

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 Agreement (TFA) policies on heterogeneous exporters. We do so by matching a detailed panel of French firm exports to a new database of Trade Facilitation Indexes (TFIs) recently released by the OECD. We focus only on those TFIs that correspond to the main policy areas negotiated at the WTO. We analyze the effect of these TFIs on three trade-related outcomes: (i) exported value (*firm intensive margin*), (ii) number of products exported (*product extensive margin*) and (iii) the average export value per product exported (*product intensive margin*). We also test whether TFIs affect the product diversification of French firms. Our main finding is that TFA provisions affect small and large firms differently. While improved TF in terms of information availability, advance ruling and appeal procedures mainly benefit small firms, simplification of documents and automation tend to favor trade of large firms. We find a negative effect of simplification and automation of formalities at the border on the intensive margin for small firms. We show that this result may be due to the positive indirect effect of TFA reforms on corruption and the consequent increased competition from large firms.

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

JEL Codes: F13, F14.

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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, 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, there are the costs in terms of time and uncertainty of delivery linked to the import/export procedure. Lengthy shipping time (including long delays at the border) implies depreciation costs such as literal spoilage and technological obsolescence as in the case of consumer electronics (see Hummels & Schaur (2013)).¹ 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 tariffs worldwide, 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%.² Of these costs, the highest portion is due to administrative hurdles.³ Hornok & Koren (2015) using Spanish shipment-level export data show that a 50% per cent reduction in per-shipment administrative cost corresponds to a 9 percentage points reduction in tariff. 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 these costs falls under the agenda of “facilitating trade”, as opposed to “liberalizing trade” (tariff cuts). The TFA concluded in Bali in December 2013 aims at reducing these costs by simplifying import/export procedures, sharing information and promoting cooperation. Improved trade facilitation is likely to reduce both variable and fixed trade costs of exporting, but specific 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

¹Hummels & Schaur (2013) find that each day in transit is worth 0.6 to 2.1% of the value of the good.

²See Hummels (2007).

³Djankov, 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.

provisions affect fixed and/or variable trade costs differently, it is 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 can cover the lower fixed costs of exporting (Melitz (2003); Chaney (2008) and Crozet & Koenig (2010)). Trade facilitation measures are thus expected to have an heterogeneous effect on the extensive margin of exporters depending on their initial productivity. Instead, this class of models predict no differential effect on the intensive margin of individual exporters when the variable cost of trade falls. 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 firms because sales elasticity with respect to variable trade costs is decreasing in firms' size. In this case, trade facilitation will have an 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 (Speart 2013). If this line of reasoning is correct, trade facilitation should make firms happy, and the more so for small firms. This is the research question of our paper.

To address this question, 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 sets of information, we will go beyond existing analysis of trade facilitation in terms of port efficiency or time to ship, and relying on administrative data we will bypass the usual limitation of surveys analysis.

While much of the existing literature on the impact of trade facilitation on trade focuses 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. Indeed, the OECD Trade Facilitation Index (TFI) is based on a mapping of different policy measures of the Trade Facilitation Agreement (TFA). Moise & Sorescu (2013) estimate that the TFA could reduce overall trade costs by around 14% (ranging between 9 and 24 per cent across countries). 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, Neumueller & Teh (2015) find significant export diversification effects of the TFA agreement, with measures improving information playing an important role.⁴ Hillberry & Zhang (2015) are mainly interested in effects of trade facilitation on the time required to import and export, finding that the full implementation of Trade Facilitation Agreement best practice would reduce the time spent in customs by 1.6 days for imports and 2 days for exports. In terms of individual trade facilitation provisions, they find

⁴Beverelli et al. (2015) find that the implementation of TFA would increase by 15.7% the number of products exported by Sub-Saharan African countries.

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 distributional impact, by firm size, of a trade facilitation measure as time required to export, is examined in Hoekman & Shepherd (2015) and Han & Piermartini (2016). Both papers use firm-level data for a range of developing countries taken from the World Banks Enterprise Surveys. Hoekman & Shepherd (2015) use the average time taken to export goods – as recorded by each firm – as index of trade facilitation and assess 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.⁵ In contrast, Han & Piermartini (2016) show that reducing time to export fosters small firms exports more than large firms, when the analysis includes both exporting and non-exporting firms.

Against this background, our contribution is to look at how progress on the different aspects 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 bins. To the best of our knowledge, we are the only ones considering TF in the importing country. Related papers in the literature study instead the impact of trade facilitation measures adopted by home countries on their export performances. Importantly, administrative hurdles in destination markets, and the need of collecting information on these procedures, as well as the cost of clearing the paperwork is destination specific and thus faced by the exporting firm on each destination she wants to export to. This is contrasting with domestic procedures, on which cumulative experience can be more easily acquired.

Looking at the effects of trade facilitation for small exporters has not only resonance with recent models of international trade, there is also a relevant policy dimension in this. According to Hoekman & Shepherd (2015), an important obstacle to the finalization of the TFA was the perception that gains would accrue mainly to 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 as how improving the efficiency of border procedures affects firms of different size 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

⁵Indeed firm-level export time is likely to be endogenous to firms characteristics.

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.

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 beyond what is covered in the TFA. Time to trade is an outcome measure (the actual number of days spent in transit, at the customs and at sea); it does not provide information on the potential impact of the specific policies to implement. Port efficiency, another proxy of trade facilitation (see Feenstra & Ma (2014))⁶, is affected by factors other than measures covered in the TFA (e.g. ownership structure). The advantage of using the OECD TFIs is that these detailed indicators can be matched with the TFA which WTO members have committed to implement.

The OECD TFIs comprise 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). The database contains information on 152 countries for the year 2008.⁷ 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 measures 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). We do not consider provisions on consularization and governance because they are not included in the WTO TFA; we also keep out impartiality and transit from our analysis because they only refer to food and beverages and transit countries respectively. In figure 2 we show the average TFI value by income level for each of the TFI measures we use in our empirical exercise. This figure shows that the pattern differs across TF measures.

⁶Feenstra & Ma (2014) show that bilateral port efficiency has a significant and positive impact on the bilateral extensive margin of export between the trade partners, measured at country level.

⁷For some countries the information on which the TFI is computed refer to 2009, see Moise, Orliac & Minor (2011)

Our analysis looks at how gains from improved trade facilitation are distributed between small and large firms across these different types of policy measures. Indeed, 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.

Other measures may affect mainly variable costs and certainty of delivery. Whether lower variable costs or certainty of delivery and trade conditions affects more small or large firms is an empirical question. On the one hand uncertainty affects more large firms because they risk more (De Sousa, Disdier & Gaign 2015); on the other hand 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 that 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 countries 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. But, corruption may affect small and large firms differently. 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 important than information availability. The discussion above points at the importance to look at the differential impact of trade facilitation measures on small and large firms on a measure-by-measure basis. This is what we do in our paper.

As a final point, note that we recalculate the TFI for Formalities Documents ourselves rather than using the one built by the OECD to match it with our needs. 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, 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 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 compute 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 30th percentile, below the 30th but above the 70th, below the 70th. We apply the same methodology for the time to export into a country (as number of days). We then compute the simple average between the two indexes. So the higher the index, the lower is the average amount of days and documents needed to export into a given destination market.

3 French custom data and stylized facts

Individual export data on French firms are provided yearly by French Customs.⁸ But, since TFIs are time invariant, we rely here on a cross sectional approach and use firm trade custom data in 2010.⁹ Indeed, TFIs are built for the year 2008 (with the latest information available covering 2009 - see Moise et al. (2011)), so we use trade data in 2010 to reduce any 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).¹⁰ Since the TFI indexes are country specific and do not vary across sectors, we aggregate firm trade data at firm-country level. Note that, the sector specific characteristics in which the firm operates are captured by firm fixed effects.

As acknowledged by Konings & Vandenbussche (2013), one advantage of individual exporter data is their good quality.¹¹ Firm level data allows us to explore the heterogeneous effect of TFIs by firms' size. The only two papers that analyze the effect of trade facilitation at the firm level so far are the paper by Hoekman & Shepherd (2015) and Han & Piermartini (2016). They both 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 (2015) show the absence of any heterogeneous effect of trade facilitation, while Han & Piermartini (2016) find strong impact for small firms. However - as acknowledged by the authors - estimations in Hoekman & Shepherd (2015) and Han & Piermartini (2016) 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, these papers 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 explore the cross countries variation in firms' exports.

⁸These data are subject to statistical secrecy and have been accessed at CEPIL.

⁹TFIs data are based on the "stock" of information on Trade Facilitation areas in 2008, thus they might refer to policy implementations in an unknown year preceding the 2008. For this reason, we could not adopt a panel approach using the time dimension of custom export data.

¹⁰We consider legal units, as defined by their administrative identifier.

¹¹Konings & Vandenbussche (2013) use French firm data to analyze the impact of anti-dumping protection at the firm level.

Moreover, firm-level export data allow us to study whether TFIs affect the intensive/extensive margins of trade and 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.¹² Namely, we use the total amount of exports (across firm's destinations) as a proxy for firm size.

All other data come from standard sources and refer to 2010 (if time-varying in their nature). Per capita GDP is from World Bank (WDI). MFN tariff data are from MacMap dataset.¹³ 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.¹⁴

Before turning to the 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 show the density functions of total export of French firms exporting into countries with high (*above 1*) and low (*below 1*) average TFI respectively. The figure shows that on average, French firms exporting to countries with better TFIs are smaller than those exporting to countries with worse TF conditions. In Figure 4 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).¹⁵ In Figure 5 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 of French exports.¹⁶

In Table 2 we classify French firms into three size classes: small, medium and big.¹⁷ Then, for each class of firms, we report the average number of exported products by level of TFI in the destination country for each of the policy areas of trade facilitation we study in the paper. As an example, the first entry of Table 2 suggests that small firms export on average 1.77 products toward destination countries having an 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 product extensive margin of different firms' size classes across TFI levels, we notice that big firms export larger number of products

¹²Data 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.

¹³We thank Houssein Guimbard for providing MFN MacMap tariff data at the country-product level in 2010.

¹⁴<http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx>

¹⁵Antigua and Barbuda (ATG), Belize (BLZ), Barbados (BRB), Bahamas (BHS) and Papua New Guinea (PNG) might appear outliers. So we replicated all our estimations by dropping such countries and results do not change. Results are available upon request.

¹⁶One may argue that French exporters tend to serve rich countries independently of TFI. If rich countries have high TFI index, our scatter show spurious positive correlation. So in figure A1 and A2 we replicate scatter plots excluding OECD countries, and the positive relation holds. As a further robustness check on this point, in Figures A3 and A4 we replicate evidence by conditioning average TFI values on per capita GDP by country.

¹⁷Small firms are those firm having value of total export 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.

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. This is indeed what we econometrically test in the following section.

4 Empirical strategy

In this section we estimate the effect of each Trade Facilitation Indicator (see figure 1 for a description) on the export margins of French firms and test whether their effect differ by firm size. As discussed, TFIs reflect different policy areas (ranging from rules to foster information flows, to simplification of procedures, to rights of appeal), these measures affect different dimension of costs. So they are likely to impact trade differently one from the other. We start by analyzing the effect of TFIs on the total exports of firms into a destination market (*firm intensive margin*), then we focus on the product *extensive* and *intensive* margins of firms' exports (i.e. respectively on the number of exported products and on the average export value per product). Finally, we test the effect of each TFI on the export diversification of French firms.

4.1 Firms' trade margins estimations

We study the asymmetric effect of TFIs on heterogeneous French exporters by interacting the $\text{Log}(TFI_j)$ index with three firm size bins (indexed by k) – *Binned model* – constructed from percentiles of firms' size distribution:

$$y_{i,j} = \phi_i + \sum_k \left(\beta_k \text{Log}(TFI_j) * \text{SizeBin}_{ik} \right) + \beta_2 X_j + \varepsilon_{i,j} \quad (1)$$

Subscripts i and j stand respectively for firm and destination country and $\text{Log}(TFI_j)$ reflects the degree of trade facilitation granted by a given destination country j for each of the eight trade facilitation policy areas under the mandate of the WTO and covered by OECD data (as described above). Equation 1 is thus estimated for each of the eight TFI indexes described in Section 3. Results are provided in tables 3 to 5.

Our dependent variable $y_{i,j}$ is in turn: (i) the total exports by firm i in market j *firm intensive margin*; (ii) the number of products (HS-6 digit) exported by the firm into a given destination – *product extensive margin* (iii) the average export value per product – *product intensive margin* (computed as the total value exported by firm over the number of products exported). We estimate Equation (1) via OLS and take the dependent variables in log. However, as a robustness check, we also use a Poisson estimator to account for the count nature of the extensive margin (i.e. number of exported products). In the Poisson estimations the dependent variable is taken in levels. Since TFI values are country specific, in all estimations we cluster standard errors by destination country. All the firm-country specific trade variables are taken as of 2010 (see Section 3 for more details).

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 in 2010 (across all destinations) as a proxy for the firm size because the French Custom dataset does not contain other firm specific measures. The total amount of export is nevertheless a plausible proxy for the size (and productivity) of the firm (Mayer & Ottaviano 2008). However, using total exports of firms in 2010 to create size bins could rise endogeneity concern. In fact, when we estimate the effect of TFIs on total firms' exports into a market j , the dependent variable is part of the total exports used to define our bins. To address this concern, as a robustness check, we also run Equation 1 using firm size bins from total firms' exports in 2005. This reduces any concern of endogeneity of size bins. Results do not change.¹⁸ Furthermore, it might happen that small firms in terms of employment, appear large in terms of total exports simply because they export products with high unit value (i.e. luxury goods). To address this concern, we also run a robustness check using firm size bins based on HS-2 specific export distribution (tables 10 and 11 show the results of these estimations).

For sake of comparison with the existing literature, we also estimate a simple model that assess the average effect of TFIs on the export margins of firms. This specification has the TFI measure as main explanatory variable:

$$y_{i,j} = \phi_i + \beta_1 \text{Log}(TFI_j) + \beta_2 X_j + \varepsilon_{i,j} \quad (2)$$

In Equation 2 we do not differentiate firms by size, so the coefficients associated to each TFI can be compared with those estimated by the existing literature on the effects of TFIs on aggregate trade flow (Moise et al. (2011); Beverelli et al. (2015)).

Furthermore, we study the heterogeneous effect of TFIs also by including in Equation (2) an interaction term between the $\text{Log}(TFI_j)$ and a dummy variable (SmallFirm_i) equal to one if the firm belongs to the first quartile of the firm size distribution:

$$y_{i,j} = \phi_i + \beta_1 \text{Log}(TFI_j) + \beta_2 \text{Log}(TFI_j) * \text{SmallFirm}_i + \beta_3 X_j + \varepsilon_{i,j} \quad (3)$$

Since model 1 is a generalization of equations 2 and 3, estimations of models 2 and 3 are intended here as robustness checks and thus reported in the appendix section (see tables A1 - A8).

Firm fixed effects (ϕ_i) reduce the concern of potential omitted variable bias since they control for the unobserved firm characteristics and for the characteristics of the sector in which the firm operates. Firm fixed

¹⁸See tables 8 and 9

effect captures also the size and the size bins of the firm. Since TFIs are country specific, we could not include country fixed effects.¹⁹ We then include a set of country specific control variables with the aim to isolate the effect of TF measures from other country specific factors affecting the export performance of French firms (trade costs, export demand, price index and income level). The set of control variables X_j consists of: (i) standard gravity variables (distance and common border), (ii) per capita GDP (in log) controlling for the income level of the destination country, (iii) the price level in each country j as a proxy for the toughness of competition (approximated by the import Trade Unit Value of country j in the HS-2 sector in which the firm i belongs to)²⁰ (iv) the import share of country j in the HS-2 sector in which the firm i belongs to (proxy for the sector specific demand of country j).²¹ Finally we also control for the firm-level average ad valorem tariff faced by the firm 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 HS-6 product code.²²

The set of control variables described above, along with firm fixed affects, crucially reduce any omitted variable concern. Endogeneity bias can also come from reverse causality issue, however, in our setting, reverse causality problem is definitely less severe than the omitted variable concern as the export behavior of an individual (French) firm does not have a significant impact on trade facilitation measures set by a given destination country (note that each TFI index applies to all exporters from all over the world and does not specifically apply to French exporters).²³ 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).²⁴ 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

¹⁹Country fixed effects can be included only in specification 3. So, we report estimation results of Equation 3 with firm and country fixed effects in tables A11 - A13. The sign of coefficients for the interaction between firm size and TFIs are coherent with our main results. Moreover, the coefficient on tariff is always negative and highly significant (as expected). However, these estimations are meant as simple robustness checks since the main TFI coefficient cannot be estimated due to the presence of country fixed effects.

²⁰For firms exporting into different HS-2 chapters (a minority, considered the broadness of HS-2 chapters), we assign a unique HS-2 as the one in which the firm exports more.

²¹A more appropriate proxy for demand would be the level of GDP in destination country j . However, we could not include GDP as a control variable because of multicollinearity with TFI. Figure (6) show the strong positive correlation between average TFI and GDP of destination countries.

²²The 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.

²³One may argue that big firms have enough lobby power to induce destination country in improving Trade Facilitations. If this was the case, we should observe strong positive relation between TFIs and the export margins of big firms. As we show in the next section this is not the case in our results.

²⁴See Dehejia & Wahba (2002), Sianesi (2004) and A. Smith & E. Todd (2005)

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 a 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 destination markets identified through 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 the predicted probability of having a TFI value above the mean. The econometric specification we use to calculate the propensity score (Linear Probability Model) includes as dependent variable, a dummy equal to one if the destination country j has a TFI value higher than the mean value across all destinations, and as explanatory variables: (i) the log of distance (from France), (ii) the log of country's per capita GDP and (iii) the tariff level imposed on imports from France. Then we match destination countries with TFIs above the mean (*treated group*) with those having TFIs 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 believe that the form of the selection bias described above is a remote concern, for this reason we consider the Propensity Score Matching as a simple robustness check (see tables 6 and 7).

4.2 Export diversification estimation.

We also test whether trade facilitation measures affect the product diversification of exporting firms. Existing literature focused a lot on the effect of trade facilitation measures on export diversification of countries, arguing the policy relevance of export diversification for the short-run volatility of national income (Cadot, Carrre & Strauss-Kahn (2011); Dennis & Shepherd (2011)). But, the diversification of export product portfolio is relevant also at firm level. Indeed, dependence of export revenues on just a handful of products, can create excessive volatility for the revenues of the firm. Extensive and intensive margins of trade do not provide information as to whether TFIs stimulate homogeneously all the varieties exported by the firm. Here we follow the existing literature and use the Herfindahl index as a proxy for the export product diversification of a firm. The Herfindahl index ($H_{i,j}$) is computed as follows:

$$H_{i,j} = \sum_{k=1}^K s_{kj}^2 \quad (4)$$

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 highly 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 homogeneously distributed portfolio of varieties (high diversification). Results of these estimations are provided in Table 12.

5 The Effects of TFIs

In this section we discuss the results we obtain by estimating Equation (1) on different margins of firms' trade and TFI measures. Robustness check results by equations (2) and (3) are reported in the appendix section. For clarity of presentation, we do not show control variable coefficients in the main tables of results. However, the interested reader can find the complete set of results with control variables coefficients in appendix tables (A1)-(A8). We start by discussing results on total export (*firm intensive margin*), then we discuss our results on *product extensive* and *intensive* margins. Then we move to export diversification estimation.

5.1 Firm intensive margin

Results in Table (3) show the effect of various TFI measures on the total exports of firms (*intensive margin*) to each destination. Information availability helps in particular small and medium enterprises trade and has a null effect on big firms: a 10% increase in the Information Availability index implies 7% and 4% increase in the export value for small and medium firms respectively. Advance rulings and Appeal procedure measures are beneficial for small firms only, while Fees and Charges and Formalities Procedures do not affect the export performance of French firms.²⁵ On the contrary, border agency cooperation helps only big players. Qualitatively the same conclusions can be drawn by estimating interaction term model (3)- see results reported in column 2 in tables (A1)-(A8). Formalities Documents and Automation TFI show instead a *negative* coefficient for small firms.²⁶ This puzzling effect deserves more attention and hence we dedicate section 5.5 to discuss how can small

²⁵One possible reason for the null effect of Fees and Charges and Formalities Procedures indexes relies on the quality of the data. As also highlighted by Moise & Sorescu (2013) Fees and Charges data are of bad quality. Also, Formality procedure TF is badly defined since it gives score 1 to single windows *planned*. But planning a single windows does not have per se any trade effect.

²⁶As explained in section 2, we computed Formality Documents index by using World Bank Doing Business Indicators. So, given the puzzling negative effect of Formality Documents and Automation on small firms, we decided to split the index into its two components: (i) number of days needed to export into country j (results in table A14), and (ii) number of documents needed to export into country j (results in table A15). Results in tables (A15) suggest that a reduction in the amount of documents needed to export are beneficial for the intensive margin of big firms only. While, results in table (A14) show that a reduction in the number of days needed to export into a given country, is beneficial for big firms but harmful for small players.

firms be disadvantaged by simplified and automated processing of traded goods.

To get a sense of the magnitude of these results, for each TFI and firm size we compute the predicted average export growth if the destination country adopts the region’s best practice. For example, if all East Asia and Pacific countries adopt the region’s best practice in Information Availability, then small firms would export on average 43.7% more while medium size firms would export 25% more (no effect for big firms). Similarly, if East Asia and Pacific countries adopt the region’s best practice in Advance Rulings, then small and medium French firms would export respectively 61% and 29% more.

5.2 Product extensive margin estimations

Extensive margin estimation results in Table (4) confirm what was described in the previous section: Information Availability, Advance Rulings and Appeal Procedure TFIs favor in particular small firms. A 10% increase in the Information Availability index implies a 2.3% increase in the number of exported products for small firms and a 1.7% increase for medium size players. Differently, Formalities Documents and Procedures seem to have positive effect for big firms only. These results are confirmed by Poisson estimations, here used to account for the count nature of the dependent variable. Results are reported in columns 7-9 of tables (A1)-(A8).

As mentioned in Section 4.1 TFI measures can be non-randomly adopted by countries. So, in Table (6) we show extensive margin results using the Propensity Score Matching approach to reduce any endogeneity concern. Results in Table (6) confirm our results. In further robustness checks, reported in tables (8) and (10), we use size bins respectively based on 2005 firms size distribution and on HS-2 specific size distribution. Again our results are fully confirmed.

5.3 Product intensive margin estimations

Results in table (5) show the effect of various TFI on the product intensive margin of firms as average exported value per product. Again, Information Availability, Advance Rulings and Appeal Procedure TFIs favor exclusively small firm: a 10% improvement in the Information Availability index implies a 5.4% increase in the average export value per product by small players, while a 10% increase in Advance Rulings and Appeal procedure measures stimulate small firms’ intensive margin by 5.1% and 1.7% respectively. As for total export estimations, small players are negatively affected by improvements in Formalities Documents and Automation. In the section (5.5) we discuss how small firms can be disadvantaged by TF measures.

In Table (7) we show intensive margin results using the Propensity Score Matching approach to reduce any endogeneity concern. Results are in line with those presented in Table (5). Finally, in tables (9) and (11) we show intensive margin results using bins from the 2005 firm size distribution and HS-2 specific size distribution respectively. Results are qualitatively identical.

5.4 Export diversification estimations

Results in Table (12) show export diversification results based on model (1). We report robustness checks using model (2) and (3) on export diversification measure in tables (A9)-(A10).

TFI on Information availability and Advance Rulings, by reducing the Herfindhal index, increase the product diversification of small and medium firms. Associated with the results on the extensive margins, we can conclude that Information availability and Advance Rulings make French firms exporting a wider and more equally distributed set of products. This effect is bigger for small than for big players. Conversely, Formalities Documents and Automation improve the export diversification of medium and big firms only. This is coherent with results on the extensive margins reported in table (4), where Formalities Documents and Automation positively affect the number of exported products for big firms only.

5.5 How small firms can be disadvantaged by TFA on Formalities Documents and Automation?

In sections 5.1 and 5.3 we highlighted the puzzling negative impact of Formalities Documents and Automation for small firms. How can small firms be disadvantaged by simplified and automated processing of traded goods? To understand the subtle mechanisms at play, corruption – a facet of actual administrative hurdles at the border – has to be introduced in the reasoning on firms decisions. One possible explanation is that the positive effect that such trade facilitation measures have on trade-related corruption may indeed disadvantage *small* firms. The rationale is the following.

Number of documents, cumbersome and inefficient procedures at the border, create opportunities for the inappropriate exercise of official discretion and collusion between customs officials and traders.²⁷ The more so when face-to-face interaction is high. Under such circumstances, being large is not a competitive advantage. Large firms don't want to bear the risk of being exposed to official discretion, and they don't want to be exposed to reputation damages. Big firms thus avoid destinations countries with high corruption index. Figure 7 shows that big firms' exports are strongly negatively correlated with the corruption index of the destination,²⁸ while such negative correlation is not observed for small firms.

Among technical improvements in managing customs reducing the opportunity for corruption, the implementation of the ASYCUDA program plays a role: Jean & Mitaritonna (2010) show that implementation of ASYCUDA (a system that supports customs computerization in developing countries) has been effective in reducing corruption at the border. We use information on countries implementation of ASYCUDA program to

²⁷There is some evidence that long delays to clear customs increase the opportunity for trade-related fraud. For example, Shepherd (2010) shows that 10 per cent longer delays at the border reduce trade by 14.5% in a low-corrupted country, but by 15.3% in countries with high levels of corruption.

²⁸We use Corruption Perception Index by Transparency International as a proxy for corruption level in destination countries (<http://www.transparency.org/cpi2010>).

specifically capture corruption at the border.

Finally, big firms are indeed even less incline to export to highly corrupted countries if NGOs are present and likely to monitor them (the opportunity cost of being discovered by NGOs is higher for big than for small firms). In Figure (8) we show that big players are less incline to export to high corrupted countries where NGOs are particularly active.²⁹ To further support this evidence, in Table (13) we show that small firms have higher probability (than big firms, the excluded category) to have high-corrupted country as main destination (i.e. destination receiving the highest export value by the firm). Similarly, small firms exports more intensively towards high-corrupted countries than big firms.

The absence of big players in high corrupted countries leaves space for small players (who might have local idiosyncratic connections to bypassing administrative hurdles and/or low opportunity cost of being discovered in bribing). By reducing the time required to clear goods at the customs, increasing transparency and reducing the need for face-to-face interaction, trade facilitation on Formalities Documents and Automation reduces the space for corruption, encouraging big players to enter these markets. This reinforces the competition faced by small firms and explains the negative effect on small firms of TF on Formalities Documents and Automation reported in tables (3) and (5).

If our line of reasoning is right, we do expect: (i) a positive effect of Formalities Documents and Automation for big firms independently of the degree of corruption of destination countries (such TF measures represent progress in market access for big firms in both high and low corrupted countries), (ii) a negative effect on small firms in high-corrupted countries (TF here reinforces competition from big players) and (iii) a positive/null effect of Formalities Documents and Automation on small firms in low-corrupted countries. Therefore we rerun our regressions for the sub-sample of low corrupted countries, i.e. countries having corruption index below the median and ASYCUDA implemented in 2010 (see Table 14). As expected in low-corrupted countries improvements in Formalities Documents and Automation have strong positive effect on big players only and any negative effect on small firms.³⁰ Conversely, when we give more weight to exports towards high-corrupted countries (with presence of NGOs), see Table (15),³¹ we find strong negative effect of Formalities documents and Automation on small (and medium) enterprises.³²

²⁹We use the number of news published by NGOs over the period 2002-2010 - Covalence database - as a proxy for NGOs' activism. See Couttenier & Hatte (2015) for more details. Countries with high NGOs' activism are those having number of news published above the median.

³⁰In tables A16 - A18 we report estimation results for all the TF measures on the sub-sample of countries with low corruption and ASYUDA implementation. Results hold.

³¹High corrupted countries are few, so running on subsample implied huge selection bias, for this reason we prefer weighted OLS estimation.

³²We could not include corruption index and NGOs' activity as controls in the main regressions for collinearity reasons. Indeed both corruption index and NGOs' activism are correlated with GDP and thus with TFIs. See figure A5.

6 Conclusion

This paper has considered the asymmetric effect of trade facilitation measures on heterogeneous exporters. By using a cross-section of French firms export data in 2010 and an original dataset of eight Trade Facilitation Indexes (provided by the OECD), we test the effect of TFIs on the export margins of firms.

The OECD TFI dataset allows us to explore the trade effect of various trade facilitation measures (not only those related to time and document to export, as done in the existing literature); while the French custom data permits to study the channels through which aggregate exports are enhanced by TFI: extensive and intensive margins of exports. We also study the effect of TFI on the product differentiation of firms.

Our results clearly show that Information Availability, Advance Rulings and Appeal Procedures have a positive effect on the extensive and intensive margins of French exporters, in particular for small and medium size exporters. We also find a negative effect of TF on Formalities Documents and Automation on the intensive margin of small firms. We show that this result is due to the positive indirect effect of TFA reforms on corruption and the consequent increased competition from large firms.

Based on OLS estimations, we can conclude that if all East Asia and Pacific countries adopt the region's best practice in Information Availability, small firms would export on average 43.7% more while medium size firms would export 25% more. No effect for big firms is expected. Similarly, if Latin American countries would adopt the region's best practice in Advance Rulings, then small and medium French firms would increase their export in the region respectively by 45.8% and 21.8%. We conclude from this exercise that TFA is economically meaningful.

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7 Tables and Figures

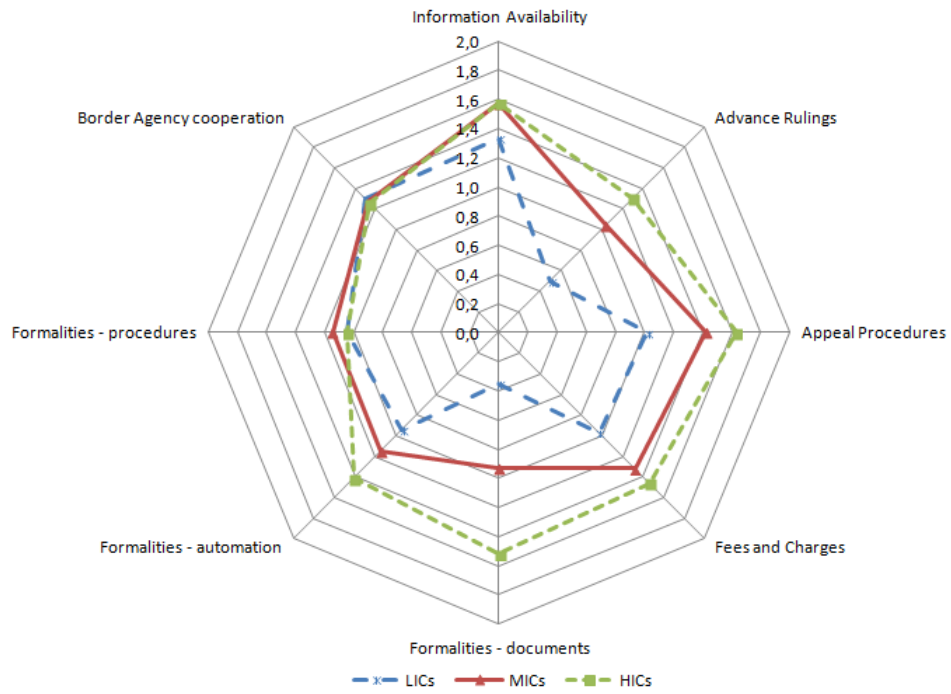
Table 1: In-sample descriptive statistics

	Observations	Mean	Std Dev	Min	Max
N. products exported (ln)	465726	0.78	0.99	0.00	6.75
Export value (ln)	465726	9.99	2.30	4.32	16.16
Average Export per product (ln)	465726	9.21	2.07	0.63	16.15
Product concentration (HH)	465726	0.75	0.30	0.01	1.00
Information Availability	456885	0.42	0.21	-1.61	0.69
Advance Ruling	384529	0.33	0.30	-1.10	0.69
Appeal Procedure	440173	0.35	0.38	-0.92	0.69
Fees and Charges	441060	0.38	0.32	-1.10	0.69
Formalities - Documents	439893	0.38	0.41	-0.69	0.69
Formalities - Automation	464710	0.31	0.49	-1.39	0.69
Formalities - Procedures	454116	-0.02	0.31	-1.20	0.69
Border Agency Cooperation	372079	0.31	0.41	-1.39	0.69
Per Capita GDP (ln)	465726	9.69	1.32	5.39	11.36
Distance (ln)	465726	7.67	1.06	6.16	9.85
Contiguity	465726	0.26	0.44	0.00	1.00
Import share	465726	0.04	0.05	0.00	0.48
Ln(tariff+1)	465726	0.06	0.09	0.00	2.40
Ln(TUV)	465754	4.39	1.78	-0.81	15.65

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

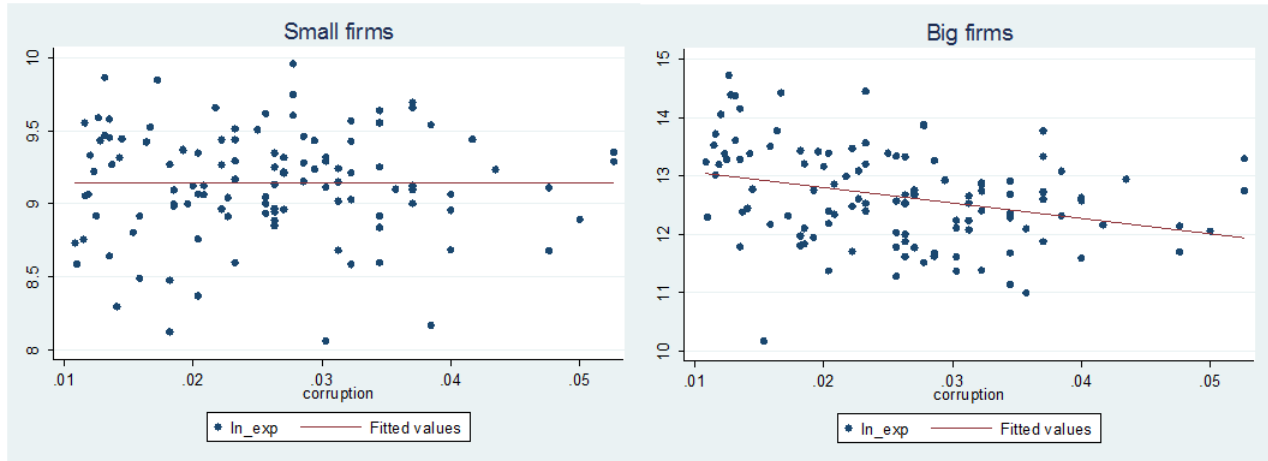
TFI	TFA article	Effects
(a) Information availability	Art. I: Requires to publish information related to importation, exportation and transit promptly and in an easily accessible way, making it available on the internet, together with the necessary forms and documents, as well as providing the contact information for enquiry points	Reduces 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	Avoids 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	Improves impartiality, non-discrimination, transparency ex ante, reduces uncertainty
(d) Appeal procedures	Art. IV: Provides the right to appeal to an administrative decision from customs	Improves impartiality, non-discrimination, transparency 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
(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	Reduces time costs and complexity
(i)-(j) Cooperation-Internal and external	Art. VIII and XII: ensure that there is internal external cooperation and coordination among border control authorities and agencies dealing with importation, exportation, and transit of goods	Reduces inefficiencies at the border
(k) Consularization	Not included in the WTO TFA	
(l) Governance and impartiality	Not included in the WTO TFA	Improves impartiality, non-discrimination, transparency for food and beverages
(m)-(p) Transit	Art. XI: Freedom of transit	Reduces costs when passing through transit countries

Figure 2: TFIs by income level.



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 7: Small vs Big firms exports and corruption index by destination country



Source: Authors calculations on French Custom Data and Corruption Perception Index 2010.

Figure 8: Exported value of big firms and corruption index. Full sample vs. high NGO activism countries.



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	1	1.77	1.81	2.41	2.11
	2	2.31	2.80	4.68	3.90
	3	4.53	6.06	8.99	7.55
Advance Rulings	1	2.05	2.97	2.35	2.10
	2	3.35	5.66	4.64	3.79
	3	6.51	11.11	8.73	7.52
Appeal Procedure	1	2.15	2.33	2.18	2.25
	2	2.14	4.67	4.17	4.17
	3	4.69	9.12	8.00	7.93
Fees and Charges	1	1.73	1.98	2.12	2.28
	2	2.60	3.78	4.02	4.36
	3	5.98	7.56	7.78	8.32
Formalities and Documents	1	2.18	1.76	1.99	2.37
	2	3.79	2.77	3.58	4.58
	3	7.47	6.12	6.73	9.05
Formalities Automation	1	2.03	1.93	2.42	2.23
	2	3.76	3.41	4.78	4.21
	3	6.71	7.10	8.16	8.32
Formalities Procedures	1	1.92	2.33	2.24	1.95
	2	4.15	4.32	4.34	2.95
	3	8.01	8.36	8.29	6.22
Border Agency	1	2.68	2.34	1.97	2.15
	2	5.41	4.13	3.67	3.88
	3	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.

Table 3: Total exports estimations.

Dep. Variable: total exports by firm-destination (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	0.779** (0.301)	0.647*** (0.146)	0.245** (0.101)	-0.087 (0.149)	-0.473*** (0.138)	-0.202** (0.089)	0.102 (0.128)	-0.174 (0.145)
TFI (log)*Medium Size	0.405* (0.212)	0.248 (0.186)	-0.104 (0.149)	0.102 (0.155)	0.010 (0.151)	-0.031 (0.140)	-0.033 (0.189)	0.221 (0.133)
TFI (log)*Big Size	-0.005 (0.267)	-0.163 (0.317)	-0.239 (0.370)	0.307 (0.266)	0.455** (0.219)	0.294 (0.187)	-0.297 (0.208)	0.357* (0.185)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.075	0.075	0.069	0.073	0.076	0.075	0.072	0.052
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

Table 4: Extensive margin estimations.

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	0.236** (0.091)	0.137*** (0.046)	0.069** (0.031)	-0.018 (0.038)	-0.061 (0.045)	-0.025 (0.025)	0.020 (0.036)	-0.064 (0.043)
TFI (log)*Medium Size	0.175*** (0.065)	0.062 (0.050)	0.016 (0.039)	0.019 (0.039)	0.074* (0.041)	0.034 (0.029)	0.006 (0.041)	0.018 (0.035)
TFI (log)*Big Size	0.061 (0.075)	0.004 (0.096)	-0.010 (0.110)	0.095 (0.082)	0.233*** (0.068)	0.145*** (0.048)	-0.043 (0.057)	0.068 (0.053)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.066	0.064	0.062	0.064	0.068	0.066	0.064	0.046
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

Table 5: Intensive margin estimations.

Dep. Variable: Export per 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	0.543** (0.220)	0.511*** (0.108)	0.175** (0.079)	-0.070 (0.124)	-0.412*** (0.112)	-0.177** (0.076)	0.083 (0.117)	-0.109 (0.112)
TFI (log)*Medium Size	0.230 (0.170)	0.186 (0.152)	-0.120 (0.124)	0.083 (0.148)	-0.064 (0.135)	-0.066 (0.125)	-0.039 (0.184)	0.203* (0.121)
TFI (log)*Big Size	-0.065 (0.209)	-0.168 (0.231)	-0.229 (0.269)	0.212 (0.207)	0.222 (0.166)	0.149 (0.151)	-0.255 (0.190)	0.289* (0.148)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.041	0.043	0.038	0.040	0.041	0.041	0.040	0.030
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

Table 6: Extensive margin estimations: robustness check using PSM.

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	0.102 (0.070)	0.143*** (0.045)	0.102*** (0.037)	0.003 (0.055)	-0.053 (0.046)	0.005 (0.039)	0.011 (0.033)	-0.076* (0.046)
TFI (log)*Medium Size	0.116* (0.070)	0.059 (0.050)	0.024 (0.042)	0.004 (0.048)	0.123** (0.050)	0.046 (0.039)	-0.016 (0.043)	-0.005 (0.039)
TFI (log)*Big Size	0.073 (0.072)	-0.031 (0.100)	-0.057 (0.104)	0.097 (0.108)	0.257*** (0.087)	0.163** (0.067)	-0.031 (0.066)	0.048 (0.059)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	338,761	379,413	398,080	411,456	337,464	422,778	301,632	343,749
R-squared	0.071	0.062	0.063	0.063	0.082	0.064	0.054	0.048
Number of i	75,991	82,382	84,083	88,068	74,052	87,274	83,393	84,102

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

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

Table 7: Intensive margin estimations: robustness check using PSM.

Dep. Variable: Export per 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	0.230 (0.175)	0.534*** (0.107)	0.302*** (0.069)	0.106 (0.156)	-0.282** (0.121)	-0.162 (0.104)	-0.025 (0.117)	-0.145 (0.112)
TFI (log)*Medium Size	0.045 (0.167)	0.191 (0.158)	-0.060 (0.129)	0.251* (0.134)	-0.031 (0.191)	-0.053 (0.174)	-0.176 (0.201)	0.123 (0.119)
TFI (log)*Big Size	-0.101 (0.195)	-0.225 (0.244)	-0.303 (0.264)	0.387* (0.210)	0.148 (0.227)	0.126 (0.198)	-0.298* (0.176)	0.195 (0.154)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	338,761	379,413	398,080	411,456	337,464	422,778	301,632	343,749
R-squared	0.055	0.044	0.040	0.043	0.048	0.038	0.028	0.028
Number of i	75,991	82,382	84,083	88,068	74,052	87,274	83,393	84,102

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

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

Table 8: Extensive margin estimations: robustness check using bins from firms size distribution in 2005.

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	0.232*** (0.084)	0.138*** (0.047)	0.067* (0.038)	-0.005 (0.040)	-0.027 (0.043)	-0.011 (0.030)	0.047 (0.042)	-0.038 (0.043)
TFI (log)*Medium Size	0.181*** (0.067)	0.060 (0.052)	0.016 (0.039)	0.021 (0.042)	0.080* (0.043)	0.038 (0.032)	0.009 (0.043)	0.021 (0.037)
TFI (log)*Big Size	0.063 (0.075)	0.017 (0.097)	0.008 (0.118)	0.093 (0.082)	0.227*** (0.069)	0.145*** (0.048)	-0.048 (0.059)	0.061 (0.053)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	361,134	304,987	347,099	348,037	347,569	366,897	358,570	292,402
R-squared	0.070	0.068	0.065	0.067	0.071	0.069	0.067	0.048
Number of i	50,317	47,811	50,087	50,134	49,879	50,699	50,375	47,656

Bootstrapped standard errors.

All regressions include firm fixed effects.

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

Table 9: Intensive margin estimations: robustness check using bins from firms size distribution in 2005.

Dep. Variable: Export per 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	0.489** (0.195)	0.401*** (0.122)	0.096 (0.089)	-0.001 (0.135)	-0.342*** (0.118)	-0.169* (0.099)	0.003 (0.158)	-0.038 (0.109)
TFI (log)*Medium Size	0.212 (0.171)	0.178 (0.157)	-0.130 (0.131)	0.087 (0.152)	-0.051 (0.138)	-0.057 (0.127)	-0.043 (0.188)	0.223* (0.128)
TFI (log)*Big Size	-0.034 (0.200)	-0.126 (0.217)	-0.184 (0.260)	0.180 (0.202)	0.182 (0.164)	0.126 (0.147)	-0.249 (0.183)	0.282** (0.139)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	361,134	304,987	347,099	348,037	347,569	366,897	358,570	292,402
R-squared	0.043	0.045	0.039	0.041	0.042	0.042	0.041	0.031
Number of i	50,317	47,811	50,087	50,134	49,879	50,699	50,375	47,656

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

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

Table 10: Extensive margin estimations: robustness check using bins from HS-2 specific size distribution.

Dep. Variable: Export per 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	0.220** (0.084)	0.124*** (0.043)	0.061** (0.029)	-0.034 (0.035)	-0.063 (0.041)	-0.023 (0.024)	0.030 (0.035)	-0.046 (0.039)
TFI (log)*Medium Size	0.177*** (0.063)	0.068 (0.050)	0.014 (0.039)	0.022 (0.040)	0.075* (0.041)	0.035 (0.030)	0.010 (0.040)	0.021 (0.034)
TFI (log)*Big Size	0.059 (0.075)	-0.005 (0.094)	-0.002 (0.108)	0.099 (0.081)	0.239*** (0.067)	0.150*** (0.048)	-0.054 (0.058)	0.062 (0.053)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.066	0.064	0.062	0.064	0.068	0.066	0.064	0.046
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

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

Table 11: Intensive margin estimations: robustness check using bins from HS-2 specific size distribution.

Dep. Variable: Export per 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	0.464** (0.195)	0.401*** (0.104)	0.095 (0.079)	-0.069 (0.117)	-0.453*** (0.109)	-0.184** (0.078)	0.017 (0.130)	-0.068 (0.100)
TFI (log)*Medium Size	0.201 (0.166)	0.173 (0.155)	-0.125 (0.124)	0.089 (0.146)	-0.053 (0.132)	-0.064 (0.123)	-0.054 (0.183)	0.190 (0.120)
TFI (log)*Big Size	-0.015 (0.202)	-0.120 (0.219)	-0.177 (0.258)	0.211 (0.207)	0.232 (0.168)	0.162 (0.148)	-0.216 (0.187)	0.301** (0.146)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.041	0.043	0.038	0.040	0.042	0.041	0.039	0.030
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects.

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

Table 12: Export diversification estimations.

Dep. Variable: Herfindahl index								
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	-0.047*** (0.017)	-0.034*** (0.011)	-0.016*** (0.006)	-0.009 (0.008)	-0.014 (0.009)	-0.002 (0.006)	-0.009 (0.008)	-0.004 (0.007)
TFI (log)*Medium Size	-0.044*** (0.016)	-0.024** (0.010)	-0.011 (0.008)	-0.005 (0.008)	-0.019** (0.009)	-0.009 (0.008)	-0.007 (0.010)	-0.010 (0.008)
TFI (log)*Big Size	-0.019 (0.012)	-0.012 (0.013)	-0.008 (0.016)	-0.013 (0.013)	-0.032*** (0.011)	-0.022** (0.008)	0.000 (0.010)	-0.012 (0.008)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,884	384,529	440,172	441,059	439,892	464,709	454,115	372,078
R-squared	0.023	0.022	0.021	0.021	0.022	0.022	0.022	0.016
Number of i	91,082	82,585	90,817	90,305	89,616	92,333	91,214	85,385

Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

Table 13: Export Behavior of Small firms

	Share of exports towards corrupted countries	Pr(Dummy=1 if the main destination is high-corrupted)
Small Size	0,030*** (0,004)	0,050*** (0,005)
Medium Size	-0,001 (0,004)	0,016*** (0,005)
Observations	92372	92372

Robust standard errors.

Big Size is the omitted category

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

Table 14: Estimations on low-corruption and ASYCUDA implementing countries

	Formalities Documents			Formalities Automation		
	Export	Extensive	Intensive	Export	Extensive	Intensive
TFI (log)*Small Size	-0.077 (0.237)	0.045 (0.077)	-0.121 (0.204)	0.117 (0.296)	0.089 (0.089)	0.027 (0.223)
TFI (log)*Medium Size	0.565** (0.237)	0.207** (0.077)	0.357 (0.217)	0.281 (0.283)	0.084 (0.072)	0.197 (0.229)
TFI (log)*Big Size	1.205*** (0.314)	0.456*** (0.112)	0.748*** (0.250)	0.567 (0.447)	0.228 (0.141)	0.339 (0.323)
Firm FE	yes	yes	yes	yes	yes	yes
Country Controls	yes	yes	yes	yes	yes	yes
Observations	319,910	319,910	319,910	319,965	319,965	319,965
R-squared	0.079	0.068	0.045	0.073	0.062	0.042
Number of i	77,076	77,076	77,076	77,095	77,095	77,095

Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

Table 15: Weighted OLS estimations using firms' export share into high-corrupted, no-ASYCUDA, with NGOs' presence countries as weight

	Formalities Documents			Formalities Automation		
	Export	Extensive	Intensive	Export	Extensive	Intensive
TFI (log)*Small Size	-0.847*** (0.138)	-0.084** (0.039)	-0.763*** (0.117)	-0.441*** (0.084)	-0.051*** (0.018)	-0.390*** (0.078)
TFI (log)*Medium Size	-0.646*** (0.178)	-0.063 (0.042)	-0.582*** (0.153)	-0.472** (0.184)	-0.081** (0.032)	-0.391** (0.165)
TFI (log)*Big Size	0.106 (0.221)	0.136** (0.065)	-0.029 (0.171)	0.078 (0.189)	0.060 (0.047)	0.017 (0.158)
Firm FE	yes	yes	yes	yes	yes	yes
Country Controls	yes	yes	yes	yes	yes	yes
Observations	281,850	281,850	281,850	304,698	304,698	304,698
R-squared	0.033	0.030	0.026	0.031	0.025	0.024
Number of i	27,867	27,867	27,867	29,756	29,756	29,756

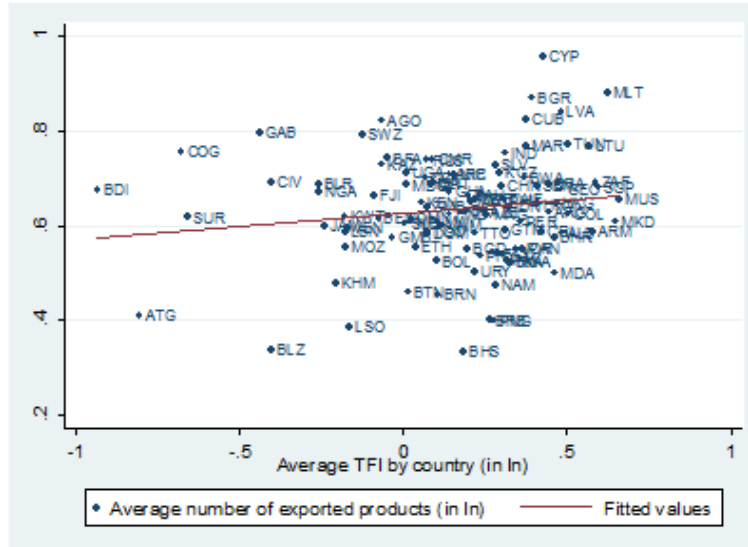
Standard errors are clustered within destination country.

All regressions include firm fixed effects and country controls.

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

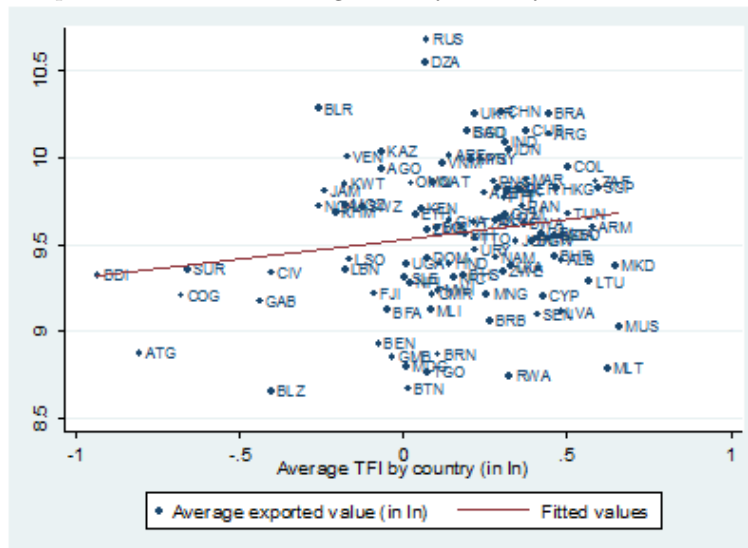
Appendix

Figure A1: Number of exported products and average TFI by country. OECD countries excluded.



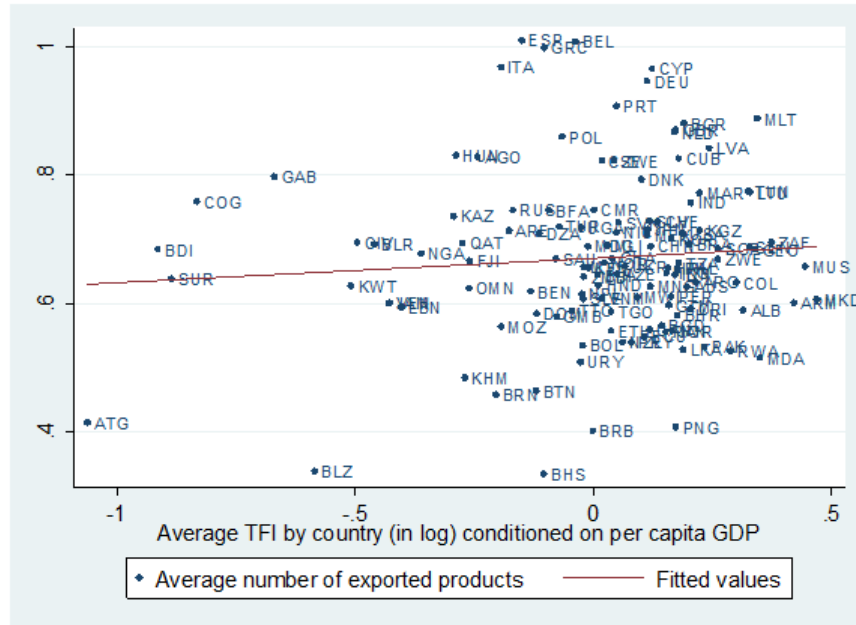
Source: Authors calculations on TFI database, OECD

Figure A2: Exported values and average TFI by country. OECD countries excluded.



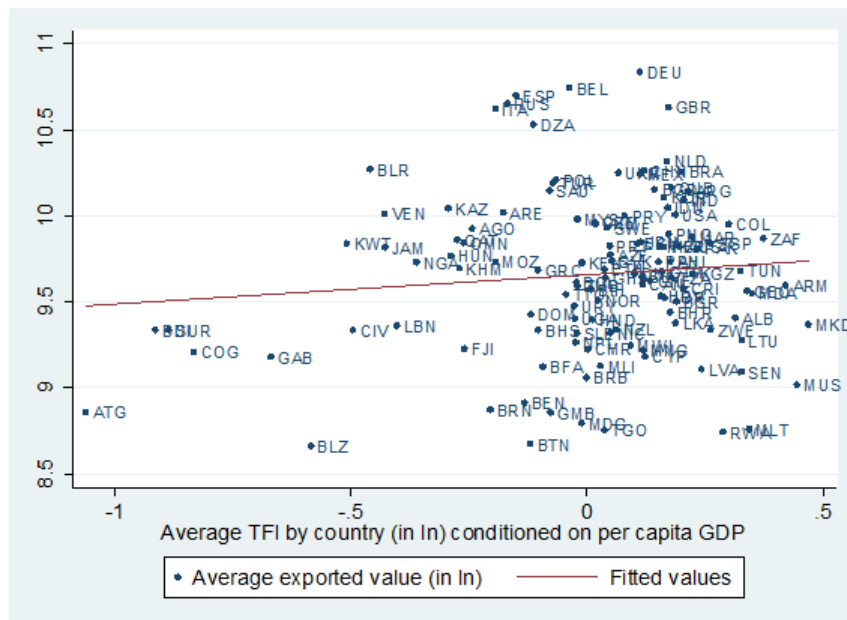
Source: Authors calculations on TFI database, OECD

Figure A3: Number of exported products and average TFI by country. TFI values conditioned on per capita GDP



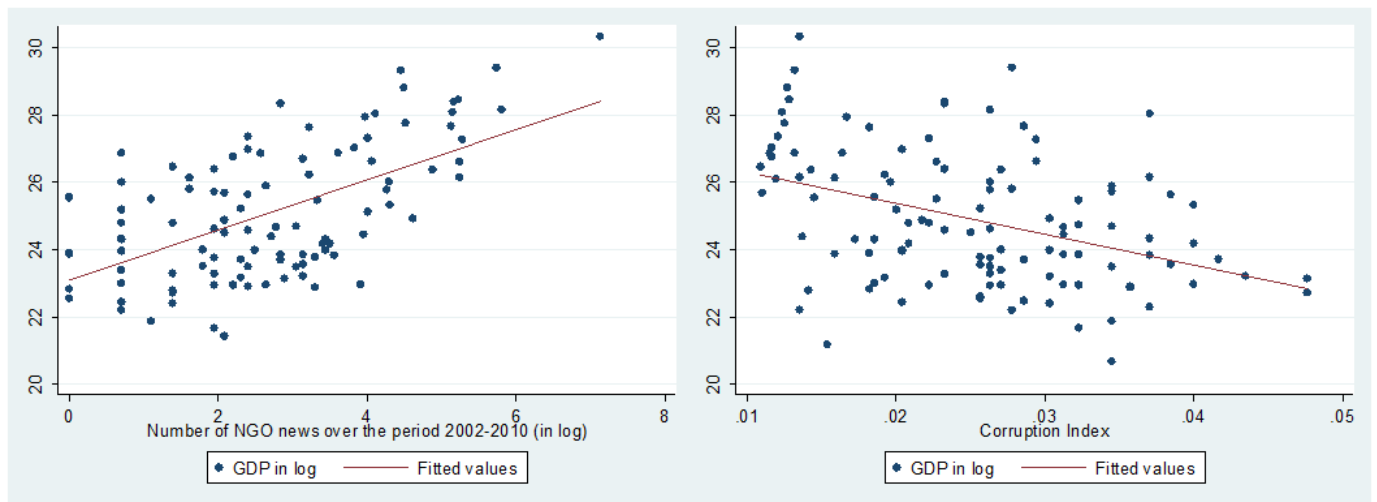
Source: Authors calculations on TFI database, OECD

Figure A4: Exported values and average TFI by country. TFI values conditioned on per capita GDP



Source: Authors calculations on TFI database, OECD

Figure A5: Correlation between GDP, NGOs activism and corruption index



Source: Authors calculations on TFI database, OECD

Table A1: Information availability index. Baseline estimations

Estimation Method	Export Values			Number exported products						Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	0.300 (0.192)	0.228 (0.200)		0.140** (0.058)	0.126** (0.058)	0.167* (0.099)	0.150 (0.098)	0.150 (0.098)		0.160 (0.154)	0.102 (0.164)	
TFI (log)*Small Firm (dummy)		0.544* (0.295)			0.108 (0.078)		0.313** (0.137)			0.436* (0.226)		
TFI (log)*Small Size			0.779** (0.301)		0.236** (0.091)				0.469*** (0.171)		0.543** (0.220)	
TFI (log)*Medium Size			0.405* (0.212)		0.175*** (0.065)				0.277** (0.116)		0.230 (0.170)	
TFI (log)*Big Size			-0.005 (0.267)		0.061 (0.075)				0.071 (0.100)		-0.065 (0.209)	
Distance (log)	-0.163* (0.086)	-0.163* (0.086)	-0.163* (0.086)	-0.105*** (0.022)	-0.105*** (0.022)	-0.105*** (0.022)	-0.236*** (0.036)	-0.236*** (0.036)	-0.236*** (0.036)	-0.058 (0.069)	-0.058 (0.069)	-0.058 (0.068)
Ln(tariff+1)	-0.087 (0.482)	-0.090 (0.478)	-0.100 (0.476)	-0.290** (0.131)	-0.291** (0.130)	-0.294** (0.129)	-0.692*** (0.265)	-0.695*** (0.265)	-0.705*** (0.262)	0.203 (0.379)	0.201 (0.376)	0.193 (0.374)
Import Share	2.338*** (0.837)	2.324*** (0.833)	2.323*** (0.829)	0.466** (0.202)	0.463** (0.201)	0.463** (0.200)	0.655** (0.310)	0.651** (0.309)	0.653** (0.307)	1.872*** (0.706)	1.861*** (0.703)	1.860*** (0.701)
Per Capita GDP (log)	0.131*** (0.047)	0.130*** (0.047)	0.130*** (0.047)	0.043*** (0.015)	0.043*** (0.015)	0.043*** (0.015)	0.064*** (0.025)	0.064*** (0.025)	0.064*** (0.025)	0.088** (0.035)	0.087** (0.035)	0.087** (0.035)
Contiguity	0.813*** (0.221)	0.818*** (0.220)	0.828*** (0.222)	0.225*** (0.046)	0.226*** (0.046)	0.229*** (0.046)	0.317*** (0.098)	0.319*** (0.098)	0.325*** (0.098)	0.588*** (0.183)	0.592*** (0.183)	0.599*** (0.184)
Ln(TUV)	0.116*** (0.029)	0.116*** (0.029)	0.116*** (0.029)	0.025*** (0.008)	0.025*** (0.008)	0.025*** (0.008)	0.026** (0.013)	0.026** (0.013)	0.025** (0.013)	0.091*** (0.026)	0.091*** (0.026)	0.091*** (0.025)
Observations	456,884	456,884	456,884	456,884	456,884	456,884	415,689	415,689	415,689	456,884	456,884	456,884
R-squared	0.074	0.075	0.075	0.066	0.066	0.066	0.066	0.066	0.066	0.040	0.041	0.041
Number of i	91,082	91,082	91,082	91,082	91,082	91,082	91,082	91,082	91,082	91,082	91,082	91,082

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A2: Advance Rulings index. Baseline estimations

Estimation Method	Export Values			Number exported products					Export per product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	0.159 (0.192)	0.097 (0.209)		0.051 (0.052)	0.041 (0.056)		-0.100 (0.103)	-0.112 (0.105)		0.107 (0.153)	0.057 (0.167)	
TFI (log)*Small Firm (dummy)		0.545** (0.220)			0.095* (0.055)			0.221*** (0.082)			0.450*** (0.169)	
TFI (log)*Small Size			0.647*** (0.146)			0.137*** (0.046)			0.110 (0.086)			0.511*** (0.108)
TFI (log)*Medium Size			0.248 (0.186)			0.062 (0.050)			-0.063 (0.107)			0.186 (0.152)
TFI (log)*Big Size			-0.163 (0.317)			0.004 (0.096)			-0.157 (0.114)			-0.168 (0.231)
Distance (log)	-0.116 (0.096)	-0.116 (0.095)		-0.083*** (0.025)	-0.083*** (0.025)		-0.207*** (0.039)	-0.207*** (0.039)		-0.033 (0.075)	-0.033 (0.075)	
Ln(tariff+1)	0.156 (0.633)	0.172 (0.628)		-0.263 (0.171)	-0.260 (0.170)		-0.800** (0.355)	-0.797** (0.354)		0.419 (0.502)	0.432 (0.499)	0.428 (0.498)
Import Share	3.059*** (1.141)	3.043*** (1.136)	2.993*** (1.125)	0.487* (0.275)	0.484* (0.274)		0.588 (0.445)	0.585 (0.444)	0.574 (0.438)	2.573*** (0.952)	2.559*** (0.947)	2.516*** (0.938)
Per Capita GDP (log)	0.135** (0.064)	0.134** (0.064)	0.134** (0.064)	0.051** (0.021)	0.051** (0.021)		0.078** (0.035)	0.078** (0.034)		0.084* (0.047)	0.083* (0.047)	0.083* (0.047)
Contiguity	0.888*** (0.240)	0.892*** (0.238)	0.900*** (0.237)	0.235*** (0.054)	0.236*** (0.054)		0.269** (0.115)	0.270** (0.115)		0.653*** (0.197)	0.656*** (0.195)	0.663*** (0.194)
Ln(TUV)	0.129*** (0.033)	0.129*** (0.033)	0.129*** (0.033)	0.028*** (0.008)	0.028*** (0.008)		0.028* (0.015)	0.028* (0.015)		0.101*** (0.030)	0.101*** (0.030)	0.101*** (0.029)
Observations	384,529	384,529	384,529	384,529	384,529	384,529	346,691	346,691	346,691	384,529	384,529	384,529
R-squared	0.074	0.074	0.075	0.064	0.064	0.064				0.042	0.042	0.043
Number of i	82,585	82,585	82,585	82,585	82,585	82,585	82,585	82,585	82,585	82,585	82,585	82,585

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A3: Appeal procedures index. Baseline estimations

Estimation Method	Export Values			Number exported products					Export per product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	-0.088 (0.173)	-0.144 (0.198)		0.017 (0.050)	0.008 (0.055)	-0.011 (0.081)	-0.011 (0.084)	-0.020 (0.084)		-0.105 (0.135)	-0.152 (0.155)	
TFI (log)*Small Firm (dummy)		0.389* (0.211)		0.061 (0.050)			0.140** (0.066)			0.328** (0.164)		
TFI (log)*Small Size			0.245** (0.101)			0.069** (0.031)			0.120** (0.054)		0.175** (0.079)	
TFI (log)*Medium Size			-0.104 (0.149)		0.016 (0.039)		0.010 (0.070)			-0.120 (0.124)		
TFI (log)*Big Size			-0.239 (0.370)		-0.010 (0.110)		-0.056 (0.111)			-0.229 (0.269)		
Distance (log)	-0.151 (0.092)	-0.149 (0.092)	-0.148 (0.094)	-0.102*** (0.023)	-0.102*** (0.023)	-0.102*** (0.023)	-0.234*** (0.037)	-0.233*** (0.037)	-0.232*** (0.037)	-0.049 (0.074)	-0.047 (0.074)	-0.046 (0.075)
Ln(tariff+1)	-0.054 (0.484)	-0.031 (0.483)	-0.026 (0.485)	-0.245* (0.143)	-0.241* (0.142)	-0.240* (0.142)	-0.639** (0.294)	-0.634** (0.294)	-0.631** (0.293)	0.190 (0.372)	0.210 (0.371)	0.214 (0.373)
Import Share	1.823** (0.758)	1.811** (0.754)	1.811** (0.754)	0.285 (0.204)	0.283 (0.204)	0.283 (0.204)	0.384 (0.309)	0.383 (0.309)	0.385 (0.309)	1.538** (0.614)	1.528** (0.611)	1.528** (0.611)
Per Capita GDP (log)	0.151*** (0.051)	0.152*** (0.051)	0.153*** (0.052)	0.046*** (0.017)	0.046*** (0.017)	0.047*** (0.017)	0.070*** (0.026)	0.070*** (0.026)	0.071*** (0.026)	0.105*** (0.037)	0.106*** (0.037)	0.107*** (0.037)
Contiguity	0.718*** (0.241)	0.721*** (0.240)	0.724*** (0.242)	0.207*** (0.060)	0.207*** (0.059)	0.208*** (0.059)	0.266** (0.129)	0.266** (0.129)	0.268** (0.129)	0.511*** (0.190)	0.514*** (0.190)	0.516*** (0.192)
Ln(TUV)	0.124*** (0.026)	0.124*** (0.026)	0.124*** (0.026)	0.025*** (0.008)	0.025*** (0.008)	0.025*** (0.008)	0.027** (0.013)	0.027** (0.013)	0.027** (0.013)	0.098*** (0.023)	0.099*** (0.023)	0.098*** (0.023)
Observations	440,172	440,172	440,172	440,172	440,172	440,172	398,691	398,691	398,691	440,172	440,172	440,172
R-squared	0.069	0.069	0.069	0.062	0.062	0.062	0.062	0.062	0.062	0.037	0.038	0.038
Number of i	90,817	90,817	90,817	90,817	90,817	90,817	90,817	90,817	90,817	90,817	90,817	90,817

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A4: Fees and charges index. Baseline estimations

Estimation Method	Export Values			Number exported products						Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	0.150 (0.169)	0.183 (0.187)		0.041 (0.048)	0.049 (0.052)		0.035 (0.088)	0.039 (0.092)		0.110 (0.149)	0.134 (0.163)	
TFI (log)*Small Firm (dummy)		-0.270 (0.208)			-0.066 (0.051)			-0.085 (0.087)			-0.204 (0.164)	
TFI (log)*Small Size			-0.087 (0.149)			-0.018 (0.038)			-0.046 (0.064)			-0.070 (0.124)
TFI (log)*Medium Size			0.102 (0.155)			0.019 (0.039)			0.007 (0.073)			0.083 (0.148)
TFI (log)*Big Size			0.307 (0.266)			0.095 (0.082)			0.063 (0.110)			0.212 (0.207)
Distance (log)	-0.139 (0.087)	-0.139 (0.086)		-0.095*** (0.023)	-0.095*** (0.023)		-0.220*** (0.036)	-0.220*** (0.036)		-0.044 (0.068)	-0.044 (0.068)	
Ln(tariff+1)	-0.008 (0.499)	-0.002 (0.501)		-0.262* (0.146)	-0.261* (0.147)		-0.690*** (0.292)	-0.688*** (0.292)		0.254 (0.388)	0.258 (0.389)	
Import Share	1.773** (0.836)	1.769** (0.838)	1.770** (0.842)	0.268 (0.203)	0.267 (0.203)	0.267 (0.203)	0.478 (0.312)	0.479 (0.312)	0.480 (0.312)	1.505** (0.697)	1.502** (0.699)	1.503** (0.701)
Per Capita GDP (log)	0.126** (0.056)	0.126** (0.056)	0.126** (0.056)	0.046** (0.018)	0.047** (0.018)	0.046** (0.018)	0.068** (0.029)	0.068** (0.029)	0.068** (0.029)	0.080* (0.042)	0.080* (0.042)	0.080* (0.042)
Contiguity	0.794*** (0.213)	0.793*** (0.213)	0.791*** (0.214)	0.208*** (0.047)	0.208*** (0.047)	0.207*** (0.047)	0.297*** (0.095)	0.296*** (0.095)	0.296*** (0.096)	0.586*** (0.175)	0.585*** (0.175)	0.584*** (0.175)
Ln(TUV)	0.120*** (0.030)	0.120*** (0.030)	0.120*** (0.030)	0.027*** (0.008)	0.027*** (0.008)	0.027*** (0.008)	0.028*** (0.013)	0.028*** (0.013)	0.028*** (0.013)	0.093*** (0.026)	0.093*** (0.026)	0.093*** (0.026)
Observations	441,059	441,059	441,059	441,059	441,059	441,059	400,076	400,076	400,076	441,059	441,059	441,059
R-squared	0.072	0.072	0.073	0.064	0.064	0.064				0.040	0.040	0.040
Number of i	90,305	90,305	90,305	90,305	90,305	90,305				90,305	90,305	90,305

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A5: Formalities and documents index (World Bank index). Baseline estimations

Estimation Method	Export Values			Number exported products						Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	0.132 (0.158)	0.202 (0.169)		0.122*** (0.046)	0.143*** (0.048)		0.190** (0.083)	0.205** (0.085)		0.011 (0.133)	0.059 (0.141)	
TFI (log)*Small Firm (dummy)		-0.662*** (0.144)			-0.200*** (0.044)			-0.324*** (0.057)			-0.463*** (0.107)	
TFI (log)*Small Size			-0.473*** (0.138)			-0.061 (0.045)			-0.124* (0.075)			-0.412*** (0.112)
TFI (log)*Medium Size			0.010 (0.151)		0.074* (0.041)				0.112 (0.080)			-0.064 (0.135)
TFI (log)*Big Size			0.455** (0.219)		0.233*** (0.068)			0.263*** (0.093)			0.222 (0.166)	
Distance (log)	-0.166* (0.086)	-0.163* (0.085)	-0.163* (0.086)	-0.101*** (0.022)	-0.100*** (0.021)	-0.100*** (0.022)	-0.228*** (0.034)	-0.227*** (0.034)	-0.227*** (0.034)	-0.065 (0.069)	-0.063 (0.069)	-0.063 (0.069)
Ln(tariff+1)	-0.011 (0.469)	-0.037 (0.473)	-0.076 (0.472)	-0.194 (0.140)	-0.202 (0.141)	-0.215 (0.140)	-0.583** (0.277)	-0.591** (0.278)	-0.606** (0.276)	0.183 (0.357)	0.165 (0.360)	0.139 (0.359)
Import Share	2.066** (0.885)	2.079** (0.884)	2.063** (0.888)	0.422* (0.227)	0.426* (0.229)	0.421* (0.229)	0.660** (0.319)	0.662** (0.318)	0.656** (0.318)	1.643** (0.727)	1.652** (0.725)	1.642** (0.728)
Per Capita GDP (log)	0.103 (0.062)	0.106* (0.062)	0.109* (0.062)	0.018 (0.018)	0.019 (0.018)	0.020 (0.018)	0.025 (0.033)	0.026 (0.033)	0.027 (0.033)	0.084* (0.050)	0.087* (0.049)	0.088* (0.049)
Contiguity	0.752*** (0.216)	0.761*** (0.213)	0.773*** (0.215)	0.198*** (0.045)	0.201*** (0.044)	0.206*** (0.044)	0.282*** (0.093)	0.284*** (0.092)	0.288*** (0.092)	0.554*** (0.180)	0.560*** (0.178)	0.568*** (0.180)
Ln(TUV)	0.126*** (0.031)	0.128*** (0.030)	0.128*** (0.031)	0.030*** (0.008)	0.030*** (0.008)	0.030*** (0.008)	0.030** (0.013)	0.030** (0.013)	0.030** (0.013)	0.096*** (0.027)	0.097*** (0.027)	0.098*** (0.027)
Observations	439,892	439,892	439,892	439,892	439,892	439,892	399,176	399,176	399,176	439,892	439,892	439,892
R-squared	0.072	0.074	0.076	0.066	0.067	0.068				0.039	0.040	0.041
Number of i	89,616	89,616	89,616	89,616	89,616	89,616				89,616	89,616	89,616

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A6: Formality automation index. Baseline estimations

Estimation Method	Export Values			Number exported products					Export per product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TFI (log)	OLS 0.045 (0.134)	OLS 0.091 (0.149)	OLS -0.293** (0.120)	OLS 0.060** (0.030)	OLS 0.076** (0.033)	OLS 0.097* (0.058)	Poisson 0.097* (0.058)	Poisson 0.108* (0.060)	Poisson 0.108* (0.060)	OLS -0.015 (0.116)	OLS 0.015 (0.129)	OLS -0.192* (0.097)
TFI (log)*Small Firm (dummy)												
TFI (log)*Small Size			-0.202** (0.089)			-0.025 (0.025)						-0.177** (0.076)
TFI (log)*Medium Size			-0.031 (0.140)			0.034 (0.029)						-0.066 (0.125)
TFI (log)*Big Size			0.294 (0.187)			0.145*** (0.048)						0.149 (0.151)
Distance (log)	-0.163* (0.089)	-0.164* (0.089)	-0.165* (0.090)	-0.108*** (0.022)	-0.108*** (0.022)	-0.109*** (0.022)	-0.241*** (0.034)	-0.241*** (0.034)	-0.241*** (0.035)	-0.055 (0.072)	-0.056 (0.072)	-0.057 (0.072)
Ln(tariff+1)	-0.014 (0.465)	-0.024 (0.468)	-0.032 (0.470)	-0.224 (0.136)	-0.227* (0.137)	-0.230* (0.137)	-0.572** (0.275)	-0.573** (0.275)	-0.571** (0.273)	0.210 (0.357)	0.204 (0.359)	0.198 (0.361)
Import Share	1.994** (0.813)	2.022** (0.814)	2.031** (0.817)	0.351* (0.204)	0.360* (0.205)	0.364* (0.205)	0.504 (0.308)	0.513* (0.308)	0.522* (0.309)	1.643** (0.667)	1.661** (0.667)	1.667** (0.669)
Per Capita GDP (log)	0.136** (0.054)	0.134** (0.054)	0.132** (0.055)	0.040** (0.017)	0.039** (0.017)	0.039** (0.017)	0.057** (0.028)	0.056** (0.028)	0.056** (0.028)	0.096** (0.040)	0.095** (0.040)	0.093** (0.040)
Contiguity	0.754** (0.227)	0.751** (0.226)	0.759*** (0.228)	0.189*** (0.048)	0.188*** (0.048)	0.191*** (0.048)	0.273*** (0.098)	0.272*** (0.098)	0.275*** (0.099)	0.565*** (0.188)	0.563*** (0.187)	0.568*** (0.189)
Ln(TUV)	0.119*** (0.029)	0.119*** (0.029)	0.119*** (0.029)	0.026*** (0.008)	0.026*** (0.008)	0.026*** (0.008)	0.027** (0.012)	0.027** (0.012)	0.027** (0.012)	0.093*** (0.025)	0.093*** (0.025)	0.093*** (0.025)
Observations	464,709	464,709	464,709	464,709	464,709	464,709	422,993	422,993	422,993	464,709	464,709	464,709
R-squared	0.073	0.073	0.075	0.065	0.065	0.066				0.040	0.040	0.041
Number of i	92,333	92,333	92,333	92,333	92,333	92,333				92,333	92,333	92,333

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A7: Formalities procedures index. Baseline estimations

Estimation Method	Export Values			Number exported products						Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson	OLS	OLS	OLS
TFI (log)	-0.111 (0.172)	-0.139 (0.186)		-0.010 (0.042)	-0.014 (0.044)		-0.086 (0.075)	-0.090 (0.075)		-0.101 (0.167)	-0.126 (0.181)	
TFI (log)*Small Firm (dummy)		0.242 (0.158)			0.033 (0.031)			0.095* (0.053)			0.208 (0.139)	
TFI (log)*Small Size			0.102 (0.128)			0.020 (0.036)			0.005 (0.075)		0.083 (0.117)	
TFI (log)*Medium Size			-0.033 (0.189)			0.006 (0.041)			-0.059 (0.076)		-0.039 (0.184)	
TFI (log)*Big Size			-0.297 (0.208)			-0.043 (0.057)			-0.112 (0.080)		-0.255 (0.190)	
Distance (log)	-0.150 (0.091)	-0.149 (0.091)	-0.148 (0.091)	-0.101*** (0.023)	-0.101*** (0.023)	-0.100*** (0.023)	-0.228*** (0.039)	-0.228*** (0.039)	-0.227*** (0.039)	-0.049 (0.072)	-0.048 (0.072)	-0.047 (0.072)
Ln(tariff+1)	-0.159 (0.476)	-0.156 (0.475)	-0.161 (0.473)	-0.273* (0.144)	-0.273* (0.144)	-0.273* (0.143)	-0.719** (0.302)	-0.718** (0.302)	-0.720** (0.301)	0.114 (0.363)	0.116 (0.363)	0.113 (0.362)
Import Share	1.683** (0.838)	1.695** (0.843)	1.708** (0.845)	0.292 (0.212)	0.294 (0.212)	0.296 (0.212)	0.385 (0.310)	0.389 (0.310)	0.391 (0.311)	1.390* (0.704)	1.401* (0.709)	1.411** (0.710)
Per Capita GDP (log)	0.140*** (0.049)	0.140*** (0.049)	0.140*** (0.048)	0.049*** (0.016)	0.049*** (0.016)	0.049*** (0.016)	0.068*** (0.026)	0.068*** (0.026)	0.068*** (0.026)	0.091** (0.035)	0.092** (0.035)	0.092*** (0.035)
Contiguity	0.764*** (0.220)	0.764*** (0.220)	0.764*** (0.220)	0.203*** (0.048)	0.203*** (0.048)	0.203*** (0.048)	0.298*** (0.095)	0.298*** (0.095)	0.298*** (0.095)	0.561*** (0.180)	0.561*** (0.180)	0.561*** (0.180)
Ln(TUV)	0.114*** (0.029)	0.114*** (0.029)	0.113*** (0.029)	0.026*** (0.008)	0.026*** (0.008)	0.026*** (0.008)	0.027*** (0.013)	0.027*** (0.013)	0.027*** (0.013)	0.088*** (0.025)	0.088*** (0.025)	0.087*** (0.025)
Observations	454,115	454,115	454,115	454,115	454,115	454,115	412,891	412,891	412,891	454,115	454,115	454,115
R-squared	0.072	0.072	0.072	0.064	0.064	0.064	0.064	0.064	0.064	0.039	0.039	0.040
Number of i	91,214	91,214	91,214	91,214	91,214	91,214	91,214	91,214	91,214	91,214	91,214	91,214

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A8: Border agency cooperation index (internal and external). Baseline estimations

Estimation Method	Export Values			Number exported products					Export per product			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
TFI (log)	0.229* (0.132)	0.280* (0.146)	0.280* (0.146)	0.028 (0.036)	0.040 (0.038)	0.040 (0.038)	-0.030 (0.057)	-0.025 (0.059)		0.201* (0.115)	0.241* (0.126)	0.241* (0.126)
TFI (log)*Small Firm (dummy)		-0.449** (0.193)			-0.102** (0.046)			-0.101 (0.079)			-0.347** (0.154)	
TFI (log)*Small Size			-0.174 (0.145)			-0.064 (0.043)			-0.126 (0.078)			-0.109 (0.112)
TFI (log)*Medium Size			0.221 (0.133)			0.018 (0.035)			-0.033 (0.059)			0.203* (0.121)
TFI (log)*Big Size			0.357* (0.185)			0.068 (0.053)			-0.020 (0.066)			0.289* (0.148)
Distance (log)	-0.178** (0.087)	-0.180** (0.087)	-0.179** (0.087)	-0.101*** (0.022)	-0.102*** (0.022)	-0.102*** (0.022)	-0.232*** (0.034)	-0.232*** (0.034)	-0.232*** (0.034)	-0.077 (0.070)	-0.078 (0.070)	-0.078 (0.070)
Ln(tariff+1)	0.088 (0.344)	0.099 (0.344)	0.108 (0.344)	-0.171* (0.101)	-0.168 (0.101)	-0.165 (0.101)	-0.296* (0.173)	-0.295* (0.173)	-0.293* (0.172)	0.258 (0.288)	0.267 (0.287)	0.273 (0.287)
Import Share	2.743*** (1.032)	2.738*** (1.028)	2.737*** (1.028)	0.327 (0.235)	0.326 (0.234)	0.326 (0.233)	0.578 (0.425)	0.577 (0.425)	0.577 (0.424)	2.415*** (0.862)	2.411*** (0.859)	2.411*** (0.860)
Per Capita GDP (log)	0.142*** (0.047)	0.144*** (0.046)	0.145*** (0.046)	0.054*** (0.017)	0.054*** (0.017)	0.055*** (0.017)	0.093*** (0.024)	0.093*** (0.024)	0.093*** (0.024)	0.088*** (0.033)	0.090*** (0.033)	0.090*** (0.033)
Contiguity	0.428 (0.398)	0.439 (0.398)	0.449 (0.404)	0.109 (0.083)	0.111 (0.083)	0.115 (0.085)	0.077 (0.203)	0.079 (0.203)	0.080 (0.205)	0.319 (0.320)	0.328 (0.320)	0.334 (0.324)
Ln(TUV)	0.111*** (0.037)	0.112*** (0.036)	0.112*** (0.036)	0.021** (0.010)	0.021** (0.010)	0.021** (0.010)	0.016 (0.017)	0.016 (0.017)	0.016 (0.017)	0.090*** (0.031)	0.091*** (0.031)	0.091*** (0.031)
Observations	372,078	372,078	372,078	372,078	372,078	372,078	331,326	331,326	331,326	372,078	372,078	372,078
R-squared	0.051	0.052	0.052	0.045	0.046	0.046				0.029	0.030	0.030
Number of i	85,385	85,385	85,385	85,385	85,385	85,385				85,385	85,385	85,385

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 10-12; in levels in columns 7-9. All regressions include firm fixed effects.

Specifications in columns 7-9 have a reduced amount of observations since the Poisson estimator drops obs unambiguously predicted by fixed effects.

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

Table A9: Export diversification estimations. Dependent variable: Herfindahl index. 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)	-0.035*** (0.013)	-0.033** (0.013)		-0.021** (0.010)	-0.019* (0.010)		-0.011 (0.009)	-0.010 (0.010)		-0.008 (0.009)	-0.008 (0.009)	
TFI (log)*Small Firm (dummy)		-0.014 (0.012)		-0.015* (0.008)			-0.006 (0.007)			-0.001 (0.008)		
TFI (log)*Small Size			-0.047*** (0.017)			-0.034*** (0.011)			-0.016*** (0.006)			-0.009 (0.008)
TFI (log)*Medium Size			-0.044*** (0.016)			-0.024** (0.010)			-0.011 (0.008)			-0.005 (0.008)
TFI (log)*Big Size			-0.019 (0.012)			-0.012 (0.013)			-0.008 (0.016)			-0.013 (0.013)
Distance (log)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.010** (0.005)	0.010** (0.005)	0.010** (0.005)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.014*** (0.004)	0.014*** (0.004)	0.014*** (0.004)
Ln(tariff+1)	0.039* (0.023)	0.040* (0.023)	0.040* (0.023)	0.022 (0.031)	0.021 (0.031)	0.021 (0.031)	0.028 (0.026)	0.027 (0.026)	0.027 (0.026)	0.030 (0.027)	0.030 (0.027)	0.030 (0.027)
Import Share	-0.056 (0.043)	-0.056 (0.043)	-0.055 (0.043)	-0.050 (0.058)	-0.049 (0.059)	-0.048 (0.058)	-0.030 (0.044)	-0.030 (0.044)	-0.030 (0.044)	-0.008 (0.044)	-0.008 (0.044)	-0.008 (0.044)
Per Capita GDP (log)	-0.007** (0.003)	-0.007** (0.003)	-0.007** (0.003)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)	-0.007** (0.004)	-0.007** (0.004)	-0.007** (0.004)	-0.008** (0.004)	-0.008** (0.004)	-0.008** (0.004)
Contiguity	-0.045*** (0.005)	-0.045*** (0.005)	-0.046*** (0.005)	-0.050*** (0.007)	-0.050*** (0.007)	-0.051*** (0.008)	-0.045*** (0.007)	-0.046*** (0.007)	-0.046*** (0.007)	-0.041*** (0.007)	-0.041*** (0.007)	-0.041*** (0.007)
Ln(TUV)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)
Observations	456,884	456,884	456,884	384,529	384,529	384,529	440,172	440,172	440,172	441,059	441,059	441,059
R-squared	0.023	0.023	0.023	0.022	0.022	0.022	0.021	0.021	0.021	0.021	0.021	0.021
Number of i	91,082	91,082	91,082	82,585	82,585	82,585	90,817	90,817	90,817	90,305	90,305	90,305

Standard errors are clustered within destination country in all estimation.

All regressions include firm fixed effects.

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

Table A10: Export diversification estimations. Dependent variable: Herfindahl index. 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)	-0.023*** (0.009)	-0.024*** (0.009)		-0.012* (0.007)	-0.014* (0.007)		-0.005 (0.009)	-0.004 (0.009)		-0.010 (0.007)	-0.011 (0.007)	
TFI (log)*Small Firm (dummy)		0.010 (0.007)		0.011** (0.005)			-0.006 (0.006)			0.007 (0.005)		
TFI (log)*Small Size			-0.014 (0.009)			-0.002 (0.006)			-0.009 (0.008)			-0.004 (0.007)
TFI (log)*Medium Size			-0.019** (0.009)			-0.009 (0.008)			-0.007 (0.010)			-0.010 (0.008)
TFI (log)*Big Size			-0.032*** (0.011)			-0.022** (0.008)			0.000 (0.010)			-0.012 (0.008)
Distance (log)	0.015*** (0.004)	0.015*** (0.004)	0.015*** (0.004)	0.017*** (0.005)	0.017*** (0.005)	0.017*** (0.005)	0.016*** (0.005)	0.015*** (0.005)	0.015*** (0.005)	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)
Ln(tariff+1)	0.016 (0.025)	0.016 (0.026)	0.017 (0.025)	0.024 (0.025)	0.024 (0.025)	0.025 (0.025)	0.031 (0.026)	0.030 (0.026)	0.031 (0.026)	0.022 (0.022)	0.022 (0.022)	0.022 (0.022)
Import Share	-0.042 (0.048)	-0.043 (0.048)	-0.042 (0.048)	-0.031 (0.043)	-0.032 (0.044)	-0.033 (0.043)	-0.020 (0.045)	-0.020 (0.045)	-0.021 (0.045)	-0.024 (0.048)	-0.023 (0.048)	-0.023 (0.048)
Per Capita GDP (log)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.007* (0.004)	-0.007* (0.004)	-0.007* (0.004)	-0.009** (0.003)	-0.009** (0.003)	-0.009** (0.003)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)
Contiguity	-0.039*** (0.006)	-0.039*** (0.006)	-0.040*** (0.006)	-0.037*** (0.007)	-0.037*** (0.007)	-0.037*** (0.007)	-0.039*** (0.006)	-0.039*** (0.006)	-0.039*** (0.006)	-0.029*** (0.008)	-0.029*** (0.008)	-0.029*** (0.008)
Ln(TUV)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)
Observations	439,892	439,892	439,892	464,709	464,709	464,709	454,115	454,115	454,115	372,078	372,078	372,078
R-squared	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.016	0.016	0.016
Number of i	89,616	89,616	89,616	92,333	92,333	92,333	91,214	91,214	91,214	85,385	85,385	85,385

Standard errors are clustered within destination country in all estimation.

All regressions include firm fixed effects.

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

Table A11: Total export estimations. Robustness using country Fixed Effects

Dep. Variable: Export per products (in level)								
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.092** (0.041)	0.271*** (0.034)	0.283*** (0.023)	-0.370*** (0.029)	-0.593*** (0.024)	-0.301*** (0.018)	0.151*** (0.030)	-0.353*** (0.025)
Ln(tariff+1)	-0.631*** (0.051)	-0.564*** (0.059)	-0.654*** (0.051)	-0.624*** (0.053)	-0.654*** (0.052)	-0.636*** (0.051)	-0.635*** (0.051)	-0.596*** (0.054)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,885	384,529	440,173	441,060	439,893	464,710	454,116	372,079
R-squared	0.508	0.523	0.510	0.513	0.512	0.508	0.509	0.519

Bootstrap standard errors.

All regressions include firm and country fixed effects.

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

Table A12: Extensive margin estimations. Robustness using country Fixed Effects

Dep. Variable: Export per products (in level)								
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	-0.024 (0.017)	0.015 (0.013)	0.023** (0.009)	-0.074*** (0.012)	-0.176*** (0.010)	-0.097*** (0.007)	-0.025** (0.012)	-0.107*** (0.010)
Ln(tariff+1)	-0.285*** (0.021)	-0.341*** (0.024)	-0.287*** (0.021)	-0.329*** (0.022)	-0.299*** (0.021)	-0.304*** (0.021)	-0.297*** (0.021)	-0.261*** (0.022)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,885	384,529	440,173	441,060	439,893	464,710	454,116	372,079
R-squared	0.550	0.581	0.546	0.556	0.556	0.548	0.551	0.542

Bootstrap standard errors.

All regressions include firm and country fixed effects.

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

Table A13: Intensive margin estimations. Robustness using country Fixed Effects

	Dep. Variable: Export per products (in level)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.116*** (0.037)	0.256*** (0.030)	0.260*** (0.020)	-0.296*** (0.026)	-0.417*** (0.022)	-0.204*** (0.016)	0.176*** (0.026)	-0.246*** (0.022)
Ln(tariff+1)	-0.347*** (0.045)	-0.223*** (0.053)	-0.366*** (0.045)	-0.295*** (0.047)	-0.355*** (0.046)	-0.332*** (0.045)	-0.339*** (0.045)	-0.335*** (0.048)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	456,885	384,529	440,173	441,060	439,893	464,710	454,116	372,079
R-squared	0.524	0.541	0.525	0.529	0.527	0.524	0.525	0.534

Bootstrap standard errors.

All regressions include firm and country fixed effects.

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

Table A14: Estimations using the number of days to export as a proxy for the trade cost.

Estimation Method	Number exported products			Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
Time to export (log)	-0.117** (0.045)	-0.151*** (0.048)		0.046 (0.130)	-0.031 (0.141)	
Time to export (log)*Small Firm (dummy)		0.278*** (0.048)			0.634*** (0.122)	
Time to export (log)*Small Size			0.130*** (0.042)			0.610*** (0.117)
Time to export (log)*Medium Size			-0.044 (0.043)			0.188 (0.132)
Time to export (log)*Big Size			-0.313*** (0.069)			-0.365** (0.178)
Distance (log)	-0.098*** (0.022)	-0.097*** (0.022)	-0.097*** (0.022)	-0.066 (0.068)	-0.064 (0.068)	-0.064 (0.068)
Ln(tariff+1)	-0.186 (0.136)	-0.191 (0.136)	-0.206 (0.136)	0.144 (0.342)	0.134 (0.343)	0.102 (0.343)
Import Share	0.205 (0.202)	0.214 (0.202)	0.212 (0.202)	1.591** (0.704)	1.612** (0.702)	1.608** (0.707)
Per Capita GDP (log)	0.032* (0.019)	0.033* (0.019)	0.032 (0.019)	0.102** (0.044)	0.102** (0.044)	0.100** (0.044)
Contiguity	0.190*** (0.049)	0.194*** (0.048)	0.201*** (0.047)	0.547*** (0.181)	0.557*** (0.179)	0.572*** (0.180)
Ln(TUV)	0.027*** (0.008)	0.027*** (0.008)	0.027*** (0.008)	0.089*** (0.025)	0.090*** (0.025)	0.090*** (0.025)
Observations	463,384	463,384	463,384	463,384	463,384	463,384
R-squared	0.066	0.067	0.070	0.040	0.042	0.044
Number of i	92,338	92,338	92,338	92,338	92,338	92,338

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 A15: Estimations using the number documents to export as a proxy for the trade cost.

Estimation Method	Number exported products			Export per product		
	(1)	(2)	(3)	(4)	(5)	(6)
N. Documents (log)	-0.087** (0.038)	-0.105*** (0.039)		-0.104 (0.090)	-0.140 (0.096)	
N. Documents (log)*Small Firm (dummy)		0.138*** (0.026)			0.266*** (0.078)	
N. Documents (log)*Small Size			0.032 (0.041)			0.126 (0.084)
N. Documents (log)*Medium Size			-0.051 (0.037)			-0.055 (0.091)
N. Documents (log)*Big Size			-0.193*** (0.047)			-0.276** (0.117)
Distance (log)	-0.104*** (0.021)	-0.103*** (0.021)	-0.104*** (0.021)	-0.066 (0.066)	-0.065 (0.066)	-0.066 (0.067)
Ln(tariff+1)	-0.200 (0.137)	-0.212 (0.139)	-0.227 (0.137)	0.222 (0.355)	0.197 (0.357)	0.175 (0.357)
Import Share	0.279 (0.206)	0.291 (0.208)	0.299 (0.211)	1.548** (0.692)	1.572** (0.694)	1.585** (0.704)
Per Capita GDP (log)	0.018 (0.018)	0.018 (0.018)	0.017 (0.018)	0.056 (0.041)	0.055 (0.040)	0.053 (0.041)
Contiguity	0.208*** (0.048)	0.210*** (0.047)	0.213*** (0.046)	0.553*** (0.173)	0.557*** (0.172)	0.561*** (0.173)
Ln(TUV)	0.026*** (0.008)	0.026*** (0.008)	0.027*** (0.008)	0.090*** (0.024)	0.091*** (0.024)	0.092*** (0.024)
Observations	463,384	463,384	463,384	463,384	463,384	463,384
R-squared	0.066	0.067	0.070	0.040	0.041	0.042
Number of i	92,338	92,338	92,338	92,338	92,338	92,338

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 A16: Total export estimations. Robustness including low-corruption and ASYCUDA countries

	Dep. Variable: Export per products (in level)							
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	1.528*** (0.476)	0.918*** (0.183)	0.302*** (0.081)	0.234 (0.260)	-0.077 (0.237)	0.117 (0.296)	0.290* (0.165)	-0.050 (0.273)
TFI (log)*Medium Size	0.707* (0.371)	0.500** (0.238)	-0.135 (0.159)	0.430** (0.204)	0.565** (0.237)	0.281 (0.283)	0.145 (0.195)	0.429 (0.285)
TFI (log)*Big Size	-0.214 (0.570)	-0.230 (0.493)	-0.531 (0.336)	0.749* (0.426)	1.205*** (0.314)	0.567 (0.447)	-0.227 (0.373)	0.575 (0.432)
Firm FE	yes	yes	yes	yes	yes	yes	yes	yes
Country Controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	320,192	293,626	301,317	307,566	319,910	319,965	316,389	247,162
R-squared	0.075	0.075	0.072	0.073	0.079	0.073	0.069	0.050
Number of i	77,106	73,743	76,157	75,771	77,076	77,095	76,447	70,550

Bootstrap standard errors.

All regressions include firm fixed effects and country controls.

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

Table A17: Extensive margin estimations. Robustness including low-corruption and ASYCUDA countries

Dep. Variable: Export per products (in level)								
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	0.454*** (0.133)	0.189*** (0.055)	0.087*** (0.032)	0.081 (0.077)	0.045 (0.077)	0.089 (0.089)	-0.017 (0.052)	-0.059 (0.070)
TFI (log)*Medium Size	0.231** (0.106)	0.102* (0.058)	-0.002 (0.033)	0.071 (0.062)	0.207** (0.077)	0.084 (0.072)	-0.030 (0.051)	0.041 (0.051)
TFI (log)*Big Size	-0.049 (0.169)	-0.084 (0.132)	-0.120 (0.082)	0.208 (0.146)	0.456*** (0.112)	0.228 (0.141)	-0.107 (0.096)	0.051 (0.107)
Firm FE	yes	yes	yes	yes	yes	yes	yes	yes
Country Controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	320,192	293,626	301,317	307,566	319,910	319,965	316,389	247,162
R-squared	0.063	0.056	0.060	0.059	0.068	0.062	0.059	0.040
Number of i	77,106	73,743	76,157	75,771	77,076	77,095	76,447	70,550

Bootstrap standard errors.

All regressions include firm fixed effects and country controls.

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

Table A18: Intensive margin estimations. Robustness including low-corruption and ASYCUDA countries

Dep. Variable: Export per products (in level)								
	Information Availability	Advance Ruling	Appeal Procedure	Fees and Charges	Formalities Document	Formalities Automation	Formalities Procedures	Border agency (Int. + ext.)
TFI (log)*Small Size	1.073*** (0.360)	0.729*** (0.132)	0.215*** (0.057)	0.152 (0.204)	-0.121 (0.204)	0.027 (0.223)	0.308** (0.124)	0.009 (0.224)
TFI (log)*Medium Size	0.475 (0.288)	0.398* (0.197)	-0.133 (0.134)	0.359* (0.177)	0.357 (0.217)	0.197 (0.229)	0.176 (0.168)	0.388 (0.252)
TFI (log)*Big Size	-0.165 (0.428)	-0.146 (0.374)	-0.410 (0.259)	0.541* (0.311)	0.748*** (0.250)	0.339 (0.323)	-0.120 (0.303)	0.523 (0.341)
Firm FE	yes	yes	yes	yes	yes	yes	yes	yes
Country Controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	320,192	293,626	301,317	307,566	319,910	319,965	316,389	247,162
R-squared	0.044	0.047	0.042	0.043	0.045	0.042	0.040	0.031
Number of i	77,106	73,743	76,157	75,771	77,076	77,095	76,447	70,550

Bootstrap standard errors.

All regressions include firm fixed effects and country controls.

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