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Abstract

It has been emphasized that international promotion activities such as state visits or the presence of embassies, consulates and export promotion agencies help foster trade when there are search costs and/or uncertainty. In this paper we try to disentangle the differential effect that foreign service (embassies and consulates) has on both the establishment of trade links with countries, and the effect on trade volumes with already existing trading partners (the extensive and intensive margins at the country level). Using the estimation procedure suggested by Helpman, Melitz and Rubinstein (2007) and a cross-section of 21 exporters and 162 importers as in Rose (2005), we find that the presence of a foreign service office in a given country increases the probability of trading with that partner between 11% and 18%, but that it has no effect on the volume of trade with already existing trading partners. We then proceed to evaluate the importance of the extensive margin at the sectoral level, finding that these probabilities are substantially larger for more differentiated sectors.

Keywords: Foreign service, uncertainty, extensive margin, intensive margin, gravity.

JEL codes: F12, F13, F15, F55.

1 Introduction

Do international promotion activities foster trade? Do they help create new trade links among previously non-trading countries (the extensive margin at the country level) and/or do they help intensify those links (the intensive margin at the country level). This paper tries to answer these questions.

Of course we are not the first ones to address some of these issues. Export promotion agencies, foreign missions and foreign service (henceforth, international promotion activities or IPA) have been widely used to promote export activities of countries, with the goal of increasing export volumes, the number of firms that engage in exporting activities, the number of countries reached by domestic firms, and the diversification of those exporting activities in markets and goods. As these promotion activities became more and more important, an empirical literature emerged which tries to analyze both their importance and their efficiency (among others, see, for instance, Kessing and Singer, 1991a, 1991b, Lederman *et al,* 2006, Volpe *et al,* 2007, and Rose, 2005), with different results depending on the type of activity, the countries in the sample, the time frame, and the outcome being analyzed.[1]

In general, most of these studies have focused their analysis on the effect on either total bilateral trade volumes or on whether they helped increasing the number of products exported to a given country. However, to the best of our knowledge, nobody has tried to quantify the potentially differential effect of these activities on the extensive (whether they help to find new trading partners at the country level) and the intensive margin (the effect on trade volumes with already existing trading partners). This is the aim of this paper.

The motivation for it stems from the same reasoning that is typically used to justify the need for international promotion activities: uncertainty. In a world without frictions, international promotion activities should play no role; they would not have any effect on exporting activities since there is nothing stopping firms from engaging in exporting activities whenever it is profitable to do so. The most repeated justification for the role of international promotion activities is that of imperfect information. For instance, firms may not know which exporting markets are profitable with certainty, the contracting procedures in a foreign country or the enforcement of those contracts may be uncertain, or consumers in the foreign country may not be well informed about the characteristics of the domestic products. In this case, promotion activities may help eliminate or, at least, reduce these uncertainties that abound in both sides of the market. More importantly, if uncertainty is the driving force, are we sure that the effects of these promotion activities go beyond those of establishing new links? The answer to this question may have important policy implications. For instance, if international promotion activities only have an effect on the establishment of new links, it may be hard to justify the increasing

[1] See below for a review of their results.

number of export promotion agencies and their enlarging expenditures. Furthermore, as Rauch (1996, 1999) has argued, the lack of information may lead to the formation of informal networks. Whether these informal networks leave no role for government sponsored international promotion activities is an empirical issue.

Several theoretical contributions suggest that the effect on both margins may not be the same. Among them, in a recent paper, Segura-Cayuela and Vilarrubia (2007), we have argued that informational externalities generated through other firms actions may be an alternative way of obtaining information about a given market. In particular, by observing how other firms are performing in a given foreign market, producers trying to decide whether to enter that given market can make inference about its expected profitability. The problem is that this same information providing device simultaneously generates incentives to free-ride on information, which may make firms more reluctant to enter new markets.

In this context, international promotion activities should have a large effect as they help establish new trade links, but not necessarily explain their trade volumes once those links have been formed. Informational externalities may be enough to disseminate information. On the other hand, Rauch (1999) argues that establishing a link is not enough since uncertainty may be product specific and product life cycles are limited, giving a rationale for why ongoing international promotion activities may have an effect on trade volumes even with existing partners.

To quantify the relative importance of the two margins we use the procedure in Helpman, Melitz and Rubinstein (2007) (henceforth HMR). Due to data availability, we only analyze the role of foreign missions (embassies and consulates, as in Rose, 2005) helping establish new links and increasing volumes with those trade links already formed. This framework also allows us to correct for selection bias of trade link formation and the heterogeneity of exporters (see the empirical implementation and HMR for the details on this).

We perform a two-stage procedure that allows us to ascertain the relative importance of foreign service on the intensive and extensive margins using cross-sectional bilateral trade data. The first stage allows us to generate controls for the formation of new trade links and for the effects of firm heterogeneity on bilateral trade volumes which we include in our second stage, where we perform a gravity-type estimation of bilateral trade flows.

We find that foreign service agencies play a crucial role in the formation of trade links (extensive margin) and this is the only channel through which it has an effect on aggregate bilateral trade volumes. More concretely, we find that the presence of a foreign service office increases the probability of trade by between 11% and 18%, depending on the specification. These results are robust to the potential endogeneity arising from the fact that countries might endogenously set up international offices in

those markets which present the largest potential for their exports. We also apply this procedure to the estimation of sectoral bilateral trade links and volumes. We find very similar effects on the trade link formation properties of foreign service offices with the effect being larger for those sectors producing more differentiated goods, which might be subject to larger uncertainties when accessing foreign markets.

The empirical literature on the impact of international promotion activities is large so we only mention those papers most related to our work. Kessing and Singer (1991, 1991b) evaluated the efficiency of export promotion offices (EPO) finding very negative results. Lederman *et al* (2006), using several measures of EPOs activities, find that for each dollar of export promotion there is a corresponding $300 increase in the volume of exports. Nitsch (2005) finds that a typical external visit by a government official increases bilateral exports by 10 %. Volpe *et al* (2007) find a strong effect of EPO on the number of products exported to a given country, while embassies and consulates (foreign service) seem to have no effect. The paper that is more related to ours is Rose (2005) which estimates the effect of foreign service on total trade volumes finding that bilateral exports increase around 6-10% for each additional consulate. However, as mentioned before, none of these papers try to disentangle the differential effect of international promotion activities on the extensive and intensive margins at the country level, nor they try to correct for selection bias of trade link formation and the heterogeneity of exporters that access a given market. To the best of our knowledge, our paper is the first to do so.

The paper proceeds as follows: section 2 describes the data used in the estimation whose procedure is described in detail in section 3. Section 4 provides a description of the results we obtain both for aggregate and sectoral bilateral trade flows, along with some robustness checks. Finally, section 5 concludes and presents some policy implications.

2 Data description

2.1 Dataset construction

We are interested in estimating the determinants of the existence of bilateral trade flows among countries and, therefore, we need to take into account all possible trade flows, not only those that take positive values. To this effect, we construct the most comprehensive dataset possible considering every possible bilateral trade flow between any two trading partners in any two-digit SITC sector. Into this *empty* dataset we merge data on bilateral trade flows, on individual country characteristics, and on characteristics of each bilateral relationship.

The data on bilateral trade flows at the sectoral level has been obtained from Feenstra *et al.* (2005). These data contain information about bilateral trade flows between

1962 and 2000 at the sectoral level up to the 4-digit SITC disaggregation level. We only use the data for year 1999 which is the most recent year for which more reliable data is available. Furthermore, for computational purposes, we collapse these data into its corresponding 66 two-digit SITC categories and we drop observations corresponding to the one-digit category 9 in the SITC which corresponds to "Commodities and transactions not classified elsewhere in the SITC". This leaves us with data for 62 two-digit SITC categories as listed in Table 1 in the Data Appendix. The aggregate bilateral trade flows among countries were obtained by adding across the sectoral data for every country pair.

Data on individual country's characteristics as well as data on each bilateral relationship were obtained from the dataset used in Ruiz and Vilarrubia (2007) which provides a thorough description of the data construction process. These data include a large number of controls used in the standard gravity equation estimation of bilateral trade flows such as distance (measured as the distance between each country's capital cities), the presence of a land border, the presence of a common language, of a common colonizer, membership in the same trade agreement and currency union. As for individual country characteristics, the dataset contains information about GDP, GDP per capita, area and maritime access (i.e. it has information about the island and landlocked status of each country as well as the number of miles of coast it has).

Finally, we merge data on the number of embassies, consulates, and trade promotion offices from any given origin country in any other host country. These data were obtained from Rose (2005) and they contain, not only the number of these offices but also the number of workers they employ. We associate the origin country with the exporter country and the host country as the importer and we proceed to investigate the role that these embassies have played on each margin. This interesting dataset has two unfortunate drawbacks. Firstly, it is only available for 21 exporting countries which report their presence (in terms of embassies, consulates and trade promotion offices) vis-à-vis around 163 countries and territories. The list of exporters and importers can be found on table 3 in the Data Appendix where the subset of exporters is identified in bold font within the (more comprehensive) list of importers. Secondly, these data are only available for years 2002 and 2003 and, even then, with a very reduced amount of intertemporal variation which naturally leads our analysis to focus on cross-sectional results instead of the potentially richer panel effects that we might observe.

2.2 Description of the Data

After combining data from all these sources we are left with data on just over 210,000 observations which correspond to all potential bilateral trade flows corresponding to all possible links between 21 exporters and 163 importers in 62 sectors.

As reported by Helpman et al. (2007), there is a significant portion of non-existing

observations in international trade flows. If we were to restrict our analysis only to aggregate trade flows among countries, our data shows that almost 8% of all potential trade flows between countries are, in fact, zeros and that, therefore, we obviously have data on over 92% of all possible aggregate bilateral trade flows.[2] The share of positive trade flows in our data is significantly larger than the one reported by Helpman *et al.* (2007). This could largely be attributable to our sample containing a reduced set of exporters which actually correspond to some of the most active exporters in the world. Nevertheless, and as one would expect, the share of non-existing trade flows increases substantially if we consider sectoral data: over 60% of flows in the average sector correspond to non-existing flows. Table 4 reports the share of existing (positive) and non-existing (zero or non-reported) trade flows among all potential trade flows in every sector. As expected, the share of zeros varies greatly from one sector to the next, from 98.3% of zeros in sector 35 ("Electric current") to just over 33% in sector 77 ("Electrical machinery and appliances"), just to cite the two bounds.

Table 5 provides a summary of all variables used in the estimation grouped into three separate categories. The first set of variables correspond to the standard variables used in country-level standard gravity estimations of bilateral trade flows. It includes data on the value of bilateral sectoral trade flows, on its existence, on the value of aggregate bilateral trade flows and its existence as well as information on some of its most commonly considered determinants such as distance, presence of a common border, language, colonizer or an index of religious similarity and membership in the same free trade area and currency union. In the second category, we include information about the number and presence of official agencies between the source (exporter) and host (importer) country as well as information on the attractiveness and geopolitical importance of each country that we use in the instrumentation of the decision to set up an embassy. The third set of variables correspond to variables describing the state of information technology in each country: availability and density of internet, bandwidth and computers. We use these variables to construct the variable "information technology" that we use in one of the robustness checks of our results. These data correspond to 1999 and were obtained from the World Development Indicators (WDI) database put together by the World Bank.

3 Estimation procedure

3.1 Econometric Procedure

In order to investigate the relative importance of the extensive and intensive margin in international trade, we employ a two-stage procedure very similar to the one developed

[2] An analysis of flows using the largest possible dataset with 168 exporters and 168 importers reveals these figures to be close to 58% and 42% respectively.

by Helpman, Melitz, and Rubinstein (2007). This procedure aims to correct for two effects: (1) the relative importance of the extensive and an intensive margin in adjusting the total volume of trade, and (2) the effect on trade volumes of non-observable firm heterogeneity . The procedure constitutes an extension of the classic Heckman (1979) sample selection correction procedure augmented in order to take into account the heterogeneous nature of the agents determining aggregate bilateral trade flows among countries.[3] In this setup, parameter identification requires the existence of a variable that affects the probability of observing a non-zero flow between two countries (the intensive margin) but not the volume (the extensive margin). In other words and thinking in terms of firm' decisions, we need a variable that affects the decision to enter a given market (that is, it affects the fixed costs), but it does not affect the decision of how much to produce in that country (it does not affect variable costs). Alternatively, a variable which affects both decisions in opposite directions, as does the land border dummy variable, would also work.[4]

More formally, in a first stage, we estimate a probit equation of the type:

$$\rho_{ijs}^{T} = \Pr\left[1(T_{ijs}) = 1\right] = \Phi(X_{ijs}, Z_{ijs}, \varepsilon_{ijs}^{T}), \tag{1}$$

where $1(T_{ijs})$ is an indicator function that takes a value of 1 when there is a non-zero trade flow from country i to country j in sector s, and zero otherwise; Φ is the cdf of the standardized normal distribution, X_{ijs} corresponds to variables which affect both the probability and the volume of trade, and Z_{ijs} are variables that are used for our exclusion restriction i.e. those that affect the probability of observing a positive volume of trade without actually affecting the trade volume if these was to be positive. In this paper, we consider the role that trade promotion institutions play in promoting the creation of new trade links via a reduction in the existing uncertainty faced by domestic firms when pondering access to foreign markets. More precisely, we focus on the role that the presence of even a single agency has and thus, in our benchmark, we define Z_{ijs} as an indicator variable for the presence of at least one trade promotion agency of the exporting country in the importing country.

We include in X_{ijs} variables such as (the log of) bilateral distance (between capital cities) as well as indicator variables for the presence of a land border, of a common language, and common membership in a regional free trade area or a currency union. Given our assumption on the fixed effect nature of the error structure, we can not use among X_{ijs} any variable which are either exporter or importer specific such as GDP, population, sea access, or land area.

Following this regression, we construct the inverse Mills ratio as $\widehat{\eta}_{ijs}$ which is included

[3] HMR show that the second form of correction is even more important than the first, biases in the results are larger when failing to correct for heterogeneity.

[4] For details on how to go from firm level decisions to aggregate flows, see Helpman *et al.* (2007).

as a regressor in the next step. Also with the results from the first stage, we are able to construct a polynomial approximation to the function $h(\omega_{ijs})$ that accounts for the correction for firm size heterogeneity as suggested by Helpman *et al.* (2007).

In this study, none of the control variables (X_{ijs}) we consider varies at the sectoral-bilateral level which implies that the sector-by-sector estimation of equation (1) would be equivalent to the estimation of a pooled regression with all sectoral data where we included sectoral fixed effects, and we allowed the coefficients of all controls and interest variables to vary by sector. The error term, ε_{ijs}^{T}, is assumed to contain an exporter fixed effect for each sector with the following structure $\varepsilon_{ijs}^{T} = \delta_{is}^{T} + \nu_{ijs}^{T}$ where ν_{ijs}^{T} is assumed to be a well-behaved error term.[5]

The estimation of equation (1) using non-linear methods, such as a probit, together with the use of exporter dummies to perform the fixed effects estimation. might be subject to the incidental parameter problem and introduce a bias in the coefficients of the rest of variables (X_{ijs}, Z_{ijs}). However, as pointed out by Fernández-Val (2007), this bias does not affect the estimated marginal effects and, therefore, the predicted values obtained for the dependent variable. As a robustness check, we also estimate equation (1) using a linear probability method where we can safely use a full set of exporter dummies to account for the fixed effects nature of the error term.

After constructing η_{ijs} and the polynomial approximation to $h(\omega_{ijs})$, we include these two terms in the gravity estimation of trade volumes:

$$T_{ijs} = f(X_{ijs}, \widehat{\eta}_{ijs}, h(\widehat{\omega}_{ijs}), \varepsilon_{ijs}^{G}), \tag{2}$$

where ε_{ijs}^{G} is an error term which contains a exporter and importer fixed effect as $\varepsilon_{ijs}^{G} = \delta_{is}^{G} + \delta_{js}^{G} + \nu_{ijs}^{G}$, where ν_{ijs}^{G} is a well-behaved error term.

For the purposes of our paper, we apply the previous estimation procedure to both aggregate bilateral trade flows as well as to sectoral flows.

3.2 International promotion activities and the extensive margin

The role that IPA may have in the creation of new trade links and not in volumes of existing trade links deserves some discussion. For this to be true (and for our estimation procedure to allow proper identification) it has to be the case that their existence only affects the decision of firms to enter a new market while it does not have an effect on their decisions once they have entered that market.[6] In other words, IPA should only have an effect on fixed costs but not on variable costs, as emphasized by HMR.

As noted in the introduction, IPA may play a role on export decisions if there is some market failure, and in particular, the most emphasized failure is the lack of infor-

[5] We do not include importer fixed effects in this stage since, when we control for endogeneity concerns on the setup of foreign service offices, we would not have enough variability in our data.

[6] In particular, it should not affect their production decisions after entrance.

mation. As Rose (2005) points out, one of the objectives that the US State Department establishes for itself is that of "*creating jobs at home by opening markets abroad.*"[7] Furthermore, as Lederman et al. (2006) describe, the role of IPA is

> *"to help (potential) exporters find markets for their products, as well as provide them with a better understanding of products demanded in different export markets. One can divide the services offered by EPAs into four broad categories: 1) country image building (advertising, promotional events, but also advocacy); 2) export support services (exporter training, technical assistance, capacity building, including regulatory compliance, information on trade finance, logistics, customs, packaging, pricing); 3) marketing (trade fairs, exporter and importer missions, follow-up services offered by representatives abroad); and 4) market research and publications (general, sector, and firm level information, such as market surveys, on-line information on export markets, publications encouraging firms to export, importer and exporter contact databases)."*

From all this, it is clear that IPA activities may affect the decision of firms to enter a given market. On the other hand, it is hard to make a strong case on whether those activities also help reduce variable costs and thus increase the intensive margin in those countries given their expressed objectives. Whether this is the case remains an empirical matter. Thus, it seems reasonable to use the presence of foreign missions as our exclusion restriction to identify the extensive and the intensive margins.

Having said that, we want to establish whether it is actually the case that IPA and uncertainty play a role mainly through the extensive margin at the country level. This is particularly important if we want to compare our results with those of Rose (2005), that shows (without distinguisihing between margins) that the effect of foreign service is of a 6-10% increase in bilateral exports for each additional consulate. For this reason, we use alternative measures to identify the role of the extensive (relative to the intensive) margin. See below for the discussion on this.

It is important to note the possible drawbacks of our analysis. First of all, we have endogeneity concerns, which are addressed as in Rose (2005), and discussed at further length in the next sub-section. Second, we are using the cross-sectional variance to analyze the impact of IPA on the extensive and intensive margins at the country level, which is an intrinsically dynamic matter. We do this because of data restrictions since our sample does not contain sufficient variation on the presence or number of foreign missions over time to identify the dynamic effect. This may be a concern if, first, given that we already address reverse causality, there remain omitted variables that determine both the existence of a trade link between two countries and the presence of

[7] See Rose (2005) for similar quotes about other countries' foreign missions objectives.

embassies, consulates, and trade promotion offices between them. Nevertheless, as long as the standard gravity controls such as common border, colonial links and others are capturing this possibility, this should not be a concern. Secondly, the same reasoning applies if we still had omitted variables at the importer or exporter level that affect the relative importance of the two margins, which again are likely to be controlled for by the importer and exporter fixed effects we include.

Finally, it could be argued that the use of aggregate flows does not allow us to identify the effect on the extensive margin at the firm level. That is, IPA may be important for the establishment of new trade links with new countries and, also, after the link is formed, for the entrance of new firms and products in those same countries. However, if this was the case, we should see this reflected on total volumes, something that we do not observe in our results below. A reason for this, as discussed earlier, may be that as we have emphasized in Segura-Cayuela and Vilarrubia (2007), informational externalities generated through other firms' actions may be an alternative way of obtaining information about a given market. In particular, by observing how other firms are performing in a given foreign market, producers trying to decide whether to enter that given market can make inference about its expected profitability and, ultimately, have an impact on the intensive margin at the country level. So, as long as our estimation strategy is convincing enough, we do not seem to identify an effect of IPA on the extensive margin at the firm level after a link between any two countries has already been formed.

3.3 Endogeneity concerns

When using the presence of embassies and consulates of the exporting country in the importing country, and as Rose (2005) rightfully points out, a potential endogeneity problem emerges. The source of this lies on the fact that the decision to set up an embassy or a foreign trade promotion office might itself be endogenous: the decision of country i to set up an office in country j might be related to the potential that market j offers to firms in country i. If this is the case, our identification procedure for the extensive vis-à-vis the intensive margin would not be correct. We recognize this possibility and attempt to correct for it by introducing another stage in our procedure, where we proxy the probability of setting up a foreign mission on a set of variables that attempt to capture the general (tourist) attractiveness of a country, as well as its geopolitical importance. A first set of instruments includes the number of Zagat's guides, the number of Condé-Nast Top 100 destinations in the country, the number of Lonely Planet guides, the number of Economist city guides as well as the volume of oil reserves held by the country. Also, as in Rose (2005), as a robustness check, we extend our instrument set to include information about other guides (Michelin and Baedeker) as well as information about natural gas reserves. Given that our variable of interest

is the indicator for the presence of an official trade promotion agency, we estimate a probit model on the probability that country i has set up a foreign mission in country j and thus, we run the regression:

$$\rho_{ij}^{Z} = \Pr[1(Z_{ij} = 1) = \Phi(X_{ij}, T_{ij}, \varepsilon_{ij}^{Z}), \tag{3}$$

where we also include the bilateral characteristics of country i and j as well as the aforementioned set(s) of instruments (T_{ij}), and an error term which we assume to be well-behaved.

We estimate this equation and include its predicted value $\widehat{\rho}_{ij}^{Z}$ as a regressor in equation (1) instead of Z_{ij}. It is important to keep in mind that in this additional stage both the dependent and independent variables are the same across all sectors. Thus, when doing the estimation at the sector level the instrument for the presence of a trade promotion agency is going to be exactly the same for all sectors as well as for the estimation of aggregate bilateral trade flows.

4 Results

4.1 Aggregate results

We first estimate the role that the presence of trade promoting agencies plays in promoting increases in international trade via the intensive margin, that is, by fostering the formation of trade links at the aggregate level. It is important to keep in mind that in our aggregate data, only 8% of all potential trade flows correspond to zero trade flows. Table 6 shows the results of estimating our first stage, to which we also refer as the selection equation.

The coefficient on the presence of a foreign service office is shown to have a positive and significant effect on the formation of trade links among countries. Our findings suggest that the presence of a foreign service office from an exporter in an importer country increases the probability of the existence of a trade link by over 11%. The effect of distance in this selection equation has the expected sign and it is strongly significant. The rest of the coefficients are not significantly different from zero which could be attributed to one of two factors: (i) the reduced variation in the dependent variables or (ii) the reduced and non-random sample of exporters in our data.

As described in the econometric section, using this estimation we construct η_{ij} to control for the sample selection effect and a polynomial approximation to $h(\omega_{ij})$ which allows us to control for the effects of firm heterogeneity on aggregate trade flows. These constructs are then included as regressors in the next stage where we estimate a gravity-type regression of aggregate bilateral trade flows on these variables as well as on the standard variables considered in the literature. The results of this exercise are presented in table 7 next to the results of estimating a gravity equation without taking into account

the intensive-margin effects of trade promotion agencies. Recall that this estimation also includes exporter and importer fixed effects which allow us to control for the potential biases that might arise from the non-inclusion of the multilateral resistance terms (given by the ideal price indices).[8] As it can be seen in the first column of table 7, all the variables in this estimation have the expected sign and are highly significant: while distance reduces the expected trade volume, sharing a border, a language, a colonizer, or a belief system all promote bilateral trade albeit at different intensities. If we compare these results with those of a standard gravity equation, we find that taking into account the intensive-margin effect cause the coefficient on distance to fall significatively while the (positive) effect of borders is amplified. The effect on the rest of the coefficients is of an attenuation but the difference is smaller. These results suggest the importance of understanding the determinants not only of the extensive margin (trade volumes) but also of the intensive margin (trade links) for the understanding of international trade and its determinants.

So far we have established that the presence of foreign service offices increases the probability of exporting to that country. This does not mean that foreign service does not have an effect on the intensive margin between two countries as we do not control for this on the gravity equation. Unfortunately, our identification strategy does not allow us to include the same variable in both the selection equation and the gravity equation.

For this reason, and to disentangle the differential effect on the intensive and extensive margins, we do two different exercises. In a first test, we repeat the previous two steps and include in the gravity regression the number of embassies, consulates, or trade promotion offices beyond the first one in that given bilateral relationship. The results are displayed in the first column of table 8. We find the coefficient on this variable in the second stage to be statistically not different from zero. This reinforces our prior that the presence of any such agency is really important for the formation of trade links but that its effect on the extensive margin (once we control for the effect on the intensive margin) is not important.

The second exercise we perform involves the use of an additional variable to identify the model, variable also aimed at capturing the role of informational asymmetries on the extensive margin.[9] It has been suggested that the emergence of information technology has helped reduce the cost of acquiring and transmitting information. We define this variable as the interaction between the density of internet servers in the importing country interacted with the density of internet connections in the exporting country. This measure aims to capture the potential amount of information available about an

[8] See Anderson and van Wincoop (2003) for a discussion on the importance of multilateral resistance and the biases arising from its omission and Feenstra (2002) for a discussion on a fixed effect correction of the omitted variable bias.

[9] Alternatively, we could use religious similarity to identify our empirical model as in HMR. Given our emphasis on uncertainty, we prefer our information technology variable.

importing country (server density) that could be available to the average firm in the exporting country (internet connections density).[10] We include this variable in our selection equation instead of the variable on the presence of a foreign service office. In the second stage, we include the number of embassies and consulates over and above the first one and as it can be seen in the second column of table 8 we do not find this variable to be different from zero at standard significance levels. We take this result as further evidence of the importance of the *first* international agency on the extensive margin of international trade but its negligible effect on the intensive margin after controlling for the previous effect.

How does this finding compare to Rose (2005) who finds that that the effect of foreign service is of a 6-10% increase in bilateral exports for each additional consulate? It is, first of all, important to point out that they are not incompatible given that Rose (2005) uses bilateral flows between countries without correcting neither for the selection effect nor for exporter heterogeneity. Thus, the effect he reports could be driven by this two biases and simply be capturing the fact that foreign missions do indeed increase the probability of trading with a given country.

As we mentioned in the econometric section, one of the main concerns in Rose (2005), as well as in the present work, is the potential endogeneity arising from the decision to set up embassies, consulates, and trade promotion offices according to the importing country's market attractiveness. This problem could be especially pervasive for us given our focus on the extensive and intensive margins: the presence of a foreign service office is likely to be correlated with both margins and, thus, not a valid instrument for the selection equation. To this effect, we instrument the presence of an embassy in the host (importing) country by its tourist attractiveness and geopolitical importance. We use the set of variables described in the econometric section to proxy these two concepts in an additional stage to our procedure, where we estimate a probit for the presence of an embassy on those variables. The results of this estimation are presented in table 9 in the Appendix for two possible sets of instruments. These estimates are, then, used to construct the instrument which is, essentially, the probability that the exporting country has, indeed, an international agency in the importing country (i.e. the predicted value from this regression). The coefficient on all variables are quite consistent across both specifications. Using the predicted probabilities from these estimations, we re-estimate our selection and gravity equations with the two instruments we construct, one for the restricted and one for the expanded instrument sets.

The results of the estimation of the selection equation are presented in table 10. While the results across the two instrumentations are quite similar, two main facts are

[10] The variable is defined as the interaction between the number of internet servers per one million people in the importing country and the number of internet users per 1000 people in the exporting country. The results subsequently described are robust to the use of similar measures for each variable such as overall counts and existing bandwidth.

quite striking. The first one is the increased importance of the presence of an embassy or consulate in the formation of trade links: the coefficient in this specification is around 0.185 relative to 0.113 in the standard selection equation, both of them quite precisely estimated. The second and first surprising result is the estimated coefficient on most of the controls used in this regression which have the opposite signs as one would expect and as we obtained earlier. This apparent contradiction is attributable to the inclusion of this same set of controls in the instrumenting regression where, for instance, distance has a large and significative negative coefficient. The composite effect of distance (and most other controls) has the expected sign once we take into account its effect on the predicted probability of the presence of a trade promotion agency.

Table 11 shows the estimation results of the gravity estimation. The first two columns correspond to the two possible instruments we defined for the presence of a foreign service office which, in turn, generated different (albeit very close) prediction for the existence of trade links and which, subsequently generate the correction for the sample selection (η_{ij}) and for the firm heterogeneity correction ($h(\omega_{ij})$). The gravity results are very similar across the two instrumentation strategies considered and, in turn, very close to the ones we obtained without performing any instrumentation. We report the same standard gravity as we did in the table with the earlier results and the same comparison still applies. The coefficient on distance is sensibly reduced from an estimated -1.215 to just -1.037 for the most complete set of instruments. A similar pattern can be observed on the estimation of the common colonizer effect whose magnitude drops from 0.73 to around 0.58. Other coefficients see their effects amplified, such as the one on the presence of a common land border whose estimated effect jumps from an estimated 0.54 in the standard gravity model to around 0.95 in the estimation where we control for trade link formation.[11] The coefficients on sharing a common language and on religious similarity do not seem to be altered by this correction.

4.2 Sectoral results

Having established the importance of foreign service offices only for the extensive margin we now turn to a sector-by-sector estimation of the importance of this margin. We first perform the simple two-stage procedure, and then correct for the potential endogeneity and employ the instrumentation of the presence of an embassy or consulate.

We estimate equation (1) for all 62 sectors with the only exception of that for sector 35 ("Electric current") since the large number of non-existing values (over 98% of all possible values) prevents the estimation from being carried out. Table 12 displays the estimated marginal effect of the presence of an official agency on the existence of a given bilateral trade link. The estimated coefficient is positive and significant at over

[11] These coefficients imply a border effect of around 71% in the standard gravity estimation and of close to 150% for the corrected model.

the 1% level for all sectors; the corresponding marginal effect are somewhat larger in magnitude to the one we estimated for the aggregate trade flows. This effect is a direct consequence of the significantly larger proportion of zero flows in the sectoral data relative to the aggregate data. There are also some interesting differences when examining the magnitude of the coefficient across sectors: the impact is significantly larger for sectors producing more differentiated goods, such as 1-digit SITC sectors 6 ("Manufactured goods") and 7 ("Machinery and transport equipment"), than for sectors where homogenous goods play a more significant role, such as sectors 2 ("Crude materials"), 3 ("Mineral fuels"), and 4 ("Animal and vegetable oils").

The tables containing the full regression results are not presented, due to space constraints, but are available from the authors. Instead, table 13 shows the complete regression results for a few selected sectors:

4 *Cereals and cereal preparations*

25 *Pulp and waste paper*

58 *Plastics in non-primary forms*

65 *Textile yarn, fabrics, made-up articles, and related products*

77 *Electrical machinery, apparatus and appliances*

78 *Road vehicles (including air-cushion vehicles)*

The first two sectors could be defined as homogeneous goods sectors, while the last two ones fall squarely in the category of heterogonous/differentiated goods. As emphasized by Rauch (1999) that argues that search barriers are larger for more differentiated goods, we would expect our selection variable related to information asymmetries among countries to have a stronger effect on the later than on the former. This intuition is confirmed by the results: the marginal effect on the probability of the existence of a trade link increases substantially more with the presence of an official agency in sectors 77 and 78 (with marginal effects of 51.8% and 43.3%) than in sectors 4 and 25 (with marginal effects of 38.9% and 18%).

Next, we estimate the gravity equation for every sector including among the regressors the standard determinants as well as the terms constructed in the first stage. We find these correction terms to be significant in all but 11 of the 61 sectors at standard significance levels.[12] Regarding the coefficients on the rest of variables, we observe the same qualitative effects as we do in the aggregate results. We present the results of the gravity estimation for selected sectors in table 14. Sectors 4 and 25 appear to be among the 11 sectors for which the selection and heterogeneity correction do not appear to be jointly significant in the gravity estimation.

[12] Recall that we are unable to perform the estimation for sector 35.

In this sectoral estimation, we correct for the potential endogeneity in the same fashion as we did in the estimation of aggregate bilateral trade flows. Given that neither the dependent variable nor the independent variables in the instrumentation stage vary according to sector, we simply use as instruments the two variables we generated earlier using two different instrumentation sets.

Table 15 reports the marginal effect of the instrument constructed using the expanded instrument set in the probit regression for the existence of a sectoral bilateral trade flow. We find the effect to be positive and significantly different from zero at the 1% in all sectors. We find the same pattern as we did before correcting for the endogeneity in the decision to set up an official agency. However, the estimated marginal effects of the instrumented presence of an embassy or consulate on the probability of observing a positive trade flow are now significantly larger than those estimated without instrumentation. We attribute this difference in magnitude to the fact that the new dependent variable is actually the *probability* that there is an embassy of the exporting country in the importing country for every country pair instead of the given *actual* presence of this embassy, which we considered earlier. In other words, the dependent variable used to predict the existence of a trade flow, which was an indicator variable in table 12, is now a continuous variable, which forces us to change the interpretation of the coefficient. When interpreting these coefficients, it is useful to keep in mind that the average of the indicator variable for the presence of a trade promotion agency is around 0.666. In any case, we still find that the estimated marginal effects are significantly larger for sectors producing more differentiated goods relative to sectors more associated with the production of homogenous goods. Table 16 reports the full regression results for a few selected sectors. We find similar results as we did for the aggregate results: most of the coefficients on the standard gravity controls do not have the expected signs. We are not concerned about this since these variables only constitute controls and, again, attribute this result to the inclusion of these same set of controls in the instrumenting equation for the presence of an international agency of the exporting country in the importing country.

Finally, we estimate a gravity equation including the same set of controls as well as our constructs from the previous estimation that allow us to control for sample selection (the intensive margin) and firm heterogeneity in the determination of trade volumes (the extensive margin). We report the results of this estimation in table 17 for selected sectors.[13] We find the same qualitative results as we did in the previous (non-instrumented) estimation with the coefficients on the selection and firm heterogeneity controls being jointly significant in 54 out of the 61 for which we perform the estimation.

[13] As usual, the complete tables are available from the author's upon request.

5 Conclusions and policy implications

In this paper we analyze the importance of international promotion activities in determining trade flows. In doing so we disentangle the differential effect that these activities may have both at creating new potential partners and at increasing the volume of trade with existing partners. Using cross-sectional data and following HMR and Rose (2005), our results indicate that having a foreign service agency in a country increases the probability of exporting to that country in between 11 and 18% at the aggregate level, while it does not appear to have an additional effect on the volume of exports. At the sectoral level the results are qualitatively similar, with foreign services mattering more at the extensive margin in more differentiated goods sectors, a result that is consistent with what the literature has previously emphasized.

These results suggest that uncertainty may be an important barrier for trade as long as two countries do not trade with each other. However, once they are already exchanging goods, either information flows between them (perhaps through informational externalities as emphasized in Segura-Cayuela and Vilarrubia, 2007, or through the creation of informal networks as emphasized by Rauch, 1996), or the remaining uncertainty is something international promotion agencies can not help overcome. Whatever the answer is, it is hard to find an economic justification for the increasing proliferation of export promotion offices among trade partners, based on uncertainty as their justification.

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6 Data Appendix

Table 1: List of sectors

Code	Description
0	Food and live animals
01	Meat and meat preparations
02	Dairy products and birds' eggs
03	Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates
04	Cereals and cereal preparations
05	Vegetables and fruit
06	Sugars, sugar preparations and honey
07	Coffee, tea, cocoa, spices, and manufactures thereof
08	Feeding stuff for animals (not including unmilled cereals)
09	Miscellaneous edible products and preparations
1	Beverages and tobacco
11	Beverages
12	Tobacco and tobacco manufactures
2	Crude materials, inedible, except fuels
21	Hides, skins and furskins, raw
22	Oil-seeds and oleaginous fruits
23	Crude rubber (including synthetic and reclaimed)
24	Cork and wood
25	Pulp and waste paper
26	Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)
27	Crude fertilizers, other than those of division 56, and crude minerals (excluding coal, petroleum and precious stones)
28	Metalliferous ores and metal scrap
29	Crude animal and vegetable materials
3	Mineral fuels, lubricants and related materials
32	Coal, coke and briquettes
33	Petroleum, petroleum products and related materials
34	Gas, natural and manufactured
35	Electric current
4	Animal and vegetable oils, fats and waxes
41	Animal oils and fats
42	Fixed vegetable fats and oils, crude, refined or fractionated
43	Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils
5	Chemicals and related products
51	Organic chemicals
52	Inorganic chemicals

Table 2: List of sectors (cont'd)

Code	Description
53	Dyeing, tanning and colouring materials
54	Medicinal and pharmaceutical products
55	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations
56	Fertilizers (other than those of group 272)
57	Plastics in primary forms
58	Plastics in non-primary forms
59	Chemical materials and products
6	Manufactured goods classified chiefly by material
61	Leather, leather manufactures, and dressed furskins
62	Rubber manufactures
63	Cork and wood manufactures (excluding furniture)
64	Paper, paperboard and articles of paper pulp, of paper or of paperboard
65	Textile yarn, fabrics, made-up articles, and related products
66	Non-metallic mineral manufactures,
67	Iron and steel
68	Non-ferrous metals
69	Manufactures of metals
7	Machinery and transport equipment
71	Power-generating machinery and equipment
72	Machinery specialized for particular industries
73	Metalworking machinery
74	General industrial machinery and equipment, and machine parts
75	Office machines and automatic data-processing machines
76	Telecommunications and sound-recording and reproducing apparatus and equipment
77	Electrical machinery, apparatus and appliances and electrical parts thereof (including non-electrical counterparts)
78	Road vehicles (including air-cushion vehicles)
79	Other transport equipment
8	Miscellaneous manufactured articles
81	Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings
82	Furniture, and parts thereof
83	Travel goods, handbags and similar containers
84	Articles of apparel and clothing accessories
85	Footwear
87	Professional, scientific and controlling instruments and apparatus
88	Photographic apparatus, equipment and supplies and optical goods; watches and clocks
89	Miscellaneous manufactured articles
9	Commodities and transactions not classified elsewhere in the SITC
91	Postal packages not classified according to kind
93	Special transactions and commodities not classified according to kind
96	Coin (other than gold coin), not being legal tender
97	Gold, non-monetary (excluding gold ores and concentrates)

Table 3: List of **exporters** and importers

Afghanistan	Dominican Rep.	Korea (North)	Romania
Albania	Ecuador	**Korea (South)**	**Russian Federation**
Algeria	Egypt	Kuwait	Rwanda
Angola	El Salvador	Lao P.Dem.R	Samoa
Argentina	Eq.Guinea	Latvia	Saudi Arabia
Armenia	Estonia	Lebanon	Senegal
Australia	Ethiopia	Liberia	Seychelles
Austria	Falkland Islands	Libya	Sierra Leone
Bahamas	Fiji	Lithuania	Singapore
Bahrain	Finland	Madagascar	Slovakia
Bangladesh	French Ind. Or.	Malawi	Slovenia
Barbados	French Guiana	Malaysia	Somalia
Belarus	**France**	Mali	South Africa
Belgium (Lux.)	Gabon	Malta	**Spain**
Belize	Gambia	Mauritania	Sri Lanka
Benin	Georgia	Mauritius	St.Kitt and Nevis
Bermuda	**Germany**	**Mexico**	Sudan
Bolivia	Ghana	Mongolia	Suriname
Brazil	Greece	Morocco	**Sweden**
Bulgaria	Greenland	Mozambique	**Switzerland**
Burkina Faso	Guadeloupe	Myanmar	Syria
Burundi	Guatemala	Nepal	TFYR Macedonia
Cambodia	Guinea	Aruba	Tanzania
Cameroon	Guinea-Bissau	**Netherlands**	Thailand
Canada	Guyana	New Calednia	Togo
Cent.Afr.Rep	Haiti	New Zealand	Trinidad Tobago
Chad	Honduras	Nicaragua	Tunisia
Chile	Hungary	Niger	**Turkey**
China	Iceland	Nigeria	**United Kingdom**
Hong Kong	**India**	Norway	**United States**
Macao	**Indonesia**	Oman	Uganda
Colombia	Iran	Pakistan	Ukraine
Congo	Iraq	Panama	United Arab Emirates
Costa Rica	Ireland	Papua New Guinea	Uruguay
Cote d'Ivoire	Israel	Paraguay	Uzbekistan
Cuba	**Italy**	Peru	Venezuela
Cyprus	Jamaica	Philippines	Vietnam
Czech Rep	**Japan**	**Poland**	Yemen
Dem. Rep. of Congo	Jordan	Portugal	Zambia
Denmark	Kazakhstan	Qatar	Zimbabwe
Djibouti	Kenya	Rep Moldova	

Table 4: Share of zeros per sector

Sector	Share of 1's	Share of 0's	Sector	Share of 1's	Share of 0's
1	25.87%	74.13%	55	48.79%	51.21%
2	31.13%	68.87%	56	21.11%	78.89%
3	26.81%	73.19%	57	11.58%	88.42%
4	44.56%	55.44%	58	51.26%	48.74%
5	42.56%	57.44%	59	51.44%	48.56%
6	34.60%	65.40%	61	27.75%	72.25%
7	36.48%	63.52%	62	51.97%	48.03%
8	28.37%	71.63%	63	36.04%	63.96%
9	39.62%	60.38%	64	52.79%	47.21%
11	34.57%	65.43%	65	58.70%	41.30%
12	28.57%	71.43%	66	55.47%	44.53%
21	12.40%	87.60%	67	57.00%	43.00%
22	16.55%	83.45%	68	43.77%	56.23%
23	24.37%	75.63%	69	60.79%	39.21%
24	23.90%	76.10%	71	55.91%	44.09%
25	16.87%	83.13%	72	63.70%	36.30%
26	36.45%	63.55%	73	38.71%	61.29%
27	32.16%	67.84%	74	65.17%	34.83%
28	23.40%	76.60%	75	46.36%	53.64%
29	32.63%	67.37%	76	56.44%	43.56%
32	12.64%	87.36%	77	66.61%	33.39%
33	38.12%	61.88%	78	66.14%	33.86%
34	8.94%	91.06%	79	38.36%	61.64%
35	1.70%	98.30%	81	36.16%	63.84%
41	9.26%	90.74%	82	45.86%	54.14%
42	26.16%	73.84%	83	26.01%	73.99%
43	17.64%	82.36%	84	42.36%	57.64%
51	48.00%	52.00%	85	35.57%	64.43%
52	40.80%	59.20%	87	53.82%	46.18%
53	45.15%	54.85%	88	39.21%	60.79%
54	57.44%	42.56%	89	62.76%	37.24%

1 corresponds to an existing flow; 0 to a zero or to non-existing values.

Table 5: Descriptive statistics of the variables

Variable	**Obs.**	**Mean**	**Std. dev.**	**Minimum**	**Maximum**
Value (1000 US$)	210924	18741	267216	0	56700000
1(Value > 0)	210924	0.381	0.486	0	1
Value (log)	80467	7.953	2.193	0	17.853
Aggregate value	210924	1196859	7040360	0	202000000
1(Agg. Value > 0)	210924	0.920	0.271	0	1.000
Distance (log)	205716	8.727	0.771	5.277463	9.894
Common border	209994	0.027	0.163	0	1
Common language	209994	0.130	0.336	0	1
Common colonizer	209994	0.015	0.121	0	1
Religious similarity	188790	33.238	30.711	0	99.800
FTA	210924	0.053	0.225	0	1
CU	210924	0.013	0.113	0	1
Number of embasies & consulates	206522	1.136	1.900	0	43.000
Presence of an embasy or consulate	210924	0.666	0.472	0	1
Zagat's guides	206522	0.404	3.127	0	40
Baedeker guides	206522	0.275	0.804	0	6
Condé-Nast top 100	206522	0.312	1.103	0	10
Lonely Planet guides	206522	0.213	0.848	0	10
Michelin guides	206522	0.242	1.202	0	13
Economist city guides	206522	0.128	0.540	0	6
Oil reserves	206522	6.30E+10	2.64E+11	0	2.62E+12
Gas reserves	206522	9.57E+12	4.48E+13	0	4.79E+14
Bandwidth per person	165354	484.95	1518.23	0.0151	10791.04
Bandwidth per 1000	161448	6.975	20.762	0	164.845
Broadband subscribers	162750	269261.3	1365534.0	0	12800000
Computersper 1000	178374	115.131	160.431	0.4920776	683.282
International bandwidth	166656	11333.0	42132.6	0.064	273770
Internet servers	154938	965.1	7005.1	1	78126.0
Internet servers per million	153636	34.714	73.584	0.00761	497.181
Internet users	199206	2989451	12600000	0	143000000
Internet users per 1000	199206	101.95	145.29	0	603.51
Personal computers	178374	3595783	15800000	1100	178000000
Information technology	153636	6.286154	2.921118	-2.964339	12.45739

Table 6: First stage: Probit regression for the existence of a trade flow

Dependent variable: Indicator for the existence of a trade flow	
Presence of a foreign service office	0.113***
	(0.015)
Distance (log)	-0.019***
	(0.005)
Common border	-0.127*
	(0.074)
Common colonizer	0.004
	(0.016)
Common language	-0.007
	(0.009)
Religious similarity	0.000
	(0.000)
Observations	2453

Marginal effects reported. Robust standard errors in parentheses
Included, but not reported, are exporter fixed effects.
* significant at the 10%; ** significant at the 5%; *** significant at the 1%

Table 7: Second stage: Gravity regression

Dependent variable: Value of aggregate bilateral trade		
	Correcting for selection and heterogeneity	Regular Gravity
Distance (log)	-1.062***	-1.215***
	(0.060)	(0.044)
Common border	0.831***	0.544***
	(0.200)	(0.189)
Common colonizer	0.662***	0.734***
	(0.232)	(0.233)
Common language	0.428***	0.497***
	(0.075)	(0.077)
Religious similarity	0.004***	0.005***
	(0.001)	(0.001)
Observations	2277	2277
R-squared	0.99	0.99
F-test (significance of 1st stage instruments)	25.13	n/a
Prob(F > 0)	0.00	n/a

Included, but not reported, are exporter and importer fixed effects.
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8: The importance of the extensive and intensive margins

Dependent variable: Value of aggregate bilateral trade		
	(1)	(2)
Distance (log)	-0.936***	-1.049***
	(0.05)	(0.04)
Common border	0.788***	0.509***
	(0.163)	(0.143)
Common colonizer	0.937***	1.066***
	(0.219)	(0.228)
Common language	0.561***	0.526***
	(0.067)	(0.066)
Religious similarity	0.004***	0.004***
	(0.001)	(0.001)
Number of embassies	0.023	0.018
and consulates over one	(0.014)	(0.012)
Observations	2138	2138
R-squared	1.00	1.00

Included, but not reported, are exporter and importer fixed effects.

Table 9: Instrumenting the presence of a foreign service office

Dependent variable: Indicator for the presence of an embassy or consulate.		
Zagat's surveys	0.163***	0.147***
	(0.019)	(0.018)
Condé-Nast top destinations	-0.001	-0.004
	(0.005)	(0.007)
Lonely Planet guides	0.181***	0.196***
	(0.031)	(0.034)
Economist city guides	0.069*	0.068
	(0.040)	(0.042)
Oil Reserves	0.000***	0.000***
	(0.000)	(0.000)
Michelin guides		0.016
		(0.026)
Baedeker guides		0.025
		(0.020)
Gas Reserves		0.000
		(0.000)
Distance (log)	-0.065***	-0.072***
	(0.017)	(0.019)
Common border	0.022	0.025
	(0.024)	(0.028)
Common colonizer	0.032**	0.036**
	(0.014)	(0.016)
Common language	0.031***	0.035***
	(0.010)	(0.011)
Religious similarity	0.000	0.000
	(0.000)	(0.000)
Observations	3033	3033

Marginal effects reported. Robust standard errors in parentheses
* significant at the 10%; ** significant at the 5%; *** significant at the 1%

Table 10: First stage: Probit regression for the existence of a trade flow

Dependent variable: Indicator for the existence of a trade flow

	(1)	(2)
Presence of a foreign service office	0.184***	0.183***
(instrumented)	(0.025)	(0.025)
Distance (log)	0.009*	0.011**
	(0.005)	(0.005)
Common border	-0.045	-0.042
	(0.040)	(0.039)
Common colonizer	-0.013	-0.014
	(0.032)	(0.031)
Common language	-0.037**	-0.039**
	(0.017)	(0.017)
Religious similarity	0.000	0.000
	(0.000)	(0.000)
Observations	2453	2453

Marginal effects reported. Robust standard errors in parentheses
Included, but not reported, are exporter fixed effects.
* significant at the 10%; ** significant at the 5%; *** significant at the 1%

Table 11: Second stage: Gravity regression

Dependent variable: Value of aggregate bilateral trade

	(1)	(2)	Regular Gravity
Distance (log)	-1.022***	-1.037***	-1.215***
	(0.044)	(0.043)	(0.044)
Common border	0.952***	0.948***	0.544***
	(0.186)	(0.184)	(0.189)
Common colonizer	0.577**	0.579**	0.734***
	(0.232)	(0.232)	(0.233)
Common language	0.513***	0.520***	0.497***
	(0.075)	(0.075)	(0.077)
Religious similarity	0.004***	0.004***	0.005***
	(0.001)	(0.001)	(0.001)
Observations	2277	2277	2277
R-squared	0.99	0.99	0.99
F-test (significance of 1st stage instruments)	10.60	17.25	n/a
Prob(F > 0)	0.00	0.00	n/a

Included, but not reported, are exporter and importer fixed effects.

Table 12: First stage: Estimated marginal effect of the presence of a foreign service office on the existence of a bilateral trade flow by sector

Sector	Marginal effect	Sector	Marginal effect
1	0.223***	55	0.479***
2	0.240***	56	0.192***
3	0.291***	57	0.085***
4	0.389***	58	0.606***
5	0.434***	59	0.557***
6	0.359***	61	0.334***
7	0.383***	62	0.541***
8	0.324***	63	0.390***
9	0.398***	64	0.521***
11	0.301***	65	0.527***
12	0.266***	66	0.544***
21	0.130***	67	0.455***
22	0.157***	68	0.548***
23	0.309***	69	0.533***
24	0.262***	71	0.547***
25	0.180***	72	0.499***
26	0.396***	73	0.460***
27	0.404***	74	0.540***
28	0.293***	75	0.522***
29	0.401***	76	0.534***
32	0.106***	77	0.518***
33	0.407***	78	0.433***
34	0.043***	79	0.319***
35	–	81	0.413***
41	0.062***	82	0.480***
42	0.245***	83	0.256***
43	0.180***	84	0.409***
51	0.550***	85	0.341***
52	0.476***	87	0.565***
53	0.524***	88	0.448***
54	0.555***	89	0.521***

All regressions include as controls distance (log), common border, common language, and religious similarity, as well as fixed exporter effects.

Table 13: First stage: Probit regression for the existence of a trade flow for selected sectors

Dependent variable: Indicator for the presence of a sectoral trade flow

	Sector 4	Sector 25	Sector 58	Sector 65	Sector 77	Sector 78
Presence of a foreign	0.389***	0.180***	0.606***	0.527***	0.518***	0.433***
service office	(0.021)	(0.011)	(0.018)	(0.022)	(0.022)	(0.022)
Distance (log)	-0.256***	-0.060***	-0.202***	-0.158***	-0.140***	-0.144***
	(0.020)	(0.010)	(0.020)	(0.017)	(0.016)	(0.016)
Common border	0.071	0.247***	0.102	0.092	0.059	0.074
	(0.084)	(0.076)	(0.085)	(0.086)	(0.077)	(0.065)
Common colonizer	0.045	-0.076***	-0.060	-0.068	0.107**	0.018
	(0.089)	(0.018)	(0.091)	(0.126)	(0.054)	(0.070)
Common language	0.099***	-0.011	0.068**	-0.013	-0.020	0.048*
	(0.035)	(0.017)	(0.035)	(0.033)	(0.029)	(0.025)
Religious similarity	0.000	-0.001***	0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	2991	2890	2991	2991	2991	2991

Marginal effects reported. Robust standard errors in parentheses
Included, but not reported, are exporter fixed effects.
* significant at the 10%; ** significant at the 5%; *** significant at the 1%

Table 14: Second stage: Gravity regression for selected sectors

Dependent variable: Value of sectoral bilateral trade

	Sector 4	Sector 25	Sector 58	Sector 65	Sector 77	Sector 78
Distance (log)	-0.961***	-0.885***	-1.367***	-1.253***	-1.149***	-1.023***
	(0.137)	(0.210)	(0.079)	(0.079)	(0.069)	(0.083)
Common border	0.941***	0.021	0.773***	0.694***	0.630***	0.587**
	(0.231)	(0.442)	(0.208)	(0.193)	(0.208)	(0.234)
Common colonizer	0.420	0.800	0.888**	0.384	0.974***	0.884**
	(0.390)	(0.909)	(0.349)	(0.287)	(0.304)	(0.373)
Common language	0.590***	0.440*	0.468***	0.305***	0.708***	0.379***
	(0.138)	(0.237)	(0.094)	(0.097)	(0.087)	(0.108)
Religious similarity	0.004*	0.001	0.003*	0.005***	0.003**	-0.000
	(0.002)	(0.005)	(0.002)	(0.001)	(0.001)	(0.002)
Observations	1385	551	1613	1832	2076	2067
R-squared	0.98	0.98	0.99	0.98	0.99	0.98
F-test (significance of 1st stage instruments)	1.88	1.97	4.36	3.64	3.13	6.78
Prob (F>0)	0.08	0.06	0.00	0.00	0.00	0.00

Included, but not reported, are exporter and importer fixed effects.
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 15: First stage: Coefficient of the instrument for presence of a foreign service office on the existence of a bilateral trade flow by sector

Sector	Coefficient	Sector	Coefficient
1	0.739***	55	1.454***
2	0.890***	56	0.552***
3	1.122***	57	0.259***
4	1.218***	58	1.714***
5	1.630***	59	1.744***
6	1.375***	61	1.288***
7	1.363***	62	1.534***
8	1.180***	63	1.567***
9	1.386***	64	1.362***
11	1.147***	65	1.455***
12	0.802***	66	1.579***
21	0.376***	67	1.415***
22	0.496***	68	1.803***
23	1.087***	69	1.298***
24	0.960***	71	1.591***
25	0.580***	72	1.122***
26	1.210***	73	1.719***
27	1.482***	74	1.353***
28	1.096***	75	1.765***
29	1.515***	76	1.441***
32	0.354***	77	1.332***
33	1.388***	78	0.980***
34	0.136***	79	1.322***
35	–	81	1.459***
41	0.175***	82	1.583***
42	0.845***	83	1.021***
43	0.588***	84	1.476***
51	1.761***	85	1.271***
52	1.575***	87	1.666***
53	1.628***	88	1.678***
54	1.445***	89	1.493***

All regressions include as controls distance (log), common border, common language, and religious similarity, as well as fixed exporter effects.

Table 16: First stage: Probit regression for the existence of a trade flow for selected sectors

Dependent variable: Indicator for the presence of a sectoral trade flow

	Sector 4	Sector 25	Sector 58	Sector 65	Sector 77	Sector 78
Presence of a foreign	1.218***	0.580***	1.714***	1.455***	1.332***	0.980***
service office	(0.062)	(0.034)	(0.069)	(0.067)	(0.065)	(0.055)
Distance (log)	-0.129***	-0.006	0.010	0.027	0.058***	-0.019
	(0.022)	(0.008)	(0.022)	(0.019)	(0.019)	(0.017)
Common border	0.079	0.245***	0.123	0.153**	0.104*	0.105**
	(0.085)	(0.072)	(0.078)	(0.069)	(0.053)	(0.052)
Common colonizer	0.013	-0.065***	-0.110	-0.192*	0.028	-0.052
	(0.088)	(0.012)	(0.086)	(0.114)	(0.062)	(0.077)
Common language	0.018	-0.037***	-0.063*	-0.129***	-0.164***	-0.024
	(0.036)	(0.011)	(0.036)	(0.036)	(0.035)	(0.030)
Religious similarity	0.001**	-0.001***	0.001***	0.001*	0.001***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	2990	2889	2990	2990	2990	2990

Included, but not reported, are exporter and importer fixed effects.
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 17: Second stage: Gravity regression for selected sectors

Dependent variable: Value of sectoral bilateral trade

	Sector 4	Sector 25	Sector 58	Sector 65	Sector 77	Sector 78
Distance (log)	-0.975***	-0.975***	-1.219***	-1.087***	-1.043***	-0.974***
	(0.155)	(0.174)	(0.068)	(0.072)	(0.056)	(0.090)
Common border	0.905***	-0.269	0.550***	0.484**	0.302	0.516**
	(0.228)	(0.404)	(0.196)	(0.214)	(0.199)	(0.234)
Common colonizer	0.384	0.981	0.806**	0.364	0.896***	0.942***
	(0.389)	(0.894)	(0.340)	(0.296)	(0.282)	(0.364)
Common language	0.597***	0.483**	0.425***	0.317***	0.787***	0.361***
	(0.137)	(0.238)	(0.090)	(0.096)	(0.084)	(0.110)
Religious similarity	0.003	0.001	0.000	0.004***	0.001	-0.002
	(0.002)	(0.005)	(0.002)	(0.001)	(0.001)	(0.002)
Observations	1385	551	1613	1832	2076	2067
R-squared	0.98	0.98	0.99	0.98	0.99	0.98
F-test (significance of 1st stage instruments)	4.23	2.37	13.87	8.85	13.34	3.84
Prob(F>0)	0.00	0.02	0.00	0.00	0.00	0.00

Included, but not reported, are exporter and importer fixed effects.
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

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