Making (Small) Firms Happy.

The Heterogeneous Effect of Trade Facilitation Measures *

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Abstract

This paper considers the asymmetric effect of Trade Facilitation Indicators (TFIs) on heterogeneous exporters. We do so by matching a detailed panel of French firm exports to a new database of TFIs recently released by the OECD. We focus only on those TFIs that correspond to the main policy areas under negotiation at the WTO. We analyze the effect of TFIs on three trade-related outcomes: (i) number of products exported (*the firm extensive margin*), (ii) the value exported (*the firm intensive margin*), and (iii) the average export value per product exported. We also test whether TFIs affect the product diversification of firms. Then we also test whether TFIs affect the participation of French firms to the export market. Two important results emerge from our analysis. First, most of the TFIs have a strong and robust positive effect on the extensive margins and on the product diversification of firms. Second, previous effects are often magnified for small firms.

Key Words: Trade Facilitation, Heterogeneous Firms, Extensive Margin, Intensive Margin.

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1 Introduction

Exporting is a difficult business, and the more so for small firms. Exporting successfully firstly implies a good knowledge and understanding of rules and regulation in the destination country. Lack of knowledge about regulations may result in the product not complying with the importing country regulation and the firm facing the costs of rejection at the border of the targeted country. Then comes the exporter needs to fill the required documentation, comply to customs procedures, go through clearance and inspections. Hence, beyond the cost of acquiring information about rules and regulations in the destination market, which is product-destination specific, come the costs in terms of time and uncertainty of delivery. These costs are sizable and exporters generally complain in surveys: cumbersome and lengthy administrative procedures at home and abroad cumulate. Small exporters, missing specialized teams and international operations departments, shipping infrequently or in small batches are particularly exposed to such costs. We also know from the empirical literature that small exporters are generally less efficient.

Given the quite general phasing out of tariff world wide, such administrative costs now appear as a major hurdle. Delays in getting goods from the origin to the destination hinder exports more than foreign tariffs do. Average tariff applied to imports in Sub-Saharan Africa is 11.2, whereas a tariff equivalent of delay cost is 25.6 (%, ad-valorem), see Hummels (2007). Of these costs, the highest portion is due to administrative hurdles.[1] If there are fixed costs when acceding to a new market, or indivisibility in terms of administrative duties to be completed, small and large exporters will be affected differently by these obstacles. Reducing such costs falls under the agenda of "facilitating trade", as opposed to "liberalizing trade" (tariff cuts). Improved trade facilitation is likely to reduce both variable and fixed trade costs of exporting, but different measures may affect more fixed than variable costs. Formalities, requirements and customs procedure have to be met each time a shipment crosses a border. Information on border procedures represents instead a one-time costs. Requiring countries to publish and make available information on border procedures as well as to harmonize and simplify documentation requirements should reduce both fixed and variable costs, but it may do so through different provisions. Since Trade Facilitation provisions differently affect fixed and/or variable trade costs, it is therefore important to disentangle the effect of different provisions on trade margins.

In a standard heterogeneous firm model of trade with CES preferences, when the fixed costs of export is reduced, less productive firms enter the export market since their revenues could cover the lower fixed costs of exporting (Melitz (2003); Chaney (2008) and Crozet & Koenig (2010)). Trade Facilitation measures are thus expected to affect heterogeneously the extensive margin of exporters. Differently, this class of models does not predict any heterogeneous effect on the intensive margin of individual exporters when the variable cost

[1] Djankov, Freund & Pham (2010) claim that 75 per cent of the delays in shipping containers from origin to destination country is due to administrative hurdles: customs procedures, tax procedures, clearance and inspections.

of trade is affected. Departing from classical CES preferences framework and allowing for firm-specific entry cost, Arkolakis (2010) predicts that when trade cost increases, trade shares are reallocated away from small firm because sales elasticity with respect to variable trade costs is decreasing in firm size. In this case, Trade Facilitation may have heterogeneous impact on the intensive margin of individual exporters. This is also true when theoretical model include the possibility that large firms may better handle costs or they face different elasticities of substitution (Spearot 2013). If this line of reasoning is correct, trade facilitation should make firms happy, and the more so for the small ones. This is the research question addressed in the current paper.

To answer, prerequisites are a detailed information on trade facilitation related obstacles at the country level, and information on the behavior (participation to export, number of products exported, value of product-destination exports) of the universe of exporting firms from a country. By combining these two set of information, we will go beyond an analysis of trade facilitation in terms of port efficiency or time to ship, and relying on administrative data will bypass the usual limitation of surveys.

While much of the existing literature on the impact of trade facilitation on trade focus on a broad measure of trade facilitation, including for example port efficiency, or look at specific outcome variables such as time to import and export, the information recently collected by the OECD offers new opportunities. Using the OECD Trade Facilitation Index (TFI), Moise & Sorescu (2013) map different policy measures of the Trade Facilitation Agreement (TFA) into trade costs. They estimate that the TFA could reduce overall trade costs by around 14% (ranging between 9 and 24 per cent across countries).[2] In their estimation, the policy measures that are predicted to have the largest impact in terms of trade costs reduction are those that improve information availability, the simplification and harmonization of documents, the streamlining of procedures and the use of automated process. Using the same index, Beverelli, Boffa & Keck (2014) find significant export diversification effects of the TFA agreement, with measures improving information playing an important role. Hillberry & Zhang (2015) are mainly interested in effects of trade facilitation on the time required to import and export. In terms of individual trade facilitation provisions, they find that governance and automation are the most time-saving reforms. Governance, for example, accounts for 37 per cent of the reduction in the time to import. Automation- covering for example, the electronic exchange of documents and the application of risk management procedures- is responsible for about 30 per cent of the reduction in time to import. However, these cost reductions are only averages, across firms, and the expected impacts are not estimated by firm size.

The only paper that looks at the distributional impact of trade facilitation by firm size focuses on trade facilitation measure as days required to export (Hoekman & Shepherd 2013). By using firm-level data for a range of developing countries taken from the World Banks Enterprise Surveys, Hoekman & Shepherd (2013)

[2]The Trade Facilitation Agreement reached at the WTO's Bali Ministerial Conference in 2013 aims at reducing the above mentioned costs. The agreement is about countries working together to simplify processes, share information, and cooperate on regulatory and policy goals. Importantly, commitments made by countries during that process provide the very source of detailed information used by the OECD to construct the TFI, on which we also rely.

use the average time taken to export goods as recorded by each firm as index of trade facilitation and assesses the differentiated impact of export time on the propensity to export by introducing interaction terms between export time and (broad categories of) firm size. While the average export time is shown negatively associated with the percentage of sales that are directly exported, the paper does *not* find a differentiated impact across different firm sizes.[3]

Against this background, our contribution is to look at how progress on the different fronts of the trade facilitation in the importing country affects exporters *of different sizes*. We do this by interacting detailed indicators of trade facilitation (information availability, advance rulings, appeal procedures, fees and charges, formalities documents automation or procedures, and border agency cooperation) with exporter size. We also explore whether the distributional impact of trade facilitation measures differ across products. Existing literature looking at the impact of time to export and import on trade find that time delay and uncertainty of time delivery matter mainly for trade in parts and components than total trade (Hummels & Schaur 2013), for goods traded within GVCs (Saslavsky & Shepherd 2014) , for food and textile and clothing goods that quickly lose values because they are perishable and subject to rapid fashion cycles (Volpe Martincus, Carballo & Graziano n.d.). Also, trade facilitations facilitate the exchange of information about rules and regulations, this is particular important for more information intensive products Rauch (1999). We test how trade facilitation affect differently exporters of different size for these different types of goods.

Pointing the magnified effects of trade facilitation for small exporters has not only resonance with recent model of international trade. There is also a policy dimension in this finding as, according to Hoekman & Shepherd (2013), an important obstacles to the finalization of the agreement was the perception that gains would accrue mainly to lead multinational and not to small firms. While an agreement has now been signed, the next challenge will be how WTO members determine their own implementation schedules. Better understanding how improving the efficiency of border procedures affect firms differently is therefore an important contribution to the policy debate.

The remaining of the paper is organized as follows. In Section 2 we enter into the details of the TFA in order to account only for measures that will be actually implemented. We show how the TFI index constructed by the OECD can (although partially) be mobilized to that purpose. Section 3 presents the administrative data on the universe of French exporters used to "reveal" the differentiated impact of the TFI measures on firms of different size and capability. The estimation strategy is presented in Section 4. Results are summarized in Section 5. The last section concludes.

[3]Indeed firm-level export time is likely to be endogenous to firms characteristics.

2 OECD Trade Facilitation Indicators (TFI): Mapping specific measures of the TFA to trade costs reduction

Most of the existing literature on the impact of trade facilitation often uses measures of trade facilitation that go much beyond what is covered in the TFA. The paper by Feenstra & Ma (2014) uses port efficiency as a measure of trade facilitation, but port efficiency is affected by factors other than measures covered in the TFA. Ownership structure, for example, is a key determinant. The literature on the impact of time to trade look at an outcome measure (the actual number of days spent in transit, at the costumes and at sea). But, this does not provide information on the potential impact of the specific policies to implement. The advantage of using the OECD TFI is that these indicators are based on the TFA which WTO members have committed to implement. Therefore, they are relevant from a policy point of view.

The OECD TFIs maps specific WTO Trade Facilitation Agreement measures to sixteen indicators. Indicators are built by ranking information for each variable from 0 to 2, where 0 corresponds to the worst performance, 2 corresponds to the best performance, and 1 to performance that lies in between. (Orliac 2012).[4] The database contains information on 152 countries for the year 2008.[5] The information used for the TFIs are collected from existing databases, publicly available sources and questionnaires.

Figure 1 provides a mapping across the OECD TFI indexes, the relevant articles of the TFA (only some examples to clarify the content of the provisions are included) and the type of costs that these provisions address. Some measures are important to reduce the cost of gathering information (Art. I), other measure aim at reducing the time at the border and the complexity of procedure (Art. VII and X), reducing uncertainty of treatment at the border (Art. III to VI), or reducing inefficiencies of laws and their applications by increasing transparency and predictability (Art. II and Art. VIII). Consularization is not covered in the WTO TFA. So we don't look at it.

Our analysis looks at how gains from improved trade facilitation are distributed between small and large firms across these different types of policy measures. Some provisions, such as the ability to gather information, are more likely to affect the fixed costs of trade. So we expect these provisions to be particularly beneficial to small firms. The reduction of trade costs gives firms the opportunity to enter new markets or introduce a new good in existing markets. These new firms may be smaller and less productive than current incumbents, and additional products are more likely to be introduced by small firms cause they are now able to introduce less profitable products.

Those enterprises who are currently engaged in international trade as exporters will most likely expand the volume of their exports. Whether lower variable costs or certainty of delivery and trade conditions affects more

[4] In figure 2 we show the average TFI value by country income class for each of the TFI measures we use in our empirical exercise.
[5] For some countries the information on which the TFI is computed refer to 20009, see Moise, Orliac & Minor (2011)

small or large firms is also an empirical questions. On the one hand uncertainty affects more large firms because they risk more (De Sousa, Disdier & Gaign 2015); but large firms have also more capacity to handle uncertainty.

An implication of more transparency in the definition and implementation of rules is the positive impact on corruption. For example, Shepherd (2010) shows a 10% increase in trade time leads to a 14.5% fall in bilateral trade in a low-corruption country, and to a 15.3% fall in a country with high levels of corruption. By reducing time of moving goods across borders, trade facilitation should therefore be a useful instrument for anti-corruption efforts at the border. Whether this effect is potentially more important for large or for small firms is an empirical question. On the one hand, large firms are more likely to be the target of corruption and possess in-house experts who are able to exploit the benefit of going through appeal procedures. Appeals may be too costly for small business. On the other, corruption fees may weight less on the export profits of a large firm.

Firm-level survey conducted by ITC Monitoring Survey 2015 also show that large and small firms have different priorities when it comes to improvements in border procedure. While small firms value most of all improvements in the availability of information (Art I), large firms consider transparency of control and inspections (Art V) and the efficient release and clearance of goods (Art VII) more importance than information availability.

3 French custom data and stylized facts

Individual export data on French firms are provided yearly by French Customs for the period 1995-2010.[6] But, since TFIs are time invariant, we rely here on a cross sectional approach and use firm trade custom data in 2010.[7] Indeed, TFIs are built for the year 2008 (with the latest information available covering the 2009 - see Moise et al. (2011)), so we used trade data in 2010 to reduce the reverse causality concern (see section 4.1 for a detailed discussion on reverse causality). The French firm dataset includes export records at the firm, product and market level for all French exporters (more precisely, all exporters located in France).[8] Since the TFI indexes are country specific and do not vary across sectors, we aggregate firm trade data at firm-country level.[9]

As acknowledged by Konings & Vandenbussche (2013), one advantage of individual exporter data is their good quality.[10] The firm level data allows us to explore the heterogeneous effect of TFIs across the firms' size distribution. To the best of our knowledge, only one paper analyzes the effect of Trade Facilitation at

[6] These data are subject to statistical secrecy.

[7] TFIs data are based on the "stock" of information on Trade Facilitation in 2009, thus they might refer to policy implementations in an unknown year preceding the 2009. For this reason, we could not adopt a panel approach using the time dimension of custom export data.

[8] We consider legal units, as defined by their administrative identifier.

[9] We take advantage of the product dimension of export data by running sector specific regressions. See section 7

[10] Konings & Vandenbussche (2013) use French firm data to analyze the impact of anti-dumping protection at the firm level.

the firm level. Hoekman & Shepherd (2013) use firm level data from the World Bank's Enterprise Surveys to investigate whether the effect of trade facilitation is heterogeneous across firms' size. Results in Hoekman & Shepherd (2013) show the absence of any heterogeneous effect of Trade Facilitation. However, as acknowledged by Hoekman & Shepherd (2013), their paper might suffer the questionable quality of the Enterprise Survey data, which are collected by private contractors with no enforcement power in case of misstatement. Moreover, Hoekman & Shepherd (2013) use the export time to reach the custom clearance as a solely TFI index; such measure, being reported by each firm, is indeed subject to the perception of the interviewed and does not vary across destination markets. In this paper we benefit from the high-quality of French firm level data and we extend the number of TFIs to those policy areas that directly affect trade and that are currently under negotiation at the WTO (as provided by the OECD (Moise et al. (2011) Moise & Sorescu (2013))). The TFIs used here are also country specific, so our estimations (unlike ones in Hoekman & Shepherd (2013)) explore the across country variation in firms' exports.

Moreover, firm-level export data allow us to see clearly whether TFIs affect the intensive/extensive margins of trade and the product diversification of French firms' exports. We can also control for firm characteristics in determining the effect of TFIs: small low-productive firms may react differently to TFIs than big and high-productive firms. Since we do not have information on turnover, employment or capital for the universe of French exporters, we rely on export-based measures of firm characteristics.[11] Namely, we use the total amount of exports (across firm's destinations) as a proxy for the firm size.

Other data come from standard sources. Per capita GDP is from World Bank (WDI). MFN tariff data are from MacMap dataset and refer to 2010.[12] Distance, contiguity and common language dummy are from the CEPII gravity dataset (Head, Mayer & Ries (2010)). Finally, the dummy for active PTAs is from the WTO Regional Trade Agreements Information system.[13]

Before estimations we describe graphically the relationship between the margins of French firms (extensive and intensive) and the average Trade Facilitation Index by destination country. In Figure 3 we report the average number of exported products per firm (vertical axis) as a function of the average TFI index in each destination country (horizontal axis). In Figure 4 we replicate the exercise but for the intensive margin of French firms. Both scatter plots show strong positive correlation, confirming the intuition that high values of TFI favor both the extensive and the intensive margins French exporters.

In table 2 we classify French firms into three classes by size: small, medium and big.[14]. Then, for each type of firm, we report the average number of exported products by the level of destination country's TFI. As an

[11] Data on French firm characteristics are available only for firms with more than 25 employees. Over 50 per cent of exporting firms have fewer than 20 employees. To correctly account for the extensive margin of exports, we do not use data on French firm characteristics.

[12] We thank Houssein Guimbard for providing MFN MacMap tariff data at the country-product level in 2010.

[13] $http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx$

[14] Small firms are those firm having an overall export value below the $25th$ percentile of the distribution, while big firms are those with export values above the $75th$ percentile of the distribution. Medium firms are those in between.

example, the first entry of table 2 suggests that small firms export on average 1.77 products toward destination countries having a Information availability index below 0.5. The same type of firms (small), export on average 2.11 products towards countries with Information availability index above 1.5 (last entry of the first row). By comparing the extensive margin of firms' size classes across TFI levels, we notice that big firms export larger number of products than small firms. Moreover, for every firm size class, high TFI's values correspond to larger amount of exported products. Table 2 clearly shows the heterogeneity of the extensive margins of French firms across the size classes of firms and TFI levels.

So, in figure 5 and 6 we qualitatively test whether high TFI values affect the extensive margin of firms by size class. In all the scatter plots reported in figure 5 and 6, the vertical axis reports the average number of exported products by big firms over the number of exported products by small and medium enterprises. In the horizontal axis, for each type of TFI, is reported the TFI value by destination country. The positive correlation found for Information availability, Advance rulings, Formalities Documents, Automation and Procedures suggests that high TFI values imply larger number of exported products for big firms than for small-medium firms. Conversely, the negative correlation obtained for Appeal procedure, Fees and charges and Border agency cooperation suggests that high TFI values favor in particular small and medium firms. This qualitative evidence, even though far from being statistically rigorous, evokes the heterogeneous effect of TFIs across the size bins of French firms. This is indeed what we econometrically test in the following section.

4 Empirical Framework

In this section we test the effect of each Trade Facilitation Indicator (described above) on the export margins of French firms. In particular, we ask whether the trade effect of TFIs is heterogeneous across the firms' size distribution. In a first set of estimations we focus on the *extensive* and *intensive* margins of firms' exports (i.e. respectively on the number of exported products and on the exported values by firm-destination). Then, in a second set of estimations we test the participation probability of French firms in each destination market.

4.1 Extensive and Intensive margins estimations

We test the heterogeneous effect of TFIs on firm level export margins by estimating the following equation:

$$y_{i,j} = \phi_i + \beta_1 Log\left(TFI_j\right) + \beta_2 Log(TFI_j) * SizeBin_i + \beta_3 X_j + \varepsilon_{i,j} \tag{1}$$

where the subscripts i and j stand respectively for firm and destination country. Our dependent variable $y_{i,j}$ is in turn: (i) the exported value by firm - *intensive margin*; (ii) the number of products (HS-6 digit) exported by the single firm into a given destination - *extensive margin*; and (iii) the average export value per product

(computed as the total value exported by firm over the number of products exported). The dependent variables are in log with the exception of Poisson estimations. Indeed we estimate equation (1) via OLS; but, given the count nature of the number of exported products, for the extensive margin estimations we also use Poisson estimator by taking the number of exported product in levels rather than in log. All the firm-country specific trade variables are taken as of 2010 (see section 3 for more details).

We also test whether TFIs affect the product diversification of exporting firms. Existing literature focused a lot on the effect of TFI on export diversification of countries (Cadot, Carrre & Strauss-Kahn (2011); Dennis & Shepherd (2011)). Here we follow the existing literature and use the Herfindahl index as a proxy for the export product concentration of a firm. The Herfindahl index ($H_{i,j}$) is computed as follows:

$$H_{i,j} = \sum_{k=1}^{K} s_{kj}^2 \tag{2}$$

where s_k^2 is the squared share of product k exports over the total firm's exports (into a given destination j). This measure is firm-destination specific, spans between zero and one and captures the degree of product concentration of firm's exports towards a given destination. So values of H_{ij} close to one indicate a high concentrated portfolio of varieties (H_{ij} equal to one occurs only when the firm exports one product only into a given destination market). Conversely, when the H_{ij} index is close to zero, the firm has a wide homogeneously distributed portfolio of varieties. Indeed, extensive and intensive margins of trade do not provide information on whether TFIs stimulate homogeneously all the varieties exported by the firm. As an example, if a given TFI increases the number of exported products and reduces the H_{ij} index, we may conclude that such TFI makes the firm exporting a wider range of equally distributed products.

$Log(TFI_j)$ reflects the degree of market access granted by a given destination country j for each of the eight Trade Facilitation policy areas under the mandate of the WTO (as described above). We thus run equation 1 for each of the eight TFI indexes described in section 3. In order to capture the heterogeneous effect of TFI indexes, we interact the $Log(TFI_j)$ variable with a dummy equal to one if the firm size is below the 25^{th} percentile of the size distribution. Then, we follow a non-parametric approach and interact the $Log(TFI_j)$ index with different firm size bins constructed from percentiles of firms' size distribution. We construct size bins for firms belonging to each percentile category based on quartiles. So, firms with size below the $25th$ percentile of the (size) distribution have been classified as $Small$. Firms having size above the $75th$ percentile of the distribution have been classified as Big. The rest of the firms have been assigned to the $Medium$ sized category. We use the total export value of the firm (across all destinations) as a proxy for the firm size. Indeed our French Custom dataset does not contain other firm specific measures. However the total amount of export is a plausible proxy for the size (and productivity) of the firm (Mayer & Ottaviano 2008).

Firm fixed effects (ϕ_i) control for all the unobserved (time-invariant) firm characteristics and reduce a lot

any concern of omitted variable bias. Firm fixed effect captures also the size and the size bins of the firm. We then include a set of destination country specific control variables X_j which includes: (i) standard gravity variables (distance, common border and language), (ii) per capita GDP (in log) controlling for the income level of the destination country, (iii) the OECD dummy equal to one if the destination country belongs to the OECD (indeed OECD countries might have on average higher TFIs values), (iv) PTA dummy controlling for the existence of preferential access for French firms into given market. Finally we also control for the firm-level average MFN tariff in each destination country j computed as $\tau_{i,j} = \sum_p \omega_{i,p}\tau_{j,p}$, where $\omega_{i,p} = \frac{x_{i,p}}{\sum_p x_{i,p}}$ and $x_{i,p}$ is the export value of firm for a HS6 product code.[15] The set of control variables described above, along with the firm fixed affects, crucially reduce any omitted variable concern.

However, endogeneity bias can also come from reverse causality issue. But, in our setting, reverse causality problem is definitely less severe than the omitted variable concern as the export behavior of an individual firm does not have a significant impact on trade facilitations set by a given destination country (notice that each TFI index applies to all exporters from all over the world and does not specifically apply to French exporters). To further reduce any reverse causality concern, since OECD trade facilitation indicators refer to 2008, we use firm level export data in 2010.

Nevertheless, there is a remaining (minor) concern of selection bias. Indeed, the level of TFI in each destination country might not be an (ideal) randomized treatment and some countries may set trade facilitations to ease/impede specifically French exporters. This would lead to a selection bias in our estimations. We rely on Propensity Score Matching (PSM) to address such potential bias (Dehejia & Wahba 2002).[16] The idea is to identify a sub-sample of destination countries having different observed TFI values, but similar probability to set high (above the mean) TFI values conditioned on trade cost with respect to France. In this way, the observed TFI granted by countries in the sub-sample is randomized with respect to the trade cost for French firms. Two countries may have similar estimated probability of having high TFI based on trade cost from France, but different observed TFI values. For example, based on our data, Argentina and Colombia have similar estimated probability of having high TFI on advance rulings (since they have similar distance from France and impose a similar tariff level to French exporters), but they have very different observed TFI values on advance rulings: Colombia has very high TFI value on advance rulings (above the mean), while Argentina has a TFI value on advance ruling below the mean.

The sub-sample of destinations identified by PSM will have different observed TFI values but similar probability of setting high trade facilitation (conditioned on trade cost for French firms). This reduces the selection bias in our estimations. First, for each of the eight TFIs described above, we estimate the propensity score as

[15]The product structure of firm-level exports $\omega_{i,p}$ has no destination dimension, so the firm-specific tariff is computed by taking into account the level of tariffs in each destination, for all products that are exported by the firm in 2010.

[16]See Dehejia & Wahba (2002), Sianesi (2004) and A. Smith & E. Todd (2005)

the predicted probability of having a TFI value above the mean. We estimate a liner probability model using the log of distance (from France), the log GDP of the country and the tariff level imposed to French imports to estimate the probability of TFI higher that the mean.[17] Then we match destination countries with TFI above the mean (*treated group*) with those having TFI below the mean (*control group*) based on the propensity score (we use one-to-one nearest neighbor matching algorithm). We finally run equation (1) on the sub-sample of matched destination countries. This sub-sample includes only destination countries with similar probability of having high TFI (but different observed TFI values). The TFI index can thus be considered randomly set (with respect to the trade cost for French firms) and does not suffer the selection bias. We think the selection bias described above as a remote concern, for this reason we consider the Propensity Score Matching as a simple robustness check included thus in the appendix section.

4.2 Participation estimations.

The estimations described above provide evidence on the heterogeneous effect of TFIs across French firms (which is the main contribution of our paper). Nevertheless, TFIs can also have an effect on the export participation probability of firms in a destination market. To this end we ideally should square the dataset including the mass of zeros for those firm-destination combinations that are not present in the French Custom dataset (i.e. firm-destination combinations without trade flows). Unfortunately this is unfeasible for the full sample of potential destination markets because it would imply more than 20 millions of observations. In order to work on a manageable dataset, we decided to keep only the top-25 destinations countries for French exports and to square the dataset on this sub-sample of potential destinations. So, we calculated total export flows by destination market and retained the top-25 markets.[18] Then, we assign zero-trade for those firm-destination combinations without trade data.

We thus test the following equation:

$$Participation_{i,j} = \phi_i + \beta_1 Log\left(TFI_j\right) + \beta_2 Log(TFI_j) * SizeBin_i + \beta_3 X_j + \varepsilon_{i,j} \tag{3}$$

where the dependent variable $Participation_{i,j}$ is a dummy equal to one if the firm i exports into market j, and zero otherwise. The explanatory variables are the same used to estimate equation 1. We use a standard OLS model and run a Poisson estimation as a robustness since the number of exporting firms indeed a count variable. Despite the dichotomous nature of the dependent variable, we estimate equation 3 via OLS. We rely on simple linear probability models (LPM) rather than on nonlinear probit (or logit) to avoid the incidental parameter problem due to the sizeable set of fixed effects we include in the regression. In addition, LPMs provide simple

[17] The dependent variable is a dummy equal to one if the destination country i have a TFI value higher that the mean value across all destinations.

[18] Top-25 destinations account for the 81% of total export of France in 2010.

direct estimates of the sample average marginal effect.

5 The Effects of TFIs

In this section we discuss in turn the trade effect of each of the eight TFIs described above. The structure of tables 3-10 is the following. Columns 1-3 show results on the intensive margin of firms (log of the exported value). Columns 4-6 show results on the extensive margins of firms (number of exported products) using OLS model, while in columns 7-8 we report results for the same margin but using Poisson estimator in levels. In columns 9-10 we show results on the exported value per product as a further proxy of the firm intensive margin. Finally, in columns 11-12 we show results on the product concentration of firms (Herfindhal index). In tables 11 and 12 we report results for the participation probability of firms.

5.1 Information availability

The information availability index aims to capture the availability of information on applicable legislation and import procedures in each destination country. Our estimation results in Table 3 show that higher information availability in destination countries helps (on average) both the intensive and the extensive margin of French firms (see columns 1-6). High information availability positively affects the intensive margins of French firms, in particular for small exporting firms (see column 3). A 10% increase in the information availability index increases by 8% the export value of small firms, by 5% the export value of medium-size firms and has no effect for big firms. Results using the export value per product confirm this last finding (columns 9-10).

The same kind of heterogeneity emerges for the extensive margin. Trade Facilitation on information availability positively affects the number of exported product in particular for small and medium-size firms (see columns 6 and 8). Using our preferred specification in (6) a 10% increase in the information availability index implies a 2.4% increase in the extensive margin of small and medium-size firms and a 1.4% increase in the number of exported products for big players.

All in all we may conclude that information availability positively affects the extensive and the intensive margin of French firms with a stronger positive effect for small firms. This result is robust to the selection bias solution through Propensity Score Matching, see tables A4 and A5. This results appear to be plausible as far as small firms have a peculiar lack in the information on applicable legislation and import procedures.

Finally, in columns 11 and 12 we show results on the product concentration of French firms. TFI on information availability, by reducing the Herfindhal index, increases the product diversification of firms. Associated with the results on the extensive margins, we can conclude that information availability makes French firms export a wider and more equally distributed set of products. This effect is bigger for small than for big players.

Table 11 reports the effect of information availability TFI on the firm's participation probability. Our results show that high values of TFI are particularly beneficial for small and medium-size firms participation probability, see column 3.

5.2 Advance rulings

Advance rulings aim to improve the predictability, the consistency and the transparency of export procedures into a given destination country. This indicators has been shown having a strong positive effect on aggregate trade flows by Moise et al. (2011). Coherently, our results in table (4) show that advance rulings index positively affects the number of products exported by firm (see columns 4, 5 and 7). TFI on advance rulings is particularly effective for small firms; in column 6 we shows that a 10% increase in the advance rulings index corresponds to a 2% increase in the number of exported products for small firms, to a 1.3% increase for medium firms and to a null effect on big firms. We got the same kind of evidence for the intensive margin of trade. On average, a 10% increase in the advance rulings index makes only small firms exporting the 5% more (column 2). This result is robust also when we use the average exported value per product. Advance rulings TFI improves also the product diversification of firms (in particular for small firms) - see columns 11 and 12 of table 4.

Previous results on the extensive and intensive margins of French firms are robust to Propensity Score Matching approach aimed to solve the potential selection bias of TFI (see table A4 and A5). We may thus conclude that advance rulings TFI helps in particular small and medium firms. Indeed, small firms are particularly exposed to uncertainty of regulations and customs requirements in the (potential) destination markets.

Finally, advance rulings TFI has a positive effect on the participation probability of French firms, see columns 4 and 5 of table 11. Such effect is particularly strong for small and medium-size firms (see column 6).

5.3 Appeal procedures

Also information on appeal procedure seems to help only small firms. Results in table (5) show non-significant $Log(TFI_j)$ coefficient in both the extensive and the intensive margin regressions (columns 1, 2, 4 and 5). But, when we focus on small firms only, TFI on appeal procedures has strong positive effect on the intensive margin (columns 3), extensive margins (columns 6 and 8) and product differentiation (column 12). In particular, a 10% increase in the TFI index on appeal procedures increases the extensive margin of small firms by 1% and the their intensive margin by 2.6%. This result is coherent with the nature of appeal procedure facilitation. Indeed, appeal procedures TFI (as built by the OECD) concerns the publication and the availability on procedural rules for appeal. This kind of information is likely to be useful only for small firms that do not have internal legal unit providing this kind of information. These results hold after controlling for the potential selection bias by using Propensity Score Matching. Table A4 and A5 show results for the extensive and intensive margin of

French firm using PSM approach and our results hold.

Coherently with the previous results, participation probability estimations reported in table 11 show that information on appeal procedure positively affects the participation probability of small and medium-size firms only (null coefficient for the big players).

5.4 Fees and charges

Fees and charges TFI directly concerns the availability and the transparency of information on fees and charges (other than export/import duties) needed to export into a given country. As highlighted by Moise et al. (2011) and Moise & Sorescu (2013), this information is often very hard to find. So, the publication and the transparency of information on fees and charges reduce the export costs and increase bilateral trade. This is indeed what Moise et al. (2011) find in their aggregate trade flows estimations.

Differently, in our firm-level estimations we got null $Log(TFI)_{ij}$ coefficients on both the extensive and intensive margins. Fees and charges TFI positively affects the extensive margin of firms only when applied to the sub-sample of big players for Poisson estimation (see table 6 column 8). The scarce importance of fees and charges TFI for French firms is also confirmed by participation estimations: results in table 11 show again null coefficient for $Log(TFI)_{ij}$ and its interactions with size bins.

5.5 Formalities documents

The amount of formalities needed to export/import is definitely an important determinant of trade costs and can represent an obstacle to bilateral trade flows (Djankov et al. 2010).[19] However, using TFI on formalities-documents as released by the OECD produces puzzling results on bilateral trade estimations, indeed Moise et al. (2011) find a negative trade effect of TFI on formalities-documents (see Moise et al. (2011) section 3 and appendix 3). This puzzling effect might be due to a bias in aggregating the several sub-indicators composing such TFI; indeed, as computed by the OECD, it mixes-up a wide range of sub-indicators with unclear interpretation (see Moise et al. (2011). For example, international standard compliance might raise interpretation questions: ratification of treaty does not automatically mean the application of its contents. In the sample of countries analyzed by Moise et al. (2011) a number of countries apply international standards even in absence of ratified conventions. Moreover, the TFI on formalities and documents as coded by the OECD contains both the number of documents needed to export and to import by a given country. Here we are rather interested in the export cost for French firms, so the only variable we care is the time to export into each of the destination countries.

For this reason we rely on World Bank Doing Business dataset to build a direct measure of trade costs due to documents and formalities. We base on: (i) the number of documents needed to be allowed to export into a

[19] Djankov et al. (2010) based on answers to a World Bank questionnaire (completed by 345 trade facilitators) find that one additional day in moving containerized products reduces trade by at least 1%.

country j and (ii) time to export into a given market (as number of days needed to be allowed to export into a given country j). We then computed the index as done by the OECD in their TFIs database. Namely we assign score 0, 1 and 2 if the number of documents needed to export into a country is respectively above the 30^{th} percentile, below the 30^{th} but above the 70^{th}, below the 70^{th}. We applied the same methodology for the time to export into a country (as number of days). We then we computed the simple average between the two indexes. So the higher the index, the lower is the average amount of days and documents needed by French firms to export into a given destination market.

Results shown in table (7) suggest that the time and the amount of documents needed to export into a market is beneficial for the extensive margin only (see column 4, 5 and 7). This is true in particular for big firms (columns 5-8). For the average firm (columns 5) a 10% increase in the index implies a 1% increase in the number of exported products. While, for big players a 10% increase in the trade facilitation index implies a 2.7% increase in the number of exported products. These results remain valid also after controlling for the potential selection bias (PSM approach), see table A4 and A5.

Unlike previous trade facilitation areas, formalities-documents TFI positively affects only the extensive margins of export for big firms. Small firms seem to be negatively affected by higher TFI in formalities and documents. So, to further test this last puzzling result, we run a robustness check by directly plugging in the equation 1 the number of days (in log) and the number of documents (in log) needed to export into a given destination country. Results shown in table A2 and A3 confirm our previous results. Both the number of days and documents needed to serve a given destination market negatively affect the intensive and the extensive margins of big French firms. Small firms benefit from longer time delays.

Coherent with the previous results, table 12 shows that formalities - documents TFI positively affect the participation probability of big firms only (see column 3).

5.6 Formalities automation

This index measures the automation degree of the importing procedures required by each country; focusing in particular on the number of procedures that can be accomplished electronically. Results in table (8) show that high automation degree on importing procedures has a null effect on the intensive margin of export of French firms (columns 1-3), but it helps the average French firm to export a wider set of products (columns 4 and 5 and 7) - extensive margin. However, this kind of trade facilitation seems to be useful in particular for big firms (see columns 6, 8 and table A4), which are those players who likely have the skills to enjoy (or deal with) automatized procedures to export. Similarly, only big firms show higher product diversification after an increase in the degree of automation of importing procedures.

Interestingly, this kind of TFI has no effect on the intensive margin of the average firm, but it has negative

and significant effect for small firms only. However, when we control for the selection bias of TFI using PSM approach, the negative effect of formalities automation TFI disappears. See table A5. Using PSM approach we find that formality automation index has a positive effect on the intensive margin of big French exporters.

Formalities automation TFI has a strong positive effect on the participation probability of French firms. See table 12 columns 4-6. In particular it has a beneficial effect on medium-size and big firms' participation probability.

5.7 Formalities procedures

This Trade Facilitation Indicator incorporates very important policy areas for trade facilitations (among the others single windows, clearance time, percentage of physical inspection). This has been shown as strongly increasing bilateral trade by Moise et al. (2011) and Moise & Sorescu (2013). However, it does not seem the case for French firms. Table 9 shows null $Log(TFI)_{ij}$ coefficient for all the margins of trade we analyze; with the exception of Poisson estimations, which suggest a positive effect of formalities procedure facilitation in particular for small firms (see columns 7 and 8).

Interestingly, formalities procedures TFI has a strong positive effect on the participation probability in particular for small and medium-size firms. Results in table 12 suggest that a 10% rise in the value of this index increases by 1.3% the participation probability of French firms (see column 8). The previous effect is valid for small and medium-size firms only (column 9).

5.8 Border agency cooperation

Border agency cooperation (internal and external) positively affects both the extensive and the intensive margin of French firms. Table 10 shows positive and significant coefficient on the intensive margin estimations (see columns 1 and 2), in particular, a 10% increase in the value this TFI boosts by the 3% the intensive margins of firms. However, the positive effect of border agency cooperation TFI seems to be particularly important for medium-size and big French exporters (see column 3 and 10).

Border agency cooperation TFI positively affects also the extensive margin of French exporters (number of exported products) - see columns 5 and 7 in Table 10. A 10% increase in the value of the TFI implies a 0.7% increase in the number of exported products. The previous effect is magnified for big players (see column 6). Coherently, TFI on border cooperation increases the product differentiation (reduction in the Herfindahl index) only for medium-size and big and medium size firms.

Differently, border agency cooperation does not affect the participation probability of firms, suggesting the idea that it reduces the variable more than the fixed cost of trade. See table 12.

6 Differentiated and information intensive products

Trade Facilitation Indicators, in particular those on policy areas providing more information to exporting firms, should have greater effect on the extensive margin of differentiated and/or information intensive products. The underlying idea is simple: in shipping abroad differentiated and/or information intensive products it is crucial a certain amount of informations on how exporting into a destination country. Conversely, for homogeneous products, who are often internationally exchanged in an organized market, information is less relevant for exporting.

So in this section we explore whether the effect of the various TFI indexes differ across product types. To that purpose, for each firm we counted: (i) the number of homogeneous and then differentiated exported products, (ii) the number of high and low information intensive products.

The homogeneous vs differentiated classification is based on the Rauch (1999) classification. The information intensity of products is based on the total number of non-tariff measures (SPS or TBT) that have been imposed on a given product over the period 1995-2010. Namely, we counted the number of countries that ever imposed a NTM in a given HS4-chapter over the period 1995-2010.[20] Then, HS-4 chapters having a total number of NTMs above the mean have been coded as "high information intensive". We finally counted the total number of products exported by each firm belonging to high vs low information intensive chapters. The idea behind this methodology is that, the presence of high number of standards (TBT or SPS) increases the importance of information for exporting such goods.

Table (13) shows results for this set of estimations. Each entry of the table reports the $Log(TFI)_{ij}$ coefficient for the estimated equation (1) on a given type of products: (i) homogeneous vs differentiated in the upper side of the table; (ii) high vs low information intensive product in the bottom side of the table. Our results clearly show that information availability, advance rulings and formalities documents are more important for differentiated than for homogeneous goods. While, advance rulings TFI is important only for high information intensity goods.

7 The impact of TFIs by commodity

Results presented so far, being aggregated at firm-destination level, assume homogeneous coefficients across broad product groups. In other words, we assume that TFIs have the same effect on trade across all products categories. In this section we remove this assumption and estimate equation (1) on each broad product category, defined as HS-section (see appendix table A8 for detailed description).

Table A6 shows $Log(TFI)_{ij}$ coefficient for each of the TFI measures by commodity (HS section). Each entry

[20] Data on the SPS/TBT imposition are based on Specific Trade Concerns raised at the SPS and TBT committees of the WTO. These datasets are available at `http://www.wto.org/english/res_e/publications_e/wtr12_dataset_e.htm` in a quantitative format and in a searchable format at `http://spsims.wto.org/web/pages/search/stc/Search.aspx`

of table A6 is the result of the estimation of equation (1) on a given commodity for a specific TFI. In table A6 we show results for the extensive margin regressions.

We find that TFI on information availability has a positive and significant effect on 11 out of 15 sections. This is not surprising since it has been shown having strong positive effect in table 3. The sectors that gains more from information availability TFI is textile. While the sector that gain from all TFIs is Vegetal Products (with the exception of TFI on appeal procedure and border agency cooperation where coefficients are not significant). This is coherent withe the intuition that high perishable products benefit a lot from easing custom procedures, information availability and formalities. Interestingly Raw hides, skins and leather sector does not benefit from TFIs (whatever the policy area covered).

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8 Tables and Figures

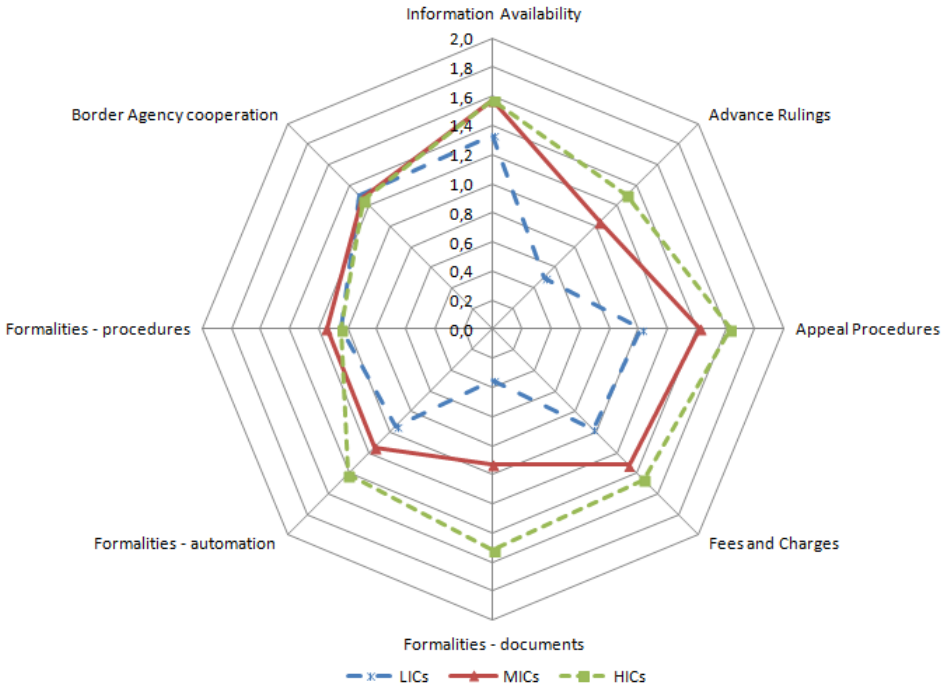
Figure 1: Mapping OECD TFIs, TFA articles and trade costs.

TFI	TFA article	Trade Cost
(a) Information availability	Art. I: Requires to publish information related to importation, exportation and transit promptly and in an easily accessible way, making it available on the internet, together with the necessary forms and documents, as well as providing the contact information for enquiry points	Reduce information frictions
(b) Involvement of the trade community	Art. II: Opportunity of traders to comment, get information before the entry into force on laws and regulations related to the movement, release, and clearance of goods	Avoid inefficient legislation
(c) Advance rulings	Art.III: Requires Members to issue an advance ruling, which will be binding, in a reasonable, time-bound manner in response to any written request that contains all necessary information; inform an applicant in writing if the application is declined, specifying the reasons; and inform the applicant if the advance ruling is revoked, modified or invalidated	Improve impartiality, non-discrimination, transparency (reduce potential for corruption) ex ante, Lower uncertainty
(d) Appeal procedures	Art. IV: Provides the right to appeal to an administrative decision from customs	Improve impartiality, non-discrimination, transparency (reduce potential for corruption) ex post
(e) Fees and charges	Art. VI: Requires Members to publish information on the application of fees and charges sufficiently in advance of their entry into force; ensure measures are in place to avoid any conflicts of interest and incentives in the assessment and collection of penalties and duties	Improve impartiality, non-discrimination, transparency (reduce potential for corruption)
(f)-(h) Formalities-document, automation, procedures	Art. VII and X: Aimed at minimizing the complexity of import, export, and transit formalities and documentation requirements, this article contains provisions on: acceptance of copies, use of international standards, single window, pre-shipment inspection, use of customs brokers, common border procedures, expedited shipments, perishable goods	Time costs, complexity
(i)-(j) Cooperation-Internal and external	Art. VIII: ensure that there is internal external cooperation and coordination among border control authorities and agencies dealing with importation, exportation, and transit of goods	Reduce inefficiencies at the border
(k) Consularization	Not included in the WTO TFA	
(l) Governance and impartiality	Art. V. Requires that notifications for enhancing border controls regarding foods, beverages, or feedstuffs are based on risk; apply the measures uniformly, provide the opportunity for a second test if the results of the first one are negative	Improve impartiality, non-discrimination, transparency (reduce potential for corruption) for food and beverages
(m)-(p) Transit	Art.XI: Freedom of transit	Reduce costs when passing through transit countries

Table 1: In-sample descriptive statistics

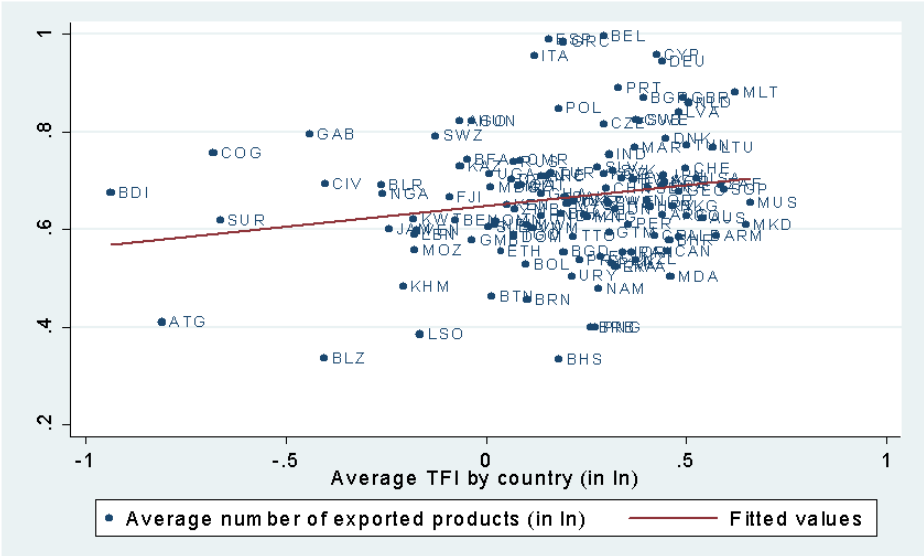
	Observations	Mean	Std Dev	Min	Max
N. products exported (ln)	450313	0.77	0.97	0.00	6.75
Export value (ln)	450313	9.97	2.30	4.29	16.13
Average Export per product (ln)	450313	9.20	2.07	0.63	16.13
Product concentration (HH)	450313	0.75	0.30	0.01	1.00
Information Availability	441414	0.42	0.22	-1.61	0.69
Advance Ruling	368035	0.32	0.31	-1.10	0.69
Appeal Procedure	423411	0.33	0.39	-0.92	0.69
Fees and Charges	425211	0.37	0.33	-1.10	0.69
Formalities - Documents	424279	0.37	0.40	-0.69	0.69
Formalities - Automation	449291	0.31	0.50	-1.39	0.69
Formalities - Procedures	438560	-0.02	0.32	-1.20	0.69
Border Agency Cooperation	379934	0.31	0.41	-1.39	0.69
Per Capita GDP (ln)	450313	9.64	1.33	5.39	11.36
Distance (ln)	450313	7.73	1.04	6.16	9.85
Contiguity	450313	0.22	0.41	0.00	1.00
Common Language	450313	0.27	0.45	0.00	1.00
PTA	450313	0.53	0.50	0.00	1.00
OECD	450313	0.58	0.49	0.00	1.00
Ln(tariff+1)	450313	0.04	0.08	0.00	1.38

Figure 2: TFIs by country income class.



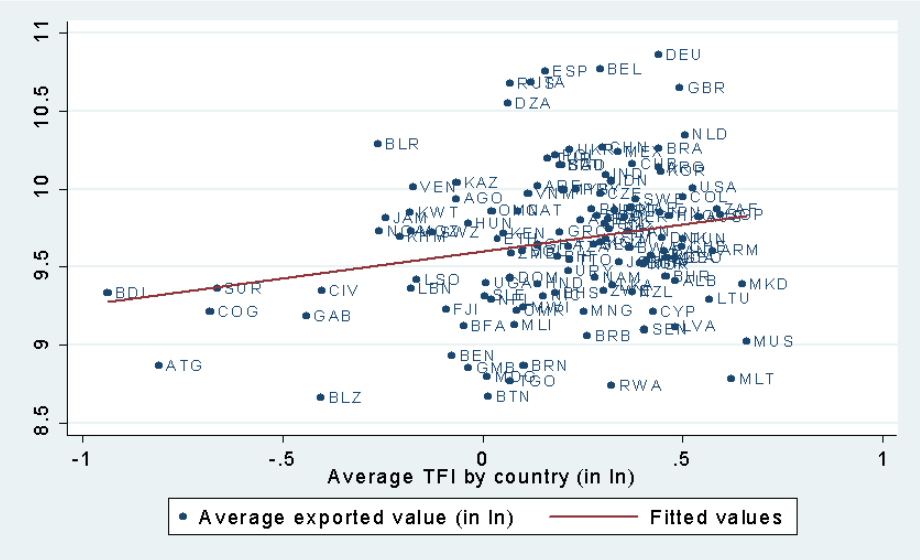
Note: Income groups classification by World Bank (LIC=Low Income Country; MIC=low and high Middle Income Country; HIC= High Income Country OECD and non-OECD). Source: Authors calculations on TFI database, OECD

Figure 3: Number of exported products and average TFI by country.



Source: Authors calculations on TFI database, OECD

Figure 4: Exported values and average TFI by country.



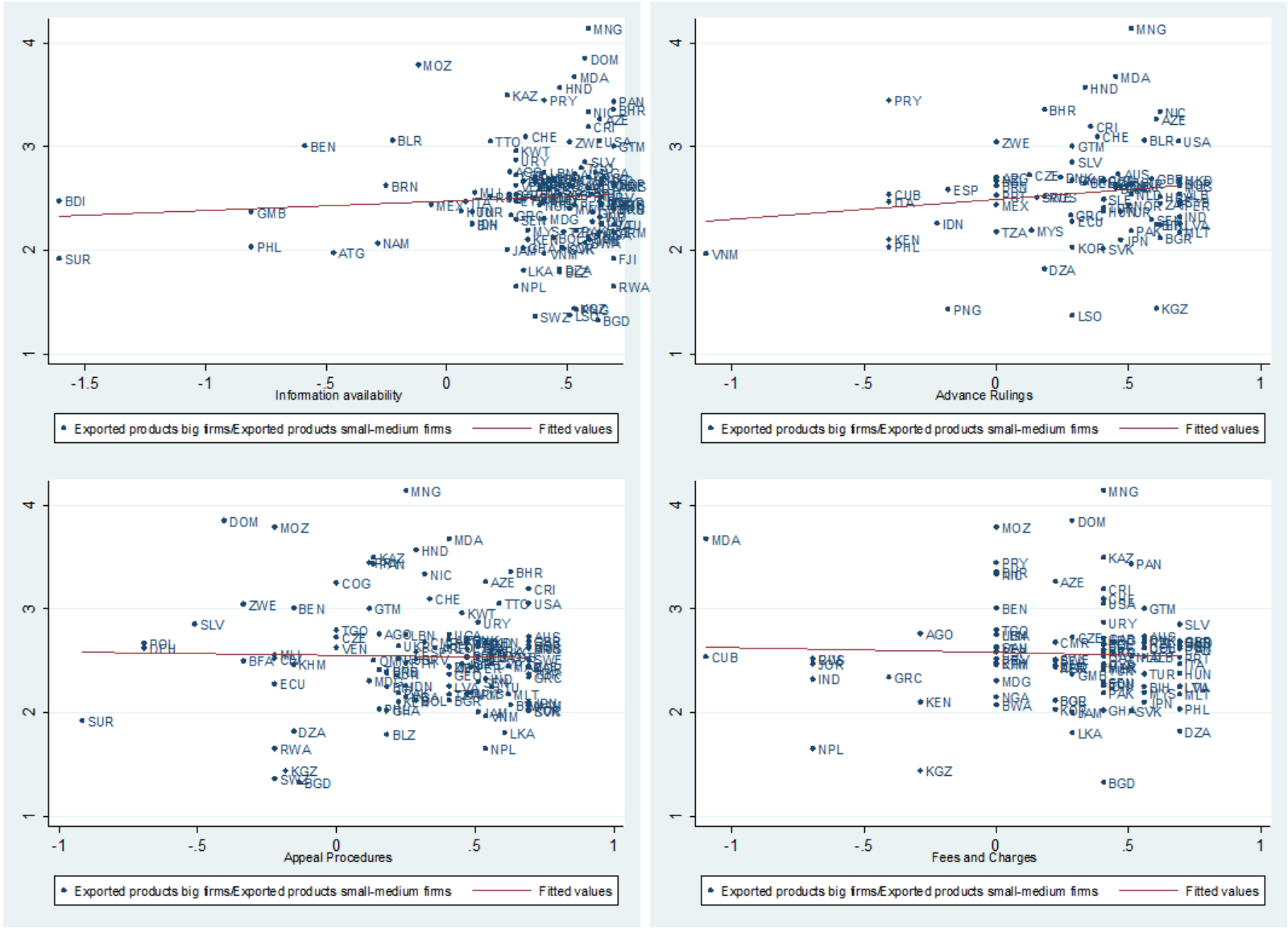
Source: Authors calculations on TFI database, OECD

Table 2: Average number of exported products by firm size and TFI level

	Bin	TFI below 0.5	TFI between 0.5 and 1	TFI between 1 and 1.5	TFI above 1.5
Information Availability	Small	1,77	1,81	2,41	2,11
	Medium	2,31	2,80	4,68	3,90
	Big	4,53	6,06	8,99	7,55
Advance Rulings	Small	2,05	2,97	2,35	2,10
	Medium	3,35	5,66	4,64	3,79
	Big	6,51	11,11	8,73	7,52
Appeal Procedure	Small	2,15	2,33	2,18	2,25
	Medium	2,14	4,67	4,17	4,17
	Big	4,69	9,12	8,00	7,93
Fees and Charges	Small	1,73	1,98	2,12	2,28
	Medium	2,60	3,78	4,02	4,36
	Big	5,98	7,56	7,78	8,32
Formalities and Documents	Small	2,18	1,76	1,99	2,37
	Medium	3,79	2,77	3,58	4,58
	Big	7,47	6,12	6,73	9,05
Formalities Automation	Small	2,03	1,93	2,42	2,23
	Medium	3,76	3,41	4,78	4,21
	Big	6,71	7,10	8,16	8,32
Formalities Procedures	Small	1,92	2,33	2,24	1,95
	Medium	4,15	4,32	4,34	2,95
	Big	8,01	8,36	8,29	6,22
Border Agency	Small	2,68	2,34	1,97	2,15
	Medium	5,41	4,13	3,67	3,88
	Big	10,20	8,69	7,58	7,32

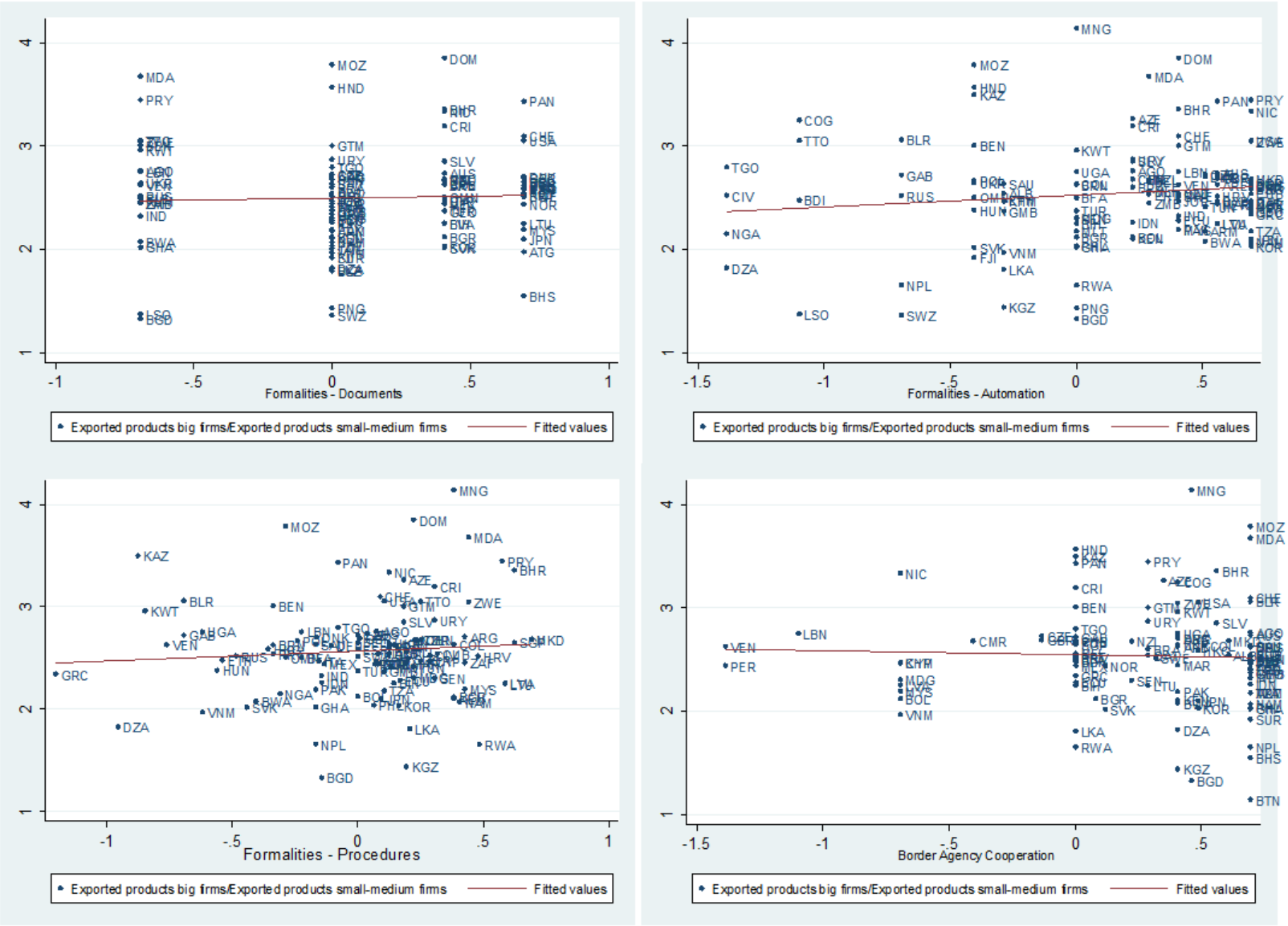
Average number of products exported by a firm of a given size bin toward a destination markets with a given TFI level.

Figure 5: Exported products and average TFI by country: Big vs Small-Medium firms.



Source: Authors calculations on TFI database, OECD

Figure 6: Exported products and average TFI by country: Big vs Small-Medium firms.



Source: Authors calculations on TFI database, OECD

Table 3: Information availability index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.458**	0.402*		0.204***	0.198***		0.299***		0.203		-0.043***	
	(0.206)	(0.215)		(0.067)	(0.068)		(0.019)		(0.167)		(0.014)	
TFI (log)*Small Firm (dummy)		0.416			0.045		0.139***		0.371*		-0.006	
		(0.264)			(0.066)		(0.034)		(0.209)		(0.011)	
TFI (log)*Small Size			0.826***			0.246***		0.443***		0.581***		-0.049***
			(0.283)			(0.088)		(0.036)		(0.207)		(0.017)
TFI (log)*Medium Size			0.575**			0.244***		0.415***		0.330*		-0.052***
			(0.231)			(0.074)		(0.024)		(0.177)		(0.016)
TFI (log)*Big Size			0.181			0.139*		0.225***		0.041		-0.031**
			(0.261)			(0.077)		(0.028)		(0.200)		(0.013)
Per Capita GDP (log)	0.078	0.079	0.077	0.017	0.017	0.017	0.027***	0.026***	0.061	0.060	-0.004	-0.004
	(0.050)	(0.050)	(0.050)	(0.015)	(0.015)	(0.015)	(0.006)	(0.005)	(0.040)	(0.040)	(0.003)	(0.003)
Distance (log)	-0.017	-0.020	-0.021	-0.035	-0.035	-0.036	-0.083***	-0.084***	0.016	0.015	0.005	0.005
	(0.114)	(0.113)	(0.113)	(0.025)	(0.025)	(0.025)	(0.006)	(0.006)	(0.093)	(0.092)	(0.004)	(0.004)
Contiguity	0.832***	0.835***	0.845***	0.238***	0.238***	0.241***	0.384***	0.390***	0.597***	0.605***	-0.041***	-0.041***
	(0.197)	(0.198)	(0.199)	(0.036)	(0.036)	(0.036)	(0.011)	(0.011)	(0.168)	(0.169)	(0.006)	(0.006)
Common Language	0.077	0.077	0.074	0.057	0.057	0.056	0.042***	0.039***	0.020	0.017	-0.027***	-0.026***
	(0.119)	(0.119)	(0.119)	(0.035)	(0.035)	(0.035)	(0.013)	(0.012)	(0.097)	(0.097)	(0.008)	(0.008)
PTA dummy	0.205	0.200	0.198	0.105***	0.105***	0.104***	0.304***	0.302***	0.096	0.094	-0.010	-0.010
	(0.178)	(0.178)	(0.177)	(0.038)	(0.037)	(0.037)	(0.012)	(0.011)	(0.150)	(0.149)	(0.007)	(0.007)
OECD	0.459**	0.455**	0.456**	0.206***	0.205***	0.205***	0.334***	0.333***	0.250*	0.250*	-0.038***	-0.038***
	(0.178)	(0.177)	(0.177)	(0.054)	(0.054)	(0.053)	(0.013)	(0.012)	(0.142)	(0.141)	(0.011)	(0.011)
Ln(tariff+1)	0.236	0.231	0.223	-0.111	-0.112	-0.114	-0.265***	-0.273***	0.342	0.336	0.025	0.026
	(0.373)	(0.371)	(0.369)	(0.098)	(0.098)	(0.097)	(0.048)	(0.050)	(0.294)	(0.293)	(0.017)	(0.017)
Observations	473,734	473,734	473,734	473,734	473,734	473,734	430,366	430,366	473,734	473,734	473,734	473,734
R-squared	0.077	0.077	0.078	0.074	0.074	0.074			0.040	0.041	0.026	0.026
Number of i	95,569	95,569	95,569	95,569	95,569	95,569	52,201	52,201	95,569	95,569	95,569	95,569

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01$; ** $p < 0,05$; *$p < 0,1$.

Table 4: Advance Rulings index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.358*	0.301		0.122**	0.112**		0.065***		0.189		-0.023**	
	(0.194)	(0.207)		(0.053)	(0.055)		(0.015)		(0.173)		(0.011)	
TFI (log)*Small Firm (dummy)		0.500**			0.084		0.193***		0.416**		-0.013*	
		(0.211)			(0.052)		(0.034)		(0.164)		(0.007)	
TFI (log)*Small Size			0.809***			0.197***		0.260***		0.612***		-0.037***
			(0.176)			(0.057)		(0.027)		(0.132)		(0.013)
TFI (log)*Medium Size			0.454**			0.135***		0.124***		0.319**		-0.027**
			(0.179)			(0.050)		(0.020)		(0.155)		(0.011)
TFI (log)*Big Size			0.040			0.072		0.006		-0.032		-0.017
			(0.303)			(0.090)		(0.026)		(0.227)		(0.014)
Per Capita GDP (log)	0.019	0.020	0.023	0.020	0.021	0.021	0.059***	0.060***	-0.001	0.002	-0.004	-0.004
	(0.076)	(0.076)	(0.076)	(0.022)	(0.022)	(0.022)	(0.007)	(0.008)	(0.063)	(0.063)	(0.004)	(0.004)
Distance (log)	0.034	0.033	0.035	-0.017	-0.017	-0.017	-0.055***	-0.055***	0.050	0.052	0.002	0.002
	(0.127)	(0.126)	(0.126)	(0.030)	(0.030)	(0.030)	(0.007)	(0.008)	(0.103)	(0.102)	(0.005)	(0.005)
Contiguity	0.980***	0.983***	0.997***	0.276***	0.276***	0.278***	0.395***	0.399***	0.707***	0.718***	-0.048***	-0.048***
	(0.193)	(0.191)	(0.189)	(0.041)	(0.041)	(0.042)	(0.012)	(0.010)	(0.167)	(0.164)	(0.008)	(0.008)
Common Language	0.045	0.044	0.038	0.044	0.044	0.043	0.047***	0.045***	0.000	-0.005	-0.022**	-0.022**
	(0.157)	(0.155)	(0.153)	(0.042)	(0.042)	(0.042)	(0.015)	(0.014)	(0.131)	(0.129)	(0.010)	(0.010)
PTA dummy	0.246	0.248	0.258	0.131***	0.131***	0.132***	0.364***	0.366***	0.117	0.126	-0.012	-0.012
	(0.217)	(0.216)	(0.216)	(0.045)	(0.045)	(0.045)	(0.012)	(0.016)	(0.184)	(0.183)	(0.008)	(0.008)
OECD	0.567**	0.560**	0.551**	0.171***	0.170***	0.169***	0.226***	0.221***	0.390**	0.382*	-0.031***	-0.030***
	(0.235)	(0.234)	(0.234)	(0.061)	(0.061)	(0.061)	(0.015)	(0.014)	(0.195)	(0.195)	(0.011)	(0.011)
Ln(tariff+1)	0.674	0.685	0.690	-0.007	-0.005	-0.004	-0.075	-0.078	0.690*	0.694**	0.004	0.004
	(0.441)	(0.439)	(0.435)	(0.114)	(0.114)	(0.114)	(0.055)	(0.054)	(0.350)	(0.347)	(0.022)	(0.022)
Observations	400,373	400,373	400,373	400,373	400,373	400,373	360,419	360,419	400,373	400,373	400,373	400,373
R-squared	0.077	0.078	0.079	0.070	0.070	0.070			0.043	0.044	0.024	0.024
Number of i	86,956	86,956	86,956	86,956	86,956	86,956	47,002	47,002	86,956	86,956	86,956	86,956

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01$; ** $p < 0,05$; *$p < 0,1$.

Table 5: Appeal procedures index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	-0.044	-0.096		0.030	0.022		0.029***		-0.118		-0.007	
	(0.158)	(0.183)		(0.040)	(0.045)		(0.010)		(0.150)		(0.009)	
TFI (log)*Small Firm (dummy)		0.367*			0.054		0.132***		0.313*		-0.005	
		(0.209)			(0.049)		(0.017)		(0.163)		(0.006)	
TFI (log)*Small Size			0.272**			0.076**		0.162***		0.196**		-0.012*
			(0.109)			(0.034)		(0.018)		(0.087)		(0.007)
TFI (log)*Medium Size			-0.051			0.031		0.065***		-0.082		-0.008
			(0.139)			(0.031)		(0.014)		(0.122)		(0.007)
TFI (log)*Big Size			-0.200			0.001		-0.014		-0.201		-0.006
			(0.342)			(0.095)		(0.014)		(0.256)		(0.015)
Per Capita GDP (log)	0.123**	0.125**	0.126**	0.030*	0.030*	0.030*	0.045***	0.046***	0.095**	0.096**	-0.006*	-0.006*
	(0.055)	(0.055)	(0.056)	(0.018)	(0.018)	(0.018)	(0.005)	(0.005)	(0.044)	(0.044)	(0.004)	(0.004)
Distance (log)	-0.006	-0.005	-0.003	-0.033	-0.033	-0.032	-0.082***	-0.081***	0.028	0.029	0.005	0.005
	(0.122)	(0.122)	(0.123)	(0.028)	(0.028)	(0.028)	(0.007)	(0.007)	(0.098)	(0.099)	(0.005)	(0.005)
Contiguity	0.741***	0.745***	0.750***	0.223***	0.224***	0.225***	0.358***	0.361***	0.521***	0.525***	-0.038***	-0.038***
	(0.193)	(0.193)	(0.197)	(0.045)	(0.045)	(0.046)	(0.010)	(0.011)	(0.158)	(0.161)	(0.009)	(0.009)
Common Language	0.105	0.103	0.100	0.060	0.059	0.059	0.049***	0.046***	0.044	0.041	-0.027***	-0.027***
	(0.130)	(0.130)	(0.130)	(0.040)	(0.040)	(0.040)	(0.015)	(0.014)	(0.105)	(0.105)	(0.009)	(0.009)
PTA dummy	0.227	0.227	0.229	0.117***	0.117***	0.117***	0.312***	0.313***	0.110	0.112	-0.013*	-0.013*
	(0.181)	(0.180)	(0.180)	(0.040)	(0.040)	(0.040)	(0.012)	(0.010)	(0.149)	(0.149)	(0.007)	(0.007)
OECD	0.360**	0.355**	0.354**	0.164***	0.163***	0.163***	0.265***	0.264***	0.192	0.191	-0.029***	-0.029***
	(0.167)	(0.167)	(0.167)	(0.052)	(0.052)	(0.052)	(0.014)	(0.013)	(0.137)	(0.137)	(0.011)	(0.011)
Ln(tariff+1)	0.218	0.236	0.242	-0.086	-0.083	-0.082	-0.224***	-0.219***	0.319	0.324	0.019	0.019
	(0.354)	(0.354)	(0.355)	(0.100)	(0.100)	(0.100)	(0.056)	(0.044)	(0.277)	(0.278)	(0.019)	(0.019)
Observations	455,723	455,723	455,723	455,723	455,723	455,723	412,075	412,075	455,723	455,723	455,723	455,723
R-squared	0.070	0.071	0.071	0.069	0.069	0.069			0.037	0.037	0.024	0.024
Number of i	95,122	95,122	95,122	95,122	95,122	95,122	51,474	51,474	95,122	95,122	95,122	95,122

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01$; ** $p < 0,05$; *$p < 0,1$.

Table 6: Fees and charges index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.146	0.175		0.034	0.041		0.023**		0.134		-0.006	
	(0.203)	(0.221)		(0.050)	(0.054)		(0.010)		(0.186)		(0.010)	
TFI (log)*Small Firm (dummy)		-0.234			-0.052		-0.043*		-0.182		-0.003	
		(0.209)			(0.049)		(0.023)		(0.166)		(0.008)	
TFI (log)*Small Size			-0.059			-0.011		-0.021		-0.048		-0.009
			(0.170)			(0.041)		(0.022)		(0.139)		(0.007)
TFI (log)*Medium Size			0.108			0.017		0.014		0.091		-0.004
			(0.195)			(0.040)		(0.014)		(0.174)		(0.008)
TFI (log)*Big Size			0.278			0.077		0.030*		0.200		-0.009
			(0.291)			(0.083)		(0.017)		(0.225)		(0.014)
Per Capita GDP (log)	0.102*	0.102*	0.102*	0.035**	0.035**	0.035**	0.057***	0.057***	0.067	0.067	-0.008**	-0.008**
	(0.058)	(0.059)	(0.059)	(0.017)	(0.017)	(0.017)	(0.006)	(0.007)	(0.047)	(0.047)	(0.003)	(0.003)
Distance (log)	0.007	0.006	0.004	-0.031	-0.031	-0.032	-0.076***	-0.076***	0.037	0.036	0.004	0.004
	(0.122)	(0.122)	(0.123)	(0.029)	(0.029)	(0.029)	(0.007)	(0.006)	(0.098)	(0.098)	(0.005)	(0.005)
Contiguity	0.797***	0.796***	0.795***	0.213***	0.213***	0.212***	0.348***	0.348***	0.584***	0.583***	-0.035***	-0.035***
	(0.198)	(0.199)	(0.199)	(0.041)	(0.041)	(0.041)	(0.011)	(0.011)	(0.164)	(0.165)	(0.007)	(0.007)
Common Language	0.114	0.114	0.112	0.069*	0.069*	0.068*	0.057***	0.057***	0.045	0.044	-0.029***	-0.029***
	(0.126)	(0.126)	(0.126)	(0.040)	(0.040)	(0.040)	(0.013)	(0.012)	(0.099)	(0.099)	(0.009)	(0.009)
PTA dummy	0.235	0.232	0.230	0.109**	0.109**	0.108**	0.314***	0.314***	0.124	0.122	-0.011	-0.011
	(0.187)	(0.187)	(0.188)	(0.043)	(0.043)	(0.043)	(0.012)	(0.013)	(0.154)	(0.154)	(0.007)	(0.007)
OECD	0.357*	0.356*	0.355*	0.147***	0.147***	0.147***	0.238***	0.238***	0.209	0.209	-0.025**	-0.025**
	(0.180)	(0.180)	(0.180)	(0.052)	(0.052)	(0.052)	(0.013)	(0.011)	(0.149)	(0.150)	(0.010)	(0.010)
Ln(tariff+1)	0.276	0.280	0.280	-0.110	-0.109	-0.109	-0.231***	-0.231***	0.389	0.389	0.027	0.027
	(0.369)	(0.370)	(0.370)	(0.103)	(0.104)	(0.104)	(0.069)	(0.071)	(0.291)	(0.291)	(0.018)	(0.018)
Observations	457,534	457,534	457,534	457,534	457,534	457,534	414,398	414,398	457,534	457,534	457,534	457,534
R-squared	0.074	0.074	0.074	0.069	0.069	0.069			0.039	0.039	0.024	0.024
Number of i	94,760	94,760	94,760	94,760	94,760	94,760	51,624	51,624	94,760	94,760	94,760	94,760

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01$; ** $p < 0,05$; *$p < 0,1$.

Table 7: Formalities and documents index (World Bank index). Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.046	0.108		0.077*	0.096**		0.131***		0.012		-0.016*	
	(0.179)	(0.187)		(0.042)	(0.045)		(0.013)		(0.157)		(0.009)	
TFI (log)*Small Firm (dummy)		-0.600***			-0.176***		-0.253***		-0.424***		0.010	
		(0.127)			(0.039)		(0.025)		(0.097)		(0.007)	
TFI (log)*Small Size			-0.506***			-0.086**		-0.125***		-0.420***		-0.006
			(0.154)			(0.040)		(0.021)		(0.131)		(0.008)
TFI (log)*Medium Size			-0.074			0.033		0.057***		-0.107		-0.011
			(0.177)			(0.038)		(0.017)		(0.156)		(0.008)
TFI (log)*Big Size			0.343			0.177***		0.178***		0.167		-0.022**
			(0.224)			(0.063)		(0.023)		(0.175)		(0.011)
Per Capita GDP (log)	0.104*	0.105*	0.106*	0.017	0.018	0.018	0.031***	0.031***	0.088**	0.088**	-0.004	-0.004
	(0.054)	(0.054)	(0.054)	(0.017)	(0.017)	(0.017)	(0.006)	(0.006)	(0.043)	(0.043)	(0.003)	(0.003)
Distance (log)	-0.018	-0.022	-0.026	-0.035	-0.036	-0.037	-0.084***	-0.085***	0.014	0.012	0.005	0.005
	(0.126)	(0.125)	(0.127)	(0.029)	(0.029)	(0.029)	(0.005)	(0.008)	(0.101)	(0.102)	(0.005)	(0.005)
Contiguity	0.765***	0.768***	0.778***	0.205***	0.206***	0.210***	0.337***	0.340***	0.562***	0.568***	-0.034***	-0.034***
	(0.201)	(0.200)	(0.202)	(0.038)	(0.038)	(0.039)	(0.013)	(0.013)	(0.168)	(0.169)	(0.007)	(0.007)
Common Language	0.100	0.099	0.092	0.068*	0.067*	0.065	0.057***	0.054***	0.031	0.027	-0.028***	-0.028***
	(0.129)	(0.130)	(0.131)	(0.040)	(0.040)	(0.040)	(0.014)	(0.014)	(0.104)	(0.105)	(0.009)	(0.009)
PTA dummy	0.240	0.220	0.212	0.109**	0.103**	0.100**	0.303***	0.299***	0.117	0.112	-0.009	-0.009
	(0.206)	(0.206)	(0.207)	(0.046)	(0.046)	(0.046)	(0.013)	(0.013)	(0.169)	(0.170)	(0.008)	(0.008)
OECD	0.325*	0.332*	0.334*	0.145***	0.147***	0.148***	0.229***	0.229***	0.185	0.186	-0.026**	-0.026**
	(0.173)	(0.172)	(0.173)	(0.049)	(0.050)	(0.050)	(0.009)	(0.013)	(0.143)	(0.144)	(0.010)	(0.010)
Ln(tariff+1)	0.266	0.239	0.209	-0.046	-0.054	-0.064	-0.192***	-0.200***	0.293	0.273	0.012	0.013
	(0.348)	(0.351)	(0.352)	(0.102)	(0.103)	(0.104)	(0.042)	(0.045)	(0.268)	(0.269)	(0.019)	(0.019)
Observations	456,604	456,604	456,604	456,604	456,604	456,604	413,729	413,729	456,604	456,604	456,604	456,604
R-squared	0.073	0.075	0.076	0.070	0.071	0.072			0.039	0.040	0.024	0.024
Number of i	94,086	94,086	94,086	94,086	94,086	94,086	51,211	51,211	94,086	94,086	94,086	94,086

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01; * * p < 0,05; * p < 0,1$.

Table 8: Formality automation index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.001	0.044		0.047*	0.062**		0.054***		-0.018		-0.015**	
	(0.145)	(0.161)		(0.028)	(0.030)		(0.009)		(0.141)		(0.006)	
TFI (log)*Small Firm (dummy)		-0.272**			-0.093***		-0.133***		-0.179*		0.010**	
		(0.123)			(0.026)		(0.018)		(0.101)		(0.005)	
TFI (log)*Small Size			-0.229**			-0.031		-0.080***		-0.197**		-0.005
			(0.101)			(0.024)		(0.014)		(0.087)		(0.005)
TFI (log)*Medium Size			-0.072			0.024		0.012		-0.097		-0.011*
			(0.155)			(0.027)		(0.010)		(0.138)		(0.006)
TFI (log)*Big Size			0.234			0.123***		0.087***		0.111		-0.020***
			(0.193)			(0.044)		(0.014)		(0.159)		(0.008)
Per Capita GDP (log)	0.124**	0.122**	0.119**	0.031**	0.031**	0.030*	0.054***	0.053***	0.091**	0.089**	-0.006*	-0.006*
	(0.053)	(0.054)	(0.054)	(0.015)	(0.015)	(0.015)	(0.005)	(0.006)	(0.045)	(0.045)	(0.003)	(0.003)
Distance (log)	-0.000	-0.003	-0.007	-0.036	-0.037	-0.038	-0.079***	-0.080***	0.033	0.031	0.006	0.006
	(0.123)	(0.123)	(0.124)	(0.028)	(0.029)	(0.029)	(0.008)	(0.008)	(0.099)	(0.100)	(0.005)	(0.005)
Contiguity	0.770***	0.766***	0.775***	0.193***	0.191***	0.194***	0.327***	0.330***	0.575***	0.580***	-0.030***	-0.030***
	(0.213)	(0.212)	(0.214)	(0.041)	(0.041)	(0.042)	(0.010)	(0.012)	(0.177)	(0.178)	(0.007)	(0.007)
Common Language	0.104	0.102	0.093	0.082**	0.081**	0.078**	0.082***	0.078***	0.021	0.015	-0.032***	-0.031***
	(0.120)	(0.120)	(0.121)	(0.039)	(0.038)	(0.038)	(0.015)	(0.016)	(0.095)	(0.095)	(0.008)	(0.008)
PTA dummy	0.254	0.249	0.245	0.114***	0.112***	0.111***	0.320***	0.318***	0.137	0.134	-0.011	-0.011
	(0.183)	(0.184)	(0.185)	(0.042)	(0.042)	(0.042)	(0.010)	(0.011)	(0.152)	(0.153)	(0.007)	(0.007)
OECD	0.356**	0.358**	0.357**	0.158***	0.159***	0.159***	0.253***	0.253***	0.199	0.199	-0.028***	-0.028***
	(0.168)	(0.168)	(0.169)	(0.051)	(0.051)	(0.051)	(0.015)	(0.013)	(0.137)	(0.138)	(0.010)	(0.010)
Ln(tariff+1)	0.282	0.273	0.269	-0.082	-0.085	-0.086	-0.191***	-0.188***	0.358	0.355	0.021	0.021
	(0.352)	(0.355)	(0.356)	(0.098)	(0.099)	(0.099)	(0.056)	(0.048)	(0.278)	(0.279)	(0.018)	(0.018)
Observations	481,719	481,719	481,719	481,719	481,719	481,719	437,822	437,822	481,719	481,719	481,719	481,719
R-squared	0.075	0.076	0.077	0.071	0.071	0.072			0.040	0.040	0.025	0.025
Number of i	96,829	96,829	96,829	96,829	96,829	96,829	52,932	52,932	96,829	96,829	96,829	96,829

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01; * * p < 0,05; * p < 0,1.$

Table 9: Formalities procedures index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	-0.061	-0.083		0.016	0.016		-0.014		-0.098		-0.007	
	(0.193)	(0.207)		(0.036)	(0.037)		(0.010)		(0.199)		(0.008)	
TFI (log)*Small Firm (dummy)		0.183			0.003		0.046**		0.180		0.000	
		(0.154)			(0.028)		(0.023)		(0.136)		(0.005)	
TFI (log)*Small Size			0.101			0.019		0.032		0.082		-0.006
			(0.137)			(0.033)		(0.021)		(0.128)		(0.006)
TFI (log)*Medium Size			0.026			0.036		0.034***		-0.010		-0.009
			(0.213)			(0.036)		(0.011)		(0.204)		(0.008)
TFI (log)*Big Size			-0.244			-0.015		-0.048***		-0.229		-0.004
			(0.219)			(0.048)		(0.014)		(0.202)		(0.008)
Per Capita GDP (log)	0.136***	0.137***	0.138***	0.038**	0.038**	0.038**	0.061***	0.061***	0.100***	0.100***	-0.008**	-0.008**
	(0.045)	(0.045)	(0.045)	(0.015)	(0.015)	(0.015)	(0.005)	(0.005)	(0.036)	(0.036)	(0.003)	(0.003)
Distance (log)	0.001	0.002	0.004	-0.030	-0.030	-0.029	-0.076***	-0.075***	0.031	0.033	0.004	0.004
	(0.121)	(0.121)	(0.121)	(0.029)	(0.029)	(0.029)	(0.006)	(0.008)	(0.097)	(0.097)	(0.005)	(0.005)
Contiguity	0.770***	0.770***	0.772***	0.206***	0.206***	0.207***	0.344***	0.344***	0.564***	0.566***	-0.034***	-0.034***
	(0.204)	(0.205)	(0.204)	(0.041)	(0.041)	(0.041)	(0.010)	(0.012)	(0.169)	(0.169)	(0.007)	(0.007)
Common Language	0.119	0.119	0.116	0.075*	0.075*	0.074*	0.065***	0.063***	0.044	0.042	-0.030***	-0.030***
	(0.122)	(0.122)	(0.122)	(0.039)	(0.039)	(0.039)	(0.012)	(0.017)	(0.098)	(0.097)	(0.009)	(0.009)
PTA dummy	0.262	0.263	0.266	0.120***	0.120***	0.121***	0.326***	0.327***	0.143	0.145	-0.013*	-0.013*
	(0.181)	(0.181)	(0.181)	(0.042)	(0.042)	(0.042)	(0.013)	(0.012)	(0.149)	(0.148)	(0.007)	(0.007)
OECD	0.288*	0.283*	0.281	0.158***	0.158***	0.157***	0.240***	0.239***	0.126	0.123	-0.029**	-0.029**
	(0.170)	(0.169)	(0.169)	(0.055)	(0.055)	(0.055)	(0.014)	(0.015)	(0.136)	(0.136)	(0.011)	(0.011)
Ln(tariff+1)	0.136	0.135	0.132	-0.103	-0.103	-0.104	-0.245***	-0.247***	0.239	0.236	0.023	0.023
	(0.337)	(0.336)	(0.334)	(0.100)	(0.100)	(0.100)	(0.056)	(0.047)	(0.258)	(0.257)	(0.018)	(0.018)
Observations	470,884	470,884	470,884	470,884	470,884	470,884	427,495	427,495	470,884	470,884	470,884	470,884
R-squared	0.074	0.074	0.074	0.070	0.070	0.071			0.038	0.039	0.025	0.025
Number of i	95,694	95,694	95,694	95,694	95,694	95,694	52,305	52,305	95,694	95,694	95,694	95,694

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01$; ** $p < 0,05$; *$p < 0,1$.

Table 10: Border agency cooperation index (internal and external). Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.289*	0.337**		0.057	0.068*		0.039***		0.268*		-0.017**	
	(0.149)	(0.162)		(0.039)	(0.041)		(0.012)		(0.138)		(0.008)	
TFI (log)*Small Firm (dummy)		-0.419**			-0.095**		-0.096***		-0.324**		0.007	
		(0.176)			(0.041)		(0.020)		(0.142)		(0.005)	
TFI (log)*Small Size			-0.086			-0.028		-0.058***		-0.058		-0.010
			(0.133)			(0.041)		(0.016)		(0.106)		(0.007)
TFI (log)*Medium Size			0.285*			0.050		0.033**		0.235*		-0.016*
			(0.152)			(0.038)		(0.014)		(0.134)		(0.009)
TFI (log)*Big Size			0.405**			0.093*		0.042**		0.312*		-0.017*
			(0.197)			(0.054)		(0.016)		(0.158)		(0.009)
Per Capita GDP (log)	0.096**	0.097**	0.098**	0.034**	0.035**	0.035**	0.049***	0.050***	0.063*	0.063*	-0.008**	-0.008**
	(0.045)	(0.045)	(0.045)	(0.016)	(0.016)	(0.016)	(0.007)	(0.006)	(0.035)	(0.035)	(0.003)	(0.003)
Distance (log)	-0.016	-0.019	-0.018	-0.017	-0.018	-0.018	-0.071***	-0.071***	-0.001	-0.000	0.000	0.000
	(0.123)	(0.121)	(0.121)	(0.031)	(0.031)	(0.031)	(0.009)	(0.008)	(0.097)	(0.096)	(0.006)	(0.006)
Contiguity	0.488	0.497	0.506	0.131*	0.133*	0.136*	0.203***	0.204***	0.364	0.370	-0.020*	-0.020*
	(0.364)	(0.362)	(0.368)	(0.075)	(0.074)	(0.076)	(0.017)	(0.015)	(0.293)	(0.297)	(0.012)	(0.012)
Common Language	0.067	0.066	0.067	0.108**	0.108**	0.108**	0.075**	0.075***	-0.042	-0.041	-0.045***	-0.045***
	(0.177)	(0.177)	(0.177)	(0.047)	(0.047)	(0.047)	(0.031)	(0.028)	(0.147)	(0.147)	(0.010)	(0.010)
PTA dummy	0.255	0.252	0.253	0.134***	0.133***	0.133***	0.306***	0.306***	0.119	0.119	-0.019**	-0.019**
	(0.184)	(0.183)	(0.183)	(0.046)	(0.046)	(0.046)	(0.014)	(0.011)	(0.149)	(0.149)	(0.008)	(0.008)
OECD	0.427**	0.426**	0.424**	0.195***	0.195***	0.194***	0.319***	0.319***	0.231*	0.230*	-0.036***	-0.036***
	(0.166)	(0.166)	(0.166)	(0.052)	(0.052)	(0.052)	(0.016)	(0.013)	(0.133)	(0.133)	(0.011)	(0.011)
Ln(tariff+1)	0.339	0.348	0.353	-0.111	-0.109	-0.107	-0.087*	-0.087	0.457*	0.460*	0.042**	0.042**
	(0.311)	(0.310)	(0.312)	(0.087)	(0.087)	(0.087)	(0.050)	(0.055)	(0.257)	(0.258)	(0.019)	(0.019)
Observations	384,078	384,078	384,078	384,078	384,078	384,078	341,485	341,485	384,078	384,078	384,078	384,078
R-squared	0.055	0.056	0.056	0.056	0.056	0.056			0.029	0.029	0.021	0.021
Number of i	88,857	88,857	88,857	88,857	88,857	88,857	46,264	46,264	88,857	88,857	88,857	88,857

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01; * * p < 0,05; * p < 0,1$.

Table 11: Participation probability estimations. Part 1

	Information Availability			Advance Rulings			Appeal Procedure			Fees and Charges		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TFI (log)	0.088	0.053		0.138**	0.112**		0.058	0.040		0.015	0.028	
	(0.057)	(0.054)		(0.051)	(0.051)		(0.042)	(0.045)		(0.040)	(0.040)	
TFI (log)*Small Firm (dummy)		0.141			0.106*			0.070			-0.050	
		(0.091)			(0.058)			(0.043)			(0.046)	
TFI (log)*Small Size			0.194*			0.217***			0.110**			-0.022
			(0.103)			(0.072)			(0.048)			(0.057)
TFI (log)*Medium Size			0.128*			0.164***			0.069*			0.007
			(0.066)			(0.053)			(0.039)			(0.042)
TFI (log)*Big Size			-0.094			0.006			-0.019			0.068
			(0.093)			(0.082)			(0.072)			(0.064)
Per Capita GDP (log)	-0.005	-0.005	-0.005	-0.009	-0.009	-0.009	-0.005	-0.005	-0.005	0.004	0.004	0.004
	(0.019)	(0.019)	(0.019)	(0.014)	(0.014)	(0.014)	(0.018)	(0.018)	(0.018)	(0.019)	(0.019)	(0.019)
Distance (log)	-0.059***	-0.059***	-0.059***	-0.066***	-0.066***	-0.066***	-0.058**	-0.058**	-0.058**	-0.054**	-0.054**	-0.054**
	(0.020)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.021)	(0.021)	(0.021)	(0.023)	(0.023)	(0.023)
Contiguity	0.130***	0.130***	0.131***	0.164***	0.164***	0.164***	0.157**	0.157**	0.158**	0.115***	0.115***	0.115***
	(0.034)	(0.034)	(0.034)	(0.047)	(0.047)	(0.047)	(0.061)	(0.061)	(0.061)	(0.032)	(0.032)	(0.032)
Common Language	0.125	0.124	0.124	0.099	0.099	0.099	0.124*	0.124*	0.124*	0.139*	0.139*	0.139*
	(0.074)	(0.074)	(0.073)	(0.062)	(0.062)	(0.062)	(0.061)	(0.061)	(0.061)	(0.078)	(0.078)	(0.078)
PTA dummy	-0.114**	-0.114**	-0.113**	-0.123**	-0.123**	-0.122**	-0.096*	-0.096*	-0.095*	-0.106*	-0.106*	-0.106*
	(0.047)	(0.046)	(0.046)	(0.045)	(0.045)	(0.045)	(0.049)	(0.049)	(0.050)	(0.052)	(0.052)	(0.052)
OECD	0.128**	0.127**	0.127**	0.129**	0.129**	0.128**	0.111**	0.111**	0.111**	0.113*	0.113*	0.113*
	(0.049)	(0.049)	(0.049)	(0.050)	(0.050)	(0.050)	(0.049)	(0.050)	(0.050)	(0.059)	(0.059)	(0.059)
Ln(tariff+1)	-0.088	-0.088	-0.087	-0.113	-0.113	-0.113	-0.091	-0.091	-0.091	-0.083	-0.083	-0.083
	(0.064)	(0.064)	(0.063)	(0.066)	(0.066)	(0.066)	(0.061)	(0.061)	(0.061)	(0.068)	(0.068)	(0.068)
Observations	2,043,814	2,043,814	2,043,814	1,705,616	1,705,616	1,705,616	1,961,140	1,961,140	1,961,140	1,959,239	1,959,239	1,959,239
R-squared	0.111	0.112	0.115	0.125	0.126	0.129	0.117	0.119	0.121	0.110	0.110	0.111
Number of i	84,823	84,823	84,823	84,822	84,822	84,822	84,823	84,823	84,823	84,823	84,823	84,823

Standard errors are clustered within destination country in all estimation.

Dependent variables in log. All regressions include firm fixed effects.

*** $p < 0,01; * * p < 0,05; *p < 0,1$.

Table 12: Participation probability estimations. Part 2

	Formalities documents			Formalities Automation			Formalities Procedures			Border Agency Cooperation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TFI (log)	0.077	0.104*		0.076***	0.087***		0.139***	0.135**		-0.039	-0.050	
	(0.051)	(0.055)		(0.024)	(0.024)		(0.049)	(0.053)		(0.027)	(0.038)	
TFI (log)*Small Firm (dummy)		-0.105***			-0.046**			0.018			0.043	
		(0.036)			(0.021)			(0.046)			(0.068)	
TFI (log)*Small Size			-0.001			0.041			0.153***			-0.007
			(0.049)			(0.029)			(0.053)			(0.045)
TFI (log)*Medium Size			0.056			0.065***			0.137***			-0.023
			(0.047)			(0.021)			(0.047)			(0.024)
TFI (log)*Big Size			0.197**			0.131***			0.130			-0.104
			(0.077)			(0.037)			(0.086)			(0.093)
Per Capita GDP (log)	-0.023	-0.023	-0.023	-0.027	-0.027	-0.027	-0.019	-0.019	-0.019	0.006	0.006	0.006
	(0.024)	(0.024)	(0.023)	(0.020)	(0.020)	(0.020)	(0.014)	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)
Distance (log)	-0.065***	-0.065***	-0.065***	-0.093***	-0.093***	-0.093***	-0.089***	-0.089***	-0.089***	-0.038***	-0.038***	-0.038***
	(0.023)	(0.022)	(0.022)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.027)	(0.013)	(0.013)	(0.013)
Contiguity	0.114***	0.114***	0.114***	0.075**	0.075**	0.075**	0.098***	0.098***	0.098***	0.118***	0.118***	0.118***
	(0.030)	(0.030)	(0.030)	(0.027)	(0.027)	(0.027)	(0.023)	(0.023)	(0.023)	(0.029)	(0.029)	(0.029)
Common Language	0.127*	0.126*	0.125*	0.135**	0.135**	0.135**	0.140**	0.140**	0.140**	0.070**	0.070**	0.070**
	(0.071)	(0.071)	(0.070)	(0.059)	(0.059)	(0.059)	(0.054)	(0.054)	(0.054)	(0.033)	(0.033)	(0.033)
PTA dummy	-0.140**	-0.140**	-0.140**	-0.175***	-0.175***	-0.175***	-0.161***	-0.161***	-0.161***	-0.058	-0.058	-0.058
	(0.054)	(0.053)	(0.053)	(0.057)	(0.057)	(0.057)	(0.054)	(0.054)	(0.054)	(0.035)	(0.035)	(0.035)
OECD	0.109**	0.109**	0.108**	0.141**	0.141**	0.141**	0.154***	0.154***	0.154***	0.063*	0.063*	0.063*
	(0.049)	(0.048)	(0.048)	(0.053)	(0.053)	(0.053)	(0.051)	(0.051)	(0.051)	(0.032)	(0.032)	(0.032)
Ln(tariff+1)	-0.089	-0.088	-0.087	-0.125*	-0.125*	-0.125*	-0.147**	-0.147**	-0.147**	-0.003	-0.003	-0.003
	(0.063)	(0.062)	(0.062)	(0.062)	(0.062)	(0.062)	(0.069)	(0.069)	(0.069)	(0.029)	(0.029)	(0.029)
Observations	2,043,814	2,043,814	2,043,814	2,043,814	2,043,814	2,043,814	2,043,814	2,043,814	2,043,814	1,767,307	1,767,307	1,767,307
R-squared	0.112	0.114	0.119	0.117	0.118	0.120	0.121	0.121	0.121	0.070	0.070	0.071
Number of i	84,823	84,823	84,823	84,823	84,823	84,823	84,823	84,823	84,823	84,823	84,823	84,823

Standard errors are clustered within destination country in all estimation.

Dependent variables in log. All regressions include firm fixed effects.

*** $p < 0,01; * * p < 0,05; *p < 0,1$.

Table 13: Results by type of exported product

	Model	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
Homogeneous goods	OLS	0.009**	0.004	-0.001	0.002	0.004*	0.001	0.000	0.001
		(0.004)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Differentiated goods	OLS	0.138***	0.068*	0.021	0.017	0.044	0.030	0.004	0.040
		(0.046)	(0.036)	(0.028)	(0.034)	(0.032)	(0.019)	(0.025)	(0.026)
Homogeneous goods	PPML	0.022***	0.006**	0.000	0.007***	0.009***	0.003	-0.000	0.002
		(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Differentiated goods	PPML	0.996***	0.120**	0.136***	0.058	0.343***	0.184***	-0.105***	0.128***
		(0.055)	(0.057)	(0.043)	(0.041)	(0.045)	(0.025)	(0.035)	(0.039)
High Information Intensity goods	OLS	0.118***	0.069**	0.016	0.018	0.041	0.024	0.006	0.032
		(0.039)	(0.031)	(0.024)	(0.028)	(0.026)	(0.017)	(0.021)	(0.023)
Low Information Intensity goods	OLS	0.108***	0.040	0.011	0.010	0.033	0.028*	-0.002	0.029
		(0.035)	(0.029)	(0.023)	(0.027)	(0.025)	(0.015)	(0.020)	(0.020)
High Information Intensity goods	PPML	0.698***	0.245***	0.047*	0.074***	0.239***	0.087***	-0.017	0.088***
		(0.052)	(0.049)	(0.027)	(0.027)	(0.027)	(0.024)	(0.027)	(0.028)
Low Information Intensity goods	PPML	0.587***	-0.005	0.093***	0.038	0.220***	0.162***	-0.087***	0.071***
		(0.039)	(0.035)	(0.020)	(0.026)	(0.023)	(0.019)	(0.026)	(0.020)

The entries of this tables come from regressions having as dependent variable the number exported products by type.
All regressions include the same control variables and fixed effects as in the main firm level estimations.
The coefficient reported in the table is for the TFI index

Appendix

Table A1: Average TFI index. Baseline estimations

	Export Values			Number exported products					Export per product		Herfindahl	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	OLS	OLS	OLS	OLS
TFI (log)	0.205	0.268		0.129**	0.159**		0.103***		0.109		-0.037***	
	(0.195)	(0.216)		(0.061)	(0.064)		(0.021)		(0.181)		(0.013)	
TFI (log)*Small Firm (dummy)		-0.379*			-0.182***		-0.178***		-0.198		0.019**	
		(0.217)			(0.051)		(0.031)		(0.177)		(0.008)	
TFI (log)*Small Size			-0.114			-0.024		-0.076***		-0.090		-0.017
			(0.176)			(0.057)		(0.024)		(0.134)		(0.012)
TFI (log)*Medium Size			0.132			0.102		0.064***		0.030		-0.031**
			(0.204)			(0.062)		(0.024)		(0.170)		(0.014)
TFI (log)*Big Size			0.481			0.248***		0.132***		0.233		-0.046***
			(0.293)			(0.083)		(0.033)		(0.235)		(0.013)
Per Capita GDP (log)	0.104**	0.102**	0.101**	0.028*	0.028*	0.027*	0.051***	0.051***	0.074**	0.074**	-0.006*	-0.006*
	(0.045)	(0.045)	(0.045)	(0.016)	(0.016)	(0.016)	(0.004)	(0.005)	(0.036)	(0.036)	(0.003)	(0.003)
Distance (log)	-0.003	-0.006	-0.010	-0.026	-0.027	-0.029	-0.075***	-0.076***	0.022	0.019	0.003	0.003
	(0.117)	(0.117)	(0.118)	(0.028)	(0.028)	(0.029)	(0.006)	(0.006)	(0.093)	(0.094)	(0.005)	(0.005)
Contiguity	0.787***	0.787***	0.781***	0.220***	0.220***	0.218***	0.348***	0.346***	0.567***	0.563***	-0.038***	-0.037***
	(0.195)	(0.194)	(0.197)	(0.039)	(0.039)	(0.040)	(0.012)	(0.011)	(0.164)	(0.166)	(0.007)	(0.007)
Common Language	0.105	0.104	0.104	0.078**	0.077**	0.077**	0.076***	0.076***	0.027	0.027	-0.030***	-0.030***
	(0.118)	(0.118)	(0.118)	(0.036)	(0.036)	(0.036)	(0.014)	(0.014)	(0.095)	(0.096)	(0.008)	(0.008)
PTA dummy	0.245	0.241	0.235	0.124***	0.122***	0.119***	0.318***	0.316***	0.119	0.116	-0.015**	-0.014**
	(0.185)	(0.185)	(0.185)	(0.041)	(0.041)	(0.041)	(0.012)	(0.012)	(0.151)	(0.151)	(0.007)	(0.007)
OECD	0.373**	0.376**	0.377**	0.164***	0.166***	0.166***	0.265***	0.265***	0.211	0.211	-0.030***	-0.030***
	(0.166)	(0.167)	(0.167)	(0.050)	(0.050)	(0.050)	(0.012)	(0.014)	(0.136)	(0.136)	(0.010)	(0.010)
Ln(tariff+1)	0.268	0.267	0.267	-0.074	-0.075	-0.075	-0.214***	-0.213***	0.342	0.342	0.018	0.018
	(0.352)	(0.354)	(0.354)	(0.097)	(0.098)	(0.098)	(0.048)	(0.046)	(0.277)	(0.277)	(0.018)	(0.018)
Observations	482,741	482,741	482,741	482,741	482,741	482,741	438,830	438,830	482,741	482,741	482,741	482,741
R-squared	0.076	0.076	0.076	0.072	0.072	0.072			0.039	0.040	0.025	0.025
Number of i	96,869	96,869	96,869	96,869	96,869	96,869	52,958	52,958	96,869	96,869	96,869	96,869

Standard errors are clustered within destination country in all OLS estimation. Bootstrap standard errors in Poisson estimations.

Dependent variables: in log in columns 1-6 and 9-10; in levels in columns 7-8 and 11-12. All regressions include firm fixed effects.

Specifications in columns 7 and 8 have a reduced amount of observations since the Poisson estimator drops obs unombiguously predicted by fixed effects.

*** $p < 0,01; * * p < 0,05; * p < 0,1.$

Table A2: Estimations using the number of days to export into a country as a proxy for the trade cost.

	Number exported products			Export Values		
	(1)	(2)	(3)	(4)	(5)	(6)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS
Time to export (log)	-0.063	-0.093*		0.046	-0.057	
	(0.047)	(0.049)		(0.173)	(0.184)	
Time to export (log)*Small Firm (dummy)		0.234***			0.798***	
		(0.040)			(0.145)	
Time to export (log)*Small Size			0.143***			0.748***
			(0.046)			(0.158)
Time to export (log)*Medium Size			0.003			0.245
			(0.046)			(0.171)
Time to export (log)*Big Size			-0.243***			-0.533**
			(0.066)			(0.236)
Per Capita GDP (log)	0.030*	0.030*	0.029*	0.140**	0.140**	0.134**
	(0.016)	(0.016)	(0.016)	(0.054)	(0.054)	(0.054)
Distance (log)	-0.032	-0.034	-0.037	-0.012	-0.020	-0.029
	(0.028)	(0.028)	(0.028)	(0.117)	(0.116)	(0.118)
Contiguity	0.198***	0.199***	0.206***	0.760***	0.764***	0.784***
	(0.043)	(0.042)	(0.041)	(0.201)	(0.199)	(0.200)
Common Language	0.073*	0.073*	0.068*	0.099	0.100	0.084
	(0.038)	(0.038)	(0.037)	(0.118)	(0.118)	(0.118)
PTA dummy	0.111***	0.104**	0.098**	0.261	0.236	0.219
	(0.041)	(0.041)	(0.041)	(0.180)	(0.181)	(0.183)
OECD	0.151***	0.149***	0.147***	0.319*	0.312*	0.307*
	(0.052)	(0.051)	(0.051)	(0.168)	(0.167)	(0.167)
Ln(tariff+1)	-0.066	-0.073	-0.085	0.199	0.175	0.139
	(0.098)	(0.099)	(0.100)	(0.340)	(0.341)	(0.344)
Observations	480,376	480,376	480,376	480,376	480,376	480,376
R-squared	0.071	0.072	0.075	0.075	0.077	0.081
Number of i	96,834	96,834	96,834	96,834	96,834	96,834

Standard errors are clustered within destination country in all estimation.

Dependent variables always in log.

All regressions include firm fixed effects.

*** $p < 0,01; * * p < 0,05; * p < 0,1$.

Table A3: Estimations using the number documents to export into a country as a proxy for the trade cost.

	Number exported products			Export Values		
	(1)	(2)	(3)	(4)	(5)	(6)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS
N. Documents (log)	-0.093***	-0.109***		-0.202*	-0.250**	
	(0.033)	(0.034)		(0.118)	(0.124)	
N. Documents (log)*Small Firm (dummy)		0.119***			0.360***	
		(0.022)			(0.091)	
N. Documents (log)*Small Size			0.011			0.111
			(0.034)			(0.111)
N. Documents (log)*Medium Size			-0.059*			-0.121
			(0.033)			(0.120)
N. Documents (log)*Big Size			-0.188***			-0.458***
			(0.041)			(0.150)
Per Capita GDP (log)	0.006	0.005	0.004	0.059	0.058	0.054
	(0.018)	(0.018)	(0.018)	(0.051)	(0.051)	(0.051)
Distance (log)	-0.029	-0.030	-0.033	-0.012	-0.016	-0.024
	(0.026)	(0.026)	(0.026)	(0.111)	(0.111)	(0.113)
Contiguity	0.215***	0.216***	0.217***	0.779***	0.781***	0.784***
	(0.036)	(0.036)	(0.036)	(0.183)	(0.182)	(0.184)
Common Language	0.078**	0.076**	0.073**	0.098	0.094	0.085
	(0.033)	(0.033)	(0.033)	(0.111)	(0.111)	(0.113)
PTA dummy	0.127***	0.122***	0.117***	0.273	0.257	0.244
	(0.038)	(0.038)	(0.038)	(0.178)	(0.178)	(0.178)
OECD	0.156***	0.157***	0.156***	0.311*	0.315*	0.313*
	(0.048)	(0.048)	(0.049)	(0.163)	(0.164)	(0.165)
Ln(tariff+1)	-0.042	-0.053	-0.065	0.324	0.292	0.260
	(0.095)	(0.096)	(0.097)	(0.338)	(0.340)	(0.342)
Observations	480,376	480,376	480,376	480,376	480,376	480,376
R-squared	0.073	0.074	0.076	0.076	0.078	0.080
Number of i	96,834	96,834	96,834	96,834	96,834	96,834

Standard errors are clustered within destination country in all estimation.

Dependent variables always in log.

All regressions include firm fixed effects.

*** $p < 0,01; ** p < 0,05; *p < 0,1$.

Table A4: Extensive margin estimations: robustness check using Propensity Score Matching.

	Dep. Variable: Number of exported products (in log)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.219**	0.208***	0.114**	0.002	-0.046	0.009	-0.002	-0.017
	(0.102)	(0.058)	(0.050)	(0.047)	(0.049)	(0.035)	(0.038)	(0.041)
TFI (log)*Medium Size	0.227**	0.136***	0.038	0.016	0.103**	0.068*	0.010	0.050
	(0.088)	(0.050)	(0.044)	(0.046)	(0.042)	(0.039)	(0.043)	(0.041)
TFI (log)*Big Size	0.154**	0.051	-0.062	0.073	0.209***	0.176***	-0.033	0.091
	(0.077)	(0.090)	(0.087)	(0.095)	(0.071)	(0.066)	(0.059)	(0.062)
Per Capita GDP (log)	0.023	0.020	0.027	0.031	0.021	0.011	0.037*	0.019
	(0.017)	(0.023)	(0.023)	(0.019)	(0.045)	(0.017)	(0.019)	(0.018)
Distance (log)	-0.041*	-0.006	-0.023	-0.029	-0.032	-0.043	-0.041	-0.027
	(0.024)	(0.031)	(0.031)	(0.031)	(0.032)	(0.029)	(0.030)	(0.031)
Contiguity	0.210***	0.285***	0.242***	0.217***	0.248***	0.194***	0.113	0.131*
	(0.045)	(0.042)	(0.071)	(0.042)	(0.034)	(0.042)	(0.130)	(0.072)
Common Language	0.038	0.048	0.057	0.064	-0.006	0.072*	0.105	0.089*
	(0.042)	(0.043)	(0.063)	(0.043)	(0.058)	(0.043)	(0.067)	(0.048)
PTA dummy	0.095**	0.147***	0.129**	0.106**	0.098	0.104**	0.085*	0.127***
	(0.038)	(0.044)	(0.050)	(0.046)	(0.077)	(0.045)	(0.045)	(0.047)
OECD	0.183***	0.182***	0.155***	0.152***	0.174***	0.183***	0.164**	0.226***
	(0.056)	(0.065)	(0.057)	(0.057)	(0.053)	(0.056)	(0.063)	(0.058)
Ln(tariff+1)	-0.044	0.040	-0.142	-0.135	-0.325**	-0.143	-0.170	-0.095
	(0.096)	(0.114)	(0.116)	(0.113)	(0.137)	(0.108)	(0.113)	(0.093)
Observations	391,238	389,635	365,748	434,999	350,875	441,849	305,838	340,643
R-squared	0.060	0.069	0.067	0.066	0.079	0.072	0.063	0.059
Number of i	89,978	86,517	83,904	93,237	78,473	92,243	85,659	85,763

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

*** $p < 0,01; * * p < 0,05; *p < 0,1$.

Table A5: Intensive margin estimations: robustness check using Propensity Score Matching.

	Dep. Variable: Export values (in log)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.674**	0.848***	0.534***	0.062	-0.154	-0.072	0.174*	-0.100
	(0.296)	(0.178)	(0.129)	(0.185)	(0.192)	(0.142)	(0.104)	(0.135)
TFI (log)*Medium Size	0.541**	0.463**	0.096	0.250	0.280	0.226	0.032	0.206
	(0.270)	(0.186)	(0.153)	(0.182)	(0.200)	(0.175)	(0.173)	(0.158)
TFI (log)*Big Size	0.270	-0.017	-0.279	0.430	0.490**	0.512**	-0.251	0.322
	(0.250)	(0.311)	(0.325)	(0.296)	(0.226)	(0.237)	(0.213)	(0.229)
Per Capita GDP (log)	0.086	0.021	0.055	0.068	0.078	0.032	0.102**	0.068
	(0.057)	(0.080)	(0.067)	(0.063)	(0.146)	(0.058)	(0.051)	(0.050)
Distance (log)	-0.044	0.060	0.037	0.041	0.015	-0.012	0.057	-0.055
	(0.104)	(0.132)	(0.138)	(0.123)	(0.140)	(0.124)	(0.115)	(0.119)
Contiguity	0.720***	1.010***	0.950***	0.834***	0.952***	0.765***	0.596	0.500
	(0.256)	(0.189)	(0.269)	(0.200)	(0.202)	(0.216)	(0.426)	(0.351)
Common Language	-0.010	0.053	-0.007	0.158	-0.214	0.104	0.227	0.010
	(0.141)	(0.153)	(0.220)	(0.124)	(0.218)	(0.131)	(0.159)	(0.186)
PTA dummy	0.157	0.296	0.203	0.280	0.103	0.217	0.141	0.260
	(0.155)	(0.216)	(0.220)	(0.181)	(0.293)	(0.176)	(0.174)	(0.186)
OECD	0.431**	0.580**	0.495***	0.433**	0.597***	0.487***	0.410**	0.431**
	(0.189)	(0.247)	(0.187)	(0.192)	(0.177)	(0.175)	(0.172)	(0.187)
Ln(tariff+1)	0.486	0.796*	-0.227	0.111	-0.852**	-0.090	-0.176	0.256
	(0.351)	(0.441)	(0.418)	(0.349)	(0.395)	(0.372)	(0.374)	(0.336)
Observations	391,238	389,635	365,748	434,999	350,875	441,849	305,838	340,643
R-squared	0.062	0.079	0.071	0.077	0.091	0.080	0.059	0.054
Number of i	89,978	86,517	83,904	93,237	78,473	92,243	85,659	85,763

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

*** $p < 0,01; * * p < 0,05; *p < 0,1$.

Table A6: Results by commodity. Extensive margin estimations.

	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
Animal and Animal Products	-0.026	0.039	-0.025	0.052*	0.107***	-0.018	-0.021	-0.006
	(0.062)	(0.035)	(0.033)	(0.030)	(0.038)	(0.027)	(0.034)	(0.039)
Vegetal Products	0.165***	0.080**	0.052	0.067**	0.107***	0.071**	0.092***	0.046
	(0.063)	(0.039)	(0.035)	(0.028)	(0.036)	(0.032)	(0.032)	(0.046)
Foodstuffs	0.075*	0.085**	0.034	0.029	0.080***	0.000	-0.007	-0.007
	(0.042)	(0.034)	(0.023)	(0.028)	(0.025)	(0.019)	(0.025)	(0.019)
Mineral Products	0.047*	0.036	-0.015	0.019	0.008	0.006	-0.002	0.007
	(0.026)	(0.023)	(0.016)	(0.015)	(0.018)	(0.015)	(0.014)	(0.015)
Chemicals	0.111**	0.054	0.045	0.022	0.042	0.027	0.005	0.018
	(0.049)	(0.043)	(0.041)	(0.042)	(0.032)	(0.024)	(0.025)	(0.027)
Plastics and rubbers	0.109***	0.077***	0.016	0.030	0.044	0.033*	0.028	0.022
	(0.034)	(0.027)	(0.025)	(0.030)	(0.028)	(0.020)	(0.024)	(0.027)
Raw Hides, Skins and Leather	0.069	-0.004	0.041	0.009	0.042	0.014	-0.054	0.012
	(0.077)	(0.047)	(0.032)	(0.048)	(0.053)	(0.036)	(0.036)	(0.030)
Wood and Wood Products	0.107***	0.026	0.008	0.035	0.054**	0.028	0.005	-0.007
	(0.035)	(0.031)	(0.024)	(0.028)	(0.027)	(0.019)	(0.023)	(0.025)
Textiles	0.333**	0.009	0.047	0.017	0.150*	0.065	-0.050	0.037
	(0.131)	(0.081)	(0.059)	(0.080)	(0.083)	(0.052)	(0.064)	(0.056)
Footwear and Headgear	0.044	-0.042	0.029	0.010	0.033	-0.048	-0.059*	-0.019
	(0.070)	(0.045)	(0.022)	(0.043)	(0.051)	(0.031)	(0.032)	(0.030)
Stone and Glass	0.075*	0.061	0.035	0.004	0.027	0.008	-0.004	0.016
	(0.045)	(0.039)	(0.022)	(0.030)	(0.029)	(0.020)	(0.023)	(0.023)
Metals	0.201***	0.124***	0.019	0.025	0.059	0.031	0.026	0.043
	(0.047)	(0.036)	(0.034)	(0.046)	(0.040)	(0.024)	(0.034)	(0.036)
Machinery and Electrical	0.188***	0.158***	0.015	0.018	0.043	0.036	0.044	0.062
	(0.058)	(0.045)	(0.040)	(0.050)	(0.044)	(0.024)	(0.033)	(0.039)
Transportation	0.084**	0.068**	-0.062**	0.026	0.033	-0.017	0.012	0.029
	(0.035)	(0.028)	(0.025)	(0.020)	(0.022)	(0.022)	(0.021)	(0.023)
Miscellaneous	0.173***	0.097*	0.034	0.010	0.043	0.026	0.008	0.022
	(0.059)	(0.050)	(0.030)	(0.034)	(0.033)	(0.020)	(0.024)	(0.025)

The entries of this tables come from regressions having as dependent variable the number exported products by commodity.
All regressions include the same control variables and fixed effects as in the main firm level estimations.
The coefficient reported in the table is for the TFI index

Table A7: Results by commodity. Participation probability estimations.

	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
Animal and Animal Products	0.112**	0.060	0.048***	0.022	0.036**	0.060***	0.048**	-0.020
	(0.046)	(0.041)	(0.015)	(0.016)	(0.016)	(0.019)	(0.021)	(0.019)
Vegetal Products	0.170***	0.082*	0.046**	0.016	0.084**	0.014	0.054***	0.046
	(0.058)	(0.047)	(0.017)	(0.016)	(0.034)	(0.010)	(0.019)	(0.066)
Foodstuffs	0.170*	0.204***	0.035	0.071***	0.131***	0.079*	0.065**	-0.033
	(0.088)	(0.051)	(0.037)	(0.024)	(0.039)	(0.043)	(0.025)	(0.061)
Mineral Products	0.031	0.088***	0.020	0.004	0.015	0.030***	0.023*	-0.006
	(0.021)	(0.021)	(0.018)	(0.027)	(0.018)	(0.009)	(0.013)	(0.022)
Chemicals	0.132***	0.039**	0.014	0.017	0.066**	0.061***	0.035*	-0.041*
	(0.034)	(0.017)	(0.011)	(0.014)	(0.025)	(0.017)	(0.018)	(0.023)
Plastics and rubbers	0.166***	0.087**	0.022	0.018	0.101***	0.053***	0.087***	0.010
	(0.033)	(0.034)	(0.023)	(0.020)	(0.030)	(0.012)	(0.014)	(0.068)
Raw Hides, Skins and Leather	0.034	-0.002	0.040***	0.013	0.018	0.020	0.012	0.005
	(0.030)	(0.022)	(0.011)	(0.009)	(0.016)	(0.023)	(0.012)	(0.019)
Wood and Wood Products	0.115***	0.054**	0.027**	0.027*	0.081***	0.035***	0.050***	-0.017
	(0.027)	(0.025)	(0.013)	(0.014)	(0.013)	(0.007)	(0.012)	(0.030)
Textiles	0.121***	0.039	0.010	0.029*	0.054**	0.026	0.019	0.026
	(0.033)	(0.033)	(0.019)	(0.015)	(0.026)	(0.023)	(0.016)	(0.043)
Footwear and Headgear	0.060	0.055	0.043	0.035	0.084**	0.002	-0.008	0.013
	(0.047)	(0.061)	(0.025)	(0.027)	(0.036)	(0.033)	(0.020)	(0.040)
Stone and Glass	0.093**	0.061**	0.027*	0.039***	0.047**	0.015	0.029*	-0.020
	(0.035)	(0.024)	(0.013)	(0.013)	(0.021)	(0.014)	(0.016)	(0.030)
Metals	0.125***	0.083***	0.023	0.032*	0.109***	0.037***	0.062***	-0.026
	(0.025)	(0.018)	(0.020)	(0.016)	(0.018)	(0.010)	(0.017)	(0.034)
Machinery and Electrical	0.102***	0.082***	0.016	0.038*	0.116***	0.047***	0.058***	-0.049*
	(0.030)	(0.028)	(0.018)	(0.018)	(0.017)	(0.008)	(0.020)	(0.028)
Transportation	0.065*	0.077***	-0.049***	0.032*	0.007	-0.001	0.004	-0.041**
	(0.033)	(0.022)	(0.009)	(0.017)	(0.025)	(0.019)	(0.021)	(0.016)
Miscellaneous	0.087*	0.029	0.033**	0.031**	0.108***	0.042***	0.046**	-0.015
	(0.047)	(0.017)	(0.015)	(0.013)	(0.025)	(0.014)	(0.022)	(0.026)

The entries of this tables come from regressions having as dependent variable the number exported products by commodity.
All regressions include the same control variables and fixed effects as in the main firm level estimations.
The coefficient reported in the table is for the TFI index

Table A8: Definition of HS section

HS-2 chapters	Section description
01-05	Animal and Animal Products
06-15	Vegetable Products
16-24	Foodstuffs
25-27	Mineral Products
28-38	Chemicals and Allied Industries
39-40	Plastics and Rubbers
41-43	Raw Hides, Skins, Leather, and Furs
44-49	Wood and Wood Products
50-63	Textiles
64-67	Footwear and Headgear
68-71	Stone and Glass
72-83	Metals
84-85	Machinery and Electrical
86-89	Transportation
90-97	Miscellaneous
98-99	Service

Table A9: Extensive margin estimations: robustness check excluding landlocked countries.

	Dep. Variable: Export values (in log)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.212***	0.176***	0.075*	-0.015	-0.072*	-0.025	0.034	-0.007
	(0.076)	(0.059)	(0.040)	(0.042)	(0.041)	(0.023)	(0.034)	(0.037)
TFI (log)*Medium Size	0.252***	0.142***	0.042	0.019	0.005	0.023	0.035	0.023
	(0.075)	(0.050)	(0.027)	(0.039)	(0.039)	(0.026)	(0.036)	(0.038)
TFI (log)*Big Size	0.171**	0.094	0.018	0.086	0.159**	0.130***	-0.020	0.075
	(0.079)	(0.085)	(0.095)	(0.079)	(0.065)	(0.046)	(0.053)	(0.054)
Per Capita GDP (log)	0.007	0.007	0.019	0.026	0.015	0.017	0.028	0.031
	(0.017)	(0.022)	(0.019)	(0.019)	(0.018)	(0.016)	(0.017)	(0.019)
Distance (log)	-0.082***	-0.068**	-0.085***	-0.085***	-0.089***	-0.092***	-0.080***	-0.064**
	(0.026)	(0.033)	(0.028)	(0.030)	(0.032)	(0.030)	(0.030)	(0.032)
Contiguity	0.241***	0.274***	0.231***	0.207***	0.206***	0.192***	0.203***	0.191***
	(0.032)	(0.041)	(0.039)	(0.035)	(0.033)	(0.036)	(0.034)	(0.036)
Common Language	0.057	0.042	0.057	0.070*	0.069*	0.081**	0.078*	0.145**
	(0.037)	(0.042)	(0.042)	(0.041)	(0.040)	(0.040)	(0.041)	(0.058)
PTA dummy	0.015	0.035	0.020	0.008	0.003	0.007	0.026	0.037
	(0.051)	(0.070)	(0.055)	(0.059)	(0.067)	(0.059)	(0.058)	(0.062)
OECD	0.227***	0.204***	0.188***	0.169***	0.171***	0.183***	0.183***	0.219***
	(0.053)	(0.059)	(0.052)	(0.052)	(0.051)	(0.052)	(0.056)	(0.052)
Ln(tariff+1)	-0.046	0.076	0.006	-0.031	-0.002	-0.020	-0.030	-0.077
	(0.085)	(0.101)	(0.083)	(0.086)	(0.084)	(0.081)	(0.085)	(0.082)
Observations	410,125	344,398	392,375	397,453	400,595	417,999	407,934	326,280
R-squared	0.077	0.076	0.072	0.072	0.076	0.075	0.074	0.055
Number of i	83,565	74,732	83,093	83,059	82,698	84,977	83,755	75,977

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

*** $p < 0,01; ** p < 0,05; *p < 0,1$.

Table A10: Participation probability estimations: robustness check excluding landlocked countries.

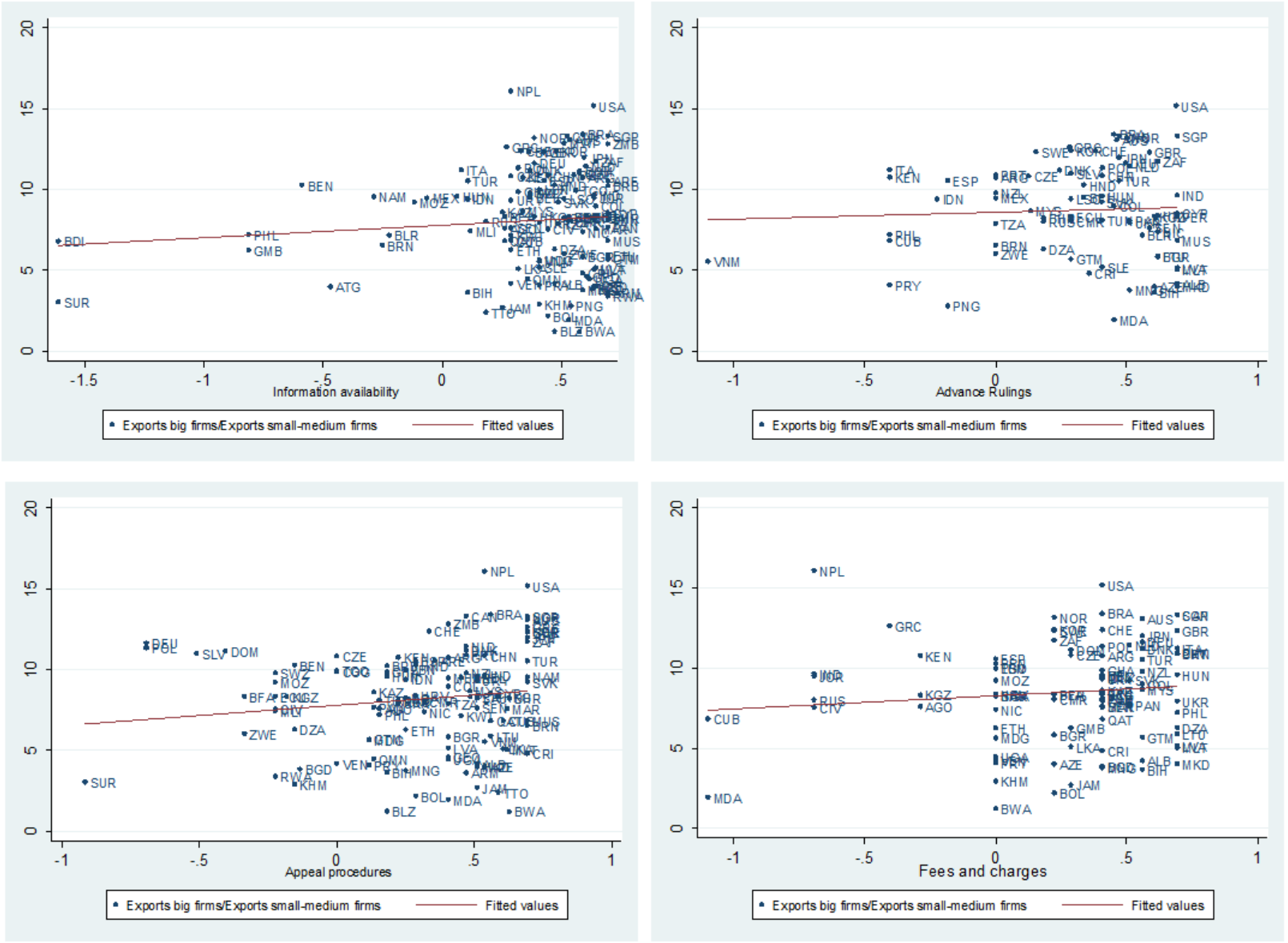
	Dep. Variable: Export values (in log)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.152	0.216**	0.118*	0.021	0.062	0.039	0.160***	-0.045
	(0.119)	(0.081)	(0.058)	(0.050)	(0.042)	(0.031)	(0.049)	(0.061)
TFI (log)*Medium Size	0.076	0.165**	0.076	0.050	0.124***	0.063**	0.146***	-0.053
	(0.086)	(0.061)	(0.045)	(0.033)	(0.040)	(0.024)	(0.041)	(0.045)
TFI (log)*Big Size	-0.156	0.009	-0.014	0.112*	0.270***	0.131***	0.140	-0.136
	(0.108)	(0.081)	(0.071)	(0.059)	(0.066)	(0.040)	(0.082)	(0.107)
Per Capita GDP (log)	0.004	-0.007	-0.002	0.006	-0.044*	-0.024	-0.017	0.011
	(0.026)	(0.020)	(0.023)	(0.020)	(0.023)	(0.026)	(0.015)	(0.014)
Distance (log)	-0.096**	-0.115***	-0.108***	-0.117***	-0.139***	-0.136***	-0.141***	-0.068
	(0.034)	(0.029)	(0.034)	(0.036)	(0.035)	(0.043)	(0.038)	(0.039)
Contiguity	0.126***	0.167***	0.171**	0.119***	0.119***	0.081***	0.102***	0.140***
	(0.032)	(0.053)	(0.066)	(0.030)	(0.027)	(0.028)	(0.024)	(0.027)
Common Language	0.196*	0.165**	0.193**	0.202**	0.199**	0.199**	0.212***	0.132
	(0.103)	(0.072)	(0.073)	(0.087)	(0.078)	(0.078)	(0.062)	(0.100)
PTA dummy	-0.219**	-0.250***	-0.230**	-0.273***	-0.342***	-0.294**	-0.301***	-0.145
	(0.097)	(0.077)	(0.088)	(0.097)	(0.104)	(0.111)	(0.090)	(0.123)
OECD	0.148**	0.157***	0.145**	0.140**	0.147***	0.171**	0.192***	0.087
	(0.055)	(0.052)	(0.055)	(0.058)	(0.051)	(0.063)	(0.052)	(0.053)
Ln(tariff+1)	-0.067	-0.083*	-0.071	-0.055	-0.066	-0.106**	-0.131***	-0.012
	(0.048)	(0.045)	(0.044)	(0.050)	(0.044)	(0.046)	(0.046)	(0.039)
Observations	1,959,856	1,621,658	1,877,182	1,875,281	1,959,856	1,959,856	1,959,856	1,683,349
R-squared	0.104	0.123	0.112	0.103	0.115	0.111	0.114	0.037
Number of i	84,823	84,822	84,823	84,823	84,823	84,823	84,823	84,823

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

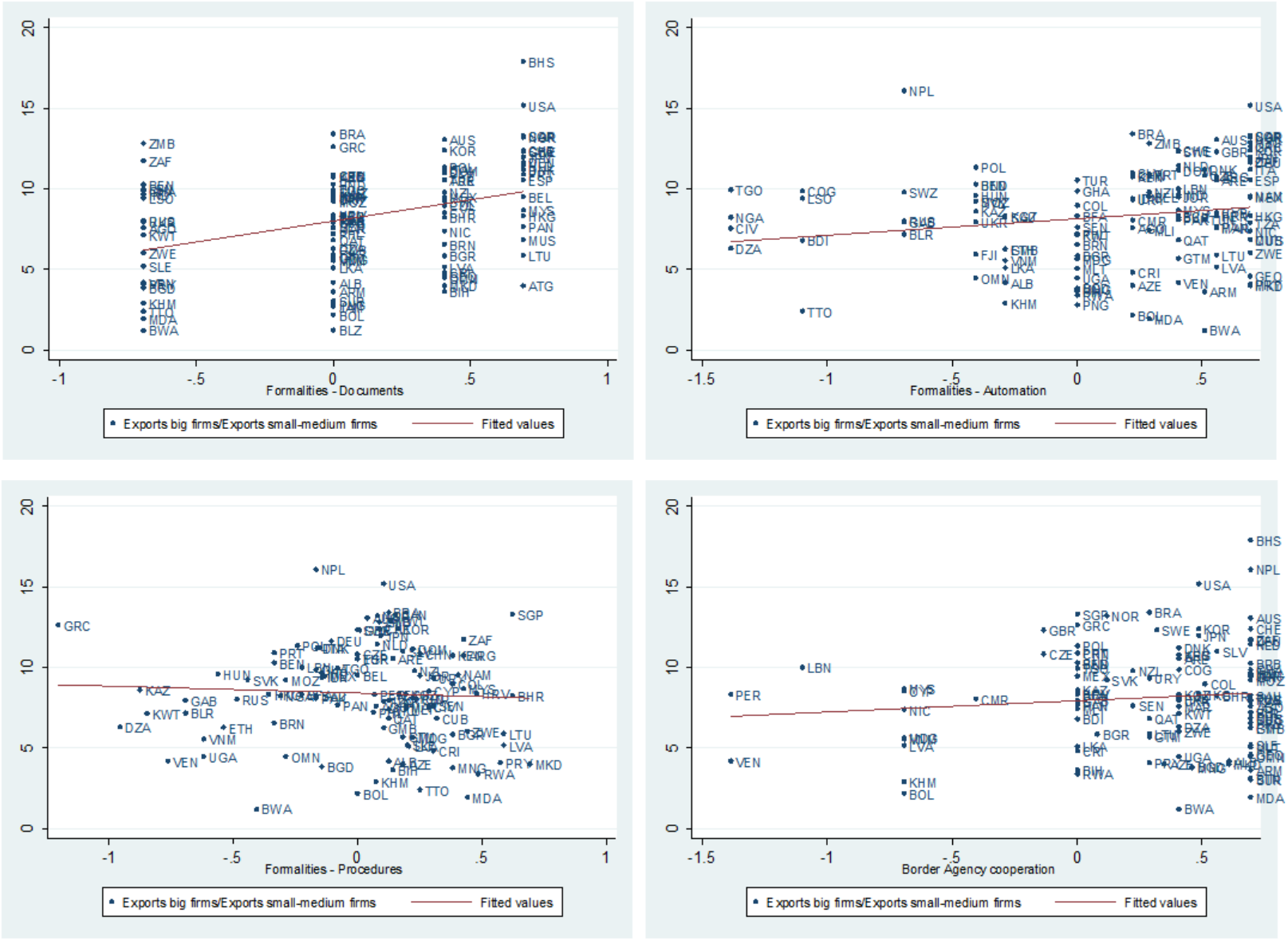
*** $p < 0,01; * * p < 0,05; * p < 0,1$.

Figure A1: Export values and average TFI by country: Big vs Small-Medium firms.



Source: Authors calculations on TFI database, OECD

Figure A2: Export values and average TFI by country: Big vs Small-Medium firms.



Source: Authors calculations on TFI database, OECD