account for zero trade flows, trade costs in this case are of infinite value and as such, not included in the UN ESCAP – World Bank dataset.

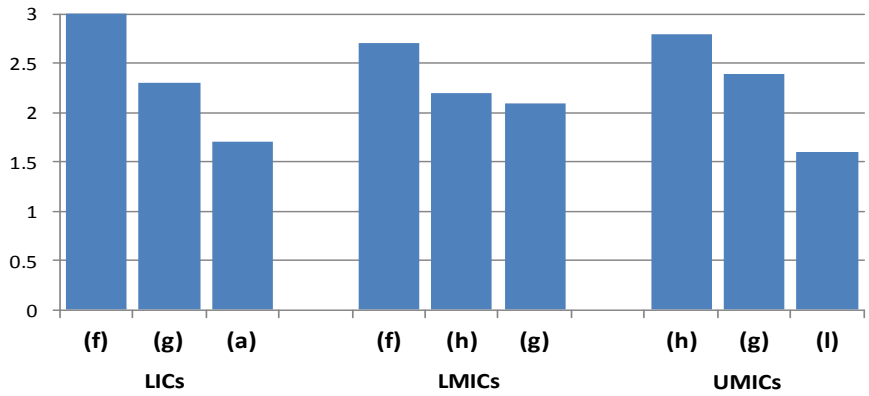
As in the case of trade flows, the results for the rest of the indicators do not mean that they are not relevant. Data limitations do not allow for more solid conclusions to be drawn at this stage. Further improvements in the dataset or extending time series for the indicators could highlight a statistically significant impact of other indicators on trade costs, stable across different specifications.

From a policy perspective, it is important to estimate the relative contributions of the TFIs to trade costs. The potential contribution of the TFIs to the reduction of trade costs is obtained through a decomposition of variance (Annex 11). This shows how much the various TFIs contribute to the variance of bilateral trade costs. When analysing bilateral trade costs between low income countries with the rest of the countries in our dataset, (f) *Formalities – documents*,

15. The UN ESCAP-World Bank dataset provides trade costs estimates at a sectoral level, for both manufacturing and agricultural goods trade. However, as working separately at each sectoral level limits the number of observations per country group, the analysis here is undertaken at the overall-goods sectors level, which provides with more observations and more variability in the data.

(g) *Formalities – automation*, and (a) *Information availability* exert the highest impact (estimated potential reductions in trade costs of approximately 3%, 2.3% and 1.7% respectively). It appears that the most important sets of measures as regards total goods trade for lower middle income countries, are the *Formalities* set of indicators: (f) *Documents* (2.7%), (h) *Procedures* (2.2%) and (g) *Automation* (2.1%), while for upper middle income economies, the most important indicators are (h) *Formalities – Procedures* (2.8%), (g) *Formalities - Automation* (2.4%) and (l) *Governance and impartiality* (1.7%) (Annex 11).

Figure 1. Potential goods trade costs reductions by income groupings (%)



When restricting the sample to countries in each geographic group and all their trading partners, the areas that seem to contribute the most to the reduction of trade costs in Sub-Saharan Africa are (g) *Formalities – automation*, (f) *Formalities - documents* and (a) *Information availability* (estimated potential reductions of 2.9%, 2.7% and 1.9% respectively); in Middle East and North Africa, the highest potential for cost reductions seems to lie in the area of (g) *Formalities – automation* (2.6%), (b) *Involvement of the trade community* (1.8%) and (h) *Formalities – procedures* (1.3%). For Asia, cost reductions would result from improvements in the areas of (g) *Formalities - automation* (3%), (h) *Formalities – procedures* (2.5%) and (f) *Formalities – documents* (2.1%). In the case of Latin America and the Caribbean, the sets of measures would be (h) *Formalities – procedures* (2.8%), (c) *Advance rulings* (2.5%) and (f) *Formalities – documents* (1.9%). Lastly, with respect to Eastern Europe and Central Asia, the most statistically significant results are obtained for (h) *Formalities – procedures* (2.3%), (g) *Formalities – automation* (2%) and (d) *Appeal procedures* (1.7%) (Annex 11).

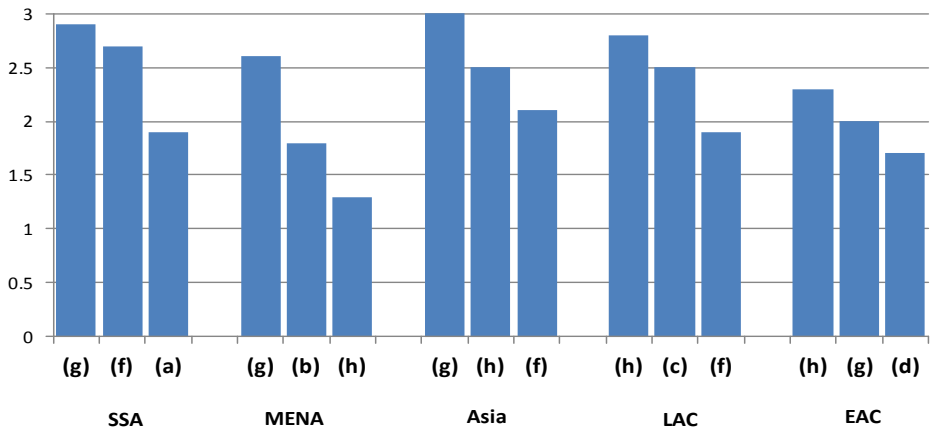
In the case of landlocked countries, the transit measures that appear to be the most important for total goods trade are (n) *Transit formalities* (2.3%) and (p) *Transit agreements and cooperation* (1.9%), together with the import/export *Formalities* set of indicators (h) *Procedures* (2.1%) and (g) *Automation* (1.7%).

When all the TFIs are added within the same regression[16], important outcomes are obtained with respect to the total impact on trade costs across the different groups. For income level country groups, as well as for geographic groups, overall trade costs reductions based on trade facilitation improvements result significant. For low income countries, this average trade costs potential reduction is estimated at approximately 14.5%, while for lower and upper middle income country groups, this is estimated at 15.5% and 13.2%, respectively

16. Apart from more "ambiguous" indicators, i.e. indicators producing non-significant results or outcomes with unexpected signs.

(Annex 11). These estimates refer to the combined marginal effects of all the TFIs. Combined, the total effect of the TFIs is thus greater than the simple sum of the impacts of their individual components, confirming the importance of undertaking trade facilitation in a comprehensive manner rather than simply focusing on isolated measures. This reflects thus the potential costs savings of a comprehensive reform along the trade facilitation dimensions considered here. We can consider that such potential trade costs reductions would benefit stakeholders as a whole, including both traders (importer and exporter firms) as well as the public administration.[17]

Figure 2. Potential goods trade costs reductions by geographical groupings (%)



IV. Reflections on the indicators

This section presents general observations on the trade facilitation areas covered by each of the indicators, both as regards to the full sample of non-OECD countries (92 developing countries and 15 high income non-OECD countries) and to the country groups considered within the quantitative analysis. The section highlights the most important country variations and what they mean for country performance. It also draws attention to interpretation issues raised by the different variables, in particular for trade facilitation areas where data shortages make interpretations across country performances difficult.

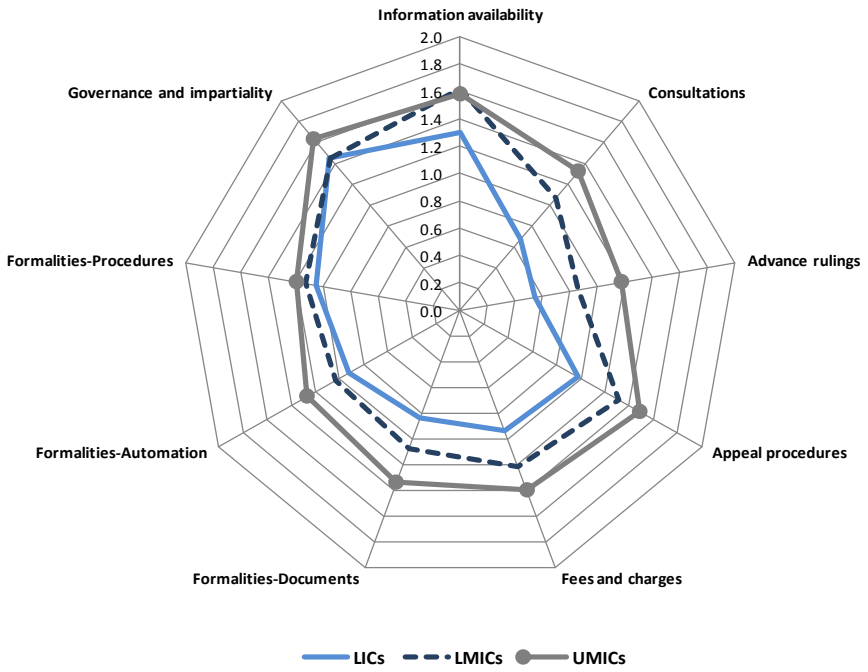
The main facilitation areas where reliable information is scarce concern indicators (e) *Fees and Charges*, (i) *Internal Border Agency Cooperation* and (j) *External Border Agency Cooperation*. Data challenges concerned also particular dimensions within the various indicators, including (v13) targeted stakeholders involved in public consultations, (v17) the number of advance rulings requests, (v41) percentage of procedures carried out electronically, (v47) the publication of the average clearance time, or (v54) post-clearance audits.

Figures 3 and 4 provide an overall picture of the differences across the various groups of countries in the state of implementation for the sets of measures. This overview confirms that there are differences prevailing between the groups of countries, more pronounced as regards income groups than geographical groups. It also allows observing in which areas the gaps are larger to fill. There appear to be more significant disparities related to income level in the areas of consultations, advance rulings, appeal procedures or documents than in the areas of automation or procedures simplification. Among geographical groups performance variations

17. A more refined quantitative approach could shed light on a more specific identification of the beneficiaries.

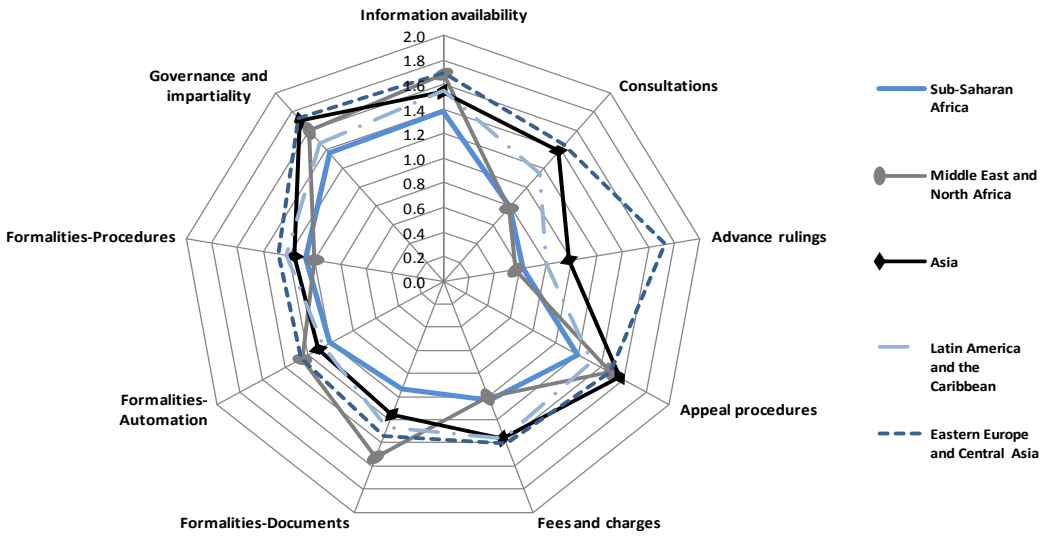
are fewer, with the striking exception of consultations, advance rulings and, to a lesser extent, documents. The sub-sections below will explore more in-depth differences between sets of measures across these groups. Annex 12 provides a summary of the status of implementation across the groups of countries for the different measures explored in the following sub-sections.

Figure 3. TFIs and developing countries income groups



Note: The TFIs values range between 0 and 2, where 2 corresponds to the best performance. The values indicate the average TFI performance by country group.

Figure 4. TFIs and geographic country groups

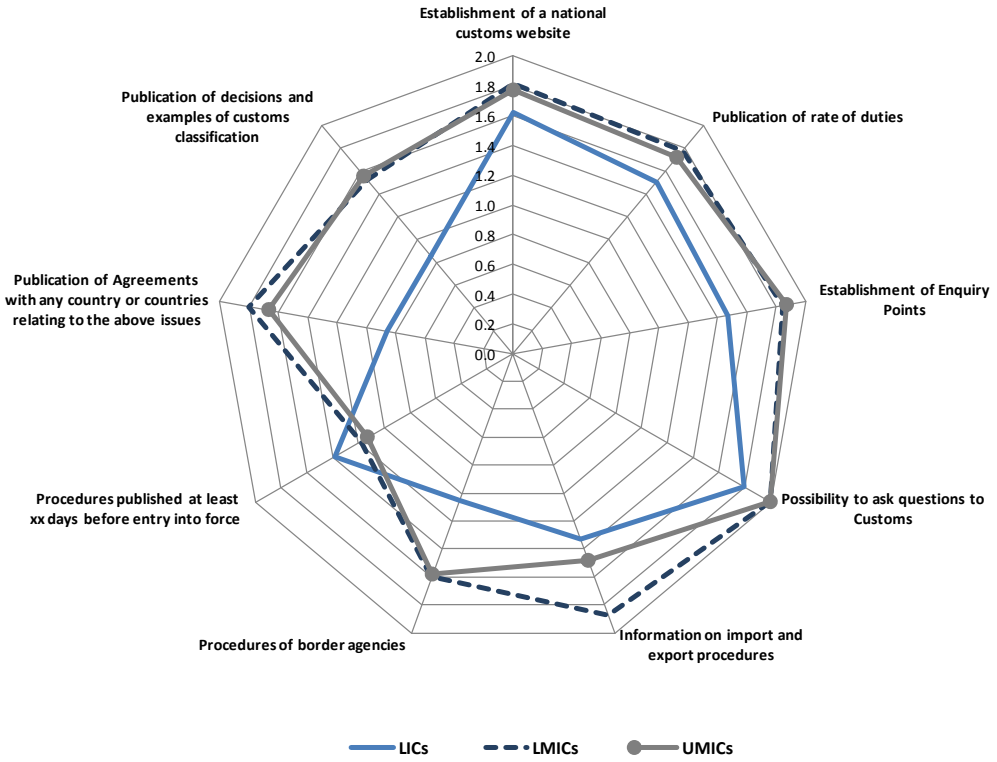


Note: The TFIs values range between 0 and 2, where 2 corresponds to the best performance. The values indicate the average TFI performance by country group.

(a) Information availability

Information availability measures refer both to web-based and to other forms of publication about Customs and border-related rules and procedures, as well as to transparency mechanisms such as enquiry points. This group of measures is relatively well implemented among surveyed countries. Websites offering a minimal set of information related to import or export procedures are available in all of the surveyed countries with the exception of few Sub-Saharan Africa countries. The great majority of these sites display information in one of the WTO's official languages (English, French, or Spanish). The large majority of countries also seem to provide information on the rate of duties, as well as enough information for understanding the basic steps of the import and export procedures (71% among surveyed LICs). On the other hand, fewer countries are directly providing documents and forms directly for download on the Customs website, especially among low income countries. Areas that seem less thoroughly implemented among non-OECD countries in our sample relate to the publication of agreements and the publication of decisions and examples of Customs classification. Based on the overview of Customs websites, around a half of the countries in the dataset seem to be publishing such information and the share is even lower among low income countries.

Figure 5. Information availability measures



The efficiency-enhancing potential of enquiry points seems now well understood around the world. Most of the lower middle and upper middle income countries and 52% of surveyed LICs maintain one or more enquiry points and offer the possibility to ask questions on Customs-related issues, either by telephone or by means of an online form. Most of this information is also available on the Customs website. It should be noted however that the database indicates the availability of enquiry points and other mechanisms to respond to

questions, but it does not assess the quality of response and information provided by such enquiry points, for which further field research would have been necessary.

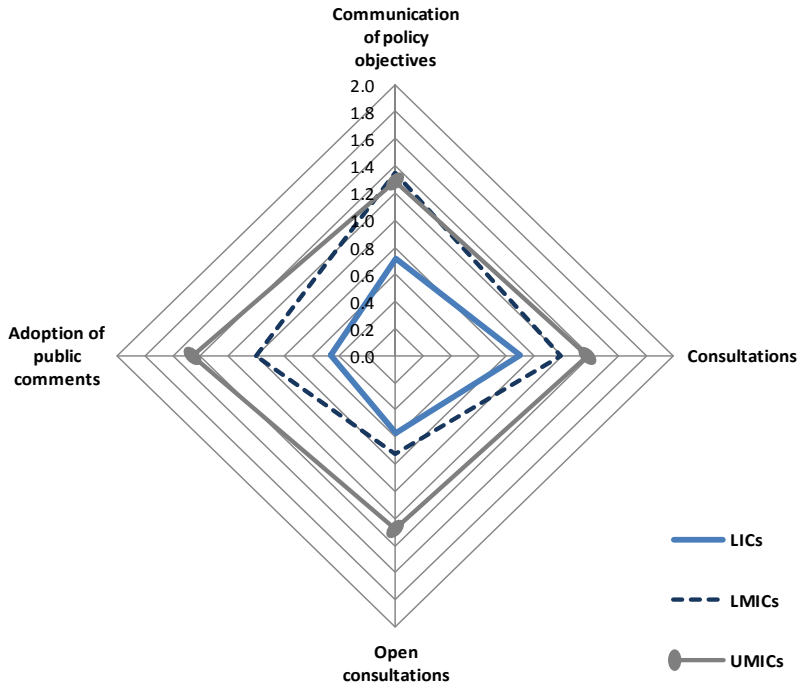
Finally, less than half of the countries in the sample seem to provide an interval between the publication and entry into force of all new or amended trade related laws and regulations; for around a third of the countries, it was not possible to find any information on this topic.

(b) Involvement of the trade community

Measures aiming to ensure the involvement of the trade community to the design and everyday operation of border-related policies and procedures refer mainly to the consultations between traders and the government, their scope, contents and outcomes. Publicly available information was difficult to find as regards this group of measures. Half of the countries in the sample – the large majority of which are middle income countries and high income non-OECD countries – seem to hold regular consultations between traders and the administration. Although we would *a priori* expect large differences between countries with respect to the frequency of such consultations, it was not possible to gather information on their number in the case of countries that do hold consultations between traders and government.

Likewise, it proved difficult to identify the types of audiences that have access to such consultations or whether public comments formulated during the consultations are taken into account in the drafting or amendment of concerned regulations. The question about targeted audiences was proxied with an International Profiles Database variable assessing whether dialogue structures within a country consider the interests of the country's major economic and social actors. Information was available for 66 developing countries and consultations seem to be open to all concerned stakeholders for 31 out of these 66 countries.

Figure 6. Consultations between traders and governments

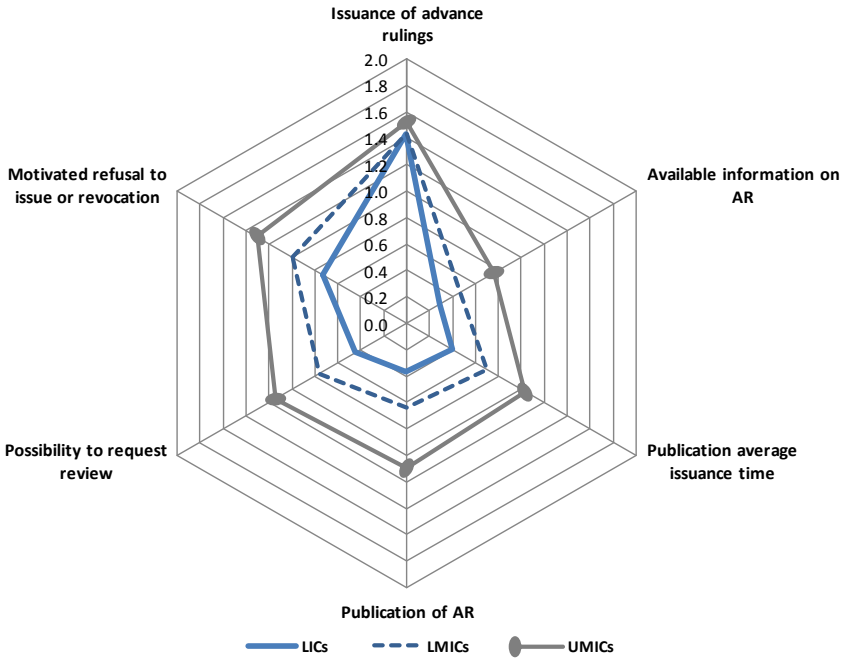


(c) Advance rulings

More than two-thirds (78 out of 107) of the countries in the sample provide a mechanism for advance rulings (AR). The remaining 29 countries[18] are equally distributed between the low, lower middle and upper middle income groups. Unlike for the OECD countries sample, it was not possible to keep in the construction of the indicator any variables related to the number of rulings issued or requested. As the construction of the indicator includes thus only variables relating to the characteristics of the advance rulings system, any potential causal relationship should be between the advance rulings indicator and trade volumes or trade costs and not the other way round (i.e. we would not expect trade volumes to drive the demand for advance rulings but, on the contrary, advance rulings causing changes in trade volumes or trade costs). On the other hand, the lack of information on this and on a number of characteristics-related aspects of the indicators, as described below, probably explains the fact that outcomes for this indicator have been less consistent in terms of statistical significance across specifications for some of the groups.

Anecdotal information seems to indicate that the levels of use of advance rulings mechanisms differ significantly across countries, but accurate statistics on the number of advance rulings requests in most of the countries issuing advance rulings were not available. Most advance rulings issued seem to concern tariff classification, a scope that is similar to patterns in the OECD sample and more limited than the scope of the mandatory advance ruling scheme proposed in the WTO negotiations. Less data is available on other covered areas, such as origin or valuation methods.

Figure 7. Advance rulings



More than half of the countries providing a mechanism for advance rulings indicate that they propose a website dealing with AR procedures. The large majority of these web-pages are only providing information on advance rulings procedures, but do not have an

18. For which it was not possible to ascertain whether an advance rulings mechanism exists or not.

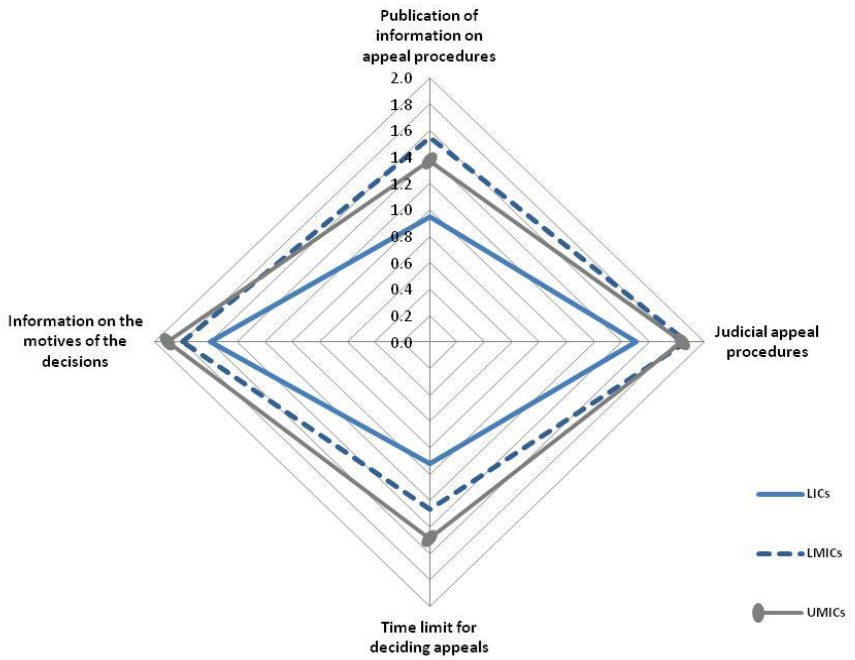
interactive interface, i.e. that would allow filling AR requests online. On the other hand, information on the duration of validity of issued advance rulings is missing for 45 of the countries having an advance rulings mechanism, most of them upper middle income countries. Among the remaining 33 countries, the duration of validity of advance rulings varies from six months to unlimited validity, i.e. until the advance ruling is either modified or revoked.

The rate of implementation varies widely in areas such as the publication of advance rulings of general interest, the possibility to request the review of an advance ruling, and the disclosure of the motives behind the refusal to issue or the revocation of advance rulings. For almost all low income countries, there is either no information available about these aspects or there is evidence that they do not implement them. On the contrary, in the case of middle income countries having an AR mechanism, the large majority is implementing all of the above.

(d) Appeal procedures

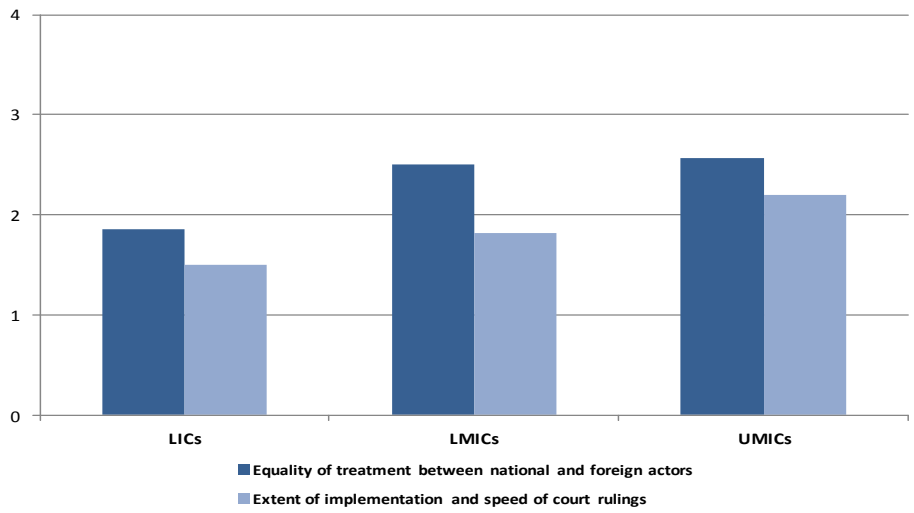
The indicator on appeal procedures refers to a number of basic characteristics of the appeal system in concerned countries, such as the transparency, fairness, accessibility, timeliness and effectiveness of the applicable rules and of outcomes. A well functioning appeal procedures mechanism ensures a transparent application and enforcement of the legislation by the Customs administration and related agencies. Drawing on the information provided in the Global Express Association questionnaire, it would seem that many of the countries surveyed reportedly display information on appeal procedures on a dedicated website, although it was not possible in practice to locate web addresses and verify the content for a number of countries in the sample.

Figure 8. Appeal procedures



Information on the patterns of implementation across countries, including timeliness, is scarce and would deserve further investigation. The data drawn from the Institutional Profiles Database (IPD) on the equality of treatment between national and foreign actors in commercial disputes and the extent of implementation and speed of court rulings in commercial matters (the value of each index ranges from 0 to 4) indicates that there is a large area for improvement in the judicial mechanism covering commercial matters.

Figure 9. Court rulings in commercial matters



Source: Authors' calculations based on Institutional Profiles Database 2009 data. Both indices range between 0 and 4.

(e) Fees and charges

Publicly available information on applicable fees and charges is very scarce. For half of the countries in the sample, it was not possible to confirm whether information can at least be found in the Customs Code. Only a few countries have a dedicated fees and charges webpage on the Customs website, and they are largely upper middle income and high income non-OECD economies. Information on the calculation of fees and charges on an ad-valorem basis was available for only 47 countries. Data available mostly from the WTO Trade Policy Reviews points to 16 developing countries applying an ad-valorem calculation basis for fees and charges. It would also appear that 22 of the surveyed developing countries' Customs administrations apply fees for services during normal working hours. The scarcity or poor visibility and accessibility of publicly available data on fees and charges point to the need of improving performance in this area. Missing data may also explain that outcomes for this indicator were not robust across several of the groups and specifications.

The level of various fees and charges (e.g. port charges, airport charges, road transport charges, rail transport rates, warehousing/transloading charges, agent fees) are considered high or very high by an average of 48% of respondents to the LPI survey for the low income country group; 44% of respondents for the lower middle income group; and 34% of respondents for the upper middle income group.

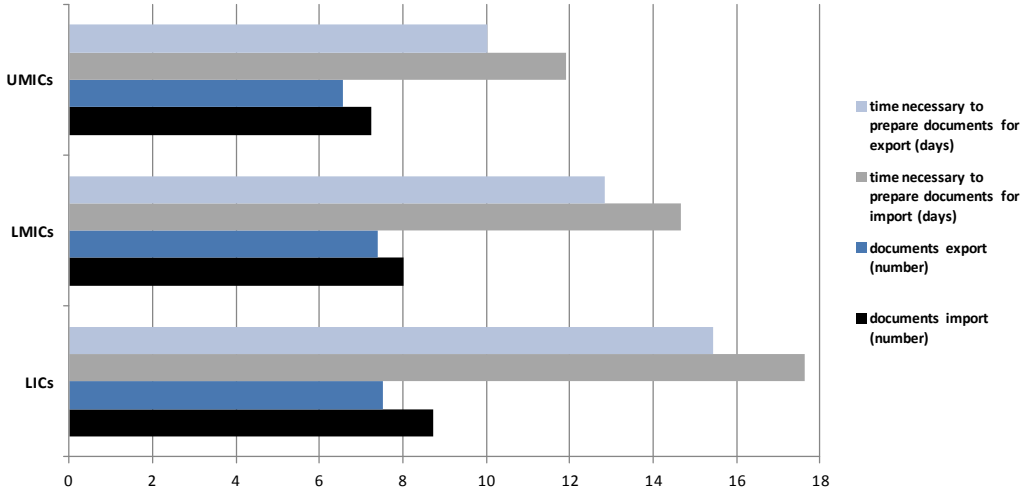
(f) Formalities - documents

Measures relating to document requirements refer both to the extent of harmonisation of trade documents, through reliance to international standards and the simplification of documentary requirements, through the use of copies and the reduction of the number and

complexity of required documentation. The information concerning the use of copies remains limited and was available in public sources or provided directly from concerned administrations for less than half of the countries in the sample, among which non-OECD APEC members. Among those countries, a half seems to accept copies of documents.

Regarding the rest of the variables within this indicator, differences between income groups in this area are striking. Low income countries lag significantly behind the other groups in terms of the number of documents necessary for exporting and importing, as well as the time required on average for the preparation of such documents, pointing to this area as a priority target in future policy interventions and technical assistance and capacity building endeavours. Middle income countries require fewer documents for importing and exporting, and the time necessary to prepare such documents is lower than in low income countries. These performances can be directly correlated with the implementation of Electronic Data Interchange (EDI) and Single Windows systems, as middle income countries are better performers in these areas (see following sections); the implementation of such systems allows for simplifying documentary requirements and reducing the complexity of documents submission.

Figure 10. Documents and time required for exporting and importing



Source: Authors' calculation based on Doing Business Trading Across Border indicators, World Bank.

Compliance with international standards[19] remains relatively low among the surveyed countries. Out of the 92 developing countries, 44 countries have ratified at least two of the considered International Conventions, 33 have ratified only one, while the remaining 15 economies seem to have not ratified either of the three. However, as in the case of the OECD sample, scoring for the "international standards compliance" variable (v36) needs to be interpreted with caution; ratification of a treaty does not automatically mean its full and immediate implementation, while some countries in the sample may have not yet ratified such conventions but already apply some of the provisions in practice.

19. This variable accounts for the ratification of the following International Conventions: the Istanbul Convention, the Harmonized System Convention and the Revised Kyoto Convention.

(g) Formalities and automation

This indicator covers a series of very important dimensions of trade facilitation, including automated procedures, electronic interchange of documents (EDI), or the application of risk management procedures. It appears that for the majority of the surveyed countries, IT systems capable of electronic data exchange are in the process of implementation or already functional. For most of lower and upper middle income countries, such an IT system seems by now ready for EDI, while most of low income countries state that such a system is in the process of implementation (Figure 12). Meanwhile, more information would be necessary on whether EDI works in a reliable way. For instance, connectivity, as well as electric power availability and reliability could influence EDI effectiveness quite considerably, in particular in certain developing countries' remote border posts. In many developing countries included in the sample, public services access to energy remains low (IEA, 2012) and the average electricity transmission and distribution losses are still very high (WDI, 2012).

Figure 11. Formalities and automation

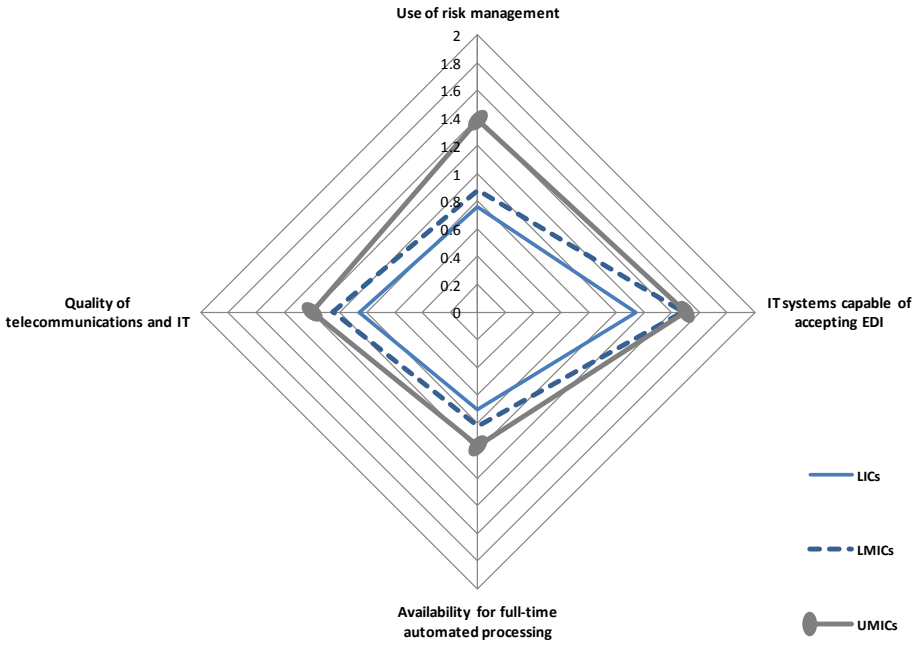
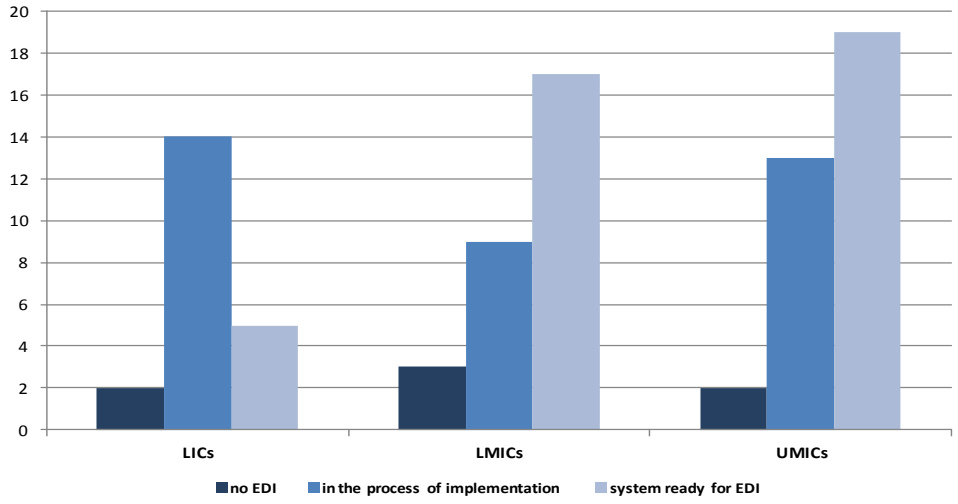
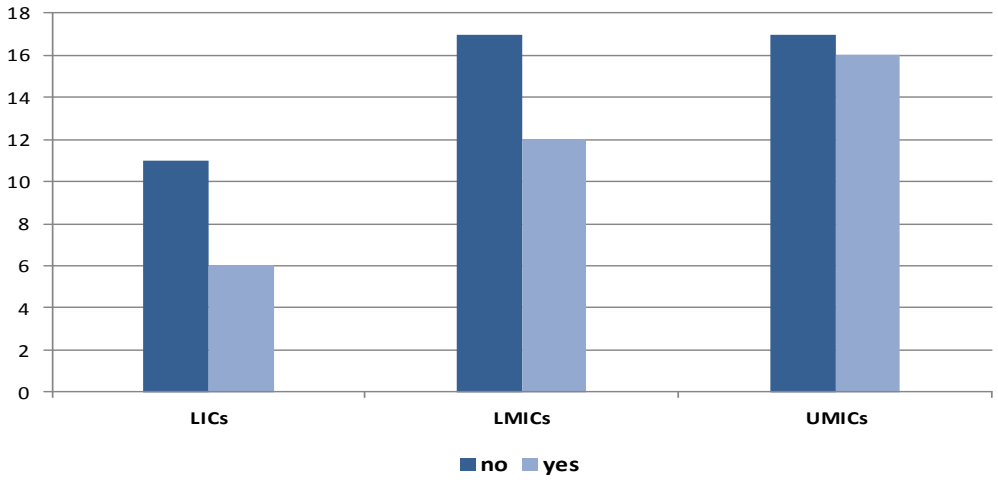


Figure 12. IT systems and EDI



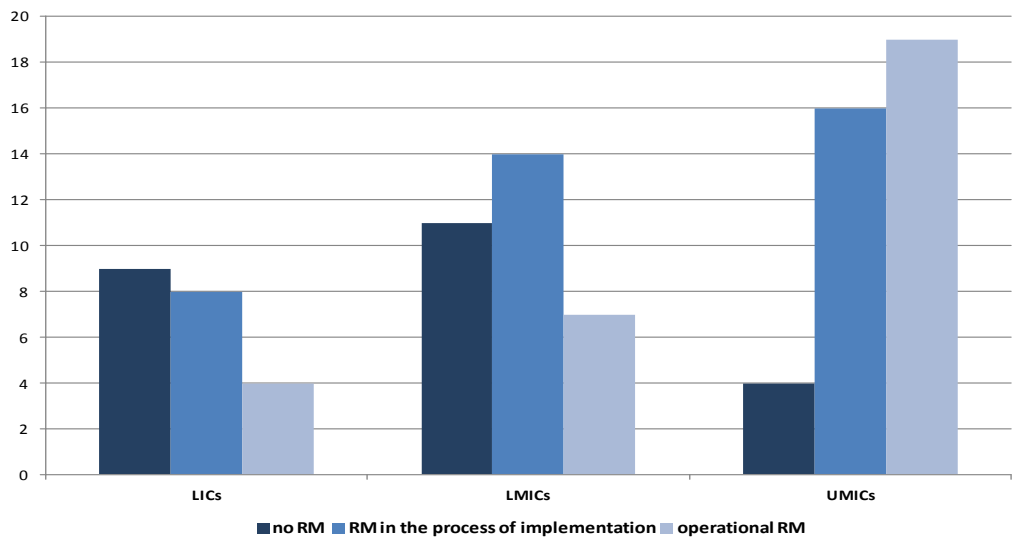
Information on EDI systems needs to be corroborated with the data concerning the availability of full-time automated processing for Customs agencies; it would seem that only 41 countries report the existence of full-time automation, with the large majority being upper middle income and high income non-OECD countries.

Figure 13. Availability of full-time automated processing for Customs agencies



Very little recent information was available on the percentage of procedures that can be performed electronically, and this was obtained through the direct responses of countries at the stage of verification. With respect to risk management, one of the most important aspects of automation, it seems that 34 of the countries have such a system successfully implemented, in particular upper middle income and high income non-OECD countries. Seventy two of the countries either do not have such a system or are in the process of implementing one. These observations point to an important area of performance improvement.

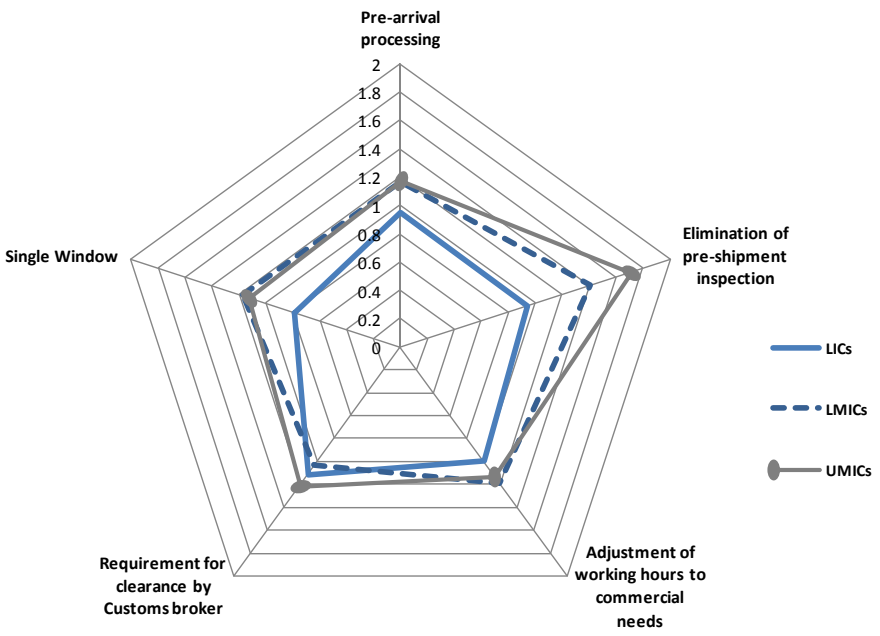
Figure 14. Risk management implementation



(h) Formalities and procedures

The *Procedures* indicator also incorporates a series of very important dimensions of trade facilitation, including single windows, pre-arrival processing, physical inspections, post-clearance audits (PCAs), separation of release from clearance and the concept of authorized traders, all of them central aspects in the operation of Customs agencies.

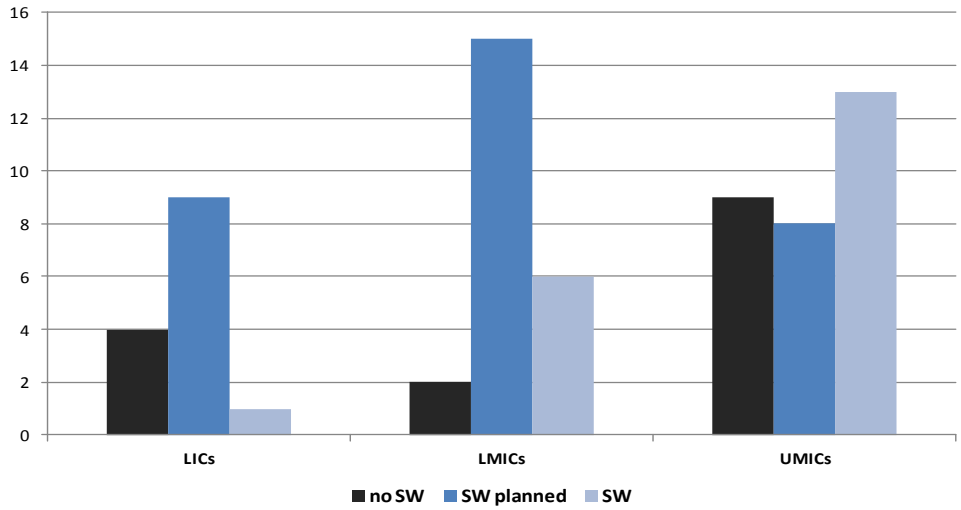
Figure 15. Formalities and procedures



Single Windows are a very important trade facilitation measure, the characteristics and implementation of which can vary considerably among countries. It would seem that most of the countries in the sample are in the process of implementation of some type of single window, or have a scheduled an intervention in this area.[20] 23 countries state that they already make use of a Single Window, more than half being upper middle income economies. The fact that the majority of surveyed countries state that a Single Window is planned or in the process of implementation highlights the importance of efforts undertaken in this area, as the implementation of a Single Window can only be achieved within a medium term timeframe and with the involvement of a wide range of stakeholders; meanwhile, planning, approach and budget outline will differ across countries.

The link between the development of single window mechanisms and advances in IT systems is not directly upheld by the data, as the number of middle income countries actually implementing a Single Window with a view to simplifying border formalities for traders and other economic operators is much lower than the number of countries stating that their IT systems are ready for EDI or that a risk management approach is implemented. However, available information on the institutional architecture and the number of different agencies with a direct involvement in the cross border movement of goods was not sufficient to indicate whether the missing link for capitalizing on the improvements of IT systems lies with the quality of cooperation and information exchange between different government agencies, Customs departments, and border control posts.

Figure 16. Single Window implementation

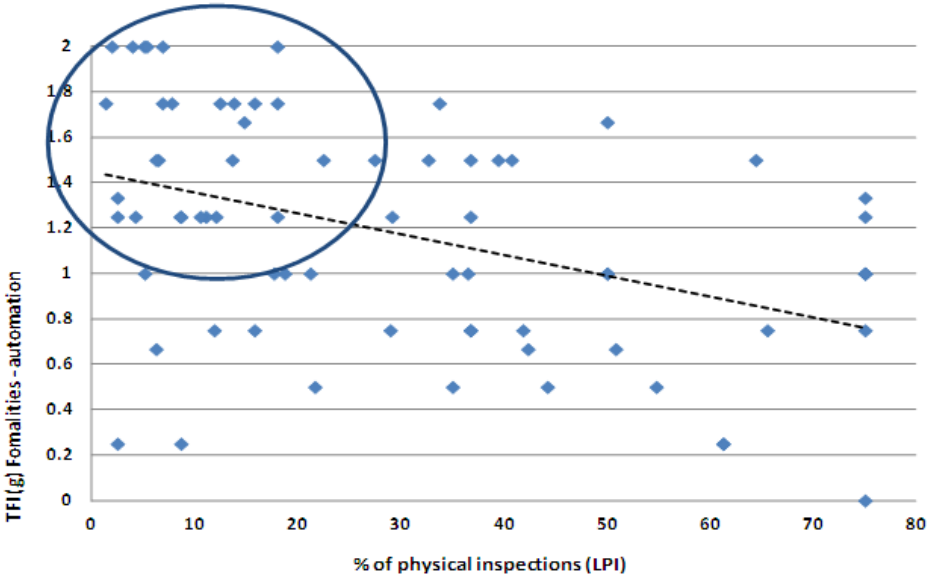


The rates of physical inspections indicate that low income countries are characterised by a 42% rate of physical inspections, on average, compared to 27% and 25% for the lower and upper middle income groups, respectively, which reflects the inverse relationship between the development of automated procedures and in particular risk management (as expressed in the scores for Indicator (g) *Formalities – Automation*) and the rate of physical inspections (Figure 17). Some information was found for around 50 countries with respect to the treatment of perishable versus non-perishable goods, as regards the rate of physical inspections and the

20. Although not all the information on this topic was confirmed directly by concerned countries.

separation of release from clearance. More than half of the countries stating that they treat differently perishable from non-perishable goods are upper middle income countries.

Figure 17. Rates of physical inspection and TFI (g) Formalities - Automation



Source: Authors' calculation. Rate of physical inspections data from World Bank LPI, 2010.

Countries still applying pre-shipment inspections are principally low income countries, although similar information was found for some middle income countries. Information on the application of pre-shipment inspections was mainly available either in the Customs Code or on the Customs website, together with the description of import procedures. For some of the countries that do not currently apply such a mechanism, pre-shipment inspections were actually eliminated not very long ago. Almost half of the countries in Sub-Saharan Africa for which data are available seem to be still applying pre-shipment inspections (13 countries), while this seems to be the case for only two and five countries in Latin America and the Caribbean and in Asia, respectively.

Figure 18. Pre-shipment inspection

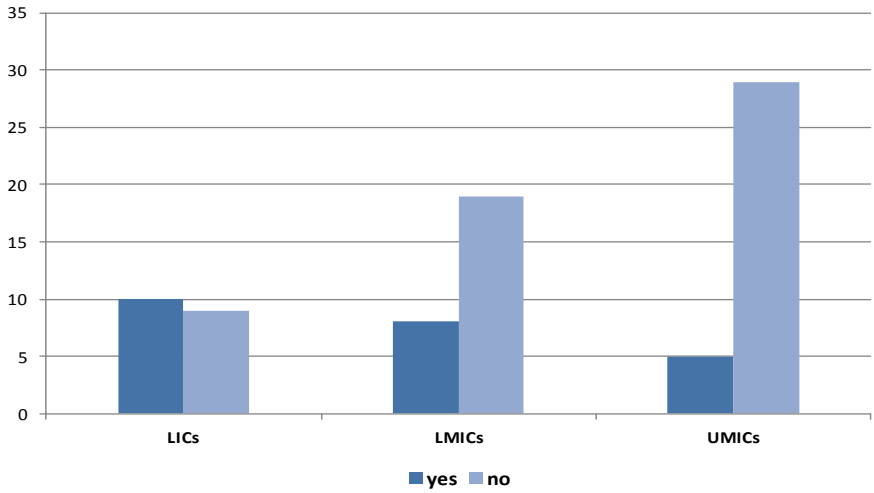
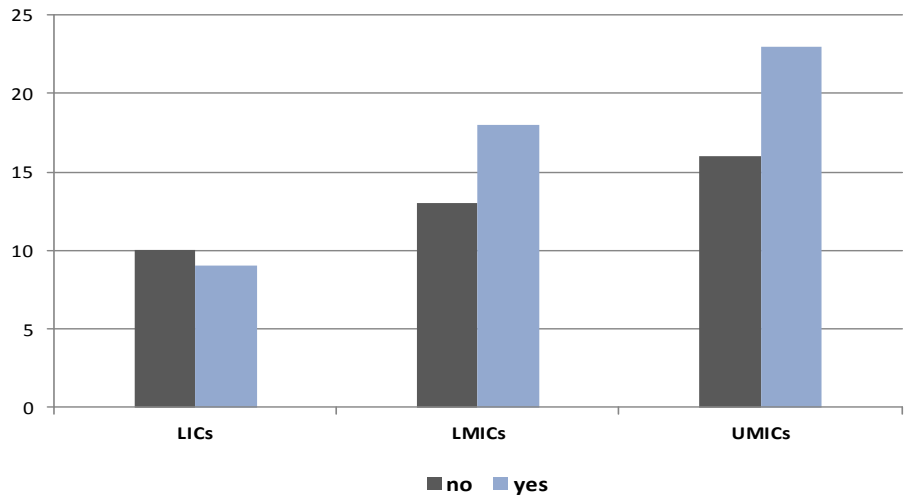
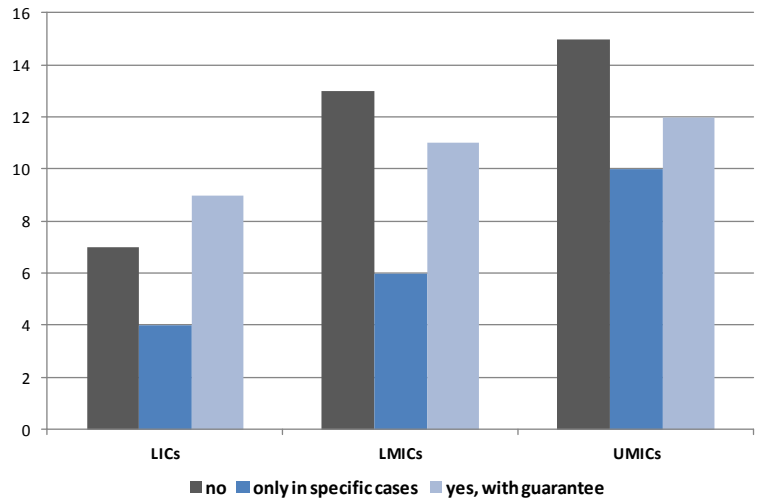


Figure 19. Pre-arrival processing



From the data collected it would result that the countries not applying separation of release from clearance are majoritarily upper middle income economies. A large share of the countries still applies the separation of release from clearance only in specific cases or restricts it to the authorised trader status.

Figure 20. Separation of release from clearance

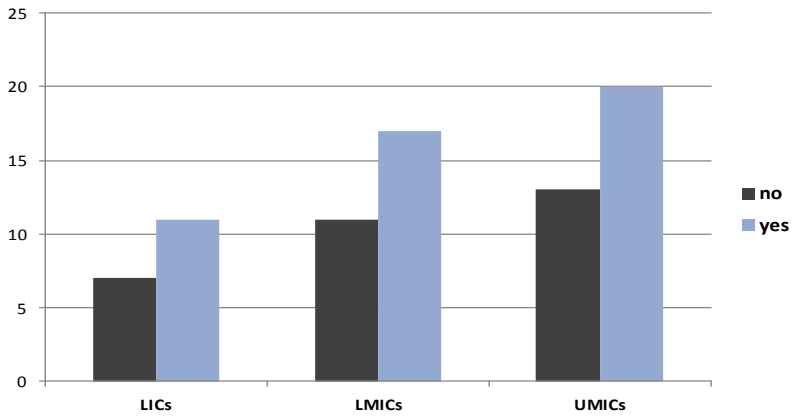


The variable relating to the *authorised operator* programmes is drawn from the World Bank Logistics Performance Indicator. This variable allows for an assessment of the application of expedited customs clearance for traders with high compliance levels in the surveyed countries. The pattern of application of expedited customs clearance for traders with high compliance levels varies, with 28% of traders in the surveyed low income countries stating that this happens often or nearly always; the corresponding percentages are 46% and 48% of traders for the surveyed lower and upper middle income economies, respectively. From the 76 developing countries for which information is available, around a half seem to impose the mandatory use of a third party customs broker. Variable 54 on Post-Clearance Audits (PCAs) could not be taken into account at this stage due to lack of sufficient information.

(i) Border agency cooperation – internal

The internal border agency cooperation is another area for which information is largely insufficient. However, it is important to highlight that from the data recovered from the Global Express Association Customs Capabilities Report, many countries' government agencies delegate controls to Customs authorities in all income groups.

Figure 21. Government agencies delegating controls to Customs authorities



(j) Border agency cooperation – external

This is one of the main areas where information was scarce, which explains the less conclusive results. Although this area is of high importance for landlocked countries in particular, complete data for the four variables composing indicator (j) are only available for 10 out of 24 landlocked countries, and most of that was not actually confirmed by the concerned countries. Some of the best publicly available information on external cooperation concerns South American countries and was retrieved from the IIRSA Initiative (*Iniciativa para la Integración de la Infraestructura Regional Suramericana*[21]). On the basis of available information, joint operations seem to exist in the case of 11 out of the 24 landlocked countries. Barka (2012) highlights that regional economic organisations in West, East and Southern Africa have taken the lead in the planning and construction of OSBPs (One Stop Border Posts) and JBPs (Joint Border Posts). Although it seems that several OSBPs/JBPs were conceived and built in recent years, it proved difficult to find out the exact current status of development and operation of such posts. This highlights the need to reinforce information availability in this area, including through improved display of information on joint activities undertaken with neighbouring countries' Customs on national Customs websites.

(k) Consularization

The database contains information on consular transaction requirements for only 59 of the developing countries in the total dataset. Of these, 22 countries seem to be currently imposing consular transaction requirements, relatively equally distributed among the four income groups (LICs; LMICs; HMICs and HICs non-OECD). Most of the countries applying such consular transaction requirements can be found in Sub-Saharan Africa, MENA and Asia. At this stage, this indicator is not tested and it might need to be further developed.

21. More information available at *http://www.iirsa.org/Institucional_ENG.asp?CodIdioma=ENG*

(l) Governance and impartiality

According to the outcomes of our quantitative analysis, governance and impartiality measures seem to have a highly positive impact on trade flows and trade costs in developing countries. The indicator refers to an array of good governance characteristics, including clearly established and transparent structures and functions, the existence of a Code of Conduct and an ethics policy, internal audits and transparent provisions for financing and for internal sanctions in the Customs administrations. Countries in the sample generally provide a description of the structures and functions of the Customs administration on their respective websites. This information is usually accompanied by an organisation chart. The same does not seem to apply to the provisions on the financing of the Customs Administration, as only 34 countries in the sample report to be posting such information.

Fifty seven countries in the sample have a functional internal systems audit function out of the 59 countries for which we have information. For the rest of the countries, information was insufficient to draw clear conclusions.

A Code of Conduct seems to be implemented across most Customs administrations. However, the information on the implementation and transparency of sanctions against misconduct remains scarce. Some information can be found in Customs Codes, but this information is usually not very detailed. The database contains information on the existing application of an ethics policy within the Customs administration for 62 countries, 11 of which state that they do not apply an ethics policy. While 51 countries in the sample seem to be applying an ethics policy observing all of the principles of the WCO Revised Arusha Declaration[22], only for some of them the ethics code is actually available on the Customs administration website. However, from the research conducted directly on countries' Customs websites, it seems that in several countries, the ethics policy applying for all public administration employees is equally valid for Customs administration employees, without adding further specificities. It is important to note that 28 middle income countries seem to dispose of a help desk or a special body in order to guide staff on ethical issues, although no further information is available in the database on the state of functioning of such help desks and special bodies.

Information on the publication of annual Customs reports is available for half of the countries in the sample. 52 of these countries (mainly upper middle income and high income non-OECD countries) publish annual customs reports and make them publicly available. Meanwhile, around a third of these countries publish only partial information on Customs activities, not including sufficient information on budget and duties collected, complaints or efficiency indicators. The pattern of publication differs greatly, with countries that publish on Customs websites a rather long series of annual Customs reports and other countries that have only recently started to publish such reports.

(m) Transit fees and charges

As in the case of import-export fees and charges, information on transit fees and charges is scarce. The available data indicates that only half of the surveyed countries publish information on fees and charges, either in paper publications or on the Customs website. Data on prior publication of fees and charges are not available for Asian countries. In the case of African countries, four countries in Southern Africa seem to publish such information in

22. 1993 Declaration of the Customs Co-operation Council (WCO) Concerning Good Governance and Integrity in Customs, as revised in 2003.

advance, either in paper publications or on the Internet. Escort fees have been identified as one of the most opaque areas among the many fees associated with cross-border movement of goods (WATH, 2010). Escort fees were introduced to cover the costs of an official vehicle escorting individual trucks through the country of transit in order to ensure that goods in transit from the port are not off-loaded before reaching the border, without payment of duties, and diverted to internal commerce.

Ten countries (4 in SSA and 6 in Asia) indicate that they provide (annually or more frequently) a periodic review of the applied transit fees and charges. No information is available on the method of evaluation of transit fees and charges for countries in Asia, while for the Africa region the majority of countries seem to be calculating such fees and charges *ad-valorem*.

(n) Transit formalities

In the case of African countries, there seems to be sufficient information published on procedures, required forms and documents; such documents and procedures are reviewed periodically, but in contrast to transit fees and charges, their review seems to take place less frequently (every two years at best). At this stage, no information is available on the publication and periodic review of required transit documentation for the selected Asian countries.

West African countries seem to have physically separate transit facilities at all entry points where trade can transit. The situation is rather different in the Southern Africa sub-region where there are either no physically separate border crossing facilities at all, or such facilities exist only at large transit entry points. The situation is very similar in Asian countries, as close to half of the surveyed countries state that they do not have at all separate border-crossing facilities/infrastructure for transit.

Most of the surveyed countries in Asia indicate that physical inspections are limited through risk assessment. The majority of Asian countries for which we have information specify that transit trade goods are usually evaluated using a risk assessment model in order to reduce physical inspection of goods; a small share states that such goods are rarely inspected due to a risk assessment model in place. Data indicates that in most of the surveyed African countries, transit trade goods are subject to highly frequent physical inspections, as a risk-based system is not used at all or used on an extremely limited basis. Meanwhile, the situation seems to be very different in the case of quality controls or technical standards being applied; almost all of the African countries state that quality controls and technical standards are not being applied to transit trade. However, the picture is slightly less conclusive in the case of Asian countries with respect to quality controls. One third of Asian countries seem not to treat transit movement of goods differently than imports in terms of quality controls and technical standards and another third of countries apply them only to hazardous materials and high risk cargos.

Despite the advances in information technology observed in the case of the import-export procedures, electronic data submission does not seem widely used in the case of transit trade. Indeed, the use of modern information and communication technology for transit goods inspection, as well as data collection and data processing are still limited or subject to technical problems that reduce their efficiency (UN-OHRLLS, 2007). Pre-arrival processing for transit trade is supported in 13 countries (9 in Asia and 4 in Africa), with the large majority stating to only partially apply it (i.e. only for selected importers/goods/entry points/modes of transport). 15 countries (of which only one in Africa) seem to have at least partially

established a Single window for transit trade (i.e. some entry points are providing a Single window for transit trade).

(o) Transit guarantees

Guarantee requirements can be defined by the national regulations of the transit country or alternatively, within the framework of regional or international agreements. These regulations should clarify in principle the amount and form of the guarantee required, as well as the bodies responsible for providing it (UNCTAD, 2011b). In some developing countries, only cash deposits are accepted, although this form of guarantee is not practical. In the case of cash deposits, the transit operator is the directly liable debtor of the Customs authorities. Otherwise, guarantees can take various forms. In the context of multilateral transit schemes the transit guarantee is often purchased in advance of the transit operation, although it will only be activated once the transit operation is commenced (UNCTAD, 2011a). From our available data, it appears that half of the African countries do not accept any form of guarantees, while the rest accepts at least one or more forms of non-monetary guarantee. In the case of the Asian countries for which we have available information, it seems like the majority accepts at least one or more forms of non-monetary guarantee for transit trade.

The posting of a financial guarantee often remains a challenge in terms of implementation. It supposes a relatively well-established banking infrastructure and financial market that are able to support the issuance of such guarantees. The lack of the former often leads transit countries to require the deposit of full duties and taxes to cover the transit operation (UNCTAD, 2011a). Meanwhile, data collected seems to indicate that the majority of African and Asian countries analysed limits the guarantees to the amount of duties and charges. No information is available on the timeframe for the release of guarantees (i.e. the average number of days necessary for full release of guarantees) for the surveyed Asian countries. Such information remains limited for Sub-Saharan Africa countries as well.

For several of the surveyed countries, the guarantee system seems to be covered by different regional agreements implementing systems similar to the TIR guarantee concept (*Transports Internationaux Routiers*) system[23]: Economic Cooperation Organization Transit Framework Agreement, Association of Southeast Asian Nations Framework Agreement on the Facilitation of Goods in Transit, Greater Mekong Sub-region[24] Agreement for Facilitation of Cross-border movement of goods and people (OSCE, 2011).

(p) Transit agreements and cooperation

Close regional cooperation in transit transport and trade promotion between landlocked countries and transit countries is very important. This can ensure an unencumbered and cost-effective access to sea ports for landlocked countries. Examples of regional agreements providing for sea port access and Customs transit and covering our selected countries include the ASEAN Framework Agreement on the Facilitation of Goods in Transit; the TRIE transit

23. The TIR Convention is administered by the United Nations Commission for Europe (UNECE) and it currently has 68 contracting parties. The TIR Convention provides for an internationally recognized procedure to facilitate the cross-border movement of goods in transit, through the use of a standard, internationally recognized customs document – the TIR Carnet – which also serves as proof of an internationally valid guarantee (OSCE, 2011).

24. GMS countries are Cambodia, the People's Republic of China (PRC, specifically Yunnan Province and Guangxi Zhuang Autonomous Region), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Viet Nam.

system developed in West Africa by ECOWAS; ECOWAS Convention relating to Inter-State Road Transit of Goods; or the transit systems that have been developed by members of the Southern African Customs Union (SACU) and the Southern African Development Community (SADC). Meanwhile, some countries are often parties to more than one agreement at the same time, leading to a lack of enforcement in regional agreements due to such overlap and multiple memberships (UNCTAD, 2011a). Sometimes, regional legal instruments are not considered because national regulations take precedence in practice (UN-OHRLLS, 2007). Not enough information is available to firmly conclude what percentage of transit trade for our selected countries is under bilateral or regional agreements.

There is a need for further simplification of documentation requirements. Simplifying such documentation can be achieved through a greater commitment to international, regional, sub-regional and bilateral agreements. There seems to be a stronger cooperation in this area in the Southern Africa region, but a much weaker one in the West Africa region. No sufficient information is available for the Asia region.

For most of the Asian countries in our sample there seems to be cooperation between the agencies involved in transit, although the extent of this cooperation differs, from limited cooperation on formalities and legal requirements (around half of the Asian countries) to almost full cooperation on formalities, legal requirements and the practical operation of transit regimes. The situation is relatively similar in Africa. For Western Africa countries, there seems to be limited cooperation, while such cooperation seems to cover more procedural and legal dimensions for the majority of Southern Africa countries.

V. Conclusions

This paper extends the OECD TFIs database to an additional one hundred and seven countries at various stages of development. Despite some problems with data availability and a few ambiguous results, the indicators appear robust and almost all of them can be tested for their impact on trade flows or trade costs.

This work has focused on country groups. The main findings indicate that some indicators have a larger impact than others on trade flows and trade costs, at least in the current data and country sample. Sector specific results show that the indicators are especially valid for manufactured goods. This conclusion is consistent with the way the indicators are built, as agricultural goods specificities (especially the perishable/non-perishable nature of goods) are poorly accounted for by the indicators due to the lack of available information in this particular area. Overall, the indicators that seem to have the greatest impact on trade flows and trade costs are: (a) *Information availability*, (f) *Formalities – documents*, (g) *Formalities – automation*, (h) *Formalities – procedures*, (l) *Governance and impartiality*. When seeking to assess the relative importance of the different dimensions of trade facilitation at the manufacturing sector level, significant results are obtained also for (b) *Involvement of the trade community*, (c) *Advance rulings*, (d) *Appeal procedures*.

If all the TFIs are added within the same regression, their cost reduction potential would reach almost 14.5% of trade costs for low income countries, 15.5% for lower middle income countries and up to 13.2% for upper middle income countries. Combined, the total effect of the TFIs is thus greater than the simple sum of the impacts of their individual components, confirming the importance of undertaking trade facilitation in a holistic manner rather than simply focusing on isolated measures.

Data collection has been a major challenge. More precise results would be subject to the improvement of information available in the current database, both in terms of filling existing

gaps and in obtaining further confirmation of such information directly with countries' Customs administrations and other border agencies. Available public data in the area of transit measures are very limited and much more remains to be done with respect to improving the quality of the data already collected, going through the stage of verification, as well as extending the geographic coverage for landlocked and transit countries, where possible. However, this implies a much wider cooperation from concerned administrations.

The use of the indicators in this proposed framework should enable countries sharing similar characteristics to better assess which trade facilitation dimensions deserve priority. On the other hand, data constraints do not permit, at least not at this stage, to provide indications about the best implementation sequence of various measures. Further research in this direction is warranted.

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Annex 1.

Trade facilitation indicators variables

Putting together the dataset confirmed that information for some variables is more difficult to obtain than for others. As such, some variables are not sufficiently supported across the sample. We calculate the indicators for countries for which available data covers at least half of the variables composing the indicator. Variables for which the rate of reply (or publicly available data) is under 40% are dropped from the construction of the indicators at this stage of the data collection. These variables are:

- C17 on the number of advance rulings requests.
- H41 on the percentage of procedures that can be done electronically (out of the total number of import/export/transit procedures).
- H47 on the publication of average clearance time.
- H54 on the percentage of Post-Clearance Audits (PCAs) carried out (out of the total yearly transactions).
- I65 on regular meetings held (including training seminars).
- J66 on the alignment of working days and hours with other neighbouring countries at border crossings.
- L75 on the clear provisions for the financing of the Customs administration.
- O93 on the prompt and full release of the guarantee.

Scores follow a multiple binary scheme where the top score (2) corresponds to the best performance

Indicator (a) - Information availability

Variable 1. Establishment of a national Customs website*

DCNT	Definition
1.2	(0) There is no clearly identified Customs' website on the Internet. (1) There is an official website. (2) The website makes available a minimal set of information related to import or export procedures** in one of the official WTO languages***.

* A national Customs website can be part of a wider website like the Ministry of Trade and Finance website.
** An official Customs website should at least cover the description of importation, exportation and transit procedures, electronic links to the forms and documents required, and the relevant legislation.
*** The official WTO languages are English (EN), Spanish (ES) and French (FR).

Variable 2. Publication of rate of duties

DCNT	Definition
1.1	(0) It is not possible to find the rate of duties on the Customs website. (2) There is information (or an electronic link) on the rate of duties.

Variable 3. Establishment of Enquiry Points

DCNT	Definition
1.3.1	(0) There are no Enquiry points to answer reasonable enquiries*. (2) There are one or more enquiry points.

* Enquiries of traders may refer to issues covered by [DCNT 1.1.1] such as: importation, exportation and transit procedures, applicable rate of duties, rules for classification or valuation, fees and taxes, restrictions or prohibitions, penalty provisions, appeal procedures and agreements with third countries.

Variable 4. Possibility to ask questions to Customs

DCNT	Definition
1.3	(0) There is no possibility to ask questions on Customs related matters*. (2) There are possibilities to ask questions on Customs related matters.

* Questions cover the same areas as the "*reasonable enquiries*" (See variable 3). Here, the enquiry point is the Customs.

Variable 5. Information on import and export procedures

DCNT	Definition
1.1.1 (a)	(0) There is not enough information on procedures and required forms and documents. (2) There is enough information on these topics.

* The quantity of information is enough to understand the basic steps of the import or export procedures. It is not possible to provide a standardized minimum level of information, it varies across the regulations of each country which are more or less burdensome and the friendliness of each customs website.

Variable 6. Procedures of border agencies

DCNT	Definition
1.2.1 (b)	(0) There is no possibility to download the required documents and forms. (2) Some documents and forms are available for downloading on the Customs website.

Variable 7. Procedures published at least xx days before entry into force*

DCNT	Definition
2.1.1	(0) There is no interval between the publication of new or amended trade related laws and regulations, and their entry into force, or there is only an interval for selected new or amended trade related laws and regulations. (2) There is an interval between the publication of new or amended trade related laws and regulations, and their entry into force.

* Average time is the interval generally applied in the country, whether on the basis of applicable rules, such as an Information Act, or on the basis of practice.

Variable 8. Publication of agreements with third countries relating to the above issues

DCNT	Definition
1.1.1 (i)	(0) There is no information on the official customs website about international agreements relating to importation or exportation. (2) Such agreements are available on the official customs website*.

* At least an electronic link exists.

Variable 9. Publication of rules and examples of customs classification

DCNT	Definition
1.1.1 (d)	(0) Rules and examples of customs classification are not published. (2) Rules and examples of customs classification are publicly available.

Variable 10. Transparency of government policymaking*

Scale	Definition
0 1 2	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

***Source**: **World Economic Forum (WEF) Global Competitiveness Report (GCR)** proxy: the score based on the reply to the question How easy is it for business in your country to obtain information about changes in government policies and regulations affecting their activities? [1=impossible; 7=extremely easy]*

Indicator (b) - Involvement of trade community

Variable 11. Communication of policy objectives *

	Definition
	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

***Source*: *Logistics Performance Index (LPI)** proxy: percent of respondents answering often or nearly always to the question Provision of adequate and timely information on regulatory changes.*

Variable 12. Consultations between traders and government

DCNT	Definition
2.2 and 2.3	(0) There are no consultations between traders and governments. (1) There are irregular consultations between traders and governments when introducing or amending trade related laws, regulations and administrative rulings of general application. (2) There are specific consultations when introducing or amending trade related laws, regulations and administrative rulings of general application.

Variable 13. Targeted stakeholders*

	Definition
	(0) Consultations are limited to a specific number of stakeholders**. (2) Consultations are fully open.

***Source*: *Institutional Profiles Database (IPD)** proxy: score based on the answer to the question Do dialogue structure(s) consider(s) the interests of the country's major economic and social actors? [0 = no consultation structure. If structure(s) exist(s), note from 1 = little consideration to 4 = high consideration]*
***Stakeholders: SMEs, Large traders, Transporters, Customs brokers, Citizens, other*

Variable 14. Adoption of public comments

	Definition
	(0) Public comments are not taken into account. (2) Public comments are taken into account.

Indicator (c) - Advance rulings

Variable 15. Issuance of advance rulings*

DCNT	Definition
3.1.1	(0) Advance rulings are not issued. (2) Advance rulings are issued.

* An advance ruling is a written decision provided by a Member to an applicant prior to the importation of a good covered by the application that sets forth the treatment that the Member shall provide to the good at the time of importation or exportation. It may cover tariff classification, valuation methods and their application, duty drawback, quotas, origin of the good or applicable fees and charges. Following this definition, Binding Tariff Information (BTI) is regarded as an advance ruling mechanism.

Variable 16. Publication of necessary information on advance rulings

DCNT	Definition
3.1.4	(0) Information is not displayed on the customs website or it is only available in the relevant legislation (Customs Code). (1) There is a specific page on the Customs website dealing with Advance Rulings procedures. (2) There is a specific page and an online request procedure is available.

Variable 17. Number of advance ruling requests (total)

	Definition
	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and the 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

Variable 18. Length of time for which the advance ruling is valid (duration*)

DCNT	Definition
3.1.3	(0) Below the country sample average. (2) On or above the country sample average.

* Advance rulings apply with respect to the applicant during a set period of time, unless the law, facts or circumstances supporting the original ruling have changed. The validity of the ruling may vary according to the policy area. The variable focuses on tariff classification.

Variable 19. Publication of average issuance time

DCNT	Definition
3.1.4	(0) An average issuance time is not published on the Customs website or the related legislation. (2) The average issuance time is published on the Customs website or the related legislation.

Variable 20. Publication of advance rulings of general interest

DCNT	Definition
3.1.6	(0) Advance rulings of significant interest to other interested parties (governments, traders…) are not published. (2) Advance rulings of general interest are publicly available.

Variable 21. Possibility to request a review of an advance ruling or its revocation / modification

DCNT	Definition
3.1.5	(0) It is not possible. (2) It is possible.

Variable 22. Refusal to issue or revocation of advance ruling are motivated

DCNT	Definition
3.1.1	(0) Refusal to issue or revocation are not motivated. (2) Refusal to issue or revocation are motivated.

Indicator (d) - Appeal procedures

Variable 23. Publication of necessary information on procedural rules for appeal

DCNT	Definition
4.1.1 and 1.1.1 (h)	(0) There is no appeal mechanism for Customs matters or the related laws are not publicly available. (1) There is an appeal mechanism and it is only explained in the relevant legislation (Customs Code). (2) Information is displayed on the Customs website.

Variable 24. Judicial Appeal procedures

DCNT	Definition
4.1.1	(0) There is no possibility of judicial appeal. (2) Possibility of judicial following, or independent of, the administrative appeal.

Variable 25. Time limit for deciding such appeals

	Definition
	(0) There is no time limit for deciding appeals. (1) The time limit for deciding appeals is above the country sample average. (2) The time limit for deciding appeals is below the country sample average.

Variable 26. Availability of information on the motives of the administration's decisions

DCNT	Definition
4.1.5	(0) There is no information on the motives. (2) Information about the motives of the administration's decision is provided.

Variable 27. Efficiency of legal framework in challenging regulations*

	Definition
	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

Source*: ***WEF GCR* *proxy: the score based on the reply to the question How efficient is the legal framework in your country for private businesses in challenging the legality of government actions and/or regulations? [1=extremely inefficient; 7=highly efficient]*

Variable 28. Judicial independence*

	Definition
	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

* ***Source*: *WEF GCR*** *proxy: the score based on the reply to the question To what extent is the judiciary in your country independent from influences of members of government, citizens, or firms? [1=heavily influenced; 7=entirely independent]*

Variable 29. Equality of treatment between national and foreign actors in commercial disputes*

	Definition
	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

***Source**: **IPD** proxy: score based on the answer to Equality of treatment between national and foreign actors in commercial disputes [1=low equal treatment; 4=high equal treatment]*

Variable 30. Extent of implementation and speed of court rulings in commercial matters *

	Definition
	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

***Source**: **IPD** proxy: score based on the answer to Extent of implementation and speed of court rulings in commercial matters [1=low enforcement and speed; 4=high enforcement and speed]*

Indicator (e) – Fees and charges1

Variable 31. Publication of Fees and Charges*

DCNT	Definition
6.1.4	(0) Information on fees and charges is not published**. (1) Information is available in paper publications (Gazette, Bulletin, Customs Code). (2) Information is displayed on the Customs website (on a dedicated page).

* This variable refers to all fees and charges (other than import/export duties and other than taxes within the purview of GATT Article III) imposed by [customs and other government agencies or bodies that act on behalf of government agencies on matters of customs intervention] for services rendered in connection with importation or exportation of goods or for any formality required for undertaking such importation or exportation. [DCNT 6.1.1]
** This information shall include the fees and charges that will be applied, reason for such fees and charges, the responsible authority, and when and how payment is to be made. [DCNT 6.1.4]

Variable 32. Evaluation of fees and charges

DCNT	Definition
6.1.3	(0) Fees and charges are calculated on an *ad-valorem* basis.* (2) Fees and charges are not calculated on an *ad-valorem* basis.

* However, the score is (2) if the fees and charges is limited to the approximate cost of the service rendered.

Variable 33. Total fees and charges collected (number and diversity)*

DCNT	Definition
6.1.6	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

Source*: **LPI proxy: the simple average of all the percentages of respondents answering high/very high with respect to the level of the following types of fees and charges applied in the operational logistics environment: port charges, airport charges, road transport charges, rail transport rates, warehousing/transloading* charges*, agent fees.*

Variable 34. Fees for Customs services during normal working hours

	Definition
	(0) There are fees for Customs services during normal working hours. (2) There are no fees for Customs services during normal working hours.

Indicator (f) – Formalities - documents

Variable 35. Use of copies

DCNT	Definition
10.2.1 and 10.2.2	(0) Customs and other border agencies do not accept copies of documents. (1) Copies are accepted with exceptions (related to the type of good, the circumstances or the agency). (2) Copies are accepted without exceptions.

1 Indicator (e) Fees and charges refers only to Article 6.1 and does not include Article 6.2 (Penalties).

Variable 36. International Standards compliance*

DCNT	Definition
10.3.1	(0) The rate of ratification is below the 30th percentile of the sample. (1) The rate of ratification is between the 30th and 70th percentile of the sample. (2) The rate of ratification is above the 70th percentile of the sample.

* The term "international standards" shall be understood to refer to international standards, conventions, or agreements, relating to facilitating international trade. To calculate this variable we have counted ratifications to the following conventions: **Convention (1990) on the Temporary Admission of Goods (Istanbul Convention)**, **International Convention (1986) on the Harmonized Commodity Description and Coding System (HS Convention)**, **General Annex of the International Convention (1999) on the Simplification and Harmonisation of Customs procedures (Revised Kyoto Convention)**.

Variable 37. Number of documents for import*

DCNT	Definition
10.2.1	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

***Source**: **World Bank Doing Business Trading Across Borders**: Number of documents to import* which records documents required for clearance by government ministries, customs authorities, port and container terminal authorities (transport documents), health and technical control agencies and banks.

Variable 38. Number of documents for export*

DCNT	Definition
10.2.1	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

**Source*: Doing Business*

Variable 39. Time to prepare documents for import (days)*

DCNT	Definition
10.2.1	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

**Source*: Doing Business*

Variable 40. Time to prepare documents for export (days)*

DCNT	Definition
10.2.1	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

***Source:** Doing Business*

Indicator (g) – Formalities - automation

Variable 41. Percent of procedures that can be expedited electronically (out of the total number of import/export/transit procedures)

	Definition
	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

Variable 42. Use of Risk Management*

DCNT	Definition
7.3.1	(0) There are no risk management procedures in place. (1) In the process of implementation, not yet fully operational. (2) There is a fully operational procedure.

* Risk Management means the systematic application of management procedures and practices providing Customs [and other relevant border agencies] with the necessary information to address movements or consignments which present a risk [DCNT 7.3.6(b)]. “Risk” is defined as the potential for non-compliance with Customs and/or other relevant laws, regulations or procedural requirements connected with the importation, exportation or transit of goods [DCNT 7.3.6(a)]. Members shall concentrate customs control and other relevant border controls on high risk consignments and expedite the release of low risk consignments. [DCNT 7.3.2].

Variable 43. IT Systems capable of accepting EDI and exchanging data electronically*

	Definition
	(0) IT systems are not ready for EDI. (1) In the process of implementation, not yet fully operational. (2) IT systems are ready for EDI.

* An EDI system is an interface providing access to an electronic declaration system.

Variable 44. Availability of full-time (24/7) automated processing for Customs agencies

	Definition
	(0) There is no full-time automated processing. (2) There is full-time automated processing.

Variable 45. Quality of telecommunications and IT*

	Definition
	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

Source*: ***LPI* *proxy: percent of respondents answering low/very low to the question The quality of telecommunications and IT in the country of work.*

Indicator (h) – Formalities - procedures[2]

Variable 46. Single Window*

DCNT	Definition
10.4.1	(0) There is no Single Window. (1) A Single Window is planned or in the process of implementation**. (2) There is a Single Window.

***A Single Window is defined as a facility that allows parties involved in trade and transport to lodge standardized documentation and/or data with a single entry point to fulfil all import, export and transit-related regulatory requirements** [UN/CEFACT Recommendation No.33].
** It can be a facility already in place acting as a Single Window (*i.e.* not covering all the aspects of a Single Window facility) or a facility in the process of implementation but not yet fully operational.

Variable 47. Publication of Average Release Time

DCNT	Definition
7.5.1	(0) The average release time is not published in a consistent manner on a periodic basis. (2) The average release time is published in a consistent manner on a periodic basis, for major customs offices.

Variable 48. Clearance Time (days)*

	Definition
	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

***Source*: *LPI*

Variable 49. Implementation of Pre-arrival Processing*

DCNT	Definition
7.1.1	(0) Pre-arrival processing is not implemented. (2) Pre-arrival processing is implemented.

* Pre-arrival processing [is defined as] procedures to submit import documentation and other required information [to customs and other relevant border agencies] for [examination] prior to the arrival of goods, with a view to expediting the [clearance] and release of goods upon arrival.

Variable 50. Percent of physical inspections*

	Definition
	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

*** Source*: *LPI*

[2] Indicator (h) Formalities – Procedures does not include "expedited shipments."

Variable 51. Physical inspections - as regards perishable/ non-perishable goods

	Definition
	(0) Physical inspection procedures do not allow to accelerate the control for perishable goods. (2) Perishable goods benefit from accelerated controls.

Variable 52. Efficiency of customs and delivery of imports*

	Definition
	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

***Source**: LPI (grades the efficiency of the customs clearance process in the delivery of imports)*

Variable 53. Efficiency of customs and delivery of exports*

	Definition
	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

**Source*: LPI (grades the efficiency of the customs clearance process in the delivery of exports)*

Variable 54. Percent of Post-Clearance Audits (PCAs) carried out

DCNT	Definition
7.4	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

Variable 55. Separation of release from final determination and payment of Customs duties*

DCNT	Definition
7.2.1 and 7.2.2	(0) There is no such mechanism. (1) Yes, but it is restricted to the Authorized Trader status. (2) Yes, without conditions other than the submission of guarantee.

* Procedures [allowing] an importer to obtain the release of goods prior to final determination and payment of customs duties, taxes, fees and charges, upon provision of sufficient guarantee … [where there is a delay in the final determination … [DCNT 7.2.1] … in the form of a surety, a deposit or some other appropriate instrument … [DCNT 7.2.2]

Variable 56. Treatment of perishable and non perishable goods concerning the separation of release from final determination and payment of Customs duties

	Definition
	(0) There is no preferential treatment of perishable goods. (2) Perishable goods enjoy preferential treatment concerning the separation of release.

Variable 57. Elimination of Pre-Shipment Inspection

DCNT	Definition
10.5.1	(0) Pre-shipment inspection is required on Customs matters. (2) No pre-shipment inspection is required on Customs matters.

Variable 58. Authorized Operator (AO) Programmes*

DCNT	Definition
10.6.1	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

***Source*: *LPI*: *the percent of respondents answering often or nearly always to the question Application of expedited customs clearance for traders with high compliance levels*

Variable 59. Simplification of procedures (time)*

DCNT	Definition
10.2.2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

Source*: **LPI proxy: the percent of respondents answering improved/much improved to the following question Evaluation of customs clearance procedures since 2005.*

Variable 60. Simplification of procedures (cost)*

DCNT	Definition
10.2.2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.

**Source:* *Doing Business Trading Across Borders proxy: we calculate the variation over the last three years of the cost to import (USD per container).*

Variable 61. Adjustment of working hours of Customs personnel to commercial needs

DCNT	Definition
10.2.1	(0) The working hours of Customs personnel are not adapted to commercial needs. (1) The working hours of Customs personnel are partially adapted to commercial needs. (2) The working hours of Customs personnel are entirely adapted to commercial needs.

Variable 62. Requirement for mandatory use of a third-party customs broker

DCNT	Definition
10.6.1	(0) Mandatory use of a third-party customs broker is required. (2) Mandatory use of a third-party customs broker is not required.

Indicator (i) – Border Agency Cooperation (internal)

Variable 63. Cooperation between agencies on the ground* at the national level (internal cooperation)**

DCNT	Definition
9.1	(0) The score is below the 30th percentile of the country sample. (1) The score is between the 30th and the 70th percentile of the country sample. (2) The score is above the 70th percentile of the country sample.

* Establishing a single location for one time documentary controls and/or a single location for physical verification of consignments.

***Source*: *As a proxy we use **Institutional Profiles Database** score based on the answer to the question Co-ordination and cooperation between ministries and within administrations [1= low level of co-ordination and co-operation to 4 = high level of co-ordination and cooperation]*

Variable 64. Control delegation at the national level

	Definition
	(0) Government agencies do not delegate controls to Customs authorities. (2) Government agencies delegate controls to Customs authorities.

Variable 65. Regular meetings are held at the national level (including training seminars)

	Definition
	(0) There are no meetings between the different public agencies involved in the procedures required to import or export goods or such meetings are not regular. (1) Regular meetings are held to improve cooperation. (2) These meetings also include the private sector.

Indicator (j) - Border Agency Cooperation (external)

Variable 66. Alignment of working days and hours with other neighbouring countries at border crossings

DCNT	Definition
9.3 (i)	(0) Working days and hours are not aligned with other neighbouring countries. (2) Working days and hours are aligned with other neighbouring countries.

Variable 67. Alignment of procedures and formalities with other neighbouring countries at border crossings

DCNT	Definition
9.3 (ii)	(0) Procedures and formalities are not aligned with other neighbouring countries. (2) Procedures and formalities are aligned with other neighbouring countries.

Variable 68. Development and sharing of common facilities with other neighbouring countries at border crossings

DCNT	Definition
9.3 (iii)	(0) Common facilities are not developed and shared with other neighbouring countries. (2) Common facilities are developed and shared with other neighbouring countries.

Variable 69. Joint controls with other neighbouring countries at border crossings

DCNT	Definition
9.3 (iv, v)	(0) There are no joint controls performed in cooperation with other neighbouring countries. (1) Joint controls are performed with other neighbouring countries. (2) One stop border posts are shared with neighbouring countries.

Indicator (k) - Consularization

Variable 70. Consular transaction requirements*

DCNT	Definition
8.1	(0) The country imposes consular transaction requirements. (2) The country does not impose consular transaction requirements.

* Defined as "the procedure of obtaining from a consul of the importing Member in the territory of the exporting Member, or in the territory of a third party, a consular invoice or a consular visa for a commercial invoice, certificate of origin, manifest, shippers' export declaration, or any other customs documentation in connection with the importation of the good".

Indicator (l) – Governance and Impartiality

Variable 71. Clearly established and transparent structures and functions

	Definition
	(0) Structures and functions of the Customs administration are not publicly described. (2) Structures and functions are publicly available.

Variable 72. Establishment of a code of conduct

	Definition
	(0) There is no Code of conduct. (2) A code setting out ethics policy is developed, published and made available to all employees.

Variable 73. Implementation and transparency of sanctions against misconduct

	Definition
	(0) There is no publicly available information on sanctions against misconduct. (2) Information on disciplinary provisions specifying what constitutes misconduct and the type of sanctions which apply (e.g. non-compliance penalties) are publicly available.

Variable 74. Ethics Policy

	Definition
	(0) There is no ethics policy. (1) The ethics policy observes all the principles of the Revised Arusha Declaration. (2) A help desk is established to guide staff on ethical issues.

Variable 75. Clear provisions for the financing of the Customs administration

	Definition
	(0) There is no public information as to the financing of the Customs administration. (2) Financing is determined and set out in legal provisions and related information is publicly available.

Variable 76. Internal systems audit

	Definition
	(0) There is no internal audit mechanism. (2) An audit function for internal systems is established, adequately empowered and operational.

Variable 77. Publication of an annual Customs report

	Definition
	(0) Customs do not publish annual activity reports. (1) Annual reports are available, but they contain insufficient information on customs activities*. (2) Annual reports are available and contain sufficient information on Customs activities.

* No information on budget and duties collected, complaints or efficiency indicators.

Variable 78. Irregular payments and bribes*

	Definition
	(0) The score is below the 30th percentile of the sample. (1) The score is between the 30th and 70th percentile of the sample. (2) The score is above the 70th percentile of the sample.

***Source**: We use a proxy **World Economic Forum Global Competitiveness Report**: score based on the answer to the question: In your country, how common is it for firms to make undocumented extra payments connected with: (a) imports and exports; (b) public utilities; (c) annual tax payments; (d) awarding of public contracts and payments; (e) obtaining favourable judicial decisions. [1=very common; 7=never occurs]*

Indicator (M) –TRANSIT FEES AND CHARGES

Variable 79. Information availability on transit fees and charges*

DCNT	Definition
1.1.1(c) and 6.1.4	(0) Information on transit fees and charges is not published. (1) Information is available in paper publications. (2) Information is displayed on the customs website.

* Information about transit fees and charges, the reason thereof, the responsible authority and when and how to make the payment

Variable 80. Prior publication of transit fees and charges

DCNT	Definition
6.1.5	(0) There is no prior publication of changes to fees and charges. (1) Information on changes is published in advance. (2) Information on changes is published in advance on customs website.

Variable 81. Periodic review of fees and charges and adaptation to changed circumstances

DCNT	Definition
6.1.6 and 11.7(b)	(0) There is no periodic review of fees and charges. (1) Fees and charges are reviewed periodically. (2) Fees and charges are reviewed periodically and adapted to changed circumstances.

Variable 82. Evaluation of transit fees and charges

DCNT	Definition
6.1.3 and 11.7(c)	(0) Transit fees and charges are calculated on an *ad-valorem* basis. (2) Transit fees and charges are not calculated on an *ad-valorem* basis.

Indicator (n) – TRANSIT FORMALITIES

Variable 83. Information on transit formalities and documentation

DCNT	Definition
1.1(a)	(0) There is not enough information on procedures, required forms and documents. (1) There is enough information. (2) There are summary guides and/or specific highlights on these topics.

Variable 84. Periodic review and adaptation to changed circumstances

DCNT	Definition
10.1.1 and 11.3(b)	(0) There are no periodic reviews of documents and procedures. (1) Documents and procedures are reviewed periodically. (2) Documents and procedures are reviewed and adapted to changed circumstances.

Variable 85. There are physically separate border-crossing facilities/infrastructure for transit

DCNT	Definition
11.8	(0) There are no physically separate border crossing facilities. (1) There are physically separate border crossing facilities at large transit entry points. (2) There are physically separate transit facilities at all entry points where trade transits.

Variable 86. Limited physical inspections of goods and use of risk assessment

DCNT	Definition
11.9	(0) Transit trade goods are subject to frequent (>10%) physical inspections, risk based system is not used or used on a limited basis. (1) Transit trade goods are evaluated using a risk assessment to reduce physical inspections of goods. (2) Transit trade goods are rarely inspected due to a risk assessment model.

Variable 87. Quality controls or technical standards applied

DCNT	Definition
11.10	(0) Quality controls and technical standards are applied as for entry into the domestic economy (i.e. transit not treated differently than imports). (1) Quality controls and technical standards are applied only to hazardous materials and high risk cargos. (2) Quality controls and technical standards are not applied to transit trade.

Variable 88. Pre-arrival processing for transit trade

DCNT	Definition
11.11	(0) Pre-arrival processing of documents for transit trade is not supported. (1) Pre-arrival processing for transit is supported for some importers\ goods\ entry points\ modes of transport. (2) Pre-arrival processing is supported for over 90% of transit goods and entry points.

Variable 89. Establishment of Single Window for transit trade

DCNT	Definition
10.4.1	(0) There is no single window for transit trade. (1) Some points of entry provide a single window for transit trade. (2) All transit trade can be submitted to a single window.

Indicator (O) – TRANSIT GUARANTEES

Variable 90. Multiple forms of guarantees accepted (bonds, refund, guarantee)

	Definition
	(0) No guarantees or bonds are accepted (only payments of charges with refund). (1) At least one form of non-monetary guarantee is accepted (bonds, guarantee, suspension). (2) More than one form of guarantee is accepted.

Variable 91. Guarantees are limited to the value of duties and charges

DCNT	Definition
11.14	(0) Guarantees are not limited to the amount of duties and charges. (2) Guarantees are limited to the amount of duties and charges.

Variable 92. Guarantees supported by regional or international agreements

	Definition
	(0) Transit guarantees are not supported by regional or international agreements. (2) Transit guarantees are supported by regional or international agreements.

Variable 93. Prompt and full release of the guarantee

DCNT	Definition
11.13 and 11.15	(0) Time to release transit guarantees is above the 25th percentile of the sample. (1) Time to discharge transit guarantees is in the median for the sample. (2) Time to discharge transit guarantees is below the 25th percentile.

Variable 94. Use of Customs convoys

DCNT	Definition
11.17	(0) Convoys are used without limits. (1) Convoys are only employed for high risk goods. (2) Convoys are seldom employed.

Indicator (P) – TRANSIT AGREEMENTS AND COOPERATION

Variable 95. Bilateral or regional agreements

DCNT	Definition
11.18	(0) No bilateral or regional transit agreements. (1) At least one bilateral or regional agreement. (2) More than half of transit trade is under bilateral or regional agreements.

Variable 96. Agreements on common simplified documents

	Definition
	(0) No agreements on common or simplified documents. (2) At least one agreement on common or simplified documents.

Variable 97. Transit Cooperation

DCNT	Definition
11.18	(0) There is no cooperation between the agencies of countries involved in transit. (1) Limited to cooperation on formalities and legal requirements. (2) Cooperation on formalities, legal requirements and the practical operation of transit regimes.

Additional variables

Variable 98. Customs Revenue

	Definition
	Import duty Excise duty Total duty Percent of total duty in the government revenue. Annual Operating Budget of the Customs Service.

Variable 99. The average cost/collection ratio of your Customs Service*

	Definition
	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.

* This ratio is the value of duties collected for every $1 (or 1€) received by public fund (operational budget). [It could be also the customs expenditures for every $1 (or 1€) collected].

Variable 100. A *de minimis* procedure

	Definition
	(0) Customs do not apply a *de minimis* procedure. (2) Yes, such a procedure exists.

* Procedure under which customs duties and taxes are not assessed for goods under a specified value. Where no customs duties are in place a *de minimis* procedure is irrelevant.

Annex 2.

Main Data Sources

Global Express Association Customs Capabilities Report

The **Global Express Association (GEA)** has developed questionnaires in an attempt to compile reports on market access and customs barriers in a large set of developed and developing countries[1]. The objectives of the survey, among others, are to identify national laws and policies that make it difficult for express delivery companies and other transport companies to serve a particular country in an efficient manner as well as to identify capacity building needs in the country's customs administration. Replies to questionnaires are available for 137 developed and developing countries. The GEA survey questions (within the **Customs Capabilities Report)** cover **three key areas: transparency, customs efficiency** and **post-release processes**.

World Trade Organization Trade Policy Reviews:[2] ***Section on "Trade* Policies *and Practices by measures".***

Countries' Customs websites[3] *and Customs Codes*

Doing Business indicators - World Bank

The **Trading across borders** indicator of Doing Business is focused on the procedural requirements for exporting and importing a standardized cargo of goods by ocean transport and measures the associated time and cost (excluding tariffs). It does so by compiling all the official procedures for exporting and importing the goods – from the contractual agreement between the two parties to the delivery of goods – along with the time and cost for completion. The main *Trading across borders* indicators thus include: number of all documents required to export/import goods; time necessary to comply with all the procedures required to export/import goods; and cost associated with all the procedures required to export/import goods. Different stakeholders, including local freight forwarders, shipping lines, customs brokers, port officials and banks, provide information on required documents and cost as well as the time to complete each procedure[4]. Specific information for the countries included in the database was also collected through the Doing Business **directory of Business Reform Summaries for Trading across borders**[5] which contains references to specific measures concerning customs procedures (e.g. introduction of a single window system, introduction of an electronic data interchange system, implementation of a risk-based management system, etc.) implemented by countries during 2008 and 2011.

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1. GEA is the global trade association of the express delivery industry. All the country replies to the questionnaire are available at: *http://www.global-express.org/index.php?id=4*.

2. The directory of complete WTO TPRs can be found at: *http://www.wto.org/english/tratop_e/tpr_e/tpr_e.htm*.

3. *http://www.wcoomd.org/customwebsites/* provides all the links to national Customs websites.

4. *http://www.doingbusiness.org/methodology/trading-across-borders*

5. *http://www.doingbusiness.org/reforms/overview/topic/trading-across-borders*

Logistics Performance Index (LPI) World Bank

Based on a worldwide survey of global freight forwarders and express carriers, the LPI is a benchmarking tool developed by the World Bank that measures performance along the logistics supply chain within a country. The LPI consists of both perception and objective measures.[6] Proxy variables for the TFIs have been selected from the LPI's components. The **Domestic LPI** provides qualitative and quantitative assessments of a country's **logistics environment and performance** by logistics professionals working inside it. We selected proxy variables from the 2010 LPI dataset, the latest available at the time of conducting the data collection process for the construction of the TFIs. The set of domestic performance indicators covers 143 countries. The following variables have been selected: Level of fees and charges (port charges, airport charges, road transport rates, rail transport rates, warehousing/transloading charges, agent fees); Quality of telecommunications and IT; Efficiency of process: Clearance and delivery of imports, Clearance and delivery of exports, Provision of adequate and timely information on regulatory changes, Expedited customs clearance for traders with high compliance levels; Changes in the Logistics Environment Since 2005: Customs clearance procedures; Clearance time, with physical and without physical inspection (days); The percentage of physical inspections.

World Economic Forum (WEF) Global Competitiveness Report (GCR)

The WEF GCR provides an assessment of national competitiveness, offering a useful portrait of a country's economic environment and its ability to achieve sustained levels of prosperity and growth[7]. The 2011-12 GCR covers 142 countries. The WEF draws its data from the following sources: international organisations and national sources as well as its own Executive Opinion Survey. The GCR uses data from the WEF's annual Executive Opinion Survey to capture concepts that require a more qualitative assessment or for which internationally comparable statistical data are not available for a larger set of economies. The variables extracted from the GCR are covered within the *Institutions* pillar of the Global Competitiveness Index. *Transparency of government policymaking* was included in Indicator A - Transparency; *Judicial independence* and *Efficiency of legal framework in challenging regulations* are used as components of Indicator D – Appeal Procedures, while *Irregular Payments and Bribes* was integrated as a component of Indicator L – Governance and Impartiality.

Institutional Profiles Database (IPD)

The Institutional Profiles Database[8] (IPD) 2009 presents a set of indicators on the institutional characteristics of 123 developed and developing countries. The database was constructed from a world survey conducted by the French Ministry for the Economy, Industry and Employment (MINEIE) and the French Development Agency (AFD) network of agencies present in the countries covered in the database. The structure of the institutional field in each country is obtained by intersecting nine institutional functions (describing the essential functions performed by institutions at a national level) and four sectors of operation (public institutions and civil society, the market for goods and services; the capital market; the labour

6. *http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTTRANSPORT/EXTTLF/0,,contentMDK:21514122~menuPK:3875957~pagePK:210058~piPK:210062~theSitePK:515434,00.html*

7. *http://www.weforum.org/reports/global-competitiveness-report-2011-2012*

8. *http://www.cepii.fr/anglaisgraph/bdd/institutions.htm*

market and social relations). IPD focuses on the effectiveness, the quality and the implementation of institutional arrangements. Several IPD variables were selected as source of information for Indicator B and Indicator D, namely scores concerning the dialogue structures between private and public actors within a country and scores assessing the functioning of courts with regard to commercial matters.

Asia-Pacific Economic Cooperation (APEC) Sub-Committee on Customs Procedures – 2010 Evaluation Report on Customs Activities in APEC

In 2010, all 21 APEC economies[9] participated in a comprehensive evaluation and analysis of customs activities with the objective of determining the status of the Collective Action Plan (CAP) items. The CAP outlines APEC member economies collective actions to promote trade and investment liberalisation and facilitation. The evaluation report was drafted based on the result of a survey using a questionnaire to which all countries provided answers. The questionnaire frames **fifteen key themes**, each containing *Yes/No* replies to different questions concerning customs activities in all APEC countries. Various questions covered in ten out of the fifteen themes were selected as proxy variables for the TFIs variables: Harmonization of Tariff Structure with the HS Convention; Public availability of information on customs laws, regulations, administrative guidelines and rulings provided to the business sector on an ongoing basis; Simplification and Harmonization on the basis of the Kyoto Convention; Adoption and Support for the UN/EDIFACT/Paperless trading; Adoption of the principles of the WTO Valuation Agreement; Introduction of clear appeals provisions; Introduction of an advance classification ruling system; Risk management techniques; Integrity; Customs-business partnership.

Southern Africa Trade Hub Reports[10]: including the 2011 Audit of the Implementation of Regional SADC Customs Instruments and International Conventions.

Other sources: West Africa Trade Hub Reports;[11] OECD Directorate for Financial Affairs - Administrative Barriers Reports for CEFTA Parties; WTO Trade Facilitation Case studies; Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) Reports and case studies on "Trade facilitation at border stops in South America"; European Commission – Agriculture and Rural Development DG Country dossiers "Export refunds: Customs Documents and Stamps."[12]

9. Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong, China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russian Federation, Singapore, Chinese Taipei, Thailand, The United States and Viet Nam.

10. Trade Facilitation reports and other information available at *http://www.satradehub.org/trade-facilitation/sath-content/activities/regional-integration/trade-facilitation*.

11. Reports available at *http://www.watradehub.com/taxonomy/term/68/all*.

12. Country reports available at *http://ec.europa.eu/agriculture/markets/export_refunds/forms/list_en.htm*.

Annex 3.

Country coverage – Import/export TFIS

Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, China, Colombia, Congo, Rep., Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus[1], Dominican Republic, Ecuador, El Salvador, Ethiopia, Fiji, Gabon, The Gambia, Georgia, Ghana, Guatemala, Honduras, India, Indonesia, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyz Republic, Latvia, Lebanon, Lesotho, Liberia, Lithuania, Macedonia FYR, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritius, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Qatar, Romania, Russian Federation, Rwanda, Saudi Arabia, Serbia, Senegal, Sierra Leone, Singapore, South Africa, Sri Lanka, Suriname, Swaziland, Chinese Taipei, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Uganda, Ukraine, United Arab Emirates, Uruguay, Venezuela, Viet Nam, Zambia, Zimbabwe.

1.. Footnote by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.

Footnote by all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognized by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Annex 4.

Country Groupings

Country groupings by income

Low income country group

Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Ethiopia, The Gambia, Kenya, Kyrgyz Republic, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Rwanda, Sierra Leone, Tanzania, Togo, Uganda, Zimbabwe.

Lower middle income country group

Angola, Armenia, Belize, Bhutan, Bolivia, Cameroon, Congo, Rep., Côte d'Ivoire, El Salvador, Fiji, Georgia, Ghana, Guatemala, Honduras, India, Indonesia, Lesotho, Moldova, Mongolia, Morocco, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Paraguay, Philippines, Senegal, Sri Lanka, Swaziland, Ukraine, Viet Nam, Zambia

Upper middle income country group

Albania, Algeria, Antigua and Barbuda, Argentina, Azerbaijan, Belarus, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Gabon, Jamaica, Jordan, Kazakhstan, Latvia, Lebanon, Lithuania, FYR Macedonia, Malaysia, Mauritius, Montenegro, Namibia, Panama, Peru, Romania, Russian Federation, Serbia, South Africa, Suriname, Thailand, Tunisia, Uruguay, Venezuela.

High income non-OECD country group

Bahamas, Bahrain, Barbados, Brunei, Croatia, Cyprus, Kuwait, Malta, Oman, Qatar, Saudi Arabia, Singapore, Chinese Taipei, Trinidad and Tobago, United Arab Emirates.

Geographical country groupings

Sub-Saharan Africa country group

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo, Rep., Côte d'Ivoire, Ethiopia, Gabon, The Gambia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

Middle East and North Africa country group

Algeria, Bahrain, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, United Arab Emirates.

Europe non-OECD and Central Asia country group

Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Georgia, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia FYR, Malta, Moldova, Romania, Russian Federation, Serbia, Ukraine.

Latin America and Caribbean country group

Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

Asia country group

Bangladesh, Bhutan, Brunei, Cambodia, China, Fiji, India, Indonesia, Malaysia, Mongolia, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam.

Economic partnership groupings

APEC country list

Australia, Brunei, Canada, China, Hong Kong, China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russian Federation, Singapore, Thailand, United States of America, Viet Nam.

ECOWAS country list

Benin, Burkina Faso, Cote d'Ivoire, The Gambia, Ghana, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Togo.

OECD countries (for which TFIs were calculated in the 2011 OECD study)

Australia, Belgium, Canada, Czech Republic, Germany, Denmark, France, Greece, Hungary, Italy, Japan, Korea, Mexico, Netherlands, Norway, New Zealand, Poland, Portugal, Slovak Republic, Spain, Sweden, Turkey, United Kingdom, United States.

Annex 5.

Country coverage – Transit indicators

Sub-Saharan Africa region (countries with transit indicators available)

Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mozambique, Namibia. Senegal, South Africa, Tanzania, Togo

Asia region (countries with transit indicators available)

Azerbaijan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Kyrgyz Republic, Malaysia, Nepal, Russian Federation,[1] Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam.

Landlocked and transit countries in the analysis

Table A5.1. Landlocked and transit countries in the analysis

Landlocked country	Region	Transit countries
Azerbaijan	Asia	Russian Federation
Bhutan	Asia	India
Botswana	Sub-Saharan Africa	South Africa, Namibia
Burkina Faso	Sub-Saharan Africa	Cote d'Ivoire, Togo, Ghana
Burundi	Sub-Saharan Africa	Tanzania
Kazakhstan	Asia	Russian Federation
Kyrgyz Republic	Asia	Russian Federation
Lesotho	Sub-Saharan Africa	South Africa
Malawi	Sub-Saharan Africa	South Africa, Mozambique
Mali	Sub-Saharan Africa	Côte d'Ivoire, Togo, Ghana, Senegal
Mongolia	Asia	China, Russian Federation
Nepal	Asia	Bangladesh, India
Rwanda	Sub-Saharan Africa	Tanzania
Swaziland	Sub-Saharan Africa	South Africa, Mozambique
Zambia	Sub-Saharan Africa	South Africa, Mozambique, Tanzania
Zimbabwe	Sub-Saharan Africa	South Africa, Mozambique

Note: The table lists only the landlocked and transit countries for which we have information in the TFIs database (i.e. data for the twelve import/export TFIs for both the landlocked and transit country, and transit indicators data for the selected transit countries).

[1] As the Russian Federation is a major transit country for landlocked countries in Central Asia (Table 1), for the simplification of country grouping, we include it in the Asia geographic region.

Annex 6.

Relevance and organisation of the variables

Variables vary sufficiently within the overall country sample, showing that all categories are relevant. This is shown in Tables A6.1 and A6.2 of standard deviations, pointing that there is sufficient variation within each indicator.

Table A6.1. Average standard error among variables

ID	Standard error	ID	Standard error	ID	Standard error	ID	Standard error	ID	Standard error
A1	0.5110	C20	0.9940	F38	0.7538	H59	0.7727	M80	0.8433
A2	0.6973	C21	1.0064	F39	0.7845	H60	0.8895	M81	0.8136
A3	0.6290	C22	1.0021	F40	0.7176	H61	0.8644	M82	0.9824
A4	0.3498	D23	0.8280	G42	0.7593	H62	0.9834	N83	0.6992
A5	0.8254	D24	0.6262	G43	0.6447	H63	0.8030	N84	0.8498
A6	0.8942	D25	0.9154	G44	0.9971	H64	0.9684	N85	0.8638
A7	0.9744	D26	0.5816	G45	0.8444	H67	0.9187	N86	0.8587
A8	0.8331	D27	0.7786	H46	0.7151	H68	1.0050	N87	0.8038
A9	0.9193	D28	0.7781	H48	0.7538	H69	0.7858	N88	0.6661
A10	0.7786	D29	0.6611	H49	0.9897	H70	0.9734	N89	0.6980
B11	0.8605	D30	0.8390	H50	0.7836	H71	0.5531	O90	0.7674
B12	0.8896	E31	0.6429	H51	0.9517	H72	0.5490	O91	0.8579
B13	1.0035	E32	0.9921	H52	0.7633	H73	0.7762	O92	0.6016
B14	1.0004	E33	0.7463	H53	0.8324	H74	0.7780	O94	1.0328
C15	0.8859	E34	0.9187	H55	0.8955	H76	0.3650	O95	0.3586
C16	0.7764	F35	0.5730	H56	0.9876	H77	0.7028	O96	0.9661
C18	0.9956	F36	0.7718	H57	0.8830	H78	0.7716	O97	0.5066
C19	0.9915	F37	0.6978	H58	0.7836	M79	0.9535		

Note: The table does not consider the variables that could not be included within the indicators. ID corresponds to variable number. All variables range from 0 to 2.

Table A6.2. Variation for each indicator

Indicator	Standard error
Import/export TFIs	
TFI (a) Information availability	0.4435
TFI (b) Involvement of the trade community	0.7085
TFI (c) Advance rulings	0.7969
TFI (d) Appeal procedures	0.4152
TFI (e) Fees and charges	0.5497
TFI (f) Formalities - documents	0.4725
TFI (g) Formalities - automation	0.5998
TFI (h) Formalities - procedures	0.3799
TFI (i) Border agency cooperation - internal	0.6988
TFI (j) Border agency cooperation - external	0.8139
TFI (k) Consularization	0.9734
TFI (l) Governance and impartiality	0.3990
Transit TFIs	
TFI (m) Transit fees and charges	0.7252
TFI (n) Transit formalities	0.4796
TFI (o) Transit guarantees	0.5188
TFI (p) Transit agreements and cooperation	0.5125

We also explore the pairwise correlations between the TFIs, in order to address the concern that some of the variables could capture similar aspects, or that countries that have a high score on one dimension may have a high score on other dimensions. First, we investigate the correlation between variables within each indicator. The average correlation rate among variables within each indicator is not very high, at 0.32. Although some of the variables within indicators might favour stronger correlations, each TFI was not limited to the correlated variables in order to capture as many dimensions as possible within each indicator. Second, checking for correlations between indicators did not reveal correlation problems for most of the indicators (Appendix 1). We can actually imagine that countries that have devoted time and resources into some of the areas of facilitation still need to progress in other areas.

We also perform a collinearity diagnostic for the indicators. This test provides us with VIF (Variance Inflation Factor) tolerance values. Tolerance, defined as 1/VIF, is used to check the degree of collinearity; a tolerance value higher than 0.1 means that the variable should not be considered as a linear combination of the other independent variables. The tolerance values for the variables used in the gravity model are always higher than 0.1 (Table A6.3).

Table A6.3. Collinearity test for the import/export TFIs

Indicator	VIF	Tolerance
TFI (a)	2.6	0.3853
TFI (b)	1.85	0.5416
TFI (c)	2.7	0.3704
TFI (d)	2.3	0.4345
TFI (e)	1.48	0.6753
TFI (f)	2.73	0.3662
TFI (g)	2.47	0.4054
TFI (h)	2.97	0.3364
TFI (i)	1.75	0.5716
TFI (j)	1.56	0.642
TFI (k)	1.73	0.5787
TFI (l)	1.95	0.5132
Mean VIF	2.17	

Annex 7.

Gravity specifications

We start from the log-linearised trade gravity equation derived by Anderson and van Wincoop (2003). Anderson and van Wincoop (2003) provide the theoretical background of the derivation of the gravity equation, such a discussion being out of the scope of the present paper.

$$\log\left(x_{ij}^{k}\right) = logE_{j}^{k} + logY_{i}^{k} - logY^{k} + (1-\sigma^{k})\log\left(t_{ij}^{k}\right) - (1-\sigma^{k})\log\left(P_{j}^{k}\right) - (1-\sigma^{k})\log\left(\pi_{i}^{k}\right) + \varepsilon_{ij}$$

where x_{ij} represents exports from country i to country j in sector k; Ej is the sectoral expenditure in country j; Yi is the sectoral production in country i; tij represents bilateral trade costs; σ^k is the intra-sectoral elasticity of substitution (between varieties within a sector); and ε_{ij} is the random error term. P_j^k and π_i^k terms represent "multilateral resistance", accounting for the fact that bilateral trade patterns between the two countries depend not only on a specific bilateral trade cost between them, but the extent of that cost relative to the ones characterising the trade with the rest of the world.

Different empirical approaches have been applied in order to control for MR in the gravity model. The easiest way of controlling for "multilateral resistance" and obtaining unbiased coefficient estimates is to use country or country-pair specific fixed effects (Eaton and Kortum, 2002; Feenstra, 2004). The key drawback of this estimation method is that it precludes the inclusion in the model of explanatory variables that vary only in the country dimension, such as our key explanatory variables. We therefore adopt Baier and Bergstrand's (2009) alternative approach, which consists of computing "multilateral resistance" (MR) terms based on bilateral trade cost data between all country pairs and the size of one economy relative to the size of all others.

Using a log-linear Taylor expansion of the multilateral resistance expression defined by Anderson and van Wincoop (2003), Baier and Bergstrand (2009) express the multilateral resistance by using the GDP-share-weighted average trade costs faced by the two trading partners relative to the GDP-share-weighted average of those trade costs between all the other countries. The MR term is thus a linear approximation of the MR between countries that allows capturing bilateral trade costs, such as distance or border, between countries relative to those of the rest of the world (Behar *et al.*, 2011).

The Multilateral resistance (MR) terms are calculated as follows for each bilateral trade cost variable:

$$MR_B_{ij} = \sum_k \left(\frac{Y_k}{Y_w} * \ln(B_{ik})\right) + \sum_m \left(\frac{Y_m}{Y_w} * \ln(B_{mj})\right) - \sum_k \sum_m \left(\frac{Y_k}{Y_w} * \frac{Y_m}{Y_w} * \ln(B_{km})\right)$$

where:
B_{ij} denotes the bilateral trade cost variable (e.g. distance, common border, common language)
Y_w denotes global total GDP

Therefore, the baseline specifications are the ones where we adjust the bilateral trade cost variables in order to take into account the multilateral resistance issues. Firstly, we consider in the regression the importer country TFI and we thus adjust the "classical" bilateral trade cost variables in the regression (distance, contiguity, language, colony, free trade agreement). We introduce these variables as the difference between the original value of the variable and their adjusted multilateral resistance term.

(reg1):

$$\ln(x_{ijt}^{k}) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij})_\text{MR} + \beta_2^k \text{contiguity}_{ij}_\text{MR} + \beta_3^k \text{language}_{ij}_\text{MR} + \beta_4^k \text{colony}_{ij}_\text{MR} + \beta_5^k \text{rta}_{ij}_\text{MR} + \beta_6^k \ln(1 + t_{ijt}^k) + \beta_7^k \text{GDP}_{it} + \beta_8^k \text{GDP}_{jt} + \beta_9^k \text{TFI}_j^c + \beta_{10}\text{landlocked}_i + \beta_{11}\text{landlocked}_j + D_t + D_k + \varepsilon_{ijt}^k$$

where:
i, j, k and t denote the exporting country, the importing country, the sector and year
x^k_{ijt} exports from country i to j in sector k in year t
distance_{ij} represents the bilateral distance between i and j
contig_{ij} denotes the existence of a common border, lang_{ij} the existence of a common language, colony_{ij} denotes common colony ties
rta_{ijt} is a dummy variable that is equal to 1 when an active free trade agreement exists between countries i and j in year t
t_{ijt} represents the total average tariff for imports of country j from country i in sector k and year t
GDP_{it} and GDP_{jt} denote the Gross Domestic Product of country i and j, respectively, in year t
D_t and D_k denote fixed effects for year and sector
subscript c indicates the TFI indicator.

A similar specific is tested, in which we consider both the importer and exporter TFIs. A country's trade flows can be impacted through its own reforms but also the reforms of its trading partners.

(reg2):

$$\ln(x_{ijt}^{k}) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij})_\text{MR} + \beta_2^k \text{contiguity}_{ij}_\text{MR} + \beta_3^k \text{language}_{ij}_\text{MR} + \beta_4^k \text{colony}_{ij}_\text{MR} + \beta_5^k \text{rta}_{ij}_\text{MR} + \beta_6^k \ln(1 + t_{ijt}^k) + \beta_7^k \text{GDP}_{it} + \beta_8^k \text{GDP}_{jt} + \beta_9^k \text{TFI}_j^c + \beta_{10}^k \text{TFI}_i^c + \beta_{10}\text{landlocked}_i + \beta_{11}\text{landlocked}_j + D_t + D_k + \varepsilon_{ijt}^k$$

We also run a specification including the geometric average of the importer and exporter countries TFIs. The geometric average is employed because it will also smooth accuracy issues, when for instance an index for country i will be based on several missing variables opposed to an index for country j computed without missing variables (Moisé et al., 2011).

$$TFI_*^c = \sqrt{TFI_i^c TFI_j^c}$$

We equally adjust the bilateral trade cost variable for the multilateral resistance. The specification thus becomes:

(reg3):

$$\ln(x_{ijt}^{k}) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij})_\text{MR} + \beta_2^k \text{contiguity}_{ij}_\text{MR} + \beta_3^k \text{language}_{ij}_\text{MR} + \beta_4^k \text{colony}_{ij}_\text{MR} + \beta_5^k \text{rta}_{ij}_\text{MR} + \beta_6^k \ln(1 + t_{ijt}^k) + \beta_7^k \text{GDP}_{it} + \beta_8^k \text{GDP}_{jt} + \beta_9^k \text{TFI}_*^c + \beta_{10} \text{landlocked}_i + \beta_{11} \text{landlocked}_j + D_t + D_k + \varepsilon_{ijt}^k$$

Following recent literature (Behar, 2009; Behar *et al.*, 2011) that adjusts other bilateral trade costs besides the "classical" gravity variables for multilateral resistance, when we consider in the regression the geometric average of the TFIs, this variable is adjusted as well.

(reg3bis):

$$\ln(x_{ijt}^{k}) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij})_\text{MR} + \beta_2^k \text{contiguity}_{ij}_\text{MR} + \beta_3^k \text{language}_{ij}_\text{MR} + \beta_4^k \text{colony}_{ij}_\text{MR} + \beta_5^k \text{rta}_{ij}_\text{MR} + \beta_6^k \ln(1 + t_{ijt}^k) + \beta_7^k \text{GDP}_{it} + \beta_8^k \text{GDP}_{jt} + \beta_9^k \text{TFI}_*^c_\text{MR} + \beta_{10} \text{landlocked}_i + \beta_{11} \text{landlocked}_j + D_t + D_k + \varepsilon_{ijt}^k$$

When the gravity model is estimated in a log-normal specification, zero trade observations are discarded, i.e. for the country pairs that do not trade at all. It remains nevertheless interesting to observe the fact that some pairs of countries do not trade at all in some products. This is all the more important when seeking to identify the impact of trade facilitation areas on developing countries' trade. In line with the recent developments in the literature, this issue is also addressed by estimating the model using a Poisson Maximum Likelihood Estimation (Poisson) estimator (Santos Silva and Tenreyro, 2006). This allows including in the estimation sample the observations where trade is equal to zero. Moreover, it deals with the heteroskedasticity that can result in biased estimates of standard errors under OLS. Poisson estimations for the different country groups are reported in Appendix 1. A cross section is also estimated for 2009 and results remain consistent across country groups. The model is also estimated with OLS, by adding 1 to all trade flows.

For reasons exposed in Annex 6, introducing the indicators altogether in the regression could pose problems of multicolinearity. In the presence of multicolinearity, the standard errors of the parameters could be higher, resulting in unstable estimated coefficients of the model. This is why the model is first tested by introducing the indicators individually in the regression. Second, the correlation matrix between the indicators and other diagnostic tests did not indicate high correlations. Moreover, we find that the majority of the variables in the regression are significant, which would not be the case if combinations of these variables were to be highly correlated with each other.

Annex 8.

Transit indicators and gravity specifications

Analysing the impact of transit measures on trade flows raises a series of methodological challenges. Such a transit indicator is most relevant for transit trade, which represents a fraction of total global trade. Transit trade introduces a host of unique problems in modelling. As in the case of the European Union and its major transit ports, developing countries also ship goods via large transit hubs for efficiency. However, no publicly available databases exist to identify accurate transit trade data for a wide range of developing countries. It is thus difficult to include in any estimation method actual transit data that could lead to reliable estimations.

In order to offer some preliminary insights into the impact of transit trade measures on landlocked countries trade, we employ a quantitative approach based on the gravity trade specifications tested by Limao and Venables (1999). Limao and Venables (1999) use a gravity equation framework for testing the impact of transit countries infrastructure on the landlocked countries trade. They construct a transit infrastructure variable. Authors consider L to be a given landlocked country and L_t the set of transit countries L uses to reach the sea. Ideally, a set of weights that reflect the probability that the infrastructure of each country in L_t is used by L should be considered, but such an information is difficult, if not impossible, to find for a wide range of countries. The available data reports solely if a country is used for transit or not, thus authors assign an equal probability of infrastructure use to each transit country in L_t. So, if country L uses n transit countries the transit infrastructure variable for that country gives an equal weight of 1/n to each of those countries' measure of their considered infrastructure index. Authors note two caveats. First, they assume that no trade (or the same share of trade for all countries) goes by air. Airborne trade is still small enough for landlocked countries to justify this assumption. Second, trade flows or trade costs between landlocked countries and their neighbours should not include the cost of going through the transit infrastructure. As such, when considering trade with neighbouring countries i and j, the transit infrastructure variable is adjusted: if i and j are neighbours and j (i) is landlocked the transit country infrastructure variable is set to zero since no transit country must be used (i.e. the transit country infrastructure index is multiplied by 1-contiguity_{ij}, where contiguity_{ij} is a dummy variable equal to 1 if countries i and j share a border).

In a similar way, we build the transit trade facilitation indicator for a landlocked country L. In the case of the import/export TFIs, we have tested specifications that took into account the twelve TFIs characteristic to the importer country (TFI_j^c), both the importer and exporter country TFIs (TFI_j^c and TFI_i^c), as well as an interacted measure of the two (the geometric average of the importer and exporter TFIs, $\sqrt{TFI_i^c * TFI_j^c}$). In the case of transit trade, the specifications are similar, but a third facilitation dimension needs to be accounted for – transit measures for the transit country (shipping k from i to j via T_n). The gravity specification is adjusted to take into account the fact that transit facilitation measures in country (countries) T_n can have an impact on trade between the landlocked country j and its trading partner i.

$$\ln(x_{ijt}^k) = \beta_0 + \beta_1^k \ln(\text{distance}_{ij})_\text{MR} + \beta_2^k \text{contiguity}_{ij}_\text{MR} + \beta_3^k \text{language}_{ij}_\text{MR} + \beta_4^k \text{colony}_{ij}_\text{MR} + \beta_5^k \text{rta}_{ij}_\text{MR} + \beta_6^k \ln(1 + t_{ijt}^k) + \beta_7^k \text{GDP}_{it} + \beta_8^k \text{GDP}_{jt} + \beta_9^k \text{TFI}_j^c + \beta_9^k \text{TFI}_j^{\text{transit}} * (1 - \text{contiguity}_{ij}) + D_t + D_k + \varepsilon_{ijt}^k$$

where:

x_{ij} represents trade from i to j (j is a landlocked country and i its trading partner)

in TFI_j^c - c accounts for each of the import/export TFIs

$TFI_j^{transit}$ is the transit indicator for the transit country (or average, when there is more than one transit country) of landlocked country j (when i is a landlocked country as well, we consider $TFI_i^{transit}$); Table A5.1 in Annex 5 lists the transit countries for each of the landlocked countries considered.

Three specifications are tested: first, we include each of the importer-side import/export TFIs[1] and the transit indicators (reg1p); then, we include each of the importer-side and exporter-side first TFIs, as well as the transit indicators (reg2p); lastly, we include the geometric average of the import/export TFIs and the transit indicators (plus an additional specification where the geometric average is adjusted for multilateral resistance) (reg3p and reg3bisp).

As in the case of the specifications run for the import/export TFIs, in order to enlarge the number of observations, take into account multilateral resistance and price variation, we run a panel covering the period 2002-10. A cross-section is run for 2009 and results are consistent with the panel. The specification takes into account multilateral resistance according to the Baier and Bergstrand (2009) approach. Poisson estimations are reported. The sample includes the landlocked and transit countries for which we have data for both the twelve import/export TFIs and for the transit indicators (i.e. data for the twelve import/export TFIs for both the landlocked and transit country, as well as transit indicators data for the selected transit countries).

Infrastructure and transit measures

The effectiveness of trade facilitation for transit countries can be highly dependent on infrastructure, and vice versa, suggesting the indicators could be modelled as multiplicative (interactive) terms with infrastructure. We adjusted thus the specification by introducing a measure of trade and transport-related infrastructure (e.g. ports, railroads, roads, information technology) drawn from the World Bank Logistics performance index (LPI)[2] (the index ranges from 1=low quality to 5=high quality). The LPI is available for three years: 2007, 2010 and 2012. Since we run the model on a panel for the period 2002-10, we consider the 2007 value as the average value of the index valid for the sub-period 2002-06 and the 2010 value as the average value valid for the sub-period 2007-10.

The same specifications, augmented with the interaction between the infrastructure quality index and the transit indicators, were tested. At this stage, very few robust results across the different specifications were obtained. This suggests that further work needs to focus on two directions: on the one hand, the form of the specification and the way interactions are accounted for; on the other hand, testing the impact of alternative infrastructure-related available measures. Further aspects could also be considered. Borchert et al. (2012) underline the importance of policies in services trade in landlocked countries. Authors find that policies in these countries lead to more concentrated market structures and more limited access to important services such as transport or telecommunications, all vital for ensuring connectivity.

1. This refers to all the import/export TFIs, with the exception of TFI (k) on Consularization for which we did not have sufficient reliable data to test the impact.

2. Data is available at *http://data.worldbank.org/indicator/LP.LPI.INFR.XQ*.

Annex 9.

Trade Costs Calculation

The trade costs values used in testing the impact of the TFIs are estimates drawn from the 2013 UN ESCAP – World Bank trade costs database[1]. These estimates are calculated based on the methodology developed by Novy (2008).

Novy's (2008) measure of bilateral trade costs is derived from the gravity model in Anderson and van Wincoop (2003). After several rearrangements of the basic gravity equation and the multilateral resistance terms, he derives an expression for the geometric average of trade costs in both directions, a measure of international trade costs between countries i and j ($t_{ij}t_{ji}$) relative to domestic trade costs within each of the countries ($t_{ii}t_{jj}$). Chen and Novy (2009) generalise the model at the sectoral level.

Trade costs are expressed as follows:

$$\tau_{ij} = \left(\frac{t_{ij}t_{ji}}{t_{ii}t_{jj}}\right)^{\frac{1}{2}} = \left(\frac{x_{ii}x_{jj}}{x_{ij}x_{ji}}\right)^{\frac{1}{2(\sigma-1)}}$$

where:
x_{ii}, x_{jj} denote the production sold domestically for countries i and j (i.e. domestic output minus exports) and sector
x_{ij} represents the exports from to i to j and x_{ji} the exports from j to i
σ *is* the elasticity of substitution across goods [2]

However, in the case of most developing countries, Gross Output data availability constitutes a major issue. There have been different attempts to find proxy variables for this data in the equation.

The methodology used for constructing a first version of the UN ESCAP Trade Cost database is outlined in Duval and Utoktham (2011). Following other authors (Novy, 2008; Jacks, Meissner and Novy, 2008; Shepherd, 2010), Duval and Utoktham (2011) define x_{ii} and x_{jj} as the difference between Gross Domestic Product (GDP) and total exports.

Duval and Utoktham (2011) define three levels of cost measures:

- trade costs for which intranational trade (x_{ii} and x_{jj}) is GDP less total exports
- trade costs where x_{ii} and x_{jj} are adjusted for the share of services in GDP
  $x_{ii}^{adjusted}$=NS*(x_{ii}) with NS the average non-service sector share of GDP of countries in the income group to which country i belongs to
- and "comprehensive trade costs" equal to the simple average of the two measures defined above

1. This database is developed by the Trade and Investment Division of the UN ESCAP and the World Bank, in support of the ARTNet research programme on trade facilitation. The database is available at *http://www.unescap.org/tid/artnet/trade-costs.asp*.

2. The elasticity of substitution is set equal to 8 (Anderson and van Wincoop, 2003; Novy, 2009). If further work will focus on working at a more disaggregated trade level, it should be considered that elasticity normally varies across sector and estimates and can prove more or less sensitive to the value chosen.

In a second version of the UN ESCAP trade costs database, Duval and Utoktham (2012) further refine the equation by trying to employ estimated values for the gross output where such data was missing. Authors obtain as well sectoral estimates of trade costs for a set of developing countries, for agriculture and manufacturing sectors.

For the latest version of the UN ESCAP – World Bank trade costs database, Arvis et al. (2013) use newly collected data on trade and production in 178 countries to infer estimates of trade costs in agriculture and manufactured goods for the 1995-2010 period. Authors use the same "top down" methodology for the estimation of trade costs, by inferring them from the observed pattern of production and trade across countries. Arvis et al. (2013) only deal with merchandise trade. Their approach is to use national accounts data and to proxy intra-national trade by total production less total exports. To deal with missing observations, authors use linear interpolation to calculate trade costs for country-sector-year combinations where the dataset contains missing values. The Arvis et al. (2013) trade costs database has two main advantages for our analysis. First, the set covers the large majority of the developing countries in our TFIs dataset. Second, it provides estimates for both agriculture and manufacturing goods trade.

Because trade costs are derived from a ratio with bilateral trade flows in the denominator (formula above), country pairs that do not trade at all record infinite trade costs. Such observations are treated as missing in the UN ESCAP – World Bank database.

Annex 10.

Trade Costs Regressions

The trade costs measure used represents the geometric average of trade costs in both directions, i.e. those facing exports from country i to j and those facing exports from country j to country i. Since the trade costs measure is a bilateral geometric average, we include in the main specification the TFI computed as the geometric mean of both the importer and exporter dimensions. The geometric average will also smooth accuracy issues, when an index for country i will be based on several missing variables opposed to an index for country j computed with less or no missing variables (Moisé et al., 2011). We ensure that each country pair is included only once in the regression sample, because the direction does not matter in this case (Arvis et al., 2013). The variability in trade costs comes mostly from the variation in country pairs characteristics.

$$TFI_*^c = \sqrt{TFI_i^c TFI_j^c}$$

As the total variation in trade costs for our study period proves specific to the country-pair dimension, we estimate a cross-section by averaging the trade costs over 5 years (2006-10) and estimating the impact of the bilateral measure of the TFIs. This will allow "smoothing" missing data for this selected period or inaccuracies in the trade costs estimations. The specification is estimated with OLS (reg4).

$$\ln(\tau_{ij}^k) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij}) + \beta_2^k \text{contiguity}_{ij} + \beta_3^k \text{language}_{ij} + \beta_4^k \text{colony}_{ij} + \beta_5^k \text{rta}_{ij} + \beta_6^k \text{avg_applied_tariff}_{ij*ji}^k + \beta_7^k \text{TFI}_*^c + D_i + D_j + D_k + \varepsilon_{ij}^k$$

where:

τ_{ij} is the bilateral trade cost between i and j in sector k (i.e. agriculture, manufacturing)

$\text{avg_applied_tariff}^k_{ij*ji}$ is the geometric average of tariff_{ij} and tariff_{ji} (tariff_{ij} is the trade-weighted average effective import tariff imposed by country *i* on country *j*) over the same period.

In the case of the landlocked country group, we adjust the specification in order to take into account the transit indicators for the landlocked country i (reg5):

$$\ln(\tau_{ij}^k) = \beta_0^k + \beta_1^k \ln(\text{distance}_{ij}) + \beta_2^k \text{contiguity}_{ij} + \beta_3^k \text{language}_{ij} + \beta_4^k \text{colony}_{ij} + \beta_5^k \text{rta}_{ij} + \beta_6^k \text{avg_applied_tariff}_{ij*ji}^k + \beta_7^k \text{TFI}_*^c + \beta_8^k \text{TFI}_i^{\text{transit}} * (1 - \text{contiguity}_{ij}) + D_j + D_k + \varepsilon_{ij}^k$$

Annex 11.

Contribution to the variance

From a policy perspective, it is important to show the relative contributions of the different TFIs to the overall trade costs. Following other authors (Moisé et al., 2011; Duval and Utoktham, 2011; Chen and Novy, 2011), we calculate the contribution of the indicators to the total variance of trade costs.

The contribution of each explanatory variable (V_m) to the total variance of trade costs τ_{ij} is calculated as:

$$c_m = \frac{\beta_m * cov(V_m, \tau_{ij})}{var(\tau_{ij})}$$

where β_m is the partial regression coefficient of variable V_m in the main regression.

These values express the contribution of each explanatory variable to the variation of trade costs.

The following tables report the results for the explanatory variables in the trade costs regressions for the income level and geographical country groups, as well as for landlocked countries. The first table reports the results for the explanatory variables in the case of the regressions with all the TFIs together. The second table presents the results after "data cleaning" (following Moisé et al., 2011), where we drop non-significant variable and variables that do not bear the expected sign in the first set of estimations with the TFIs altogether.

Table A11.1. Income level groups – Contribution to the variance

Table (A)

Variables	LICs	LMICs	UMICs
Distance	0.29523	0.29325	0.27523
Language	0.01872	0.01852	0.01723
Contiguity	0.08703	0.08623	0.05231
Colony	0.00103	0.00052	0.00091
RTA	0.01742	0.01421	0.01342
Tariffs_ij_ji	0.03548	0.02940	0.02601
TFI (a)	0.01448	0.01762	0.01523
TFI (b)	0.01191	0.01439	0.01433
TFI (c)	0.01345	0.01437	0.01529
TFI (d)	0.01040	0.01152	0.01046
TFI (e)	-0.00043	-0.01087	0.00523
TFI (f)	0.03052	0.02544	0.01723
TFI (g)	0.02578	0.02249	0.02144
TFI (h)	0.01330	0.02099	0.02510
TFI (i)	-0.00972	0.01497	-0.00412
TFI (j)	0.01298	-0.00785	-0.00015
TFI (l)	0.01467	0.01638	0.01491
Total variation	0.59225	0.58159	0.52007

Table (B)

Variables	LICs	LMICs	UMICs
Distance	0.27432	0.25428	0.23328
Language	0.02178	0.01724	0.01982
Contiguity	0.09820	0.07250	0.06872
Colony	0.00175	0.00071	0.00102
RTA	0.01488	0.01352	0.01123
Tariffs_ij_ji	0.03271	0.02981	0.02791
TFI (a)	0.01653	0.01424	0.01123
TFI (b)	0.01313	0.01328	0.01272
TFI (c)	0.01162	0.01521	0.01238
TFI (d)	0.00912	0.01328	0.00855
TFI (e)			0.00762
TFI (f)	0.02975	0.02713	0.01172
TFI (g)	0.02341	0.02056	0.02439
TFI (h)	0.01523	0.02237	0.02832
TFI (i)		0.01321	
TFI (j)	0.01123		
TFI (l)	0.01398	0.01588	0.01562
Total variation	0.58764	0.54322	0.47891

Table A11.2. Geographic groups – Contribution to the variance

Table (A)

Variables	SSA	MENA	Asia	LAC	EAC
Distance	0.29520	0.25760	0.24340	0.26120	0.22620
Language	0.00862	0.00456	0.00453	0.01112	0.00962
Contiguity	0.09123	0.02341	0.09128	0.07623	0.09012
Colony	0.01023	0.00021	0.00217	0.00423	0.00015
RTA	0.01512	0.00612	0.01582	0.01472	0.01048
Tariffs_ij_ji	0.03280	0.02356	0.02451	0.02971	0.01933
TFI (a)	0.01816	0.01345	0.00665	0.01762	0.00128
TFI (b)	0.01267	0.01789	0.01123	0.01482	0.01031
TFI (c)	0.01410	-0.00431	0.01037	0.01552	0.01198
TFI (d)	0.00742	0.01046	0.14123	0.01521	0.01593
TFI (e)	-0.00156	-0.00116	0.00852	-0.00102	0.01091
TFI (f)	0.02544	0.01216	0.01953	0.02741	0.01313
TFI (g)	0.03120	0.02412	0.02651	0.02488	0.01871
TFI (h)	0.01428	0.01418	0.02942	0.02018	0.01819
TFI (i)	-0.00876	-0.00915	0.00343	-0.00139	-0.00098
TFI (j)	0.01072	-0.02227	-0.02202	-0.00109	-0.00038
TFI (l)	0.01071	0.01351	0.01552	0.01638	0.01008
Total variation	0.58758	0.38435	0.63209	0.54573	0.46506

Table (B)

Variables	SSA	MENA	Asia	LAC	EAC
Distance	0.26528	0.21423	0.23512	0.25034	0.19210
Language	0.00981	0.00341	0.00345	0.01098	0.00812
Contiguity	0.00912	0.02192	0.06217	0.06723	0.09620
Colony	0.00871	0.00013	0.00234	0.00312	0.00010
RTA	0.01265	0.00409	0.01232	0.01511	0.01025
Tariffs_ij_ji	0.03761	0.02208	0.02841	0.02720	0.02135
TFI (a)	0.01926	0.01298	0.00981	0.01652	0.01462
TFI (b)	0.01528	0.01826	0.01342	0.01452	0.00981
TFI (c)	0.01422		0.01271	0.02512	0.01127
TFI (d)	0.01227	0.00972	0.01452	0.01347	0.01728
TFI (e)			0.01182	0.01003	0.01154
TFI (f)	0.02725	0.01123	0.02144	0.01945	0.01023
TFI (g)	0.02912	0.02644	0.03124	0.01871	0.02071
TFI (h)	0.01872	0.01349	0.02534	0.02842	0.02343
TFI (i)			0.00823		
TFI (j)	0.01241				
TFI (l)	0.01755	0.01023	0.01282	0.01562	0.00820
Total variation	0.50926	0.36821	0.50517	0.53585	0.45521

Table A11.3. Landlocked countries group – Contribution to the variance

Sample	Landlocked	
Variables	**Table (A)**	**Table (B)**
Distance	0.31241	0.28423
Language	0.00212	0.00201
Contiguity	0.00976	0.00725
Colony	0.00035	0.00021
RTA	0.03128	0.04281
Tariffs_ij_ji	0.03262	0.03781
TFI (a)	0.01008	0.01234
TFI (b)	0.00761	0.00912
TFI (c)	0.01327	0.01081
TFI (d)	0.01321	0.01097
TFI (e)	-0.00076	
TFI (f)	0.01498	0.01742
TFI (g)	0.01561	0.01725
TFI (h)	0.01842	0.02144
TFI (i)	-0.00011	
TFI (j)	-0.00032	
TFI (l)	0.01875	0.01532
TFI (m)	-0.00053	
TFI (n)	0.02471	0.02378
TFI (o)	0.00873	0.00621
TFI (p)	0.02341	0.01922
Total variation	0.55561	0.53821

Annex 12.

Status of implementation of selected measures

Table A12.1. Status of implementation of selected measures by groups of countries

Selected measures	Percentage of countries (of total) by income group implementing the measure			
	LICs	LMICs	UMICs	HICs (non-OECD)
publication of rate of duties (Var A2)	71.43%	75.00%	76.92%	73.33%
enquiry points (Var A3)	52.38%	71.88%	74.36%	66.67%
possibility to ask questions (Var A4)	85.71%	84.38%	92.31%	80.00%
import/export documents for download (Var A6)	52.38%	75.00%	76.92%	66.67%
interval between regulations publication and entry into force (Var A7)	42.86%	40.63%	46.15%	66.67%
publication of trade agreements (Var A8)	28.57%	56.25%	64.10%	53.33%
publication of decisions and examples of Customs classification (Var A9)	28.57%	50.00%	53.85%	46.67%
regular consultations (Var B12)	38.10%	50.00%	56.41%	46.67%
open consultations (Var B13)	19.05%	25.00%	48.72%	26.67%
advance rulings (Var C15)	71.43%	71.88%	74.36%	73.33%
information for dealing with AR procedures (Var C16)	14.29%	28.13%	46.15%	40.00%
publication of AR of general interest (Var C20)	9.52%	21.88%	46.15%	33.33%
website for appeal procedures information (Var D23)	28.57%	65.63%	53.85%	60.00%
judicial appeal procedures (Var D24)	71.43%	87.50%	84.62%	93.33%
dedicated webpage for fees and charges (Var E31)	4.76%	15.63%	35.90%	26.67%
Customs fees during normal working hours (Var E34)	47.62%	65.63%	58.97%	66.67%
fully operational of risk management (Var G42)	38.10%	43.75%	41.03%	46.67%
IT systems capable of accepting EDI (Var G43)	23.81%	53.13%	48.72%	53.33%
availability for full-time automated processing (Var G44)	28.57%	37.50%	41.03%	46.67%
Single Window planned/in the process of implementation or already operational (Var H46)	47.62%	65.63%	53.85%	53.33%
pre-arrival processing (Var H49)	42.86%	56.25%	58.97%	73.33%
separation of release from clearance (Var H55)	42.86%	34.38%	30.77%	60.00%
elimination of pre-shipment inspection (Var H57)	42.86%	59.38%	74.36%	73.33%
no requirement for clearance by Customs broker (Var H62)	47.62%	43.75%	51.28%	73.33%
Government agencies delegating controls to Customs authorities (Var I64)	52.38%	53.13%	51.28%	73.33%
clearly established and transparent structures and functions (Var L71)	76.19%	75.00%	79.49%	46.67%
Code of Conduct (Var L72)	52.38%	53.13%	58.97%	40.00%
Ethics policy (Var L74)	33.33%	46.88%	53.85%	53.33%
internal audit function (Var L76)	38.10%	50.00%	61.54%	60.00%
publication of annual Customs report (Var L77)	33.33%	50.00%	56.41%	46.67%

Note: The table refers to the data collected up to January 2013.

Appendix 1.

Correlation matrix

	TFI (a)	TFI (b)	TFI (c)	TFI (d)	TFI (e)	TFI (f)	TFI (g)	TFI (h)	TFI (i)	TFI (j)	TFI (k)	TFI (l)
TFI (a)	1											
TFI (b)	0.3253	1										
TFI (c)	0.4378	0.4154	1									
TFI (d)	0.357	0.4515	0.3693	1								
TFI (e)	0.2353	0.1867	0.3123	0.1203	1							
TFI (f)	0.3313	0.2275	0.3118	**0.5031**	0.1114	1						
TFI (g)	0.4784	0.4859	0.3073	0.3802	0.0005	0.3573	1					
TFI (h)	0.4687	0.4237	0.4774	0.3155	0.0946	0.387	**0.5412**	1				
TFI (i)	0.0369	0.1794	0.1917	0.2827	-0.0224	0.1854	0.2177	0.1419	1			
TFI (j)	-0.0762	-0.1594	-0.1548	-0.0525	-0.1208	-0.1889	-0.0913	-0.1159	-0.0429	1		
TFI (k)	0.3046	0.2441	-0.0508	0.048	0.1296	0.2038	0.3219	0.3543	0.2072	-0.2876	1	
TFI (l)	0.3304	0.2657	0.3669	0.3477	0.0924	0.2813	0.1456	0.2617	0.3532	0.0595	0.1813	1

Note: (a) for Information availability; (b) for Consultations; (c) for Advance rulings; (d) for Appeal procedures; (e) for Fees and charges; (f) for Formalities - documents; (g) for Formalities – automation; (h) for Formalities – procedures; (i) for Border agency cooperation – internal; (j) for Border agency cooperation – external; (k) for Consularization; (l) for Governance and impartiality.

Appendix 2. Trade flows - gravity regressions with the individual TFI

Appendix Table A2.1. Low income countries – All sectors

Sector	Total				Total			
Importer sample	LICs				All			
Exporter sample	All				LICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.1174***	0.0238**	0.0987***	0.0476*	0.1112**	0.0972**	0.2335**	0.7685*
	(-0.6886)	(-0.4528)	(-0.7623)	(-0.2891)	(-0.7823)	(-0.6523)	(-1.4412)	(-1.4111)
		0.1862**				0.7139***		
		(-1.4423)				(-1.2381)		
TFI (b)	0.1542**	0.1634**	0.3768***	-0.2324**	0.1652	0.1892	-0.0498	0.1833
	(-1.138)	(-1.0982)	(-1.2873)	(-1.3628)	(-1.4238)	(-3.2415)	(-2.3562)	(-1.236)
		0.2414***				0.0922		
		(-1.4542)				(-0.7823)		
TFI (c)	0.1332	0.0632	0.0782	0.1762*	0.3542***	0.3823***	0.4872***	-0.1234
	(-1.5192)	(-3.2524)	(-2.4523)	(-1.5623)	(-1.2381)	(-1.2812)	(-1.4872)	(-2.7823)
		0.2542***				0.1778		
		(-2.4129)				(-3.2912)		
TFI (d)	0.0176	0.0424	0.3182**	0.2381	0.3781*	0.3367*	0.4582***	-0.2856
	(-2.1782)	(-1.9824)	(-2.8724)	(-1.7623)	(-1.8612)	(-1.2712)	(-0.3346)	(-5.4231)
		0.3423***				0.3562***		
		(-1.4312)				(-2.0071)		
TFI (e)	0.1348	-0.1387	-0.03471	0.0078	-0.4381*	-0.5123**	-0.4381**	0.8672**
	(-1.7623)	(-1.9823)	(-2.0782)	(-2.9823)	(-1.7128)	(-0.8723)	(-1.5528)	(-0.4971)
		0.0982				-0.1832		
		-2.2187				(-1.3362)		
TFI (f)	0.3238***	0.3271***	0.9732***	0.7582**	0.4452***	0.4582***	0.8463***	1.5478**
	(-0.5623)	(-2.1282)	(-1.0023)	(-2.1982)	(-1.0872)	(-0.8723)	(-1.2871)	(-1.7623)
		0.5528***				0.4182***		
		(-1.1829)				(-1.8231)		
TFI (g)	0.4586***	0.4634***	0.6238***	0.7892**	0.4818***	0.4582***	0.5489***	0.5277*
	(-1.6723)	(-0.7623)	(-1.0098)	(-2.7615)	(-1.5623)	(-0.7623)	(-1.0453)	(-1.2812)
		0.0771**				0.3824***		
		(-1.5231)				(-0.9829)		
TFI (h)	0.2387***	0.0271*	1.2431***	1.3672*	0.5472**	0.5142**	1.3882***	2.5623*
	(-0.3328)	(-1.1238)	(-1.7442)	(-1.276)	(-2.0051)	(-1.2652)	(-0.5828)	(-1.2182)
		1.2632***				1.1128***		
		(-1.023)				(-1.2376)		
TFI (i)	0.07652	-0.0826	0.0372	0.0012	-0.0572	-0.0528	0.0935	0.1765
	(-2.8723)	(-2.5612)	(-0.5872)	(-1.0053)	(-3.2651)	(-3.4556)	(-1.2872)	(-1.0562)
		0.04714				0.1785*		
		(-1.8689)				(-1.8222)		
TFI (j)	0.0832	0.1825	0.0143**	0.0041	0.4157**	0.2819**	0.2872	0.7862
	(-1.9328)	(-2.3272)	(-2.8791)	(-0.8712)	(-1.2351)	(-2.003)	(-4.5234)	(-4.8723)
		0.2521**				0.1287		
		(-1.2514)				(-1.2712)		
TFI (l)	0.1282**	0.2683**	0.4276***	0.4581***	0.1239**	0.0388*	0.2762***	0.5238***
	(-1.0082)	(-1.3281)	(-1.3261)	(-0.9812)	(-0.7342)	(-0.1381)	(-0.7743)	(-0.8723)
		0.5672***				0.4355**		
		(-1.2337)				(-1.872)		

Note: Fixed effects for year and sector are included but not reported. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity .Robust standard errors clustered by country pair. p for Poisson. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 53-61%.

Appendix Table A2.2. Low income countries – Manufacture and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	LICs				All				LICs				All			
Exporter sample	All				LICs				All				LICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.0068**	0.0155**	0.0305*	0.0953*	0.0965**	0.0682**	0.2135**	0.4437	0.0168*	0.0186**	0.1238	-0.1598	-0.1445	0.0182**	0.0258	0.6761
	(-0.0723)	(-0.5623)	-0.2582	-0.1267	(-1.2341)	(-1.3524)	-1.0217	-0.8126	-0.1031	-0.1872	-2.7632	(-1.209)	(-2.4521)	-0.2812	-3.1020	-2.3001
		0.0755**				0.5278***				0.2469***				0.2412***		
		(-0.6281)				-0.8723				-2.0031				-0.2131		
TFI (b)	0.0612	0.0682*	0.2912***	-0.1152	-0.3513**	-0.3215**	-0.0849	-0.3575	0.2482***	0.3261***	0.6651***	-0.4871**	0.2052	0.3145***	0.5444***	-0.3282
	(-1.2289)	(-0.4452)	-2.0451	(-4.5621)	(-1.4391)	(-2.0041)	(-0.5287)	(-2.8735)	-1.0232	-0.5128	-1.5003	(-1.2172)	-3.0021	-0.3002	-1.4002	-2.3102
		0.1856***				0.3827***				0.4628***				0.4328***		
		(-2.1123)				-1.6251				-1.3278				-0.7623		
TFI (c)	0.2344**	0.2355*	-0.0388	-0.0955	0.2643**	0.3287***	0.5300***	0.6127**	-0.1558	-0.1334	0.0212	-0.3541**	0.1782	-0.1452	0.3838*	-0.3763
	(-2.0218)	(-1.1172)	(-0.2832)	(-2.3456)	-1.0542	-1.4523	-3.5424	(-1.1008)	(-1.0851)	(-3.3349)	-1.8002	(-1.1482)	-2.7621	(-3.0023)	-1.912	-2.9812
		0.2591***				0.4238***				0.3524***				0.3167***		
		(-2.123)				-2.0082				-1.9728				-0.6512		
TFI (d)	0.0226	0.0275	0.2381	0.3278	0.3538*	0.3156*	0.4998***	0.8418*	-0.1122	-0.0762	0.1553	-0.2276	-0.231	-0.0722	-0.0821	0.1452
	5.4289	(-0.1281)	-1.2525	(-2.9874)	-1.0091	-1.4238	-3.0406	(-0.4185)	(-2.7451)	(-2.6191)	-3.8671	(-3.8125)	-4.2391	(-4.2812)	(-3.6091)	-0.2182
		0.3162***				0.4875***				0.2865**				0.2854**		
		(-1.628)				-2.1362				-1.2501				-1.2301		
TFI (e)	0.4154***	0.4081***	-0.1588	-0.0585	0.4534***	0.4829***	-0.1677	0.2561	0.1667	0.2019	0.4565***	0.9522***	0.0832	0.2203	0.1456	-0.5876
	(-1.5524)	(-1.4291)	(-2.8562)	(-3.5623)	(-1.0562)	(-0.7128)	(-1.0063)	-3.1377	-3.4182	-5.4231	-1.003	(-1.1102)	-2.7021	-2.8723	-3.4671	-4.5121
		0.1682				0.1955				0.3851***				0.3545***		
		(-1.0082)				-3.4871				-1.1123				-1.2341		
TFI (f)	0.2972**	0.2853***	1.0862***	0.4558	0.3076**	0.3762**	0.5770***	0.5885	0.3561***	0.3412***	0.7845***	0.2653	0.0953	0.3521***	0.5891***	0.9551
	(-0.5423)	(-2.1922)	-1.2539	-3.4512	-1.0872	-1.1342	-3.0864	-2.8791	-1.5423	-1.4231	-0.0612	-3.0081	-2.8734	-1.4003	-2.7422	-3.0025
		0.8151***				0.2682**				0.5112***				0.5162***		
		(-2.0182)				-0.1872				-1.2432				-0.1225		
TFI (g)	0.7761***	0.7523***	0.9581***	0.0042	0.5567***	0.4555***	0.6283***	0.8512***	0.4528***	0.4238***	0.5987***	0.1236	0.2642*	0.4214***	0.3652***	-0.4561
	(-1.0034)	(-1.4538)	-1.8723	-0.0367	-1.2561	-1.5052	-6.8463	(-1.0546)	-1.2354	-1.2003	-1.3004	-2.6712	-0.1239	-0.2122	-2.8009	-2.3451
		0.0873				0.4381***				0.2176***				0.2155***		
		(-0.3412)				-1.3281				-2.004				-0.1124		
TFI (h)	1.1607**	0.0627**	1.1762***	0.0542**	0.4562*	0.4158**	1.4686***	2.7438**	0.1562	0.1285	1.5125***	0.4281	0.2651	-0.1743	1.0438***	-0.2156
	(-1.4381)	(-0.4112)	-2.0096	(-1.4231)	-1.0082	-1.0122	-5.9019	-1.5109	(-2.7632)	(-3.9003)	-1.2901	-2.9810	-4.6291	(-0.3222)	-4.1006	-5.1282
		1.1562***				1.3572***				1.6548***				1.6156***		
		-1.5623				-0.2383				-1.1002				-1.0071		
TFI (i)	0.2349***	0.1672**	-0.2131**	-0.0382	-0.1123	-0.0985	-0.0096	-0.2541	-0.05689	-0.0183	0.0026	0.1534	-0.0081	-0.0155	0.1577	0.2143
	(-1.2281)	(-1.0234)	(-1.3452)	(-2.8921)	(-4.5623)	(-2.7813)	(-0.1043)	(-2.7182)	(-2.8756)	(-2.6501)	-4.7621	-2.8202	-3.2018	(-4.3210)	-2.5991	-3.2561
		0.0453				0.0918				0.0147				0.0155		
		-0.7823				-3.4595				-2.971				-2.6712		
TFI (j)	0.0783	0.2769	0.4451*	0.0438	0.0556	0.0234*	0.3370*	0.0509	0.1871	0.3268*	0.2853**	0.534	0.4521***	0.3148*	0.1428	0.4527
	(-3.5291)	-4.1263	-1.3625	-2.007	-6.1762	-1.3951	-2.6092	-2.9023	-1.0981	-1.302	-1.0023	-2.5912	-0.3201	-1.5921	-3.0091	-3.094
		0.3552***				0.2588**				0.1856				0.1837		
		-2.0302				-1.0681				-3.5202				-4.1091		
TFI (l)	0.3458***	0.4654***	0.1285***	0.2371***	0.1108*	0.0482	0.1162**	0.6124	0.1764	0.0863	0.6528***	1.1872**	0.1682	0.0835	0.3871	0.0178
	(-0.1176)	(-2.1282)	-0.8876	-0.7642	(-1.0562)	(-3.681)	-0.5433	-2.8376	-2.7621	-3.5912	-1.3002	-0.0293	-2.8723	-4.2101	-2.8731	-2.1289
		0.5448***				0.2544				0.8578***				0.8529***		
		-1.2672				-2.9112				-1.6032				-1.6291		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 40-49%.

Appendix Table A2.3 Lower middle income countries – All sectors

Sector Importer sample Exporter sample	Total LMICs All				Total All LMICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.8276*** -1.6523	0.8225*** -1.4003 -0.0355 -3.8129	0.2876*** 1.3298	0.7120* -1.5209	0.1935*** -1.0081	0.0144 -3.6528 -0.0841*** (-1.0829)	-0.0431 (-2.381)	2.2562*** -1.6572
TFI (b)	0.7522*** -1.0023	0.8117*** -0.4003 0.3782** -0.5008	0.9775*** 0.4876	0.6315*** (-0.8912)	0.0644*** -1.0043	0.0544*** -1.2456 0.3552*** -1.9202	0.3182*** -0.1001	-0.5168*** (-1.2378)
TFI (c)	0.5751*** -1.9823	0.5872*** -1.2873 0.3265*** -0.2871	0.8127*** -0.4321	0.4511*** (-1.179)	0.0772*** -0.0187	0.0752*** -0.1009 0.0815*** -1.1091	0.0851** -1.5002	0.3456*** (-1.2404)
TFI (d)	0.4871*** -0.9821	1.5111*** -0.2822 0.1735* -2.734	0.9176*** -3.8761	-0.3551 (-1.002)	-0.0175 (-3.8742)	-0.0175 (-3.6702) 0.4185*** -1.0042	0.1805*** -0.0345	0.5591 -1.0032
TFI (e)	0.0095 3.1289	0.0715 -4.5112 0.3233*** -0.6123	0.3115*** -0.0351	0.0231 -0.0956	0.0385 -3.8712	0.0343 -3.5519 0.0385* -1.6444	0.0515** -2.3052	0.3084 -1.071
TFI (f)	1.3872*** -1.2671	1.4555*** -1.7779 0.3814*** -0.3002	1.5134*** -3.5018	3.0711*** -1.0521	0.0295 -2.0983	0.0280 -1.0023 0.4445*** -0.7763	0.3234*** -0.4003	2.0855*** -4.4823
TFI (g)	0.2853*** -1.3281	0.2834*** -0.0215 0.0043 (-4.1026)	0.3541*** -0.4529	0.2755** -1.3002	0.0095 -3.5423	0.0225* -0.4002 0.1193*** -0.2832	0.1155*** -0.9403	0.7511*** -5.7414
TFI (h)	1.545*** (-0.3291)	0.0321** -0.0125 1.1774*** -0.7552	1.5123*** -0.7081	2.7876*** -1.1198	0.0456 -3.5231	0.043** -3.8728 0.0385* -1.0219	0.0491 -2.8729	3.3240*** -3.5669
TFI (i)	-0.0836 (-3.7002)	-0.0877* (-1.001) -0.0176 (-3.4412)	-0.0814 -5.0023	0.0975 -1.5231	0.0035 -0.1431	0.0014 -3.1523 -0.0954*** (-1.1319)	-0.0688*** (-1.3286)	0.1722 -1.1163
TFI (j)	0.0467 -3.7609	-0.0771 (-3.8106) 0.0941 -3.8712	0.0626 -3.4523	0.2418 -1.7892	-0.0456 (-2.3678)	-0.0678* (-1.8711) -0.0994** (-1.5403)	-0.1542** (-0.2541)	-0.1465 (-3.4612)
TFI (l)	0.8252*** -1.4008	0.5535*** -1.5238 0.6528*** -1.1982	0.7402*** -1.2308	0.7103** (-1.0034)	0.0710* -1.7618	0.0795* -1.2348 0.0211 (-1.4562)	0.0328 -0.7651	0.1223 -2.7368

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 53-60%.

Appendix Table A2.4. Lower middle income countries – Manufacturing and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	LMICs				All				LMICs				All			
Exporter sample	All				LMICs				All				LMICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.8523***	0.8154***	0.2327**	0.4523	0.0689	-0.0855	-0.2414**	2.5624***	0.7125***	0.7211***	0.2761***	0.4701**	-0.0824	0.0981	-0.2445**	1.5887***
	-0.1651	(-2.6857)	-2.9232	-0.8127	(-5.1821)	(-4.8712)	(-1.7241)	-0.0023	-0.1348	-0.6521	-0.4353	(-0.817)	(-3.456)	(-1.1782)	(-1.0061)	-0.0851
		-0.1431				-0.4117***				0.0181				-0.3156**		
		(-2.4231)				(-2.0092)				-2.4117				(-1.1892)		
TFI (b)	0.8346***	0.9002***	1.1329***	0.6873***	0.1355**	0.1326*	1.0412***	0.5092***	0.8428***	0.8672***	1.2162***	-0.8441***	0.1081*	0.1127	1.1299***	-0.8002***
	-1.2409	-2.0523	-2.4865	(-4.5823)	(-1.4762)	-1.9721	-0.9823	(-0.4221)	-0.0072	-0.5421	-0.1352	(-0.0345)	-2.8712	-2.5671	-1.0021	(-0.0328)
		0.4156***				1.0981***				0.5502***				1.2753***		
		-2.0024				-1.5324				-0.0342				-4.8721		
TFI (c)	0.6117***	0.6551***	0.8713***	0.5876***	0.1662**	0.2312***	0.5562***	0.4082***	0.5126***	0.5432***	0.7381***	-0.5338***	0.2082***	0.1872***	0.485***	-0.3091**
	(-0.1659)	-5.1123	-1.4452	(-4.1512)	-2.5612	-2.1005	-0.6198	(-0.0467)	-1.2371	-0.7821	-0.8418	(-0.0238)	-2.6712	-2.0091	-0.0901	(-2.0023)
		0.3754***				0.4561***				0.3227***				0.3527***		
		-1.4023				-1.3241				-2.0023				-0.0487		
TFI (d)	1.3245***	1.4723***	1.2564***	1.2441***	-0.1754	-0.1318	0.9562***	0.5115	1.5871***	1.6542***	0.8491***	-0.7218**	-0.1172	-0.1156	0.8717***	-0.3129
	(-0.8342)	-1.4823	-3.0723	(-3.1542)	(-2.5243)	(-1.7234)	-1.5092	-1.9923	-1.0023	-1.0056	-0.4291	(-1.0034)	(-2.0812)	(-2.7610)	-0.0435	(-2.8112)
		0.4510***				2.1171***				-0.0255				1.8413***		
		-3.2133				-0.6542				(-0.2341)				-1.0037		
TFI (e)	0.08712	0.1775*	0.5228***	-0.4872	0.2408***	0.2325*	0.5872***	-0.1452	0.0554	0.1142	0.3672***	-0.2441	0.1752**	0.0855	0.0812	0.5444
	-1.8017	-2.8553	-4.4432	(-2.5423)	-2.682	-1.9765	-1.0023	(-3.2982)	-3.2182	-02.734	-0.2714	(-3.6712)	-0.0231	-1.9827	(-2.8125)	-1.8712
		0.5231***				0.4981***				0.3871***				-0.2057*		
		-2.1082				-2.0911				-2.0091				(-1.0021)		
TFI (f)	1.514***	1.6082***	2.0052***	4.1987***	0.0265	-0.0045	1.2120***	2.6238***	1.5423***	1.5872***	1.4483***	2.7318***	0.0352	0.0554	1.1418***	1.9056***
	-0.3314	-4.7721	-1.6523	-4.328	(-1.5423)	(-4.1278)	-0.4562	-0.0023	-0.7123	-0.6152	-0.0042	(-0.0671)	-1.6721	-2.5612	-0.0924	-0.6512
		0.7523***				1.5542***				0.1982**				1.4048***		
		-1.2015				-1.0082				-2.0001				-1.0028		
TFI (g)	0.4612***	0.4623***	0.5014***	0.2109	0.0326*	-0.0481	0.00834	0.8761***	0.3201***	0.2981***	0.5412***	0.0025	-0.1136*	-0.1082	0.2718***	0.5174***
	-0.1056	-1.5523	-2.2652	-5.6723	(-0.2781)	(-2.5423)	(-3.4562)	-1.0283	-2.1892	-0.0342	-0.8129	-3.1289	(-1.0054)	(-2.6712)	-0.3332	-0.0071
		-0.0182				-0.2126**				0.1873***				0.2744***		
		(-2.2101)				(-2.1672)				-0.7231				-1.5353		
TFI (h)	0.5412***	0.4523**	1.2876***	2.1127*	0.3236***	0.2762*	0.7082***	2.9823***	0.1449**	0.2449	2.1873***	4.0782***	0.2156**	0.1804	0.7021***	1.6785
	(-0.1559)	(-1.0091)	-2.8721	-1.9587	-2.7251	-1.0982	-0.6523	-0.2459	-0.6128	-2.9881	-0.0561	-1.0023	-0.8721	-3.0003	-2.0211	-1.0923
		1.2052***				0.6142**				1.5621***				1.0512***		
		-2.4321				-2.0432				-0.3415				-0.0078		
TFI (i)	-0.2225**	-0.2651***	-0.1576**	0.0782	-0.0786	-0.1002	0.0657	0.1987	-0.0533	0.5102	0.1462**	0.0552	0.0549	0.0565	-0.1561**	0.0871
	(-1.8539)	(-3.1552)	(-2.4021)	-4.7621	(-1.7812)	(-2.5423)	-2.8723	-1.0831	(-2.1821)	(-2.9812)	(-2.0012)	-2.6371	-1.8872	-4.8712	(-0.3413)	-2.0056
		0.1182*				0.1562**				-0.1551***				-0.2323***		
		-2.3552				-2.8712				(-0.1425)				(-0.4561)		
TFI (j)	-0.3521	-0.0501	0.1632	-0.0278	0.0081	-0.0652	0.1756	-0.1567	0.3781*	0.2488	0.1982	0.2723	-0.0215	-0.0812	-0.0650	0.0477
	(-2.3251)	(-1.982)	(-1.4532)	(-2.345)	-5.4231	(-3.8271)	-2.8129	(-4.2191)	-2.0011	(-3.1292)	-2.8918	(-2.1672)	(-1.7628)	(-2.0018)	(-1.764)	(-1.1102)
		0.0516				0.8712***				0.12561				0.0655		
		-0.8723				-1.7623				-0.9812				-1.2891		
TFI (l)	0.2718**	0.2182*	0.6127***	0.9573**	0.2256**	0.3872***	0.7891***	0.4872	0.5174***	0.5082***	0.7561***	1.1872**	0.5448***	0.5488***	0.6412***	0.7211*
	-2.8287	-1.6523	-3.5623	(-1.6723)	-1.5324	-1.0012	-0.0344	-3.1292	-0.0921	-0.3425	-0.0562	(-0.0523)	-1.4521	-1.6723	-0.0423	(-1.5671)
		0.7145***				0.8523***				0.7441***				0.4856***		
		-5.0002				-1.4238				-0.0435				-1.3009		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 56-68%.

Appendix Table A2.5. Upper middle income countries – All sectors

Sector	Total				Total			
Importer sample	UMICs				All			
Exporter sample	All				UMICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.4952***	0.0855	0.0382**	1.4282***	0.4856**	0.4881**	0.2817	0.2845**
	-1.2452	-2.8543	-0.5438	-0.9128	-0.3176	-1.1921	-3.5142	-1.2624
		0.0386				-0.1635		
		(-2.9801)				(-3.7611)		
TFI (b)	-0.0451	-0.0456	0.4257***	0.1456	0.6187***	0.6218***	0.3243**	0.3217***
	(-2.4612)	(-3.5205)	-0.6514	-3.8912	-0.1121	-2.0012	-0.1766	-1.0862
		0.5775***				-0.2112		
		-0.7811				(-3.1167)		
TFI (c)	0.4685***	0.5367***	0.7563***	0.4268***	0.4165***	0.4256***	0.3135**	0.3125**
	-0.4899	-0.1611	-1.2703	(-0.7112)	-0.6103	-0.3219	-0.9012	-1.2032
		0.4253***				0.0443		
		-0.2324				-3.2261		
TFI (d)	0.0912	0.1154	0.2215**	0.9453***	0.3435	0.3332	0.4743**	0.4882**
	-3.1882	-3.9123	-2.0021	-0.5127	-4.8881	-2.8756	-1.0532	-1.385
		0.2367***				0.5445**		
		-4.5725				-0.9913		
TFI (e)	0.3180***	0.3445***	0.6583***	-0.4435	0.3556**	0.4246***	0.5535***	0.5524***
	-1.1342	-0.1223	-0.8109	(-2.4533)	-0.6403	-0.6742	-0.1339	-1.9218
		0.6168***				0.4883***		
		-0.1112				-1.0328		
TFI (f)	0.5885***	0.5886***	0.7421***	1.3256***	0.3225*	0.3563**	0.5521**	0.5634**
	-0.4512	-0.4081	-1.0025	-4.7031	-1.8342	-1.0708	-1.2433	-1.3102
		0.3773***				0.2853		
		-0.6253				-3.4218		
TFI (g)	0.3853***	0.1915***	0.0025	0.6543***	0.6245***	0.6117***	0.5584***	0.5567***
	(-0.2567)	(-0.4432)	-4.7002	-1.0324	-0.9801	-3.2886	-1.3642	-1.2534
		0.1235*				0.09218		
		-1.3562				-0.5534		
TFI (h)	1.6174***	0.6582***	1.6503***	2.1132***	0.2334	0.2882	0.9456***	0.9455***
	-1.8723	-0.7231	-1.9403	-0.7321	-0.7145	-3.4567	-1.5879	-0.5542
		1.4514***				0.7812***		
		-0.3812				-1.2302		
TFI (i)	-0.0256	-0.0256	-0.0582	0.0955	0.2418**	0.2445**	0.1783	0.1975
	(-3.7642)	(-3.4591)	(-4.5523)	-0.7651	-0.5101	-0.4321	-3.1294	-3.4504
		-0.0456				0.0673		
		(-2.9910)				-2.673		
TFI (j)	-0.3644***	-0.4781***	-0.4845***	0.0325	0.1576	0.0175	-0.3252**	-0.3405**
	(-0.6101)	(-1.6234)	(-1.5003)	-4.3281	-3.588	-3.4123	(-0.4421)	(-1.5524)
		-0.0738				-0.4456***		
		(-3.8182)				(-1.0034)		
TFI (l)	1.0288***	0.9682***	0.9982***	0.5625***	0.0881	0.0585*	0.3885	0.3781
	-0.1235	-1.7102	-0.4282	(-0.4123)	(-4.6511)	(-1.1102)	-1.9987	-4.3456
		0.7684***				0.9815***		
		-0.2726				-0.8712		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 58-64%.

Appendix Table A2.6. Upper middle income countries – Manufacturing and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	UMICs				All				UMICs				All			
Exporter sample	All				UMICs				All				UMICs			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.2542***	0.2572***	0.1617**	0.6403*	0.0116	0.0234	0.0561	1.9823***	0.0286	0.0197	0.0038	0.9188***	-0.2452**	-0.2512**	0.2167**	1.1299***
	-1.8273	-0.9288	-1.2672	-1.8237	(-0.9872)	(-1.2893)	-1.2923	-0.8721	-0.0912	-0.2810	(-1.0082)	-0.8712	(-1.9829)	(-1.2738)	-0.09812	-0.2345
		-0.0058				0.1165				-0.0055				0.6712***		
		(-2.0091)				-1.2738				(-1.0829)				-2.0091		
TFI (b)	0.1114**	0.1356***	0.6448***	-0.1151	0.1645**	0.1724***	0.3045***	0.3412**	-0.1415**	-0.1556***	0.4872***	0.0677	0.1812***	0.1845***	0.5845***	-0.1677
	-0.0026	-1.6721	-0.6781	(-2.8984)	-2.0081	-0.0923	-1.5642	-2.0091	(-0.5612)	(-1.2872)	-0.7162	-0.4512	-1.8723	-1.9823	-1.6725	(-1.0238)
		0.7281***				0.1845***				0.8112***				0.6102***		
		-0.0412				-0.2261				-0.2378				-3.0120		
TFI (c)	0.4187***	0.4823***	0.9154***	-0.4615***	0.1878***	0.2215***	0.9203***	-0.5112***	0.7126***	0.7450***	0.8554***	-0.7023***	0.2542***	0.2887***	0.6278***	-0.2912**
	-2.0067	-0.0876	-0.1235	(-2.0160)	-0.0872	-0.4421	-0.0234	(-0.8270)	-0.4562	-0.8723	-1.0928	(-4.0182)	-4.1292	-1.0293	-0.8276	(-0.6774)
		0.6421***				0.8887***				0.3512***				0.4812***		
		-0.3361				-0.4536				-0.5621				-1.7823		
TFI (d)	0.1487	0.1588*	0.5723***	-0.2145	-0.1125	-0.0753	0.9512***	0.5152	-0.1918	-0.1322	-0.1467	1.2421***	-0.1117	-0.0854	0.9517***	-0.3641
	-1.0812	-1.0023	-3.6679	(-3.0168)	(-2.8712)	(-1.2823)	-8.8192	-0.9182	(-1.1172)	(-2.0012)	(-1.6670)	-3.0012	(-1.2718)	(-1.5923)	-2.0918	(-1.5099)
		0.6785***				1.6488***				-0.0716				1.6649***		
		-0.7813				-0.0982				(-1.6572)				-1.722		
TFI (e)	0.2543***	0.2501***	0.8617***	-1.0713***	0.2885***	0.3117***	0.2655***	0.9650**	0.0201	0.036	0.4438**	-0.0255	0.2913***	0.3122***	0.6844***	0.0823
	-2.1892	-1.0989	-0.1264	(-2.1117)	-0.0024	-0.0283	-2.1029	-0.8176	-0.4512	-1.2783	-4.0091	(-1.9283)	-2.7612	-1.0928	-0.7612	(-1.3895)
		0.9572***				0.0415				0.5855***				0.7355***		
		-0.2366				-1.2782				-1.0092				-2.0718		
TFI (f)	0.4178***	0.4502***	1.1957***	2.4729**	0.1253	0.1458**	1.1202***	2.1117***	0.3588***	0.3721***	0.2883***	0.4413	0.0134	0.0425	1.0144***	1.8207***
	-0.1782	-0.5212	-0.1892	-0.9817	-2.6712	-1.0056	-0.44812	-0.7816	-0.9812	-4.561	-2.0051	-1.7812	-2.0091	-0.5162	-1.8232	-0.8913
		1.0091***				1.4355***				0.0744				1.4488***		
		-3.0038				(-0.0872)				-0.7817				-1.2425		
TFI (g)	0.1231	0.0312	0.1135	0.3615**	-0.0985	-0.0857	0.3507***	0.4134**	0.3657***	-0.3518***	0.0761	0.5328***	-0.1525**	-0.1367*	0.5238***	-0.0455
	(-1.2982)	(-1.7823)	-2.5561	-0.1459	(-2.6751)	(-2.5771)	-0.5361	-0.8712	(-0.6152)	(-0.4423)	-0.9567	-3.0091	(-2.0018)	(-2.0120)	-0.9829	(-1.7624)
		0.0917				0.4112***				0.4156***				0.6923***		
		-2.6751				-5.0982				-0.0567				-1.6817		
TFI (h)	0.5087***	0.5462***	1.8216***	1.8465***	0.4536***	0.4911***	1.9182***	2.4512***	0.2762**	0.2915**	1.5616***	1.6822**	0.2817**	0.2643**	2.5671***	2.0123***
	-0.4353	-0.0561	-0.8912	-2.0186	-0.5612	-2.001	-0.0817	-0.9812	-2.0812	-0.8712	-0.8712	-1.7823	-2.2291	-1.0928	-0.383	-1.0825
		1.1872***				1.9823***				1.8712***				3.1454***		
		-0.0845				-5.0192				-1.7234				-2.3082		
TFI (i)	-0.1278	0.0712	0.0833	0.1042*	-0.0567	-0.0588	0.1455**	0.1945	0.0855	0.0756	-0.1398**	-0.0282	0.0332	0.0236	-0.1283*	0.0514
	(-2.1928)	(-3.7623)	-2.1672	(-0.2671)	(-1.8273)	(-1.9987)	-0.2562	-1.273	-1.0123	-1.0076	(-2.0918)	(-0.1871)	(-1.8912)	-0.3253	(-1.0982)	-2.3122
		0.1308**				0.3245***				-0.2453***				-0.1475**		
		-2.7812				-4.0001				(-0.0352)				(-1.2034)		
TFI (j)	-0.2198*	-0.2781	-0.3733	0.0856	-0.0135	0.0234	0.1288	0.1755	-0.4112*	-0.5281	-0.5612*	0.0098	-0.0755	-0.1782	0.3122**	-0.0182
	(-1.3892)	(-1.2562)	(-4.5624)	-2.7812	(-1.1928)	(-0.4314)	-0.8172	-0.8123	(-0.6712)	(-4.5261)	(-2.0981)	-1.2520	(-2.0125)	(-1.7283)	-2.0921	(-1.8923)
		-0.1489**				0.1857*				-0.0628				0.5227***		
		(-2.0098)				-1.8912				(-1.2380)				-3.5623		
TFI (l)	0.8585***	0.9172***	1.2278***	1.9822***	0.3734***	0.3505***	1.7418***	0.3726	0.8552***	0.7047***	0.8804***	-0.5509	0.3926***	0.3911***	1.4512***	1.1122
	-1.2892	-2.1782	-0.4117	(-1.1892)	-2.0081	-1.0928	-1.3484	(-1.5637)	-1.5261	-0.8627	-0.0981	(-1.4092)	-1.3728	-2.4481	-0.0812	(-1.7892)
		1.0823***				2.9132***				0.8112***				2.2955***		
		-1.8723				-0.8712				-1.0072				-0.8176		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 59-68%.

Appendix Table A2.7. Sub-Saharan Africa – All sectors

Sector	All				All				All			
Importer sample	SSA				All				SSA			
Exporter sample	All				SSA				SSA			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.1078***	0.0608	0.1406**	0.1226	-0.0461	0.0366	0.1162*	0.6234***	0.0153	0.02776	0.1415	-0.2056
	-0.9818	-0.5612	-1.1256	-0.5981	(-2.0981)	(-1.2781)	-1.2819	-2.0081	-0.1256	-0.1887	-1.1151	(-2.0985)
		0.1802**				0.1975***				0.2134		
		-1.2983				-1.0271				-2.1822		
TFI (b)	0.2725***	0.6465***	0.8814***	0.5873***	0.1188**	0.1241**	0.7418***	-0.2136***	0.5538***	0.6345***	1.2329***	-0.6410***
	(-3.0091)	-1.0881	-1.0016	-1.8711	-1.0082	-2.0819	-1.1127	(-1.352)	-1.3871	-1.0023	-2.0012	(-2.0981)
		0.2256***				0.6328***				0.4716***		
		-0.2367				-0.2217				-2.1822		
TFI (c)	0.4218***	0.6334***	0.8312***	0.6138***	0.0722	0.0829	0.7846***	-0.4258***	0.3962***	0.3111*	0.6871*	0.7036***
	(-1.0998)	-0.7152	-0.0347	-1.9186	-1.8871	-1.7712	-2.0468	(-4.1245)	-0.7623	-1.8577	-1.2812	(-1.2981)
		0.1468**				0.6841***				0.5617***		
		-1.2983				-1.2361				-2.6712		
TFI (d)	0.4583***	0.5328***	0.7357***	-0.4658**	-0.1288	-0.1288	0.5684***	0.4656**	0.3437**	0.5009**	0.8312***	-1.4927***
	-0.0871	-1.9284	-0.8715	(-2.0816)	(-1.3298)	(-2.0981)	-1.4664	-0.7612	-2.0081	-0.08122	-1.0872	(-2.0091)
		0.4265***				0.7886***				0.6015***		
		-0.8712				-1.4451				-0.9813		
TFI (e)	0.4009***	0.4517***	0.3415**	-0.2781	0.0762	0.0288	0.2514*	0.0758	0.5873***	0.6972***	1.2578***	-2.4127***
	-1.6723	-3.0021	-2.0081	(-0.4515)	-1.1278	-0.2516	-1.5612	-4.1285	-1.3462	-1.7892	-3.0025	(-1.9882)
		0.0455				0.3582***				0.7332***		
		-0.4981				-2.0081				-0.2412		
TFI (f)	0.8597***	0.8720***	1.2815***	1.9121***	0.0088	0.0189	0.6409***	1.2457***	0.6678***	0.7172***	1.2518***	0.9058***
	-0.2381	-1.3237	-1.3336	-3.0012	-0.0092	-1.0082	-2.1008	-1.0923	-1.0078	-1.0212	-0.0812	(-2.078)
		0.5248***				0.6514***				0.6876***		
		-3.8172				-1.2938				-0.3562		
TFI (g)	0.5745***	0.3872***	0.4256***	0.7783***	0.0289	0.0288	0.1527*	0.0412	0.4412***	0.4632***	0.9449***	0.2845***
	-0.9812	-0.8712	-4.0011	-1.0981	(-1.2872)	(-0.3821)	-1.5121	(-0.5671)	-1.2873	-1.0592	-1.1125	(-1.7782)
		0.0675				0.7098***				0.3423***		
		-1.0812				-1.9812				-0.1652		
TFI (h)	0.3887***	0.5077***	1.5922***	1.0689*	0.5048***	0.5642***	1.9628***	1.7517***	0.4812***	0.5229**	1.7844***	0.0196*
	-2.0912	-4.0915	-1.6181	-1.0981	-3.0981	-4.1281	-1.3462	-1.7829	-1.0672	-2.0981	-0.0008	(-2.0378)
		1.2728***				1.5716***				1.4845***		
		-1.5558				-1.4306				-1.3271		
TFI (i)	-0.1076**	-0.0945**	-0.0724	0.1022	-0.0047	-0.0078	-0.0291	0.1871	-0.0568	0.0118	0.0288	-0.1644
	(-2.0197)	(-2.0987)	(-1.9812)	-0.7412	(-0.5149)	(-1.0871)	(-1.2763)	-4.9812	(-5.1293)	(-1.0065)	-0.1872	(-1.2718)
		0.0187				-0.0177				0.0983		
		-0.2127				(-1.0378)				-0.9432		
TFI (j)	0.0887**	0.0255*	0.1087	-0.4558**	0.1152*	0.2215**	0.6082*	-0.4333	0.0238**	0.2815	0.0344	0.0337
	-1.2833	-4.956	-2.8734	-1.0812	-1.9811	-2.1982	-2.1982	-1.7172	-0.4428	(-1.0037)	-5.1281	-5.0912
		0.2823***				0.5412*				0.3904**		
		-2.0989				-0.8716				-1.1823		
TFI (l)	0.6711***	0.2375***	0.4412***	0.2306***	0.3703***	0.4652***	0.1514	0.2377	0.2529*	0.2448	0.2134	0.9751**
	(-0.0781)	-1.9872	-4.0916	-2.0812	-2.1269	-3.0022	-1.0371	(-1.8273)	-1.6182	-1.1338	-4.1289	(-2.0031)
		0.6535***				0.0018				0.1882		
		-1.6523				(-0.8712)				-0.6571		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 45-54%.

Appendix Table A2.8. Sub-Saharan Africa – Manufacture and agriculture sectors

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	SSA				All				SSA				All			
Exporter sample	All				SSA				All				SSA			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.1932**	0.2040**	0.2316***	0.0047	-0.1269	-0.1256	0.2464***	0.8811***	0.2816***	0.2831***	0.3321***	-0.1964	-0.0438	-0.046	0.0034	0.3722
	-2.1261	-2.1979	-2.7475	-0.0158	(-1.5132)	(-1.4333)	-3.1524	-3.5863	-3.2981	-3.2528	-4.089	(-0.7108)	(-0.4878)	(-0.4923)	-0.0404	-1.4684
		0.1565*				0.4609***				0.2517***				0.0618		
		-1.7692				-6.2554				-2.9538				-0.7211		
TFI (b)	0.8178***	0.8928***	1.1596***	-0.3185***	0.0504	0.0547	0.9988***	-0.3054***	0.6774***	0.7457***	1.1336***	-0.6239***	0.1703***	0.1847***	0.7639***	-0.2938***
	-12.2414	-12.4693	-13.0036	(-2.8804)	-0.9226	-0.9523	-11.2789	(-3.1343)	-10.6023	-10.9796	-13.1924	(-6.1569)	-2.8064	-2.903	-8.4202	(-2.8002)
		0.2195***				0.9453***				0.5155***				0.6067***		
		-3.4779				-5.8172				-8.6301				-8.5275		
TFI (c)	0.5578***	0.5676***	0.8207***	-0.4348***	0.009	0.0256	1.1806***	-0.5164***	0.6890***	0.6805***	0.8435***	-0.5432***	0.1334**	0.1419*	0.6624***	-0.4577***
	-7.8173	-6.9135	-7.0462	(-3.4628)	-0.1656	-0.3561	-10.4914	(-4.7931)	-9.6994	-8.3846	-7.3733	(-4.6084)	-2.1929	-1.7849	-5.9129	(-3.9213)
		0.2303***				1.0231***				0.1802**				0.5555***		
		-2.6897				-2.9812				-2.2871				-6.9559		
TFI (d)	0.6951***	0.7813***	0.9934***	-0.6564**	-0.1957**	-0.2004*	1.0716***	0.2692	0.4404***	0.5162***	0.6027***	-0.6714**	-0.2170**	-0.2288*	0.2870**	0.5604*
	-6.8691	-7.237	-8.7794	(-2.3891)	(-2.0990)	(-1.8963)	-8.6399	-1.0155	-4.2057	-4.5587	-5.1621	(-2.4781)	(-2.0068)	(-1.8857)	-2.2131	-1.9088
		0.4841***				1.4810***				0.3341***				0.5137***		
		-4.2728				-7.1827				-3.0606				-4.3011		
TFI (e)	0.3237**	0.3353**	0.3017**	-0.1941	0.0403	0.0307	0.4714***	0.1568	0.6300***	0.7567***	0.7576***	-0.9448**	0.1591*	0.1185	-0.3031*	0.0781
	-2.5678	-2.3235	-1.9771	(-0.5516)	-0.5235	-0.2848	-3.1626	-0.4906	-4.5992	-4.7866	-4.5829	(-2.5444)	-1.7348	-0.9365	(-1.7879)	-0.2037
		0.0723				0.6556***				0.2774**				-0.5335***		
		-0.6091				-4.2658				-2.2004				(-3.2532)		
TFI (f)	1.0535***	1.0738***	1.6948***	2.4535***	-0.1540*	-0.1444*	1.0194***	2.1857***	0.9321***	0.9349***	1.2094***	1.5701***	0.1072	0.1116	0.5737***	0.7823**
	-12.4442	-12.5988	-15.575	-6.8255	(-1.8724)	(-1.8176)	-9.978	-6.937	-10.6268	-10.5108	-10.7467	-4.3399	-1.1492	-1.2021	-4.9556	-2.1634
		0.7672***				1.1640***				0.4101***				0.5288***		
		-8.7911				-15.3119				-4.9				-5.773		
TFI (g)	0.6671***	0.6681***	0.9058***	0.0314	-0.0035	0.0088	1.0930***	-0.2353**	0.5028***	0.5051***	0.7580***	-0.1757	-0.0711	-0.0596	0.9995***	-0.2162*
	-11.3478	-11.3676	-11.7565	-0.2654	(-0.0559)	-0.1441	-13.6062	(-2.1322)	-8.2702	-8.3255	-9.5246	(-1.5122)	(-1.0186)	(-0.8777)	-11.32	(-1.7784)
		0.0955				1.0263***				0.2236***				0.9637***		
		-1.4082				-17.5638				-3.4292				-14.2399		
TFI (h)	0.3265***	0.3767***	1.2681***	1.7141**	0.4216***	0.4665***	2.2225***	3.0422***	0.4757***	0.5180***	1.9758***	0.8173	0.4562***	0.4955***	1.7198***	0.9673
	-2.9101	-3.1611	-7.5509	-2.3801	-3.8809	-3.9013	-13.4225	-4.0405	-3.9349	-4.0366	-11.333	-1.0079	-3.4811	-3.3163	-8.9007	-1.1462
		0.9889***				2.0545***				1.7113***				1.4809***		
		-7.1855				-15.9038				-12.2704				-9.8611		
TFI (i)	-0.1196**	-0.1151**	-0.0744	0.0784	-0.0503	-0.0518	0.1653***	0.1726	-0.1413***	-0.1254**	-0.1208**	0.1247	0.0421	0.0448	-0.013	-0.0235
	(-2.3285)	(-2.1788)	(-1.2283)	-0.5384	(-0.9613)	(-0.9146)	-2.8718	-1.1605	(-2.7218)	(-2.3439)	(-2.0693)	-0.8245	-0.7117	-0.7179	(-0.2045)	(-0.1428)
		0.0229				0.2536***				-0.0466				-0.0281		
		-0.3869				-4.8777				(-0.7930)				(-0.4746)		
TFI (j)	0.0876	0.0871	0.0981*	0.5794	0.1516*	0.297	0.6793	-0.4251	0.1119	0.1909	0.3237**	0.5139*	0.0885	0.2558*	0.6163*	0.5490*
	-3.6512	-3.9812	-0.1872	-2.2708	-2.1084	-2.651	-5.665	-1.9457	-1.1006	-1.2956	-2.4754	-1.8531	-1.0299	-1.7632	-4.0491	-1.6894
		0.4023*				0.7161*				0.2958**				0.8172*		
		-3.5047				-2.1912				-2.3287				-1.0265		
TFI (l)	0.2472***	0.2445**	0.4086***	0.9321**	0.2223*	0.3357**	0.4140***	0.0744	0.3002***	0.2846***	0.5513***	1.5231***	0.5383***	0.5368***	0.0526	0.2313
	-2.9339	-2.4902	-3.7188	(-2.3758)	-1.8449	-2.0162	-3.6238	-0.1878	-3.5408	-2.9046	-4.9857	(-4.1012)	-4.0025	-2.9914	(-0.4224)	(-0.5645)
		0.5521***				0.3422***				0.8832***				-0.2630**		
		-3.2824				-3.4784				-5.3779				(-2.4138)		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 45-63%.

Appendix Table A2.9. Middle East and North Africa – All sectors

Sector	All				All				All			
Importer sample	MENA				All				MENA			
Exporter sample	All				MENA				MENA			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.2710***	0.2593***	0.7669***	0.4646	-0.2321	-0.2038	0.8495***	2.0018*	2.6372***	3.2434***	3.7632***	4.8878
	-0.4423	-5.186	-6.1048	-0.626	(-1.5627)	(-1.4452)	-5.1809	-1.7462	-4.2125	-5.6653	-8.6349	-3.6673
		0.0581				3.2896***				3.0899***		
		-0.5221				-15.0834				-6.1776		
TFI (b)	0.7172***	0.7485***	0.9263***	1.3061**	0.2962	0.3114	1.0125***	0.3258	0.7036*	1.3667***	2.6048***	4.6113*
	-0.3313	-5.7785	-7.7092	(-2.2928)	-1.6016	-1.5787	-5.9846	-0.4004	-1.6782	-3.3726	-6.1941	(-1.7347)
		0.7848***				1.2708***				3.0427***		
		-5.3631				-7.3921				-8.0404		
TFI (c)	0.5324***	0.6087***	0.6586***	-0.6902***	-0.1620*	-0.0943	0.5690***	0.0418	0.8596**	2.5815***	2.0681	-3.8647***
	-1.2738	-5.9963	-4.8168	(-4.3659)	(-1.7349)	(-0.8323)	-2.9646	-0.2305	-2.0906	-4.2299	-1.4036	(-2.7473)
		0.3090***				0.6586***				1.7501**		
		-3.2054				-4.7105				-2.3633		
TFI (d)	-0.3874*	-0.3869**	0.0562	0.9770**	0.0804	0.0716	-0.2181	3.5951***	-0.4102	-0.0187	1.0133	-4.0292
	(-2.0871)	(-2.5429)	-0.4286	-1.9743	-0.5216	-0.4663	(-1.2909)	-5.3186	(-0.7035)	(-0.0320)	-1.5478	(-1.3334)
		0.2989**				-0.5672***				1.6248***		
		-2.3532				(-2.9046)				-2.747		
TFI (e)	0.2225***	0.3330***	0.5205***	-0.5081*	-0.0452	-0.0159	0.3067**	0.6299*	0.6094*	-0.1474	-0.9570*	2.2831**
	-1.9872	-3.4589	-4.5438	(-1.7070)	(-0.3331)	(-0.1099)	-1.9668	-1.7216	-1.7283	(-0.3996)	(-1.6658)	-2.5426
		0.3433***				0.2282*				-1.7343***		
		-2.8662				-1.8242				(-5.5428)		
TFI (f)	0.6902***	0.7220***	0.9456***	2.1350***	-0.1056	-0.1007	0.0629	0.2773	1.2208**	1.9267***	2.5955***	5.6800***
	-3.0981	-5.1967	-7.5924	-6.9723	(-0.7310)	(-0.6962)	-0.4	-0.7062	-2.158	-3.5384	-4.959	-4.6848
		0.6300***				0.3002*				2.0430***		
		-5.5965				-1.889				-4.0669		
TFI (g)	0.9006***	0.9963***	2.1399***	0.208	0.222	0.2364	1.3606***	2.0636**	1.3818**	1.7361***	3.2604***	-2.293
	-2.159	-6.9482	-11.1297	(-0.2424)	-1.1326	-1.2289	-5.4239	-2.1896	-2.6062	-3.5592	-4.6124	(-0.7410)
		1.4921***				1.1809***				1.9966***		
		-9.8248				-6.4618				-4.4361		
TFI (h)	0.8574***	0.8595***	0.5006***	0.9459***	0.17	0.1401	0.7965***	-1.0541***	0.9104**	1.3840***	1.9919***	4.7765***
	-4.3291	-8.6135	-4.8194	(-3.9453)	(-1.6246)	(-1.4087)	-6.0846	(-3.8184)	-2.1405	-3.253	-3.96	(-4.1005)
		0.0409				1.5870***				1.7187***		
		-0.4489				-12.2397				-4.8099		
TFI (i)	-0.3965***	-0.4204***	-0.2086***	0.1851	0.0715	0.0668	-0.1744**	0.5992**	-0.217	-0.148	0.1339	1.0374
	(-3.5682)	(-5.6834)	(-2.8391)	-0.824	-0.8319	-0.7854	(-2.1013)	-2.3225	(-0.8689)	(-0.5521)	-0.5043	-1.1987
		0.012				-0.4640***				0.2374		
		-0.1642				(-4.9160)				-0.8472		
TFI (j)	-0.5612	-0.0871	-0.0817	0.4413	0.0715	0.1269	-0.7516***	0.1176	0.8712	-0.7189	-0.8973	-0.8759
	(-3.1982)	(-8.1256)	(-4.1892)	(-2.671)	-0.8319	-0.7554	(-3.3799)	-0.2234	(-2.1872)	(-0.8547)	(-0.8636)	-1.0193
		0.0418				-1.0693***				-1.127		
		-0.3268				(-6.4552)				(-0.8617)		
TFI (l)	0.3807***	0.3971***	0.5173***	0.4274***	0.2359**	0.2142**	0.8966***	0.085	0.5320*	0.6912**	1.2418**	0.5577
	-2.1334	-4.9364	-5.381	(-2.7033)	(-2.4907)	(-2.3285)	-6.9349	-0.4716	-1.8629	-2.1648	-2.3586	(-1.1076)
		0.2406***				1.0679***				0.3621		
		-2.8918				-9.911				-1.1442		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 60-64%.

Appendix Table A2.10. Middle East and North Africa – Manufacture and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	MENA				All				MENA				All			
Exporter sample	All				MENA				All				MENA			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.3784***	0.3745***	0.7039***	0.5221	0.1026	0.0764	0.8949***	2.8928**	2.3883***	2.3449***	0.9052***	0.0663	0.4396***	0.4090**	0.7642***	1.6287
	-7.568	-7.2724	-4.6956	(-0.6333)	(-0.6018)	(-0.4628)	-4.8601	-2.2762	-10.7186	-10.3025	-5.8528	(-0.0750)	(-2.6077)	(-2.5376)	-4.1264	-1.2425
		-0.0548				3.0451***				0.1857				3.5565***		
		(-0.3999)				-11.8885				-1.3214				-14.0994		
TFI (b)	0.3777***	0.4128***	0.5724***	-0.5874***	-0.2426**	-0.2161**	1.1108***	0.0063	0.3758***	0.3777***	0.5544***	-0.5402**	-0.2850**	-0.2602**	0.9560***	-0.0121
	-3.9353	-4.1149	-4.7177	(-2.9053)	(-2.1982)	(-2.0269)	-7.6873	-0.0295	-3.4102	-3.2514	-3.9444	(-2.5631)	(-2.5169)	(-2.3871)	-6.0512	(-0.0607)
		0.3124***				1.2991***				0.3217***				1.2156***		
		-2.8564				-10.7195				-2.7187				-9.3657		
TFI (c)	0.6219***	0.7240***	0.9188***	-0.8417***	-0.1976*	-0.0951	0.0951	0.2183	0.7918***	0.8553***	0.7663***	-0.7646***	-0.1835*	-0.1537	0.5263**	0.0796
	-5.1798	-5.7713	-5.4434	(-4.3926)	(-1.8042)	(-0.6878)	-0.4167	-1.0551	-5.7743	-5.8968	-4.0528	(-3.6503)	(-1.6726)	(-1.2381)	-2.4166	-0.3953
		0.4390***				0.1736				0.2114				0.6677***		
		-3.7242				-1.0429				-1.524				-4.1562		
TFI (d)	-0.4632**	-0.4251**	0.3416**	-0.2809	0.0102	0.0065	-0.0671	4.0154***	-0.5538**	-0.5796**	-0.4951***	1.9562***	0.0818	0.07	-0.3431	3.1242***
	(-2.5393)	(-2.2412)	-2.1263	(-0.4638)	-0.0575	-0.0367	(-0.3474)	-4.8345	(-2.5476)	(-2.4978)	(-2.6774)	-2.594	-0.4489	-0.385	(-1.6442)	-3.7327
		0.6813***				-0.2388				-0.267				-0.7581***		
		-4.4117				(-1.0557)				(-1.5343)				(-3.1545)		
TFI (e)	0.3008***	0.4421***	0.8420***	-1.3029***	-0.0819	-0.0939	-0.3694**	0.8587**	0.2833**	0.3529***	0.4872***	-0.3138	-0.1159	-0.0659	0.1873	0.5156
	-2.9646	-3.8618	-6.159	(-3.6669)	(-0.5295)	(-0.5710)	(-2.1387)	-2.1915	-2.5273	-2.7193	-3.1846	(-0.8196)	(-0.7124)	(-0.3838)	-1.0651	-1.2915
		0.8190***				-0.3417**				0.1963				0.1693		
		-5.4949				(-2.4851)				-1.188				-1.2363		
TFI (f)	0.7793***	0.8120***	1.5459***	3.5421***	-0.0387	-0.0319	0.1675	0.4321	0.7167***	0.7310***	0.6271***	1.2948***	-0.1292	-0.1341	-0.2266	-0.0568
	-4.5976	-4.9016	-10.6696	-9.9479	(-0.2409)	(-0.1985)	-0.9704	-1.003	-3.9341	-3.9772	-3.6083	-2.9876	(-0.7705)	(-0.8003)	(-1.2566)	(-0.1243)
		1.2210***				0.4167**				0.2894*				-0.3021*		
		-9.2254				-2.2472				-1.7829				(-1.7310)		
TFI (g)	0.8938***	0.8917***	0.4012***	0.9961***	-0.1648	-0.1211	1.2998***	-1.5493***	0.7028***	0.7093***	0.5905***	1.1376***	0.1912	0.1565	0.9848***	-1.0902***
	-7.2795	-7.2647	-3.1934	(-3.4075)	(-1.3704)	(-1.0960)	-9.1835	(-5.0518)	-4.6975	-4.7518	-3.9817	(-3.4065)	(-1.5659)	(-1.3469)	-6.3264	(-3.5297)
		-0.081				2.3124***				0.2527**				1.8408***		
		(-0.7213)				-18.5655				-2.0466				-12.705		
TFI (h)	1.0561***	1.1077***	2.1691***	0.8739	0.0192	-0.0042	1.3056***	2.4098**	0.7617***	0.8431***	2.2011***	0.333	0.0933	0.0839	0.7155**	2.1950**
	-6.35	-6.3582	-9.4884	(-0.8465)	-0.201	(-0.0188)	-4.4099	-2.0784	-4.2384	-4.2913	-7.8625	(-0.2892)	(-0.4038)	(-0.3654)	-2.4902	-2.1333
		1.4211***				1.3061***				1.7448***				0.7676***		
		-7.6585				-6.133				-7.4651				-3.7074		
TFI (i)	-0.4336	-0.4399***	-0.1707	0.219	0.2614	0.0109	-0.4022***	0.5531*	-0.3895***	-0.4244***	-0.2786***	0.1489	0.0941	0.0886	0.2038**	0.5550*
	(-1.7942)	(-4.7164)	(-2.8850)	-0.7597	-0.0958	-0.1174	(-4.2369)	-1.8229	(-3.8829)	(-4.0439)	(-2.8831)	-0.5152	-0.9285	-0.8805	(-2.1003)	-1.8455
		0.068				-0.8176***				-0.0908				-0.5404***		
		-0.7429				(-7.6938)				(-0.9604)				(-4.9625)		
TFI (j)	-0.3421	-0.7561	-0.7523*	-0.2663	0.2339	0.1684	-0.8797*	0.0729	-0.8761	0.7612	-0.7679*	0.3543	0.0848	0.1269	-1.0321	0.062
	(-4.1982)	(-4.1092)	(-1.2981)	(-0.5604)	-1.1529	-0.7998	(-3.1373)	-0.1185	(-5.1982)	(-4.1872)	(-3.0095)	-0.6121	-0.6211	-0.7806	(-3.5423)	-0.0778
		-0.0556				-1.2545***				0.1251				-2.3827***		
		(-0.3716)				(-6.2193)				-0.6587				(-11.6479)		
TFI (l)	0.6719***	0.6573***	0.9276***	1.5978**	0.2219	0.3002	1.1147***	0.6774	0.7817***	0.8550***	1.2578***	-2.3199***	0.0825	0.0891	1.5207***	0.6241
	-4.5311	-4.0703	-6.4591	(-2.5260)	-1.632	-1.3579	-5.8429	-0.7512	-4.4534	-4.2967	-6.7329	(-2.6880)	-0.3797	-0.3883	-7.6615	(-0.6609)
		0.8737***				1.4016***				1.2436***				2.2019***		
		-4.9769				-7.148				-5.4636				-12.0773		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 45-54%.

Appendix Table A2.11. Asia – All sectors

Sector	All				All				All			
Importer sample	Asia				All				Asia			
Exporter sample	All				Asia				Asia			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.5648***	1.0753***	1.0912***	0.1987	-0.1144	-0.1115	0.4628***	0.2283	1.4087***	1.5844***	1.4254***	2.6660***
	-2.1823	-9.8187	-10.145	(-0.4300)	(-1.0896)	(-1.0600)	-4.3896	-0.4823	-4.5448	-4.9842	-4.8915	(-3.4785)
		-0.0851				0.8931***				0.8869***		
		(-0.8549)				-8.1008				-3.2105		
TFI (b)	0.6108***	0.6586***	0.6004***	-0.2505	0.0799	0.0693	0.5798***	-0.2152	0.5952***	0.7106***	1.3802***	-2.4290***
	-0.0081	-7.4413	-7.6461	(-1.2655)	-1.2134	-1.0419	-6.967	(-1.0826)	-2.5923	-2.9737	-5.8755	(-3.2659)
		0.2469***				0.9581***				1.2626***		
		-3.8074				-10.3489				-6.0272		
TFI (c)	0.0491	0.0169	0.1384	0.1569	0.077	0.0532	0.0548	0.1109	-0.111	-0.1717	0.2685	-0.677
	-1.1823	-0.1735	-1.4039	-1.0617	-1.128	-0.7435	-0.5209	-0.7509	(-0.4739)	(-0.6618)	-0.9207	(-1.5154)
		0.0709				-0.0018				0.6873***		
		-1.0119				(-0.0177)				-2.8214		
TFI (d)	0.5759***	0.5700***	0.4330***	0.6697	-0.0145	-0.0315	0.5871***	0.6429	0.4149	0.3352	0.6941*	-3.5348**
	-4.007	-4.2269	-3.8753	-1.4837	(-0.1341)	(-0.2751)	-4.5551	-1.1989	-1.065	-0.7797	-1.9462	(-2.2838)
		0.1105				1.0422***				0.8599**		
		-1.0103				-6.9298				-2.5267		
TFI (e)	0.0833	0.0008	0.1591*	0.3536	0.1138	0.0808	0.037	0.6015**	0.2372	0.2895	0.4509**	-0.8784
	(-1.1127)	-0.0091	-1.6728	-1.2955	-1.1936	-0.7839	-0.3551	-2.239	-1.192	-1.5465	-2.2159	(-1.3323)
		0.1748*				-0.0489				0.3901*		
		-1.9304				(-0.5190)				-1.8284		
TFI (f)	0.7445***	0.7892***	1.1412***	2.7332***	0.1048	0.137	0.9568***	2.7118***	0.7993***	1.0376***	2.1961***	4.4748***
	-3.5621	-8.0891	-10.4011	-8.6539	-1.0944	-1.4599	-6.9116	-6.0262	-3.2671	-4.1885	-6.7794	-4.8124
		0.5346***				1.6455***				1.4351***		
		-6.0795				-10.7412				-4.9167		
TFI (g)	0.6615***	0.5147***	0.7073***	0.9305***	0.0263	-0.0251	0.2404**	1.0584***	0.5828*	0.6774**	1.8048***	0.6958
	-1.5661	-4.0393	-7.1596	-4.5909	(-0.3608)	(-0.3437)	-1.9635	-5.2185	-1.9244	-2.2953	-5.6152	(-0.9531)
		0.1554**				0.0669				1.2788***		
		-2.1963				-0.4127				-3.6918		
TFI (h)	1.0158***	1.1260***	1.9672***	0.5554	0.3847***	0.4018***	1.8179***	0.5435	1.7583***	1.9893***	3.2217***	3.6934
	-3.1125	-7.9068	-11.557	-0.6868	-3.046	-3.1373	-9.8852	-0.6584	-5.7683	-6.5026	-8.0509	(-1.5349)
		1.1571***				1.8237***				1.8091***		
		-9.1471				-5.4231				-5.2095		
TFI (i)	-0.8133***	-0.8292***	-0.3477***	-0.0585	0.001	-0.0081	-0.4815***	0.1581	-1.2871***	-1.3960***	-1.0992***	-1.1813*
	(-2.1089)	(-9.7037)	(-5.0339)	(-0.2861)	-0.016	(-0.1312)	(-6.5677)	-0.7994	(-5.1482)	(-5.4373)	(-4.3747)	(-1.6600)
		0.0116				-1.0188***				-0.3699		
		-0.1975				(-2.0021)				(-1.6025)		
TFI (j)	-0.5534***	-0.6411***	-0.2626	-0.3147	0.1323	0.2902*	-0.2122	-0.6271*	0.8712	-0.761*	-2.2064***	-2.1982*
	(-3.0012)	(-4.3031)	(-1.5643)	(-0.9087)	-1.6145	-1.9	(-0.8876)	(-1.6576)	(-0.1652)	(-0.5612)	(-7.0538)	(-4.1872)
		0.1327				0.0451**				0.4561**		
		-1.0408				(-1.9872)				(-1.2871)		
TFI (l)	0.5086***	0.7109***	0.7051***	-0.2093	0.3425***	0.3572***	1.4627***	0.9088	0.7455	1.0600**	1.9005***	-7.2621***
	-3.9871	-3.3134	-5.3923	(-0.3248)	-2.746	-2.9032	-9.655	-0.9398	-1.5854	-2.2273	-4.5376	(-3.2737)
		0.5189***				5.6227***				2.1491***		
		-4.1692				-21.2871				-4.3114		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 66-68%.

Appendix Table A2.12. Asia – Manufacture and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	Asia				All				Asia				All			
Exporter sample	All				Asia				All				Asia			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.9811***	0.9824***	0.4689***	-0.2568	-0.0878	-0.0817	0.5152***	-0.3644	0.9853***	0.9683***	0.5100***	-0.0042	-0.2442*	-0.2579**	0.2112*	-0.1694
	-7.6323	-7.4958	-3.9501	(-0.4705)	(-0.7402)	(-0.6895)	-4.3468	(-0.6774)	-7.8097	-7.5127	-4.467	(-0.0084)	(-1.9329)	(-1.9869)	-1.7021	(-0.3124)
		-0.1599				0.9469***				-0.0637				0.6554***		
		(-1.2940)				-7.4909				(-0.5505)				-5.0738		
TFI (b)	0.7005***	0.7686***	0.7671***	-0.5496**	0.1172	0.1034	0.3239***	-0.1837	0.5239***	0.5763***	0.7530***	-0.3657	0.0071	-0.0181	0.7363***	-0.5617**
	-6.8152	-7.0604	-7.66	(-2.3016)	-1.531	-1.2979	-3.1393	(-0.8050)	-4.9761	-5.1837	-7.5633	(-1.5035)	-0.0882	(-0.2212)	-7.3537	(-2.1760)
		0.3761***				0.4505***				0.4499***				1.4371***		
		-4.5911				-3.7952				-5.4249				-12.5898		
TFI (c)	-0.043	-0.0458	0.3910***	0.1524	0.0124	-0.0175	-0.2256*	0.2609	-0.1412	-0.2221**	-0.0776	0.1796	0.0945	0.0576	-0.1728	0.1392
	(-0.4296)	(-0.4035)	-3.349	-0.9066	-0.1604	(-0.2172)	(-1.8671)	-1.6078	(-1.4743)	(-2.0647)	(-0.6593)	-1.0904	-1.1541	-0.6889	(-1.4691)	-0.826
		0.2725***				-0.3093***				0.0569				-0.2962**		
		-3.3412				(-2.6375)				-0.6703				(-2.5633)		
TFI (d)	0.3787**	0.4024**	0.6860***	0.5712	-0.1206	-0.1601	-0.0115	0.9901	0.3579**	0.2985*	-0.1964	0.9883*	-0.2085	-0.2644*	0.5917***	-1.0139
	-2.4439	-2.466	-4.8959	-1.0872	(-0.9653)	(-1.1940)	(-0.0748)	-1.6259	-2.4654	-1.936	(-1.4545)	-1.8685	(-1.5694)	(-1.8415)	-3.7119	(-1.5825)
		0.5523***				0.1797				-0.4977***				1.4394***		
		-4.0824				-0.9528				(-3.5596)				-7.7577		
TFI (e)	0.0087	0.1489	0.5667***	0.1384	0.2151**	0.1745	0.1787	0.4153	-0.0371	0.0027	0.1835	0.1682	-0.0128	-0.1018	-0.2879**	0.8964***
	-0.0879	-1.3588	-4.8054	-0.4075	-2.0373	-1.5943	-1.6375	-1.5847	(-0.3370)	-0.0223	-1.4558	-0.4257	(-0.1136)	(-0.8271)	(-2.4104)	-2.592
		0.5718***				0.0456				0.2419**				-0.3329***		
		-4.9984				-0.4925				-2.0053				(-3.0321)		
TFI (f)	1.0814***	1.1243***	1.8583***	4.0337***	0.1002	0.1341	0.9962***	2.6540***	0.4917***	0.5366***	0.3280**	0.7830*	-0.0518	0.0069	1.3138***	2.7486***
	-9.0094	-9.612	-14.314	-10.6966	-0.9148	-1.2377	-6.1527	-5.0009	-3.823	-4.1397	-2.2926	-1.8944	(-0.4409)	-0.0618	-7.9318	-5.3378
		1.0240***				1.7365***				-0.0655				3.0036***		
		-9.9389				-9.2484				(-0.5903)				-17.2265		
TFI (g)	0.6115***	0.6145***	0.6371***	0.8761***	0.0222	0.0208	0.2003	0.8567***	0.3904**	0.4043***	0.8366***	0.5805***	-0.1118	-0.1211	-0.1689	1.2000***
	-4.068	-4.0852	-5.2957	-3.7549	-0.2633	-0.2463	-1.4014	-3.6552	-2.4872	-2.5876	-6.6442	-2.6344	(-1.2367)	(-1.3435)	(-1.2041)	-5.2298
		0.0761				-0.0774				0.3505***				-0.5054***		
		-0.8927				(-0.4128)				-4.0028				(-2.9255)		
TFI (h)	1.0667***	1.2085***	2.2613***	0.4835	0.3326**	0.3074**	2.0131***	0.5524	0.5491***	0.5955***	1.8090***	1.4059	0.1591	0.1162	1.4101***	-0.2045
	-6.3185	-6.9475	-10.961	-0.5126	-2.2998	-2.0955	-9.6548	-0.5761	-3.2345	-3.2793	-7.8423	-1.3817	-1.0327	-0.6957	-6.3802	(-0.2131)
		1.3904***				2.0905***				1.4132***				1.5990***		
		-9.2445				-11.3596				-8.1268				-8.1849		
TFI (i)	-0.8572***	-0.8851***	-0.2160***	0.0625	-0.1310*	-0.1413**	-0.6552***	0.1431	-0.8317***	-0.8195***	-0.5641***	-0.2063	0.0233	0.0151	-0.5575***	0.0861
	(-8.6165)	(-8.6825)	(-2.6108)	-0.2638	(-1.8900)	(-2.0649)	(-7.8734)	-0.6485	(-8.2558)	(-7.9769)	(-6.9968)	(-0.8928)	-0.305	-0.196	(-6.5150)	-0.3756
		0.1818***				-1.1849***				-0.2366***				-1.2181***		
		-2.5837				(-12.4369)				(-3.3049)				(-12.1961)		
TFI (j)	-0.2891*	-0.7048***	-0.3894**	-0.0804	0.0973	0.2105	-0.0833	-0.3949	-0.3092**	-0.253	-0.0244	-0.6475	0.1158	0.2606	-0.0666	-0.3413
	(-4.7162)	(-3.7152)	(-2.0465)	(-0.1888)	-1.0416	-1.2706	(-0.3585)	(-0.9101)	(-2.2711)	(-1.3618)	(-0.1258)	(-1.6270)	-1.1803	-1.5136	(-0.2364)	(-0.8305)
		-0.0519				0.4122*				0.2551*				-0.4132*		
		(-0.3452)				(-1.2872)				-1.7529				(-2.1092)		
TFI (l)	0.1298	0.2126	0.7744***	0.0586	0.2561*	0.2619*	1.2069***	-0.2768	0.3688	0.4523*	0.5706***	0.0302	0.2763*	0.2766*	1.5510***	-1.9942*
	-0.5732	-0.8218	-4.8731	-0.0778	-1.804	-1.7948	-7.0097	(-0.2493)	-1.5725	-1.7257	-3.3977	-0.0396	-1.8123	-1.8422	-8.6985	(-1.7785)
		0.7511***				4.9141***				0.4833***				3.2981**		
		-4.9756				-14.718				-2.9816				-5.2561		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 57-75%.

Appendix Table A2.13. Latin America and the Caribbean – All sectors

Sector	All				All				All			
Importer sample	LAC				All				LAC			
Exporter sample	All				LAC				LAC			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.4726***	0.3218***	0.0186*	1.8243***	0.706**	0.6030**	0.1328*	2.7001***	0.1549	0.1975	0.3785**	0.5242
	(-3.3643)	(-6.436)	(-0.3724)	-5.2569	-2.1819	-2.2539	-1.7345	-2.7708	-0.7712	-0.948	-2.0513	-0.5473
		0.0226				-0.3857*				0.3402*		
		(-0.2818)				(-1.9595)				-1.9298		
TFI (b)	-0.1160**	-0.0871	0.4773***	0.1959	0.3580**	0.3639**	0.5058***	2.3761***	-0.1369	-0.0826	0.3086*	0.2061
	(-2.1227)	(-1.5660)	-7.9414	-1.5197	-2.1378	-2.1256	-7.3636	-6.8485	(-1.0648)	(-0.6159)	-1.9213	-0.7118
		0.5879***				0.2149				0.3613***		
		-10.4225				-0.8373				-2.5929		
TFI (c)	0.2283***	0.2471***	0.6364***	0.2164**	0.2276*	0.2447**	0.7305***	1.0353***	0.3323***	0.2373*	0.3832**	0.2048
	-4.5123	-4.5359	-8.9947	(-2.0842)	-1.9093	-2.0152	-8.7538	-2.7361	-2.8096	-1.9023	-2.0924	-0.9843
		0.4097***				0.0466				-0.0838		
		-7.382				-0.272				(-0.6416)		
TFI (d)	0.023	0.0469	0.2828***	0.7950***	-0.0805	-0.0821	0.4985***	3.3183***	-0.3614*	-0.3446	-0.1333	0.4861
	-0.2612	-0.5122	-3.1037	-2.6296	(-0.6869)	(-0.6984)	-4.9162	-4.5589	(-1.7963)	(-1.6289)	(-0.5681)	-0.6982
		0.3232***				-0.0299				0.1595		
		-3.5823				(-0.0886)				-0.7754		
TFI (e)	0.2077**	0.7160***	1.1432***	-0.3536	-0.0351	-0.0176	0.9172***	4.1933***	1.2177***	1.1626***	1.4039***	-1.3017
	-4.1549	-6.8394	-11.9428	(-0.8579)	(-0.2636)	(-0.1287)	-9.141	-7.1736	-6.3244	-5.3902	-5.3091	(-0.7348)
		0.8085***				0.4454				0.7896***		
		-9.7374				-1.0659				-2.8305		
TFI (f)	0.6703***	0.2423**	0.4583***	1.4572***	0.1468	0.1551	0.6914***	1.4637***	0.0003	0.1197	0.5843**	1.1808
	-7.1212	-2.4661	-4.7719	-4.763	-0.8989	-0.9413	-6.4498	-2.7224	-0.0013	-0.5014	-2.1433	-1.3707
		0.3135***				0.1955				0.7069***		
		-4.1955				-0.5953				-2.9554		
TFI (g)	0.2412*	-0.2627***	0.0358	1.0277***	0.6037***	0.6063***	0.0447	3.1531***	-0.1759	-0.1803	0.6426***	1.1706***
	(-2.9817)	(-4.8568)	-0.5572	-8.1711	-3.637	-3.6457	-0.604	-9.6766	(-1.1744)	(-1.1005)	-3.0026	-4.578
		0.0688				0.3015				-0.0111		
		-1.1183				-1.5069				(-0.0720)		
TFI (h)	0.7575***	0.4492***	1.2058***	5.2850***	0.3289*	0.3311*	1.9336***	7.1951***	0.8946***	1.2175***	0.9714**	2.0714
	-4.9184	(-3.0849)	-7.9032	-7.2325	-1.8568	-1.8589	-12.084	-5.2383	(-2.9056)	(-3.3046)	(-2.2990)	(-1.0748)
		1.4099***				-0.0157				0.0189*		
		-12.5134				(-0.0486)				(-0.378)		
TFI (i)	-0.1188**	-0.1474***	-0.1204**	0.1675	0.2018*	0.2190**	-0.061	1.4251***	-0.1304	-0.2167*	-0.3164**	-0.1334
	(-2.3155)	(-2.8168)	(-2.2615)	-1.1003	-1.8733	-2.0336	(-1.0485)	-3.747	(-1.1299)	(-1.8541)	(-2.3012)	(-0.3554)
		-0.0089				0.0601				-0.1608		
		(-0.1837)				-0.3013				(-1.2758)		
TFI (j)	0.1254	-0.1107	-0.1042	0.1271**	-0.0298	-0.0418	0.2201*	0.2053	0.1193	0.3516**	0.3213	0.1987
	(-1.2891)	(-1.5544)	(-1.0444)	-0.4516	(-0.2183)	(-0.2952)	-1.9537	-0.5825	(-0.9380)	(-2.2935)	(-1.2760)	-0.5728
		-0.0157				-0.1241				-0.0493**		
		(-0.2185)				(-0.8737)				(-0.986)		
TFI (l)	0.2356**	0.8136***	1.0349***	0.1308	0.2385	0.2685	1.0294***	4.4344***	1.3770***	1.2518***	1.2745***	-2.5808
	-2.4177	-4.8736	-8.8988	-0.2215	-1.119	-1.2554	-7.7051	-6.9218	-4.1831	-3.3175	-3.7947	(-1.3316)
		0.8137***				0.7519				0.7402*		
		-7.2817				-1.3155				-1.9427		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 58-64%.

Appendix Table A2.14. Latin America and the Caribbean – Manufacture and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	LAC				All				LAC				All			
Exporter sample	All				LAC				All				LAC			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.146***	0.1545*	0.1199***	1.0347***	0.7284*	-0.0419	-0.0326	3.4023***	0.0708	0.0608	0.1196	1.6467***	-0.1528	-0.1148	0.5727***	1.1629***
	-2.9211	-1.5473	-2.3982	-2.5947	-1.6465	(-0.4289)	(-0.3832)	-2.79	(-0.7309)	(-0.6163)	(-1.3795)	-4.2895	(-1.3992)	(-1.0305)	-5.7629	-2.732
		0.0165*				-0.0202				-0.1384				0.9553***		
		(-0.1631)				(-0.2196)				(-1.5749)				-9.1059		
TFI (b)	0.025	0.0798	0.7803***	-0.044	0.3462	0.1808***	0.3228***	3.4032***	-0.0367	-0.027	0.6682***	-0.0077	0.1956***	0.2568***	0.8497***	-0.2247
	-0.3461	-1.0806	-9.8527	(-0.2752)	-1.5384	-2.7225	-4.1438	-7.8218	(-0.5304)	(-0.3812)	-8.536	(-0.0559)	-2.7815	-3.1916	-8.9294	(-1.3903)
		0.7689***				0.1115				0.7792***				0.8402***		
		-10.1674				-1.4571				-11.3543				-9.3955		
TFI (c)	0.2894***	0.3614***	0.8659***	0.3950***	0.3279**	0.1261*	0.5105***	2.0007***	-0.0064	0.0036	0.3424***	-0.2151*	0.1608**	0.2234***	1.1148***	0.4654***
	-4.4282	-5.3123	-9.943	(-3.1946)	-2.0346	-1.9339	-5.6431	-4.6419	(-0.0963)	-0.0485	-3.7087	(-1.7603)	-2.2264	-2.8955	-10.2201	(-3.2285)
		0.5230***				0.4337***				0.4087***				1.0053***		
		-7.5786				-6.0299				-5.9692				-11.4034		
TFI (d)	-0.0293	0.0103	0.3952***	-0.1053	-0.1723	0.1115	0.5244***	5.1095***	0.1375	0.1596	0.3944***	0.4381	0.0899	0.1317	0.5147***	0.7698*
	(-0.2679)	-0.0894	-3.5061	(-0.3169)	(-0.8784)	-1.0117	-4.5134	-5.4261	-1.2811	-1.4094	-3.5444	-1.2532	-0.7441	-1.0472	-3.8492	-1.89
		0.5148***				0.6093***				0.4019***				0.5950***		
		-4.611				-5.2876				-3.836				-4.3318		
TFI (e)	0.3864***	0.7737***	1.4690***	-1.8799***	-0.0231	0.3561***	0.9568***	6.7151***	0.4568***	0.4721***	0.9909***	0.2033	0.6494***	0.4087***	1.1173***	-1.0124*
	-3.8104	-5.5645	-11.1835	(-3.9700)	(-0.1045)	-3.9291	-8.7303	-7.9193	-3.8156	-3.3824	-7.7358	-0.3881	-5.2448	-3.286	-7.4683	(-1.7355)
		1.1360***				1.3878***				0.7592***				1.6536***		
		-9.93				-10.535				-6.8159				-9.3853		
TFI (f)	0.343***	0.0546	0.9415***	2.5391***	0.0762	0.2353***	0.6700***	1.4199*	0.165	0.1673	0.1674	0.6503*	0.2150**	0.2279**	0.4988***	1.4198***
	-6.8632	-0.4413	-7.6916	-6.5015	-0.3321	-2.668	-5.6189	-1.8484	-1.3796	-1.3779	-1.3567	-1.6596	-2.0628	-2.0952	-3.4594	-3.0957
		0.8679***				0.7899***				0.0907				0.5067***		
		-9.0387				-6.2487				-0.9409				-3.0498		
TFI (g)	0.4129***	-0.1007	0.1714**	0.7919***	1.2864***	-0.116	-0.1760**	4.7236***	-0.2563***	-0.2430***	0.2231***	0.8235***	-0.1763**	-0.1578*	0.4936***	0.9971***
	-8.6831	(-1.3222)	-2.0013	-4.9545	-5.2399	(-1.5898)	(-2.1513)	-12.3643	(-3.6119)	(-3.4251)	-2.6334	-5.7018	(-2.0455)	(-1.8340)	-5.0129	-6.5212
		0.0466				-0.4586***				0.2803***				0.3716***		
		-0.5758				(-6.6494)				-3.7766				-4.6859		
TFI (h)	0.6121***	0.4686***	1.6480***	4.6880***	0.2379	0.6394***	1.9457***	9.1130***	0.4723***	0.5148***	1.3527***	5.4184***	0.5097***	0.5046***	3.0289***	3.4162***
	(-3.5241)	(-2.6616)	-8.1336	-4.8502	-0.9262	-4.931	-10.9017	-5.2699	(-2.6470)	(-2.6916)	-6.6245	-5.3849	-3.5751	-3.2211	-12.9108	-2.7467
		1.8383***				1.9805***				1.6049***				4.0445***		
		-12.0078				-12.011				-10.6131				-20.1212		
TFI (i)	-0.1660**	-0.1813***	-0.0531	-0.041	0.3327**	0.0308	0.0787	2.3445***	-0.1765***	-0.2004***	-0.2746***	0.3400*	0.0958	0.0923	-0.0364	0.1383
	(-2.5672)	(-2.7089)	(-0.7746)	(-0.2140)	-2.2174	-0.506	-1.1688	-4.8666	(-2.7603)	(-3.0296)	(-4.2743)	-1.8167	-1.387	-1.2729	(-0.4906)	-0.6076
		0.1252**				0.0992				-0.1904***				-0.1257*		
		-1.9727				-1.4563				(-3.2353)				(-1.6665)		
TFI (j)	0.2548***	0.2640***	0.2301**	0.0172	-0.0305	-0.0593	0.4111***	0.6485	-0.1055	0.2050**	-0.1963	0.2272	-0.0697	0.2333**	0.6147***	-0.0579
	(-3.5476)	(-3.1731)	(-2.0545)	-0.0835	(-0.1459)	(-0.6646)	-3.5509	-1.4548	(-1.4764)	(-2.1725)	(-1.5281)	-0.9897	(-0.7919)	(-2.0201)	-4.0289	(-0.1750)
		-0.0214				0.5305***				-0.0534				0.9619***		
		(-0.2563)				-5.8213				(-0.5623)				-8.1082		
TFI (l)	0.1029***	0.9123***	1.2265***	-2.5181***	0.5349*	0.3820***	0.7828***	7.1054***	0.6719***	0.6145***	1.0468***	-0.0168	0.5522***	0.5806***	1.3869***	-0.4702
	(-2.058)	-4.5478	-8.4463	(-4.2473)	-1.7192	-2.8448	-5.301	-8.9003	-3.3097	-2.6871	-6.8025	(-0.0237)	-4.1049	-3.6155	-7.4757	(-0.5374)
		0.9916***				1.1555***				0.9444***				2.2886***		
		-6.9731				-4.9954				-6.7643				-7.6293		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 55-66%.

Appendix Table A2.15. Eastern Europe non-OECD and Central Asia – All sectors

Sector	All				All				All			
Importer sample	EAC				All				EAC			
Exporter sample	All				EAC				EAC			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.3011**	0.6775***	0.0689	0.6017	0.0448	0.041	0.1249	1.1677*	0.2169**	0.2242	0.1849	0.2206
	-2.2426	-4.4512	(-0.7582)	-1.3213	(-0.3831)	(-0.3526)	-1.1227	-1.8944	-1.263	-1.2808	-0.9764	(-0.1932)
		0.3751***				0.5498***				0.0897		
		(-7.502)				-3.9435				-0.4343		
TFI (b)	0.1701**	0.1786**	0.6683***	-0.2872	0.4014***	0.3964***	0.3571***	-0.0862	0.2138***	0.1897**	0.1368*	-0.2484
	-2.4765	-2.5411	-9.7667	(-1.4691)	-5.6611	-5.2029	-4.5755	(-0.4522)	-2.6448	-2.3477	-1.7113	(-0.7452)
		0.7611***				0.1517*				0.0751		
		-10.6423				-1.8596				-0.7518		
TFI (c)	0.2050**	0.1912**	0.6573***	0.325	0.5431***	0.5199***	0.4870***	0.1463	0.1858*	-0.161	0.2135**	0.0094
	-2.3867	-2.0571	-9.3865	-1.3038	-7.608	-6.9507	-6.2799	-0.5855	(-1.8466)	(-1.5553)	(-2.1265)	-0.0191
		0.6969***				0.2563**				-0.1723		
		-10.2597				-2.5309				(-1.5897)		
TFI (d)	-0.2165	-0.196	0.0725	1.6112***	-0.061	-0.0315	-0.1475	3.4765***	-0.5225***	-0.5524***	0.6185***	2.6218***
	(-1.3386)	(-1.1496)	-0.6217	-3.758	(-0.5557)	(-0.2771)	(-1.1002)	-6.0054	(-5.0405)	(-5.2358)	(-6.3299)	-5.8876
		0.1179				-0.3461*				-0.5010***		
		-1.1903				(-1.8101)				(-5.2833)		
TFI (e)	-0.2263***	-0.2349***	0.2707***	-0.3231	0.5227***	0.5381***	0.2167**	0.0313	-0.1352	-0.119	-0.1805*	0.0159
	(-2.9814)	(-2.7820)	-2.9424	(-0.9323)	-5.2985	-5.0511	-2.1817	-0.0979	(-1.4537)	(-1.1895)	(-1.9043)	-0.0264
		0.7256***				-0.1418				-0.1432		
		-6.8739				(-1.5341)				(-1.3819)		
TFI (f)	0.5654***	0.1132***	0.3696***	0.6048**	0.1597	0.1746*	0.4695***	0.6973**	-0.2977***	-0.3272***	-0.0796	0.3113
	-3.8054	-2.264	-3.4319	-2.087	-1.6185	-1.7095	-4.0725	-2.2825	(-2.7144)	(-2.8859)	(-0.5747)	-0.8483
		0.3620***				0.5553***				0.1126		
		-3.8361				-5.1606				-1.0287		
TFI (g)	0.0794	0.0791	0.098	0.016	0.1593**	0.1596**	0.2378**	0.4812**	0.1132	0.1228	0.2101**	0.8160**
	(-0.9095)	(-0.9061)	(-1.1096)	-0.0854	(-2.0446)	(-2.0479)	(-2.4893)	-2.1878	(-1.2010)	(-1.2950)	(-2.0283)	-2.5003
		0.0207				-0.0309				-0.2144**		
		-0.2807				(-0.3117)				(-2.2376)		
TFI (h)	0.7877***	0.3251**	1.6417***	1.8406**	0.6737***	0.7053***	1.6173***	2.0988***	0.3588***	0.3165**	0.5665***	0.666
	(-2.7371)	-2.3459	-9.8265	-2.4769	-4.7179	-4.537	-9.3393	-2.9126	-2.5907	-2.2249	-2.7002	(-0.8081)
		1.6238***				1.5007***				0.3905**		
		-10.8268				-9.5676				-2.5388		
TFI (i)	-0.0157	-0.0209	-0.0892	-0.1172	-0.0241	-0.026	-0.1278**	0.1285	0.0742	0.0928	0.0309	-0.1759
	(-0.2397)	(-0.3068)	(-1.5304)	(-0.6741)	(-0.3611)	(-0.3893)	(-1.9674)	-0.662	-1.0781	-1.3193	-0.4192	(-1.0830)
		-0.0745				-0.2008***				0.0095		
		(-1.2760)				(-2.8257)				-0.1592		
TFI (j)	0.0522	0.1146	-0.0402	-0.1469	-0.1447*	-0.1785	0.0054	-0.132	0.0155	0.0109	0.0065	-0.2238
	-0.6893	-1.1754	(-0.3107)	(-0.6777)	(-1.7810)	(-1.6384)	-0.0337	(-0.5147)	-0.2322	-0.1552	-0.0628	(-1.2321)
		-0.0667				0.3391***				0.0661		
		(-0.7494)				-2.8313				-0.9233		
TFI (l)	0.1651***	0.6711**	0.1031	0.7725	0.5711***	0.0729	0.5110***	2.3447**	0.1698	0.1626	-0.0565	0.6603
	-3.302	(-2.2677)	-1.0807	-0.9672	-4.627	-0.5862	-3.2056	-2.2071	-1.3387	-1.2799	(-0.5047)	-1.2765
		0.7430***				0.0786				-0.2484**		
		-5.2268				(-0.8556)				(-2.2862)		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 59-61%.

Appendix Table A2.16. Eastern Europe non-OECD and Central Asia – Manufacture and agriculture

Sector	Manufacture				Manufacture				Agriculture				Agriculture			
Importer sample	EAC				All				EAC				All			
Exporter sample	All				EAC				All				EAC			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.2524***	0.2569	0.0007	0.7751	0.0258	0.0255	-0.0626	0.6487	0.0228	-0.0208	0.149	1.0452*	0.1206	0.1145	0.1991*	1.5527**
	-5.0429	-1.6403	(-0.0061)	-1.3779	-0.1897	-0.1872	(-0.4852)	-0.9129	(-0.1350)	(-0.1206)	-1.354	(-1.8454)	(-0.9411)	(-0.9008)	-1.5962	-2.2624
	5.08	0.0796				-0.0492				0.2512**				0.8896***		
		(-0.6791)				(-0.2741)				-2.3372				-5.6887		
TFI (b)	0.2683***	0.2850***	0.7901***	-0.4267*	0.4141***	0.4118***	0.1882**	0.3259	0.1053	0.1144	0.8850***	-0.4365*	0.2730***	0.2383***	0.3284***	-0.3263
	-3.1362	-3.2448	-9.324	(-1.7765)	-4.9267	-4.5866	-2.0198	-1.3562	-1.0798	-1.14	-9.3459	(-1.7130)	-3.2796	-2.675	-3.5686	(-1.4824)
		0.8469***				-0.2417**				1.0761***				0.3708***		
		-9.5751				(-2.3143)				-10.9542				-3.8907		
TFI (c)	0.1768	0.158	0.7854***	0.4593	0.5803***	0.5799***	0.7004***	-0.3242	0.163	0.1474	0.7392***	0.075	0.4681***	0.4434***	0.3700***	0.1695
	-1.62	-1.3305	-9.4087	-1.4906	-7.002	-6.6919	-7.6463	(-1.1650)	-1.5276	-1.2978	-7.7927	-0.2589	-5.5795	-4.9338	-3.9765	-0.6353
		0.8540***				0.7501***				0.8205***				0.1372		
		-10.6208				-6.8641				-8.7563				-1.1214		
TFI (d)	-0.092	-0.0669	0.6176***	0.7062	-0.0152	0.0175	-0.0171	3.4163***	-0.1415	-0.0741	-0.0193	0.4486	-0.1445	-0.1124	-0.2174	3.9020***
	(-0.4444)	(-0.3081)	-4.1112	-1.2875	(-0.1184)	-0.1346	(-0.1057)	-5.3753	(-0.6923)	(-0.3363)	(-0.1217)	-0.7993	(-1.1741)	(-0.8787)	(-1.4110)	-5.9613
		0.6163***				-0.2425				-0.03				-0.2465		
		-4.8378				(-1.0819)				(-0.2211)				(-1.0884)		
TFI (e)	0.2779***	-0.2935***	0.4263***	-0.5027	0.4130***	0.4183***	0.0262	0.528	-0.3490***	-0.3456***	0.1161	-0.3293	0.4665***	0.4468***	0.0362	-0.0459
	(-2.9987)	(-2.9250)	-3.8357	(-1.2659)	-3.5736	-3.3979	-0.234	-1.3648	(-3.3847)	(-2.8975)	-0.9183	(-0.7263)	-3.9013	-3.4761	-0.2957	(-0.1218)
		1.0424***				-0.3662***				0.5938***				-0.2519**		
		-8.1988				(-3.5371)				-4.1503				(-2.2279)		
TFI (f)	0.3111***	0.0587	0.8698***	1.3056***	0.0354	0.2969***	0.7765***	1.2126***	0.2057*	0.2172*	0.5065***	0.7952**	0.0009	0.0368	0.4360***	0.4811
	-2.7305	-0.4909	-6.7001	-3.8189	-0.2961	-2.6017	-5.9273	-3.5523	-1.6543	-1.7238	-3.454	-2.0049	-0.0073	-0.3082	-3.293	-1.366
		0.9846***				0.8311***				0.4278***				0.7450***		
		-9.078				-6.7871				-3.2453				-6.1688		
TFI (g)	0.0582	0.0586	0.0329	0.1516	0.097	0.1001	0.3694***	0.6156**	0.0645	0.0577	0.3674***	0.8512***	0.1302	0.1288	0.0741	0.4437*
	-0.5254	-0.5289	(-0.2936)	(-0.6144)	(-1.0506)	(-1.0845)	(-3.2412)	-2.358	(-0.5630)	(-0.5051)	-3.2209	(-3.5962)	(-1.4558)	(-1.4407)	(-0.6606)	-1.8287
		0.0286				-0.3667***				0.4954***				0.1643		
		-0.303				(-2.9564)				-5.3609				-1.4202		
TFI (h)	0.4590***	0.4415**	2.0860***	2.7770***	0.6804***	0.6866***	1.5130***	1.7796**	0.2584	0.3212	2.1082***	1.5723	0.4963***	0.5440***	1.6922***	1.8291**
	-2.6935	-2.5788	-10.0927	-3.0885	-4.0591	-3.8943	-7.5412	-2.2583	-1.4222	-1.6191	-9.0318	-1.6394	-2.8656	-2.9342	-8.0256	-2.1792
		1.9862***				1.3565***				2.1622***				1.8910***		
		-11.0025				-7.0963				-10.6423				-10.2424		
TFI (i)	0.0902	0.0857	0.0926	0.2139	0.082	0.0792	-0.0806	0.2239	0.0568	0.0509	-0.1781**	-0.5770***	0.0243	0.0213	-0.1511**	0.1303
	-1.1313	-1.0326	-1.2535	-0.9198	-1.0759	-1.0397	(-1.0682)	-1.0068	-0.6446	-0.5555	(-2.3855)	(-2.7064)	-0.3248	-0.2855	(-2.0637)	-0.587
		0.086				-0.2951***				-0.2118***				-0.3070***		
		-1.1293				(-3.6405)				(-2.8994)				(-3.6853)		
TFI (j)	-0.0555	0.0724	-0.1419	-0.1948	-0.1538*	-0.0837	0.0021	-0.3064	0.1112	0.182	-0.0661	-0.2127	-0.0665	-0.1136	0.0709	-0.1046
	(-0.6035)	-0.6606	(-1.0083)	(-0.7346)	(-1.6638)	(-0.7135)	-0.012	(-1.0977)	-1.0916	-1.2846	(-0.3584)	(-0.6565)	(-0.7112)	(-0.9201)	-0.3757	(-0.3343)
		-0.1156				0.2625*				-0.1677				0.3463**		
		(-1.0840)				-1.9628				(-1.3188)				-2.4135		
TFI (l)	0.192**	0.4373	1.2237***	0.5453	0.5371***	0.5657***	0.2774	3.2733***	0.6329	0.4254	0.7102***	-0.7614	0.6097***	0.7608***	0.5268***	3.5436***
	-3.842	(-1.2277)	-6.7216	(-1.5186)	-3.6606	-3.2128	-1.4562	-3.0391	(-1.6181)	(-0.9595)	-3.3578	(-0.6792)	-4.3	-4.2262	-2.7399	-2.8517
		1.3569***				-1.4055***				0.7910***				-0.6712		
		-8.0335				(-3.6714)				-3.8534				(-1.6017)		

Note: Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 48-67%.

Appendix Table A2.17. APEC – All sectors

Sector	All				All				All			
Importer sample	APEC				All				APEC			
Exporter sample	All				APEC				APEC			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.7777***	0.7834***	0.6234***	0.5071*	-0.0505	-0.047	0.2669***	0.6699***	1.1914***	1.2396***	1.0874***	0.1886
	-7.2743	-7.3404	-7.3891	-1.8567	(-1.6437)	(-1.5309)	-7.5379	-9.4161	-4.8037	-5.0071	-5.234	-0.2256
		0.2535***				0.2339***				0.5456**		
		-3.4038				-7.3226				-2.424		
TFI (b)	1.0894***	1.0811***	0.7891***	1.2335***	0.0284	0.0296	0.0184	1.8133***	1.0710***	1.2274***	1.6551***	2.6804***
	-9.5908	-9.3638	-7.5035	-3.1269	(-0.6663)	(-0.6805)	(-0.4811)	-11.0891	-3.4226	-4.0032	-5.3535	(-2.6903)
		0.1715				0.0184				1.5276***		
		-1.6211				-0.4568				-5.7567		
TFI (c)	0.0585	0.1108	0.3354***	0.5268**	0.2307***	0.2635***	0.8066***	-0.4329***	0.0459	-0.032	0.147	-0.3004
	-0.5277	-0.9055	-3.5365	-2.4218	-8.6259	-9.1092	-21.7349	(-6.8225)	(-0.1599)	(-0.1091)	-0.5369	(-0.4244)
		0.2131***				0.7162***				0.4607**		
		-2.989				-22.374				-2.1023		
TFI (d)	0.8778***	0.9086***	0.6723***	0.2683	0.1506***	0.1563***	0.6564***	-0.1506**	1.5636***	1.7065***	1.8528***	2.6898**
	-7.9078	-7.9096	-8.656	-0.9069	-5.5533	-5.5007	-20.461	(-2.2788)	-6.006	-6.9305	-8.0023	-2.5449
		0.4470***				0.6857***				1.4807***		
		-6.3663				-22.1659				-5.349		
TFI (e)	0.0008	0.0251	0.2982***	0.3031	0.2351***	0.2452***	0.6896***	-0.137	0.3824*	0.2785	0.2413	1.6727**
	(-0.0090)	-0.2403	-3.1183	-0.7547	-6.3019	-5.7657	-14.9246	(-0.8983)	-1.7282	-1.484	-1.5975	-2.521
		0.4300***				0.7025***				0.1047		
		-4.2013				-14.8562				-0.6938		
TFI (f)	1.0297***	1.0990***	2.1651***	1.4688*	0.5099***	0.5545***	1.9796***	2.5747***	1.7224***	1.7721***	2.8778***	1.3926
	-7.4237	-7.5557	-12.1662	-1.7156	-9.4507	-9.696	-26.4449	-7.1316	-5.3745	-5.6053	-7.711	(-0.6421)
		1.4361***				1.7153***				1.6372***		
		-10.5303				-28.6101				-5.3628		
TFI (g)	1.2524***	1.2814***	1.5110***	3.1096***	0.2047***	0.2149***	0.4921***	1.3106***	1.9228***	2.0095***	2.1641***	4.0077***
	-13.1465	-13.4538	-13.802	-10.1475	-5.3231	-5.5318	-9.9817	-8.6319	-9.7622	-10.2288	-9.056	-5.809
		0.6446***				0.3698***				0.7659***		
		-7.1858				-8.9027				-3.4494		
TFI (h)	1.2320***	1.1198***	0.6550***	1.6521***	0.026	0.0309	0.2998***	1.5599***	0.557	0.497	0.3897	1.4888
	-7.1204	-6.4125	-5.8599	-3.5363	-0.5891	-0.6617	-6.5368	-11.0717	-1.2424	-1.1025	-1.0899	-1.3795
		0.3500***				0.3436***				0.1748		
		-3.2825				-7.4801				-0.4317		
TFI (i)	-0.4862***	-0.5198***	-0.2878***	0.3948*	0.0226	0.0205	-0.0971***	0.2020***	-0.7580***	-1.0132***	-1.0602***	-0.8058
	(-5.3274)	(-5.4790)	(-3.9101)	-1.6606	-0.8985	-0.7895	(-3.5573)	-2.621	(-3.3061)	(-4.2896)	(-4.4891)	(-1.0238)
		-0.0841				-0.1438***				-0.7407***		
		(-1.3200)				(-5.4043)				(-3.4448)		
TFI (j)	-0.0234	-0.0071	-0.1171*	0.2081	-0.0074	-0.0159	-0.0796	0.2698**	0.1265	0.0737	-0.3121*	-0.3581
	(-3.8761)	(-5.9812)	(-0.9817)	(-0.8712)	(-0.2270)	(-0.3901)	(-1.4992)	-2.4992	-0.8332	-0.4661	(-2.4918)	(-1.0036)
		0.0073				-0.1031**				-0.5206***		
		(-3.9817)				(-2.4775)				(-3.8203)		
TFI (l)	0.2216	0.1629	0.5826***	1.9979***	0.4822***	0.5144***	0.7672***	0.5659**	0.5766	0.6673	1.1486***	0.5877
	-1.2871	-0.8517	-4.8865	-4.0621	-9.4385	-8.9776	-14.6513	-2.5664	-1.2421	-1.4753	-3.3654	-0.6009
		0.6523***				0.7409***				1.5011***		
		-5.1918				-12.1904				-4.1376		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 61-62%.

Appendix Table A2.18. ECOWAS – All sectors

Sector	All				All				All			
Importer sample	ECOWAS				All				ECOWAS			
Exporter sample	All				ECOWAS				ECOWAS			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.1806	0.1726	0.0602	0.1506	0.0896	0.0887	0.0321	0.2009	0.2427	0.1921	0.4743	0.7261
	(-1.5396)	(-1.4373)	-0.507	(-0.4514)	-0.803	-0.7957	(-0.3316)	-0.8313	(-0.4873)	(-0.3858)	-0.8531	-0.959
		0.3404***				0.095				0.4746		
		-2.9189				(-1.1769)				-1.3005		
TFI (b)	0.5756***	0.6335***	0.9358***	-0.2692**	0.1567**	0.1568**	0.2178**	0.0091	1.3975***	1.3873***	1.3710**	-1.1155**
	-5.9958	-6.1628	-7.4391	(-2.0843)	-2.3836	-2.3855	-2.2235	-0.0819	-4.3037	-4.1955	-2.1889	(-2.3625)
		0.2765***				0.0111				-0.0837		
		-3.8188				-0.1298				(-0.3181)		
TFI (c)	0.6107	0.6523	-0.7079	0.1589	0.0314	0.0285	0.3953	-0.029	1.055	0.067	-0.7565	-1.5959
	(-5.9462)	(-5.6357)	(-4.0982)	-0.9351	-0.4439	-0.3063	(-2.6788)	(-0.2253)	(-3.5159)	-0.0454	(-0.7666)	(-1.3766)
		0.1271				0.2555**				1.3783		
		-1.0982				(-2.5542)				-0.8479		
TFI (d)	0.2803	0.323	0.2546	1.1040**	0.2916**	0.4832**	0.0531	-0.5211	1.2716	1.1314**	1.1099	0.0822
	(-1.2087)	(-1.2134)	-1.055	(-1.9866)	-2.0002	-2.1645	(-0.2766)	(-0.8907)	(-1.6147)	(-2.2063)	(-0.7007)	-0.0871
		0.7228***				-0.5273**				0.7427		
		-2.8604				(-2.5730)				-1.3605		
TFI (e)	0.7126***	0.8529***	0.3557**	-0.2277	0.0685	0.0658	-0.2036	0.2075	0.9359*	0.9899*	0.5351	-4.2430*
	-3.9598	-4.1388	-1.9854	(-0.5390)	-0.6641	-0.5139	(-1.0746)	-0.3812	-1.9853	-1.8065	-0.6648	(-1.9973)
		-0.0208				-0.4684*				0.0196		
		(-0.1671)				(-1.7617)				-0.0294		
TFI (f)	1.7196***	1.7199***	1.3837***	-0.0239	-0.066	-0.0665	0.5679***	0.0661	2.8529***	2.9601***	4.4899***	-3.4854***
	-11.1432	-11.1602	-7.6899	(-0.1532)	(-0.8555)	(-0.8647)	-3.6751	-0.4502	-5.8888	-5.9656	-4.7671	(-4.5644)
		-0.1390*				0.7268***				0.9405*		
		(-1.6791)				-4.8843				-1.7568		
TFI (g)	0.5965***	0.5960***	0.8137***	1.2206***	-0.0273	-0.0245	0.2018*	0.1523	0.8435***	0.9024***	0.9330*	-1.8412
	-6.4128	-6.3313	-6.3869	-3.3223	(-0.2582)	(-0.2333)	-1.711	-0.4337	-2.6271	-2.7843	-1.9235	(-1.3755)
		0.2722**				0.2457***				0.4321		
		-2.3166				-2.5813				-1.2709		
TFI (h)	0.4438*	0.6787***	1.7241***	-0.541	0.3574**	0.4438***	1.5347***	0.9586	-0.6449	-0.1447	1.1878	-9.5771
	-1.843	-2.6295	-6.3792	(-0.3839)	-2.5373	-2.9573	-6.1703	-0.6953	(-0.8122)	(-0.1639)	-0.862	(-1.0353)
		1.0507***				1.8213***				1.5646*		
		-6.5018				-7.1437				-1.8378		
TFI (i)	0.3285***	0.3379***	0.0824	0.1827	-0.0237	-0.026	-0.0681	0.3315	0.5630*	0.5464*	0.4751	0.5856
	-3.7107	-3.7173	-0.9296	-0.84	(-0.3340)	(-0.3663)	(-0.9286)	-1.3576	-1.9204	-1.8586	-1.2586	-0.782
		-0.1784**				-0.1512*				-0.1188		
		(-2.2716)				(-1.7045)				(-0.3310)		
TFI (j)	-0.9759**	-1.0265	0.6195	-0.0987	0.0057	0.0724	-0.0194	-0.1632	-2.0237	-9.2592	0.4291	1.2841
	(-2.2689)	(-1.6199)	-1.5675	(-0.2324)	-0.0625	-0.3464	(-0.0444)	(-0.4292)	(-1.4145)	(-0.0126)	-0.0812	(-0.0013)
		0.4124**				1.3907***				0.0012		
		-2.1443				-3.4106				(-0.0116)		
TFI (l)	0.8078***	0.9044***	1.0280***	0.6274*	0.0573	0.0369	0.174	0.6709*	0.6017	0.7316	1.3566	2.6319
	-3.0008	-3.1647	-4.61	(-1.6957)	(-0.5007)	-0.2686	(-0.7514)	-1.757	-0.8302	-0.6305	-0.7742	(-1.0725)
		0.4377***				0.5101**				1.0817		
		-3.2088				(-1.4998)				-1.0664		

Note: Fixed effects for year and sector are included but not reported. Robust standard errors clustered by country pair. p for Poisson. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 54-60%.

Appendix Table A2.19. Landlocked country group – total trade and individual import/export TFIs

Sector Importer sample Exporter sample	Total Landlocked All				Total All Landlocked			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.4182*** (-0.2652)	0.3267** (-1.1762) 0.4457*** (-1.1245)	0.5224** (-0.3499)	0.7623* (-1.888)	0.4004*** (-1.0085)	0.5291* (-0.3299) 0.6125** (-0.9926)	0.6288*** (-1.3375)	0.5428* (-1.0632)
TFI (m)	0.0976 (-2.9823)	-0.2654 (-1.0023)	0.0982 (-2.9581)	0.0981 (-2.0234)	0.1254 (-3.8723)	0.0345 (-2.5344)	-0.4455 (-2.9187)	0.1288 -3.8725
TFI (n)	0.1947*** -0.8651	0.2576** -1.3261	0.5545*** -1.4231	0.981** -0.5241	0.2981* -1.2561	0.3956** -1.7038	0.4532** -0.9182	1.2345* -1.7652
TFI (o)	0.1234 -3.7219	0.3261 -1.9872	0.3548* -1.1567	0.2576* -1.0027	0.3543* -0.5671	0.4115* -1.2291	0.4581*** -1.0182	0.5921** (-1.2827)
TFI (p)	0.1762*** -0.0214	0.2041** -0.0981	0.1095*** -1.4031	0.1734* -0.0617	0.2671** -0.0429	0.1982** -1.0573	0.3256* -0.4456	0.4047** -1.5291
TFI (b)	0.3107 (-2.9821)	0.2194 (-1.8561) 0.1145** (-1.8016)	0.4592 (-1.9327)	0.5561* (-0.3357)	0.1127 (-1.6245)	0.0982 (-2.2555) 0.0852 (-2.0043)	0.5429 -2.0021	0.4125* (-0.2954)
TFI (m)	0.1005 (-4.6782)	-0.1562 (-3.8762)	-0.1123 (-2.9927)	0.1245 (-2.3789)	-0.2361 (-3.6721)	-0.1981 (-1.9982)	0.2905 (-1.8927)	0.2512 (-3.5561)
TFI (n)	0.1940*** (-1.5278)	0.1988** (-1.0054)	0.2235** (-0.2781)	0.2783* (-1.6254)	0.2884** (-1.5629)	0.3482** (-0.4023)	0.2167*** (-0.9276)	0.3327* (-1.4027)
TFI (o)	-0.1976 (-2.5428)	-0.2056 (-2.0043)	0.1987* (-1.2563)	0.1576 (-4.5578)	0.1492** (-0.5021)	0.1234* (-1.1256)	-0.334 (-2.9825)	0.1152*** (-1.9982)
TFI (p)	0.1887** (-1.1729)	0.1145** (-1.4338)	0.2543* (-2.5423)	0.1988*** (-0.8723)	0.1834*** (-1.1234)	0.1933* (-2.0982)	0.2523** (-0.4389)	0.2312*** (-0.2045)
TFI (c)	0.1005* (-1.7234)	0.1123* (-1.2509) 0.2341 (-1.9804)	0.2387** (-1.5628)	0.3256** (-0.9824)	0.2314** (-1.8916)	0.1987** (-1.1894) 0.1283* (-2.0052)	0.2891 (-2.5219)	0.4357** (-1.9963)
TFI (m)	0.2166 (-4.7819)	0.1982 (-3.8819)	-0.1457 (-2.7781)	0.2671 (-4.1192)	-0.1891 (-3.6571)	0.251 (-2.113)	0.1005* (-1.0081)	0.1229 (-2.569)
TFI (n)	0.5127** -1.6791	0.2871*** -1.9824	0.3576*** -1.1282	0.3482** -1.2781	0.5528** -1.5243	0.3823** -0.0081	0.3982*** -1.5312	0.4459* -0.5872
TFI (o)	-0.1046 (-5.6723)	0.2561 (-1.4589)	0.1588* (-1.0028)	0.2055 (-2.3457)	0.0918** (-0.4338)	0.1182*** (-1.087)	0.2209 (-2.7432)	0.1537** (-0.6734)
TFI (p)	0.4867*** (-0.0238)	0.3178*** (-0.1681)	0.3516** (-2.2291)	0.3115** (-1.4389)	0.4119** (-1.0981)	0.3826* (-1.156)	0.2489** (-0.7251)	0.3937*** (-0.5812)
TFI (d)	0.0981 (-0.5231)	0.1675* (-1.4012) 0.2347** (-0.9234)	0.3345 (-0.1429)	0.4451 (-0.8723)	0.2345** (-2.6529)	0.2019* (-2.1006) 0.1892 (-2.768)	0.4891* (-2.5231)	0.5021* (-0.7732)
TFI (m)	0.1561 (-2.9961)	0.195* (-1.061)	0.2071 (-2.9971)	0.1971 (-3.5568)	0.1813 (-2.1567)	-0.2182 (-3.0067)	0.2567 (-2.8891)	-0.1091 (-1.9982)
TFI (n)	0.6781*** -0.6791	0.2871*** -0.9824	0.3576*** -1.1282	0.3482*** -0.2781	0.8128** -0.5243	0.3823*** -1.0081	0.3982*** -1.5312	0.4459* -0.9872
TFI (o)	0.2488 (-5.1823)	0.1976 (-1.9557)	0.0982 (-1.5567)	0.2154 (-2.9946)	0.1692* (-0.9948)	0.1218 (-2.8734)	0.2598** (-1.0092)	0.1155* (-0.0337)
TFI (p)	0.5385*** (-0.0062)	0.4892** (-0.2281)	0.5138** (-1.1467)	0.3761*** (-0.5671)	0.6721*** (-0.1819)	0.3529*** (-1.2812)	0.5125** (-1.1782)	0.4481*** (-1.637)
TFI (e)	0.0886 (-2.8725)	0.1267 (-2.0026) 0.4356* (-1.4031)	-0.2256 (-3.5237)	0.4821* (-0.0215)	0.2387* (-0.9815)	-0.2219* (-0.4115)	0.1984** (-1.5745)	-0.3381* (-1.1286)
TFI (m)	0.1591 (-2.7718)	-0.278 (-3.5591)	-0.1972** (-0.9438)	0.2118 -5.1927	0.108 (-4.2761)	-0.195 (-3.7912)	-0.1567 (-2.8872)	0.0876* (-0.9382)
TFI (n)	0.3891** -0.5231	0.434*** -1.0003	0.3128** -1.0256	0.4017* -1.211	0.3011** -1.0135	0.3538* -1.1029	0.2423*** -0.0051	0.1870 -1.4517
TFI (o)	0.0884 (-3.5682)	0.1123 (-2.9887)	0.1544 (-1.9984)	0.192* (-1.1127)	0.0785 (-2.3673)	0.1762** (-1.0437)	0.1208** (-1.0329)	0.1045* (-0.5567)
TFI (p)	0.1153*** (-0.8832)	0.2533** (-1.2188)	0.1098** (-1.1154)	0.1483** (-2.3218)	0.1874*** (-0.3347)	0.2118*** (-0.5671)	0.098** (-0.1897)	0.097*** (-0.2256)
TFI (f)	0.4981*** (-1.1124)	0.4864** (-0.8217) 0.4985*** (-0.9291)	0.5528** (-0.6742)	0.6719*** (-0.0817)	0.5002** (-1.0891)	0.3856** (-0.4591) 0.2987** (-0.9023)	0.6019** (-0.039)	0.5583*** (-1.8762)
TFI (m)	0.2532 (-4.2812)	0.1973 (-3.2783)	-0.1448 (-3.7683)	-0.1982 (-2.7785)	0.0875* (-1.0082)	0.2118 (-3.2897)	0.1763 (-3.0082)	-0.421 (-4.9965)
TFI (n)	0.3129* -1.3812	0.2297*** -1.1184	0.2183 -2.5672	0.2567** -1.3451	0.671** -0.0278	0.5328* -0.1121	0.3543*** -0.0895	0.4381* -1.0772
TFI (o)	0.0955 (-3.8876)	0.128 (-2.5983)	0.0843 (-3.6529)	0.0877 (-2.729)	0.1023** (-0.0346)	0.1529** (-1.1821)	0.1125** (-0.0378)	0.1533* (-0.2268)
TFI (p)	0.1185** (-2.1147)	0.1583** (-0.0743)	0.1072** (-0.1764)	0.0962** (-1.0056)	0.1543*** (-1.1821)	0.2845 (-4.6721)	0.2189** (-0.0876)	0.2567*** (-0.637)

Appendix Table A2.19. Landlocked country group – total trade and individual import/export TFIs *(cont.)*

Sector	Total				Total			
Importer sample	Landlocked				All			
Exporter sample	All				Landlocked			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (g)	0.5129***	0.3982**	0.7782**	0.8823**	0.4976***	0.5092**	0.6293**	0.5983***
	(-1.0985)	(-1.0219)	(-0.4319)	(-0.0091)	(-0.5419)	(-0.8761)	(-0.4378)	(-0.4256)
		0.6031***				0.4123***		
		(-0.2915)				(-1.1782)		
TFI (m)	0.1713	0.0753	-0.0982	0.1143	0.2153	-0.0918*	-0.1913	-0.2931
	(-3.471)	(-2.5578)	(-3.5234)	(-5.117)	(-2.1478)	(-1.2067)	(-2.8876)	(-4.762)
TFI (n)	0.4482***	0.5128**	0.4583*	0.3289*	0.5754**	0.4388***	0.4182***	0.4563*
	-1.5028	-0.6783	-0.5678	-0.4321	-0.8799	-0.4211	-1.5671	-0.5911
TFI (o)	0.2088	0.2133	0.0587*	0.1043	0.2051**	0.1016*	0.1282**	0.1826*
	(-4.3377)	(-2.9833)	(-2.006)	(-2.9532)	(-0.2647)	(-1.177)	(-0.1397)	(-0.4235)
TFI (p)	0.2284***	0.1985**	0.2573**	0.1763**	0.2784***	0.1568***	0.1937**	0.2471***
	(-0.8836)	(-0.5693)	(-0.6298)	(-0.0989)	(-0.2983)	(-0.7835)	(-0.0789)	(-0.423)
TFI (h)	0.6423***	0.5582***	0.8876***	0.9137**	0.5098***	0.6439***	0.7992***	0.9587**
	(-0.9872)	(-0.4561)	(-1.4513)	(-0.7649)	(-1.5278)	(-0.8337)	(-1.0045)	(-0.9826)
		0.6548***				0.4582**		
		(-0.4001)				(-0.9876)		
TFI (m)	0.1325	-0.1671	-0.2342	-0.1924	-0.2119	-0.0927	0.1017	-0.1114
	(-3.9871)	(-3.827)	(-4.5128)	(-3.9826)	(-3.5562)	(-2.826)	(-1.8824)	(-1.1876)
TFI (n)	0.3891***	0.434***	0.3128**	0.4017*	0.3011***	0.3538*	0.2423***	0.1870
	-0.5231	-1.0003	-1.0256	-1.211	-1.0135	-2.1029	-1.0051	-3.4517
TFI (o)	0.0651*	0.1067	0.0982*	0.0911	0.1136	0.1146*	0.0572**	0.0533
	(-1.0432)	(-0.6752)	(-0.7632)	(-1.5562)	(-2.7629)	(-0.6548)	(-1.3662)	(-2.8156)
TFI (p)	0.1153***	0.2533**	0.1098**	0.1483**	0.1874***	0.2118***	0.098**	0.097***
	(-0.8832)	(-1.2188)	(-1.1154)	(-0.3218)	(-0.3347)	(-0.5671)	(-0.1897)	(-0.2256)
TFI (i)	0.0456	0.1982	0.2567	-0.297	0.3289	0.1050*	0.3546*	-0.2985
	(-0.9476)	(-0.8873)	(-2.2056)	(-0.5582)	(-1.0482)	(-1.2542)	(-1.5641)	(-2.5673)
		0.2543*				-0.4523		
		(-1.0091)				(-3.9827)		
TFI (m)	0.1128**	0.2176	0.1814	-0.1914	0.1083	-0.0914*	0.224	-0.1176
	(-0.5423)	(-3.6628)	(-2.5612)	(-2.3492)	(-2.0018)	(-1.0021)	(-3.1892)	(-2.8825)
TFI (n)	0.5891***	0.5083***	0.528**	0.4962*	0.4582**	0.4872*	0.3977***	0.4071*
	-0.0432	-0.4512	-0.9256	-1.2356	-0.0128	-0.1224	-1.1981	-1.0765
TFI (o)	0.1874	0.1523	0.1677*	0.1067*	0.0972	0.1672**	0.1276**	0.1195
	(-2.7829)	(-2.5871)	(-1.8524)	(-1.2381)	(-3.1171)	(-0.4487)	(-0.4481)	(-1.8772)
TFI (p)	0.2267***	0.2581**	0.2965**	0.2392**	0.1972***	0.2567***	0.2861**	0.2763***
	(-0.7562)	(-1.9823)	(-0.1172)	(-1.3182)	(-0.3582)	(-0.4821)	(-0.5562)	(-1.3328)
TFI (j)	0.0071	0.0056	0.3381	-0.2871*	0.0541	-0.1716*	0.3215	-0.2561
	(-3.6171)	(-4.9182)	(-1.7392)	(-4.9182)	(-4.9182)	(-4.1872)	(-4.1526)	(-4.1762)
		-0.2716*				-0.2317*		
		(-0.0981)				(-5.1982)		
TFI (m)	-0.2781	-0.235	0.162	-0.0918	0.1183***	0.1428	0.1981*	-0.2187
	(-4.8991)	(-2.1891)	(-1.8724)	(-2.1876)	(-1.209)	(-1.5567)	(-1.5429)	(-3.9981)
TFI (n)	0.6712***	0.5911**	0.5071**	0.4915*	0.5117***	0.4532*	0.4182**	0.4852*
	-0.5612	-1.3278	-1.0082	-0.5561	-0.5641	-2.1126	-1.1165	-2.2245
TFI (o)	0.0862**	0.1233*	0.0927	0.1077	0.1213	0.1583**	0.1813*	0.1492**
	(-1.4392)	(-0.9972)	(-2.4533)	(-1.9982)	(-2.1772)	(-0.5392)	(-1.5237)	(-1.2921)
TFI (p)	0.1814**	0.2167**	0.1942**	0.1518*	0.1913***	0.2283**	0.2119**	0.1782***
	(-0.1452)	(-1.008)	(-4.2822)	(-0.8712)	(-0.5623)	(-0.7761)	(-0.0562)	(-1.2237)
TFI (l)	0.2543***	0.3128*	0.3956**	0.4386***	0.2931**	0.2561***	0.4341***	0.4582***
	(-1.5619)	(-1.4032)	(-2.6578)	(-3.5610)	(-0.9826)	(-0.8723)	(-1.6729)	(-2.040)
		0.2987***				0.3542***		
		(-1.5621)				(-0.0195)		
TFI (m)	0.1467	-0.0826	0.1573	0.2853	-0.1107*	-0.0987	0.1903	-0.1033
	(-2.6511)	(-1.9943)	(-2.1176)	(-1.0082)	(-0.0562)	(-1.5563)	(-3.5561)	(-2.7655)
TFI (n)	0.3188***	0.3961***	0.4567**	0.4483*	0.3565**	0.317*	0.2963***	0.3946*
	-0.7894	-0.0783	-1.008	-0.632	-1.2354	-0.0843	-1.2251	-2.5321
TFI (o)	0.0915**	0.1129*	0.1045	0.1475*	0.1565	0.0896**	0.1582**	0.1025**
	(-1.6513)	(-1.182)	(-2.299)	(-0.9251)	(-1.9981)	(-0.6239)	(-1.328)	(-1.3187)
TFI (p)	0.1915***	0.234**	0.2467**	0.2198**	0.2376***	0.1762***	0.2109**	0.0843**
	(-0.7352)	(-1.1563)	(-2.0023)	(-0.1125)	(-0.3372)	(-0.2087)	(-0.0065)	(-0.4278)

Note: Robust standard errors clustered by country pair. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Fixed effects for time and sector are used but not reported for brevity. p stands for Poisson. Values for R^2 range between 45-59%.

Appendix 3. Trade flows - gravity regressions with the TFIs altogether

Appendix Table A3.1. Country groups by income – All sectors and the TFIs altogether

Sector	Total		Total		Total		Total		Total		Total	
Importer sample	LICs		All		LMICs		All		UMICs		All	
Exporter sample	All		LICs		All		LMICs		All		UMICs	
	reg1p	reg3p	reg1p	reg3p	reg1p	reg3p	reg1p	reg3p	reg1p	reg3p	reg1p	reg3p
TFI (a)	0.1043***	0.0756***	0.0982**	0.2441**	0.7768***	0.4118***	0.8623***	0.1254*	0.3581***	0.1283**	0.3265***	0.2853**
	-0.5234	-1.7824	(-0.6902)	-1.7542	-0.7432	-0.3455	-0.6523	(-0.3276)	-0.9923	-0.4382	-1.0002	-1.4467
TFI (b)	0.1025**	0.3774***	-0.1542	0.0348**	0.5445***	0.7571***	0.0523***	0.1345***	0.1523	0.3321***	0.2167***	0.2567**
	-0.8923	-1.6123	(-4.3217)	(-0.2856)	-0.5532	-0.4432	-1.1542	-1.2671	(-3.8742)	-0.8723	-1.0418	-0.6342
TFI (c)	0.1152	0.0684	0.3041***	0.4481***	0.4762***	0.6381***	0.0532***	0.0542**	0.3412***	0.3523***	0.2258***	0.2673
	(-2.4567)	-4.6812	-0.1124	-1.3023	-0.5623	-0.9982	-0.6512	-2.0021	-0.4451	-1.2371	-1.5167	-3.9821
TFI (d)	0.0145	0.3052**	0.2543***	0.3581***	0.3982***	0.5115***	0.0125	0.1505***	0.0562	0.1873**	0.1129*	0.2876**
	-3.8721	-1.0011	-1.2317	-0.9812	-0.7523	-0.7623	(-3.5428)	-0.4392	-2.9182	-0.9823	-1.8724	-1.9823
TFI (e)	0.1442	0.0298	0.4017	0.3872	0.0085*	0.2156***	0.0286	0.0406**	0.2561***	0.5548***	0.2843*	0.1925***
	(-2.9873)	(-4.8652)	(-3.2361)	(-2.8732)	-1.1823	-0.5225	-1.7821	-1.0234	-0.1523	-1.2734	-0.8127	-0.4781
TFI (f)	0.2995***	0.8875***	0.3267***	0.6112***	1.2035***	1.3105***	0.0523*	0.2563***	0.4538***	0.6438***	0.4381*	0.4681**
	-0.4112	-1.2303	-1.8215	-0.3382	-0.5632	-0.1237	-0.4325	-0.4823	-0.7423	-0.5523	-1.2563	-1.7623
TFI (g)	0.4523***	0.6215***	0.4214***	0.4987***	0.2893***	0.3321***	0.0147**	0.1524***	0.2738***	0.2873**	0.5412***	0.6091***
	-1.7083	-1.0004	-1.2212	-2.1873	-0.7832	-0.6542	-0.56234	-1.2673	(-0.9823)	-0.1892	-0.3841	-1.7234
TFI (h)	0.2245***	0.9356***	0.4875**	1.3171***	1.4761***	1.3965***	0.0532	0.1167***	1.1283***	1.2372***	0.3621	0.9827***
	(-0.4321)	-0.7743	-0.3812	-5.5814	(-0.5672)	-0.4321	-2.5463	-0.9823	-0.8712	-1.6723	-3.1282	-1.5324
TFI (i)	0.0755	-0.0358	0.0388**	0.0932	0.0762	0.0652	0.0018	-0.0053**	0.0283	0.0056	0.0921*	0.2671
	(-4.8732)	(-0.5625)	(-0.5421)	-1.1209	(-2.6542)	(-3.5562)	-4.2137	(-1.3672)	(-3.5291)	(-3.9827)	-1.235	-3.5672
TFI (j)	0.0743	0.1986*	0.1448	0.1992*	0.0356	0.0432	0.0108	-0.0087	0.1823*	0.0982	0.1023	-0.0823
	-3.9832	-1.6412	-0.9812	-1.7626	-2.8763	-2.3452	(-2.7632)	(-4.5291)	(-2.0023)	(-5.1234)	-4.2819	(-4.8723)
TFI (l)	0.1105***	0.4012***	0.1228**	0.2181***	0.5421***	0.6152***	0.0125*	0.0872***	0.8723***	0.8023***	0.3412***	0.3856**
	(-0.0102)	-1.3348	(-0.7453)	-0.2761	-0.4231	-1.4372	-1.3281	-0.5612	-0.1278	-1.6234	(-1.4326)	-0.7623

Note: Robust standard errors clustered by country pair. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Fixed effects for time and sector are used but not reported for brevity. p stands for Poisson. Values for R^2 range between 60-68%.

Appendix Table A3.2. Landlocked country group – All sectors and all import/export TFIs

Sector	Total				Total			
Importer sample	Landlocked				All			
Exporter sample	All				Landlocked			
	reg1p	reg2p	reg3p	reg3bisp	reg1p	reg2p	reg3p	reg3bisp
TFI (a)	0.3261***	0.2112***	0.2905***	0.3553*	0.2793***	0.0178	0.5487***	1.2282***
	-1.543	-2.5455	-2.3977	-1.7338	-1.2765	-1.4737	(-1.7234)	-1.5332
		-0.0139				-0.4423		
		(-1.8821)				(-3.8872)		
TFI (b)	0.2591	0.0120**	0.3218***	0.4296***	0.0752*	0.0521***	0.0941***	-0.4091***
	-9.8213	-5.6804	-1.6248	(-4.3282)	-3.2544	-1.4445	-5.221	(-5.1139)
		0.3291***				0.0774*		
		-6.5481				-9.2957		
TFI (c)	0.3962	0.3574	0.2181***	0.2671***	0.2669***	0.1763***	0.3675**	0.2592***
	-10.411	-8.2677	-4.1681	(-4.1479)	-2.2651	-2.2109	-2.7423	(-2.1272)
		0.3153***				0.1830*		
		-5.1182				-10.4412		
TFI (d)	0.1055	0.1035***	0.1824***	-0.3581	-0.0178	-0.1125	0.2035	0.6572
	-7.9567	-5.1812	-4.0627	(-7.1133)	(-0.7531)	(-0.7322)	-11.1192	-10.1157
		0.2733*				0.2193***		
		-5.2611				-5.124		
TFI (e)	0.1282	0.1704	0.2345	0.915	0.0365	0.0234	0.0567	0.3174
	-1.9199	-1.5532	-4.2591	-1.1923	-1.4823	-1.3472	-2.8213	-1.0756
		0.2813***				0.0295*		
		-4.2189				-1.5443		
TFI (f)	0.4002***	0.2213***	0.3089***	1.1131***	0.3195**	0.3275	0.3170***	1.0733***
	-1.8212	-1.0072	-0.9121	-0.9544	-0.9715	-1.7761	-6.0248	-5.4118
		0.3712***				0.4451***		
		-1.5132				-1.2961		
TFI (g)	0.5032***	0.3158***	0.3474***	0.8147**	0.3485**	0.1112*	0.2756***	0.6599***
	-1.5243	-4.1245	-3.8376	-3.2123	-1.6257	-0.6342	-3.329	-1.8923
		0.105**				0.3528***		
		(-1.1826)				-4.2843		
TFI (h)	0.7441***	0.8411**	1.1126***	1.7937***	0.5281***	0.1325**	0.4482***	1.1240***
	(-1.4523)	-0.6521	-6.6321	-4.5123	-4.9959	-0.9423	-2.4365	-1.9642
		0.6117***				0.1785*		
		-5.1225				-0.6588		
TFI (i)	0.1232	0.1093*	0.0911	0.9952	0.0225	0.0212	0.0673*	0.1522
	(-1.7506)	(-2.6281)	(-2.1565)	-3.8241	-0.8401	-0.7641	(-1.5273)	-1.0834
		0.2163				0.0523***		
		(-0.4133)				(-1.7219)		
TFI (j)	0.0253	-0.1542	0.0525	0.2192	-0.0392	0.0326	0.0315**	-0.0965
	-1.2312	(-0.0438)	-0.3882	-1.8576	(-1.4562)	(-1.7991)	(-2.1941)	(-1.4972)
		0.1902				0.0893**		
		-1.8234				(-1.8508)		
TFI (l)	0.1421***	0.0125***	0.3398***	0.2192**	0.0956**	0.0721**	0.0323	0.5529
	-0.3278	-2.1493	-4.2345	(-1.8562)	-1.8518	-1.9333	-0.8471	-3.2268
		0.2473***				0.1262		
		-1.5294				(-0.5649)		
TFI (m)	0.1733	-0.1271	0.4526	0.3768	0.2875	0.1239	-0.9502	0.4876
	(-2.1589)	(-1.0685)	(-0.2588)	(-2.1322)	(-1.6218)	(-1.5137)	(-3.4421)	-3.1332
TFI (n)	0.4754***	0.3087***	0.5185***	0.6098**	0.4380**	0.4132**	0.7271***	0.8527*
	-0.4154	-2.1751	-1.5969	-1.1743	-1.2398	-0.9927	-0.4182	-1.4625
TFI (o)	0.0715	0.4105	0.2158*	0.1511*	0.3284**	0.3005*	0.3394***	0.2738**
	-0.8521	-1.4832	-1.6599	-1.2058	-3.092	-4.121	-3.792	(-3.832)
TFI (p)	0.2782***	0.1948**	0.2567***	0.2017*	0.3185***	0.2983***	0.4531***	0.3893**
	-1.7685	-0.3397	-0.965	-0.1982	-1.2951	-1.2792	-1.4386	-0.4285

Note: Robust standard errors clustered by country pair. The standard gravity variables all have the correct signs and are significant; variables are not reported here for brevity. Fixed effects for time and sector are used but not reported for brevity. p stands for Poisson. Values for R2 range between 49-58%.

Appendix 4. Trade costs regressions with the individual TFIs

Appendix Table A4.1. Trade costs regressions - with individual import/export TFIs

Sample	LICs	LMICs	UMICs	SSA	MENA	Asia	LAC	EAC
	reg4	reg4	reg4	reg4	reg4	reg4	reg4	reg4
TFI (a)	-0.0615**	0.0815***	-0.0578***	-0.0615***	-0.0557*	-0.0655**	-0.0321*	-0.0071*
	(-1.2546)	-1.5421	(-1.0709)	(-0.1827)	(-1.0238)	-1.0082	(-1.2345)	-1.0821
TFI (b)	-0.0588**	-0.0714***	-0.1252***	-0.0815***	-0.2511***	-0.1572***	-0.0204	-0.1156***
	(-0.0981)	(-0.1092)	(-0.0081)	(-0.0516)	(-0.4184)	(-0.1266)	-4.1921	-0.8712
TFI (c)	-0.0432	-0.1255***	-0.0891***	-0.0821***	-0.0331	-0.1889***	-0.1482***	-0.0987***
	-1.272	(-1.0452)	(-0.0916)	(-0.3121)	(-3.6180)	(-0.6116)	(-0.0034)	(-0.0918)
TFI (d)	-0.0789**	-0.0352	-0.1345***	-0.1118***	-0.1225*	-0.3153***	-0.0421	-0.0412**
	(-0.3462)	(-4.1728)	(-0.4454)	(-0.1826)	(-1.8712)	(-1.0030)	-2.9182	-1.0627
TFI (e)	-0.0516	-0.0514**	-0.1215*	-0.0162	-0.0256	-0.1535***	-0.1626***	-0.0267
	(-1.0981)	(-2.0013)	(-0.8712)	-4.1728	(-3.6172)	(-0.7124)	(-0.6152)	(-1.0981)
TFI (f)	-0.1791***	-0.2588***	-0.1051**	-0.1716***	-0.0316	-0.326***	-0.2265***	-0.1216***
	(-2.0129)	(-0.523)	(-0.8267)	(-1.7265)	(-3.1672)	(-0.8103)	(-0.2551)	(-0.4612)
TFI (g)	-0.1615***	-0.1756***	-0.2278***	-0.1862***	-0.3162***	-0.3862***	-0.1652***	-0.1635***
	(-1.6732)	-1.2763	(-1.3781)	(-0.2211)	(-2.0192)	(-1.0090)	(-0.4561)	(-1.2093)
TFI (h)	-0.1105*	-0.2623***	-0.2451***	-0.1052**	-0.1265***	-0.0942***	-0.3288***	0.1981*
	(-1.0782)	(-0.5142)	(-0.6712)	(-0.9124)	(-1.8271)	(-1.0029)	(-0.0871)	-0.0871
TFI (i)	-0.0525**	-0.0687***	0.0195	-0.0123*	0.0281	-0.1121***	0.0162	0.0176
	(-1.2561)	(-0.4561)	-5.1672	(-1.8125)	(-3.7161)	(-0.9810)	-5.1282	-1.2873
TFI (j)	-0.1108	0.0341	0.0381	-0.0072*	0.0712	0.0188	-0.0781	-0.0786*
	(-2.0871)	(-5.8172)	(-3.0712)	(-0.4429)	(-4.1728)	-3.1921	(-2.7162)	(-1.0827)
TFI (l)	-0.2011***	-0.1418***	-0.1571***	-0.1682***	-0.0958***	-0.2572***	-0.1423**	-0.0511**
	(-2.0913)	(-1.9823)	(-2.3671)	(-1.2012)	(-0.3489)	(-0.0011)	(-0.6712)	(-1.0091)

Note: Cross-section with trade costs averaged over the period 2006-10. Robust standard errors clustered by country pair. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 55-66%.

Appendix Table A4.2. Trade costs regressions – Landlocked countries group and transit indicators

Sample	Landlocked										
	reg5 TFI (a)	reg5 TFI (b)	reg5 TFI (c)	reg5 TFI (d)	reg5 TFI (e)	reg5 TFI (f)	reg5 TFI (g)	reg5 TFI (h)	reg5 TFI (i)	reg5 TFI (j)	reg5 TFI (l)
	-0.1612**	-0.0805**	-0.0325	-0.1045*	-0.0643*	-0.1592***	-0.1853***	-0.2304***	0.0032	-0.1129**	-0.1431***
	(-2.2213)	(-1.9920)	(-4.1267)	(-3.0091)	(-1.2761)	(-1.0982)	(-2.9172)	(-0.5511)	(-6.1872)	(-2.0031)	(-0.0341)
TFI (m)	-0.1231	-0.1598***	-0.1991***	-0.0871	0.1123	0.1117	0.0981	-0.0641	-0.0915*	0.09122	-0.00711*
	(-3.1872)	(-0.2314)	(-0.7612)	(-4.561)	(-5.6711)	(-6.9812)	(-7.152)	(-0.1238)	(-1.653)	(-5,8712)	(-0.7612)
TFI (n)	-0.1872**	-0.1071*	-0.0924**	-0.1721**	-0.1567**	-0.1681**	-0.1642**	-0.1941***	-0.1719***	-0.1921**	-0.1535**
	(-0.3241)	(-1.2762)	(-1.287)	(-0.2314)	(-0.8712)	(-0.1256)	(-1.2891)	(-0.2671)	(-0.5121)	(-1.2561)	(-2.1625)
TFI (o)	0.0981	-0.0087	-0.1134*	0.0356	-0.0812*	-0.1087*	-0.0871**	0.0981	-0.1432***	0.0078	-0.0007
	(-4.1521)	(-2.3671)	(-0.4671)	(-8.7162)	(-2.0918)	(-1.0982)	(-0.6751)	(-7.9143)	(-0.9872)	(-4.1652)	(-3.7612)
TFI (p)	-0.1523**	-0.1318*	-0.1523**	-0.1381*	-1211**	-0.1653***	-0.1455***	-0.1671**	-0.1611**	-0.1655**	-0.1348***
	(-0.0098)	(-0.2871)	(-1.0982)	(-0.0981)	(-0.3411)	(-0.1786)	(-2.0981)	(-2.3451)	(-0.1562)	(-0.1564)	(-0.1588)

Note: Cross-section with trade costs averaged over the period 2006-10. Robust standard errors clustered by country pair. Significance levels are: ***=1%, **=5%, *=10%. Values for R^2 range between 45-51%.