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Market Knowledge: Evidence from Importers

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Aksel Erbahar†

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Abstract

Previous firm-level literature established that there are substantial costs of entry into new export markets. Chaney (2014) opens the black-box of entry costs by building a dynamic network model of international trade where firms acquire customers in new destinations through their existing customers in other destinations. Following his conjecture, this paper examines whether firms use their existing suppliers in a destination to find their first clients in those markets. I use a disaggregated dataset on Turkish firms' exports and imports for the 2003-08 period, and investigate the effect and the channels that import experience might have on export entry. By identifying import experience using instrumental variables, and shutting down productivity channels with firm-year fixed effects, I find that having a supplier in the destination country raises the probability of exporting to that country by 5.5 percentage points on average, revealing a "market knowledge" phenomenon. The paper's main contribution to the literature is finding for the first time that firms' country-specific import experience increases the likelihood of exporting to that country. Digging further to explore heterogeneous effects, I find that this effect increases with the destination country's size, proximity, language similarity, and the size of its Turkish community. Moreover, the strength of the firm's relationship with its supplier as proxied by several variables such as the share of imported products that are differentiated increases the probability of export market entry.

JEL codes: F1, F14, F61, L20

Keywords: market entry, export diversification, learning by importing, networks

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1 Introduction

Exports play a crucial role in firms' growth. The most productive firms select into exporting and end up serving multiple destinations, being able to cover the sunk costs of entry for each market. This diversification of export markets not only contributes to the growth of the firm but also hedges the risks of relying on a single export market. Thus, many countries have policies that promote exports and export-market diversification via subsidies for market research and international trade fairs. The seminal paper by Roberts and Tybout (1997) established that there are substantial costs of entry into new markets.[1] Theoretical works by Melitz (2003), Helpman et al. (2008), Chaney (2008), and Eaton et al. (2011) incorporated the extensive margin of trade into heterogeneous firms models by including a fixed cost of exporting. Importantly, to explain the consumer extensive margin of trade, Arkolakis (2010) formalized a model that endogenizes the entry cost by incorporating destination-specific marketing costs.[2]

The black-box of entry costs created a literature on networks and how they can reduce trade frictions through spreading information. Chaney (2014) built a model where firms acquire new customers through their networks in existing export markets and thus enter into markets that are geographically closer to their existing destinations.[3] The model predicts that firms can search for clients remotely using their existing *clients*. Following his conjecture, this paper examines whether firms use their existing *suppliers* in a destination to find their first clients in those markets based on an "extended-Chaney" information channel. Taken to the data, the question I explore in this paper is: does a firm's previous import experience from a country increase its probability to export to that country?

I empirically test whether the probability of exporting depends on a firm's previous import experience with that country using a highly disaggregated dataset on Turkish manufacturing firms' export and import statistics at the product-country level for the 2003-08 period. Turkey, a globally integrated large developing economy, is a suitable setting for this analysis as it provides me with many dimensions of heterogeneity. In fact, Turkey's dollar value of exports increased by 183 percent from 2003 to 2008, and 22 percent of this is explained by exporters adding new destinations to their portfolios.[4]

The paper's main specification aims to capture the effect of import experience on a firm's subsequent export entry to that market. Since there might be many factors that affect a firm's market-entry I use multiple high-dimensional fixed effects including firm-year dummies to control for inherent and

[1] Other papers that find these costs include Bernard and Jensen (2004) for US firms, Das et al. (2007) for Colombian firms, and Özler et al. (2009) for Turkish firms. Kasahara and Rodrigue (2008), on the other hand, find sunk costs for importing.

[2] From an empirical viewpoint, Gullstrand (2011) examined the Swedish food exporters and found that export costs are firm-destination specific. Similarly, Moxnes (2010) discovered that market-specific costs are about three times as large as global exporting costs using Norwegian firm-level data.

[3] This "extended-gravity" pattern of export expansion is formally described in a gravity setting and structurally estimated by Morales et al. (2014).

[4] The remaining is explained by new exporter extensive margin (27 percent) and the firm-destination intensive margin (51 percent). Note that the Turkish lira appreciated about 14 percent over the dollar during this period and thus the growth in exports was 146 percent in liras. See Cebeci and Fernandes (2015) for an in-depth look at the decomposition of Turkey's export boom in this period.

time-varying productivity, and country-industry-year dummies to control for variables such as supply/demand functions and trade costs. In order to address potential endogeneity concerns, I employ an instrumental variables (IV) strategy where the instrument measures the country-specific export supply of the basket of goods that a firm has imported in the past. Results show that having an existing supplier in the destination country raises the probability of export market entry by at least 5.5 percentage points on average (11 percentage points in the main IV specification)–a large number when compared to the mean export market entry probability of 0.8 percent. My sensitivity analyses using different samples, experience measures, and multiple instruments support the findings and establish that importing from a country increases the likelihood of exporting to that country, revealing a "market knowledge" phenomenon.

The detailed data enables me to dig deeper and understand the channels of entering a market. First, I take advantage of country characteristics and use gravity-type variables such as GDP, distance, language proximity, and regional trade agreements (RTAs). Results show that the effect of having a supplier in the destination country is greater in larger and more proximate countries. In addition, language proximity seems to increase the size of the effect whereas having an RTA with the destination country decreases it. Moreover, I find that the size of a firm's domestic network, measured by the number of same-industry firms in Turkey that already export to the destination, has an additional positive effect on export market entry. Similarly, the size of the Turkish immigrant community in the destination country increases the probability of entering that market, even when the firm has a supplier in that country. Second, I analyze whether firm and product characteristics that proxy the strength of the firm's relationship with its supplier matter. Results indicate that the value of imports, the number of products imported, the share of country-specific imports in a firm's total imports, the share of imported products that are differentiated or are inputs all have a positive and significant effect on the probability of starting to export.

This paper's main contribution to the literature is finding for the first time that firms' country-specific import experience increases the probability of exporting to that country. From a network analysis perspective this finding is informative, as it reveals that firms can learn about new clients not only through their existing clients but also through their existing suppliers, indicating that the size of a firm's network can expand in both ways. The policy implications of my results give credit to governments' export promotion programs such as trade fairs that aim to help firms find the *first* contact. Moreover, results indicate that large-scale trade policy implementations such as unilateral tariff liberalization can have additional spillover effects by allowing firms to find suppliers in new markets that can eventually lead to finding new clients in those markets.

My empirical results are related to three strands of the heterogeneous firms and trade literature. First is the literature on the importance of information frictions in export-market entry as formalized by Chaney (2014) in a dynamic setting, which revealed the importance of geography in firms' export expansion patterns. Another related work is by Allen (2014), who quantified the importance of information frictions by examining agricultural trade data in the Philippines, and found that a significant

portion of regional price dispersion was due to limited knowledge of prices elsewhere. Pioneered by the work of Rauch (1999), who showed that trading of differentiated products involve higher informational barriers, this literature focused largely on social and business networks in destination countries and their positive effect on trade: Rauch and Trindade (2002) found that bilateral trade in differentiated products is higher between countries that have larger ethnic Chinese population shares; Combes et al. (2005) examined regional trade within France and discovered that the size of migrant and plant networks increase trade flows of French firms; and Bastos and Silva (2012), using Portuguese firm-level data, found that the destination-specific size of emigrant networks increase firms' export participation and intensity.[5] The novelty of this paper is to use import experience instead as a proxy of network linkages that are destination *and* firm specific.

The second strand of literature that this paper relates to is the firm-level research on learning. Schmeiser (2012), using Russian firm-level data, found that market-entry costs depend on a firm's previous experience with similar export markets and called this "learning to export." Similarly, Defever et al. (2014) used Chinese firm-level data and discovered that the elimination of the Multi Fibre Arrangement (MFA) caused Chinese firms to start exporting to non-MFA destinations that border MFA countries, concluding that export extensive margins have a spatial pattern. Koenig (2009), Cassey and Schmeiser (2013), and Fernandes and Tang (2014) examined learning through observing other exporters for France, Russia, and China respectively, and found important "peer effects." Similarly, Albornoz et al. (2012) and Eaton et al. (2014) analyzed learning about market-specific demand for Argentinean and Colombian firms respectively and found that geographic expansion of a firm's exports depends on its previous export experience in other destinations. However, none of these papers explored the firm's previous experience with the *same* market as done in this paper.

Finally, this paper is indirectly related to the relationship between a firm's export and import activities. This is studied by Aristei et al. (2013) who used firm-level survey data from 27 countries and found that a firm's importing increases its exports while a firm's exporting does not have any effect on its imports. Turco and Maggioni (2013) did a similar analysis for Italian firms and found that importers are more likely to start exporting. Muûls and Pisu (2009) found that export status is positively correlated with both previous export and import experience and vice versa, confirming that there are substantial sunk costs of entry. However, none of these papers have looked at the relationship at the country level.[6,7]

[5]This literature is also tied to the "intermediation" of trade that emphasizes breaking informational barriers, theoretically developed by Casella and Rauch (2002), and later by Ahn et al. (2011) in a heterogeneous firms framework.

[6]The paper's policy implications are related to the export promotion literature that emphasizes export diversification; see, for example, Lederman et al. (2010), Martincus and Carballo (2008, 2010), and Martincus et al. (2010).

[7]This paper is also influenced by ideas in the business economics literature. The importance of market knowledge *per se* is highlighted by Kneller and Pisu (2011) who used a detailed firm-level survey from the UK and found that the largest barrier to export is identifying the *first* contact and marketing costs. Pinho and Martins (2010), by analyzing a sample of 1,200 Portuguese SME firms, found that the two main hindrances to exporting were (1) lack of knowledge of potential markets, and (2) lack of qualified export personnel. They found that lack of technical suitability, degree of competition in the sector, lack of financial assistance, and lack of qualified human resources also mattered. Several other papers including Samiee and Walters (2002) and Leonidou (2004) emphasized that market knowledge is a crucial obstacle in exporting for non-exporters *and* exporters alike.

The remainder of the paper proceeds as follows. Section 2 presents the theoretical motivation, sets up the main empirical specification, and explains the identification strategy. Section 3 describes the data and presents summary statistics. In Section 4, I present the main results with robustness checks. In Section 5, I explore heterogeneous effects using country, firm, and product characteristics. Finally, Section 6 concludes and discusses further research.

2 Theory and Empirical Strategy

2.1 Theoretical motivation

This paper is influenced by Chaney's (2014) theoretical setup, where firms search for clients by using their existing dynamically-formed networks. Importantly, he assumes that firms can only sell to clients that they have met through a network. This assumption is micro-founded in a slightly modified Krugman (1980) model with informational asymmetries and moral hazard leading to each consumer having access to a different mass of goods and also each firm having access to a different mass of consumers. Each period, firms sample a mass of clients and successfully match with a proportion of them.[8] The model also assumes that this costly search can be made from the firm's origin and also remotely through the location(s) of its existing client(s).

The number of customers firm i has in time t in location x is $f_{i,t}(x)$. Firms search for consumers directly from where they are located (call it 0) and find $\widetilde{\gamma\mu}$ new clients, a positive-integer random variable with mean $\gamma\mu$, where γ is the constant growth rate of firms in each location and μ is a positive parameter that describes the efficiency of search technology. In addition, firms search remotely through their existing contacts in other destinations (call it y) and find $\widetilde{\gamma\mu\pi}$ new clients, again a positive-integer random variable with mean $\gamma\mu\pi$, where π is a non-negative parameter that measures the relative efficiency of remote versus local search.[9] The change in the number of consumers firm i has in location x is described in the following difference equation:

$$f_{i,t+1}(x) - f_{i,t}(x) = \sum_{k_0=1}^{\widetilde{\gamma\mu}_i} \mathbb{1}[\tilde{x}_{i,k_0} = x] + \sum_{y \in S} f_{i,t}(y) \sum_{k_y=1}^{\widetilde{\gamma\mu\pi}_{i,y}} \mathbb{1}[\tilde{x}_{i,k_y} = x], \tag{1}$$

where $f_{i,0}(x) = 0, \forall x \in S \equiv$ a discrete set of locations, $\mathbb{1}[.]$ is an indicator function, $\widetilde{\gamma\mu}_i$ and $\widetilde{\gamma\mu\pi}_{i,y}$ are independent draws from their respective random variables $\widetilde{\gamma\mu}$ and $\widetilde{\gamma\mu\pi}$, and $\tilde{x}$s are independent realizations from the probability distribution $g(.)$, where $Pr(\mathbb{1}[\tilde{x}_{i,k_0} = x]) = g(0, x)$ is the probability of finding a client from origin 0 in location x.[10] The first part of the right-hand side of equation (1) is

[8] This happens due to a simple bargaining game between the buyer and the seller where not all interactions result in transactions; see the Online Appendix of Chaney (2014).

[9] The Online Appendix of Chaney (2014) details the micro-foundations of these variables.

[10] Chaney (2014) specifies a distribution for $g(y, x)$ in the form of $\alpha_{\lambda,y} GDP_x e^{||x \quad y||/\lambda}$, where $\alpha_{\lambda,y}$ is a scaling constant and λ measures the geographic dispersion of new contacts. This functional form implies that the probability depends on market size, distance, and dispersion. In reality, there might be additional factors such as cultural/linguistic similarity and institutional quality.

the number of customers gained through local search, and the second part is the number of customers gained through remote search.

I modify equation (1) by assuming that remote search is possible if and only if a firm already has a contact in that specific location, whether she be an existing customer or an existing supplier. This results in the following equation:

$$f_{i,t+1}(x) - f_{i,t}(x) = \sum_{k_0=1}^{\widetilde{\gamma\mu}_i} \mathbb{1}[\tilde{x}_{i,k_0} = x] + \Big\{ f_{i,t}(x) + s_{i,t}(x) \Big\} \sum_{k_x=1}^{\widetilde{\gamma\mu\pi}_{i,x}} \mathbb{1}[\tilde{x}_{i,k_x} = x], \tag{2}$$

where $s_{i,t}(x)$ is the number of suppliers firm i has in time t in location x. The first part of the right-hand side of equation (2) is the same as in equation (1) but now the second part shows that firms can acquire new customers in x using both the existing clients *and* suppliers in x. Importantly, $Pr(\mathbb{1}[\tilde{x}_{i,k_x} = x]) = g(x,x)$ is the probability of finding a client from x in x.[11]

The attentive reader might inquire whether the above methodology can also shed light on firms' search for suppliers using their existing network of clients. The short answer is no, since firms are assumed to always search for new clients to expand their sales whereas this might not be the case in search for suppliers. However, in Appendix Section B, I show results that examine the effect of export experience on import entry and find a positive but not a robust relationship.[12]

2.2 Specification

Here, I adjust equation (2) in order to have a testable empirical specification. Since I do not observe the number of customers a firm has and can only observe whether the firm is exporting to or importing from a country, $f_{i,t}(x)$ and $s_{i,t}(x)$ are latent variables inferred from the binary $F_{i,c,t}$ and $S_{i,c,t}$ respectively:[13]

$$F_{i,c,t} = \begin{cases} 1 & \text{if } f_{i,t}(x) > 0, \\ 0 & \text{if } f_{i,t}(x) = 0, \end{cases} \qquad S_{i,c,t} = \begin{cases} 1 & \text{if } s_{i,t}(x) > 0, \\ 0 & \text{if } s_{i,t}(x) = 0. \end{cases}$$

Then, since the goal of this paper is to explain a firm's exporting to a specific country for the first time, $f_{i,t}(x) = 0$. In addition, I attribute the randomness of $\widetilde{\gamma\mu}_i$ and $\widetilde{\gamma\mu\pi}_{i,x}$ to firm-country specific shocks that might be time-varying: $\epsilon_{i,c,t}$. Plugging in the probability distribution $g(.)$, I get the following specification:

[11] Trivially, this would imply that the probability of finding a client in x given the firm already has a contact in x would not depend on distance since distance between x and x is zero.

[12] Note that another simple way to obtain a relationship between import experience and export entry at the country level is to assume that the fixed costs of exporting and importing share a component that proxies for country-specific variables such as customs procedures, language, and culture. In this way, a shock that causes a firm to import from a country would also make it more likely to export to that destination since it would have paid the shared component of fixed costs of trading with that country. This would also imply that a demand shock that makes a firm export to a destination might also cause it to start importing from that country (unless one assumes that importing from a country entails lower total fixed costs than exporting to it). However, this would not generate a lagged structure as in Chaney (2014).

[13] Note that the notation for destination changes from location x to country c.

$$F_{i,c,t+1} = \gamma\mu g(0,c) + \gamma\mu\pi \; S_{i,c,t} \; g(c,c) + \epsilon_{i,c,t} \; . \tag{3}$$

In order to partial out the effect of $S_{i,c,t}$, I use country-industry-time fixed effects to control for (i) $g(.)$ and (ii) industry-specific trade costs, since these are additional sources of heterogeneity that can influence a firm's decision to export. Moreover, the empirical heterogeneous firms and trade literature has conclusively found that firm-specific productivity is an important predictor of exporting.[14] Looking at equation (3), this would mean that $\epsilon_{i,c,t}$ includes a firm-time specific component. Hence, to control for time-varying productivity and other potential firm-level factors, I include firm-time fixed effects, and get the following specification:

$$F_{i,c,t} = \beta S_{i,c,t-1} + \delta_{c,n,t} + \eta_{i,t} + \varepsilon_{i,c,t} \; , \tag{4}$$

where $\delta_{c,n,t}$ are country-industry-year fixed effects, $\eta_{i,t}$ are firm-year fixed effects, and $\varepsilon_{i,c,t}$ are shocks that are possibly correlated within firm and country observations. To deal with this potential correlation, I cluster the standard errors multiway by firms and countries.[15] The theoretical motivation presented in the previous section predicts that β is positive.

2.3 Identification strategy

There is one important econometric issue with the specification in equation (4). What if the supplier and the client are the same firm and that the import/export relationship is merely an offshoring of a production stage? In that case, the decision to import and export are simultaneously determined but the actual transactions occur sequentially. In OLS estimations with fixed effects, I try to alleviate this issue by using two-year lags but my main results are based on an IV strategy where importing is identified by the destination country's export supply, which is assumed to be exogenous to Turkish firms. More specifically, I instrument $S_{i,c,t}$ with the following:

$$EX_{i,c,t} = \sum_{h} \sum_{d \neq TUR} \omega_{i,h} \; (exports)_{c,d,h,t} \; , \tag{5}$$

and include the following control variable that proxies for destination-specific import demand:

$$IM_{i,c,t} = \sum_{h} \sum_{d \neq TUR} \eta_{i,h} (imports)_{c,d,h,t} \; , \tag{6}$$

where d is destination country in (5) and source country in (6), h is a 6-digit Harmonized System (HS6) product, $\omega_{i,h}$ is the initial weight (based on the first year of importing) of a product h in a firm's imports during 2003-08, and $\eta_{i,h}$ is the initial weight of a product h in a firm's exports over

[14] See Bernard et al. (2012) for an extensive review of this literature.

[15] Cameron et al. (2011) explain that in cases where the errors are believed to be correlated across multiple non-nested groups, standard errors should be computed cluster-robust on those multiple dimensions.

the same period. Alternatively, I use average and uniform (assigning equal weights to each product imported in 2003-08) weights as robustness checks. Also, I exclude Turkey as a destination and source country, again to minimize endogeneity. This strategy results in the following first and second stages which I estimate with two-stage least squares (2SLS):

$$S_{i,c,t-1} = \rho \ln EX_{i,c,t-1} + \theta_2 \ln IM_{,ic,t} + \delta_{2c,n,t} + \eta_{2i,t} + \varepsilon_{2i,c,t-1} \ , \tag{7}$$

$$F_{i,c,t} = \beta \ \widehat{S_{i,c,t-1}} + \theta_1 \ln IM_{i,c,t} + \delta_{1c,n,t} + \eta_{1i,t} + \varepsilon_{1i,c,t} \ , \tag{8}$$

where $\widehat{S_{i,c,t-1}}$ is the predicted value of import experience from (7), and all logs are created by adding 1 to the value before taking the log to avoid zeros. In addition, following Chaney's proposition that previous export experience from a country can increase the probability of entering a similar country, I include a region experience dummy in all regressions. For this I assign a region to each country using the UN's 22 region classification system.

I estimate the 2SLS system using the linear probability model (LPM) due to the large number of fixed effects despite having a binary dependent variable.[16] Following Horrace and Oaxaca (2006), who explain that the potential bias (and inconsistency) of the LPM vanishes when all predicted probabilities lie in the unit interval, I check and confirm that the predicted values from all regressions lie in the $[0, 1]$ range.[17]

3 Data

In this paper, I use two main datasets which were accessed at the Istanbul branch of the Turkish Statistical Institute under a confidentiality agreement.[18] The first database is the longitudinal (2003-11) Foreign Trade Statistics that is based on official customs data at monthly frequency and it reports the value and quantity of a firm's imports and exports at the country-product (GTIP) level.[19] I collapse this data to annual frequency to eliminate seasonal effects and merge it with the second longitudinal (2003-11) firm-level dataset, Industry and Services Statistics, to obtain information about a firm's industry (based on 4-digit NACE classification).[20] Note that the Industry and Services Statistics database comprises of firms that have at least 20 employees, whereas the Foreign Trade Statistics dataset includes all trading firms.[21] Thus, I only include manufacturing firms that have at least 20 employees to be consistent. I drop years 2009-11 as this period corresponds to the great trade collapse and its subsequent trade adjustment which might not be related to this study–these selections result

[16] Nonlinear models produce inconsistent coefficients when faced with a large number of fixed effects due to the incidental parameters problem when T is fixed; see Neyman and Scott (1948) and Lancaster (2000).

[17] These verifications are available on request.

[18] All analyses were completed there with only the output taken outside the premises after confidentiality checks.

[19] Turkey uses a 12-digit GTIP classification of which the first 8-digits correspond to the Combined Nomenclature (CN) tariff schedule of the EU, and the first 6-digits correspond to the internationally standardized Harmonized System (HS).

[20] I use the NACE Rev. 1.1 classification system as reported.

[21] The Industry and Services Statistics also has firms that have less than 20 employees, but these were randomly surveyed and are not consistently included in the database. The total number of firms in the dataset is 417,797, of which 133,502 are manufacturing.

in a sample of 17,327 manufacturing firms. Finally, I restrict the sample to 6,716 firms that have existed for the entire 2003-08 period and have imported and exported at least once to avoid entry/exit dynamics. In terms of destinations, I use the 191 countries that Turkey has traded with in 2003-08. After rectangularizing the dataset by firm-country-year, I drop observations where the firm has already exported to a country previously and get an unbalanced panel. Additional data I use include: GDP, migrant stock, and development status indicators from the World Bank, distance and language proximity data from CEPII (see Mayer and Zignago (2011)), and RTA data from De Sousa (2012). Trade data for the instruments is from COMTRADE (WITS).

Table 1 shows summary statistics for the 6,716 firms' exports and imports in panels (a) and (b) respectively. Note that the median number of countries (column 1) served by a firm is 4 or 5 for both imports and exports and this reveals that the median firm is a multi-destination and multi-source firm. The mean values (column 2) are always larger than the median values indicating positive skewness and confirms the well-established result that there are many small traders and a few large traders (concentration at the top even at this restricted sample of relatively large firms). Similarly, the median value (column 3) of annual exports (imports) to a country is around 5,000 (4,000) Turkish liras in 2008—corresponding to about $4,000 ($3,000). The mean values (column 4) are as much as 15 times as high for exports and 24 times as high for imports, again showing the positive skewness. The number of exporters hover around 63 to 69 percent of the 6,716 firms, while the number of importers is about 74 to 79 percent. Note also that these firms make up about 40 percent of Turkey's total trade value.[22] A caveat to mention here is that since the sample comprises of large trading manufacturing firms that exist throughout the period, I am examining a group of highly productive firms. Table 2 shows that no sector dominates the sample of firms studied. Column 3 shows that all 23 manufacturing sectors are represented with the top three *Textiles*, *Apparel*, and *Food and beverages* sectors making 17, 13, and 10 percent of all firms. Columns 4 and 5 show the percentage of firms in a sector that export and import respectively. Looking at sectors that make up more than 1 percent of all firms, note how the export share varies from a high of 90 percent for *Chemicals*, *Electrical machinery and apparatus*, and *Motor vehicles* to a low of 54 percent for *Food and beverages*; for imports the share ranges from a high of 93 percent for *Chemicals* to a low of 64 percent for *Publishing, printing and reproduction of recorded media* and *Furniture*.

Next, I present statistics on the countries that Turkish firms engage with. Note that two-way country relationships are highly common as 42 percent of firms in the sample were both exporting to and importing from the same country in 2008. Figure 1 depicts the most popular export destinations and import sources served by Turkish firms during 2003-08 in panels (a) and (b) respectively. Note how the two panels have similar shadings; in fact, the correlation between the figures in the two panels is 0.6. The figure shows that Europe, Russia, Central Asia, and the US are top destinations, whereas Western Europe, China, India, and the US are top import sources. Appendix Table A.1 shows the 191

[22]The rest is shared between intermediaries, small firms (less than 20 employees), and firms that were born after 2003 and/or died before 2009.

Table 1: Turkish Firms' Trade, 2003-08

(a) Exports

Year	(1) Countries served (median)	(2) Countries served (mean)	(3) Value exported (median)	(4) Value exported (mean)	(5) No of exporters
2003	4	7.25	2,166	29,153	4,256
2004	4	7.62	2,467	37,376	4,445
2005	4	7.95	2,694	39,888	4,569
2006	5	8.37	3,550	52,104	4,615
2007	5	8.80	4,004	60,749	4,581
2008	5	9.21	5,024	77,761	4,540

(b) Imports

Year	(1) Countries sourced (median)	(2) Countries sourced (mean)	(3) Value imported (median)	(4) Value imported (mean)	(5) No of importers
2003	4	6.35	2,663	39,974	4,966
2004	4	6.62	3,046	53,014	5,182
2005	5	6.84	2,882	58,133	5,234
2006	5	6.99	3,482	74,784	5,270
2007	5	7.21	3,671	83,519	5,290
2008	5	7.29	4,123	100,922	5,136

Notes: All figures relate to the 6,716 firms' trade with the 191 countries. Values are in current Turkish liras and correspond to the total annual transaction of a firm with a country.

countries sorted by how frequently they are served by Turkish firms and their characteristics including export/import probabilities, average entry rates, previous experience, and gravity-type variables such as development status, average GDP, distance to Turkey, language proximity to Turkish, and whether an RTA was in effect with Turkey during anytime in 2003-08. I define export entry to a market as the first time a firm exports to a country. More precisely, since the dataset starts from 2003, I take the earliest possible year of entry to be 2005. This two-year margin helps alleviate the bias that might be introduced by sporadic exporting (e.g. a firm exporting to a country in 2002 (which I do not observe), then not exporting in 2003, and then exporting in 2004 will not be considered an entry since I have a two-year margin). In the estimations, my main independent variable for $S_{i,c,t-1}$ is a dummy for import status in the previous year. However, I also report results with a dummy for import *entry* in the previous year instead to see whether brand-new supplier relationships matter. As a third alternative, I use the number of accumulated importing years in the previous year as a proxy for the strength of the relationship with the supplier.

In Table A.1, export/import probabilities are the percentage of 6,716 firms that serve or source from a country, averaged over the sample period. "Previous experience" is the percentage of entrants to a country that had trading experience with that country in the previous year. The table shows that there is substantial heterogeneity among countries in terms of entry and status rates: the top destination market is Germany with 32 percent of firms serving that market on average, followed by Italy and Kazakhstan (21 percent each), and United Kingdom (20 percent). Interestingly, 86 countries

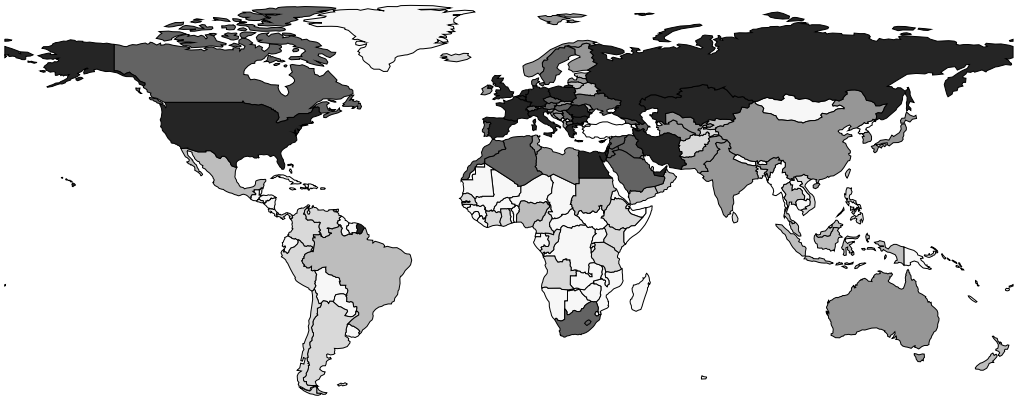
Table 2: Sector Characteristics

(1) NACE	(2) Sector	(3) Share of total	(4) Share of exporters	(5) Share of importers
15	Food and beverages	0.10	0.54	0.70
16	Tobacco	<0.01	0.90	0.86
17	Textiles	0.17	0.61	0.83
18	Apparel	0.13	0.61	0.76
19	Leather and leather products	0.02	0.67	0.81
20	Wood and wood products	0.01	0.53	0.77
21	Paper and paper products	0.02	0.71	0.84
22	Publishing, printing and reproduction of recorded media	0.02	0.57	0.64
23	Coke, refined petroleum products and nuclear fuel	<0.01	0.60	0.89
24	Chemicals	0.04	0.80	0.93
25	Rubber and plastics	0.06	0.76	0.79
26	Other non-metallic minerals	0.06	0.60	0.69
27	Basic metals	0.04	0.77	0.82
28	Fabricated metals	0.07	0.67	0.69
29	Machinery and equipment	0.09	0.77	0.79
30	Office machinery and computers	<0.01	0.69	0.88
31	Electrical machinery and apparatus	0.03	0.80	0.85
32	Radio, TV and communication equipment and apparatus	0.01	0.82	0.95
33	Medical, precision and optical instruments, watches and clocks	0.01	0.76	0.91
34	Motor vehicles	0.04	0.80	0.81
35	Other transport equipment	0.01	0.56	0.77
36	Furniture	0.05	0.76	0.64
37	Recycling	<0.01	0.50	0.60

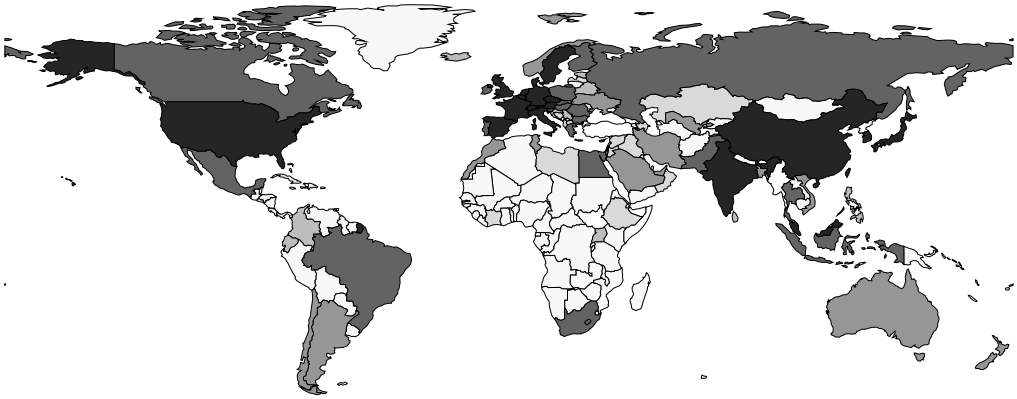
Notes: NACE classification is Rev. 1.1 as reported. Share of total (column 3) is calculated by dividing the number of firms in that sector by the total number of firms in the sample (6,716). Share of exporters (column 4) and importers (column 5) are computed by dividing the number of exporting and importing firms by the number of firms in that sector respectively. All figures are averages over the 2003-08 period. <0.01 indicates that the share is less than 1 percent but positive.

Figure 1: Popular Export Destinations and Import Sources

(a) Export status



(b) Import status



Notes: Export (import) status is the percentage of 6,716 firms that export to (import from) a country, averaged over the 2003-08 period. Darker shades indicate higher percentages. The correlation between export and import percentages at the country level is 0.6.

are served by less than 1 percent of firms. On the import side, the ranking is similar: Germany (50 percent), Italy (44 percent), China (28 percent), and United Kingdom (27 percent), with 126 countries being sourced by less than 1 percent of firms. What about the probability of entering a market during 2005-08? Kazakhstan is the top "new" destination with 13 percent entry probability.

Did new exporters to a country had previous import experience from that country? Simple calculations show that 15 percent of new export-market entrants in 2005-08 had previous import experience from that country. Table A.1 shows that these experience indicators show substantial heterogeneity. For instance, 39 percent of firms that start exporting to Japan had previous import experience from there, whereas only 10 percent of firms that begin exporting to Russia had import experience from there. This type of heterogeneity indicates that local and remote search components might have complementarities that depend on destination characteristics such as distance.

To get a sense of the import-export dynamics at the firm-country level, I calculate simple transitional probabilities as shown in Table 3. Note the existence of hysteresis: a non-trader in year t will be a non-trader in $t+1$ 98 percent of the time; on the other hand, a two-way trader in year t will be a

two-way trader in $t+1$ 62 percent of the time. What this paper is mainly interested is the transition from importing to exporting (and continue importing but not necessarily) to a country. Note that a non-trader is similarly likely to start importing or exporting from a country. However, a firm is more likely to export to a destination if it is first importing from that country ($1.55 + 7.15 = 8.70$ versus $0.82 + 0.06 = 0.88$ percentage points).[23]

Table 3: Transitional Probabilities

Trade status (t / $t+1$)	No trade	Import only	Export only	Two-way
No trade	98.41	0.71	0.82	0.06
Import only	30.14	61.16	1.55	7.15
Export only	31.35	1.44	61.23	5.98
Two-way	6.49	16.57	14.63	62.31

Notes: All figures relate to the 6,716 firms' trade with the 191 countries and are at the firm-country level. Column indicates t and row indicates $t+1$.

4 Results

4.1 OLS-FE results

Before turning to the main empirical analysis with the IV, I run some exploratory OLS regressions by using alternating fixed effects (FE) that progressively get stricter to show how the coefficient reacts. In all regressions, I include a proxy for the destination's firm-specific import demand ($\ln IM_{i,c,t}$) and a region experience dummy. Note that the unconditional probability of export entry is 0.8 percent in the sample, revealing that entry is very rare. Summary statistics for all variables including interaction terms to be used later can be found in Table A.2 in the Appendix.

Table 4 shows the OLS results with fixed effects getting stricter. Panel (a) has the results with one-year lags, and panel (b) does a robustness check with two-year lags. The first column has firm-year and country-year dummies only, the second column has the set of preferred FE with firm-year and country-industry-year dummies, and finally the third column has firm-year, country-year, *and* firm-country dummies that minimizes variation but makes sure that results stay robust.[24] Comparing columns 1 and 2 reveals that adding country-industry-year dummies does not change the estimated coefficients: having a supplier in c in $t-1$ increases the probability of export entry by 3.2 percentage points—a significant number since the unconditional export market entry is only 0.8 percent. Column 3 is the strictest specification that takes much of meaningful variation away but still finds a positive and significant effect of about a percentage point, again larger than the mean entry probability. When I use import entry instead for $S_{i,c,t-1}$, I find that even in this strict definition, import entry to a country

[23]For this analysis, I rectangularize the dataset to have a balanced panel of 6,716 firms and 191 countries.

[24]Since there is a large number of fixed effects, I use the "high-dimensional" fixed effects ($HD-FE$) approach proposed by Abowd and Kramarz (1999), and adjust it to three-way $HD-FE$ when using firm-country FE following Carneiro et al.'s (2012) iterative method. All regressions were run using Sergio Correia's *reghdfe* command for STATA that allows including multiple $HD-FE$ at a relatively low cost of computing power.

increases the probability of export entry to that country by 1.5 percentage points in the preferred column 2. Reassuringly, even the coefficient in column 3 for import entry is positive and significant. The third alternative explanatory variable, the number of importing years, shows that an additional year of importing from a country increases export market entry probability by 1.2 percentage points in column 2. All coefficients have the expected positive sign and are significant at the 1 percent level.

One can argue that a one-year lag is too short to rule out the concern that a firm might make the decision of importing and exporting from a country in the same year but start exporting after importing which might happen in the next calendar year, and this would bias the coefficient upwards. To deal with this concern, I lag the explanatory variable by two years. Table 4 panel (b) shows that results stay qualitatively the same. More precisely, column 2 shows that a positive import status in $t-2$ increases export entry probability by 2.8 percentage points. Other experience variables are robust and the only coefficient that is not statistically significant is in column 3 where I have firm-country FE and use the strictest experience variable of import market entry in $t-2$, possibly limiting enough statistical variation.

For another way to gauge the importance of importing, I create dummies for one, two, three, four, and five years of continuous previous experience with a country.[25] Table 5 column 1 shows that even a single year of importing experience increases export market entry probability by 1.4 percentage points and it jumps to 4.9 percentage points for a firm with the maximum five years of experience. The coefficients increase in magnitude with the number of years and are all significantly different from each other except for between four and five years, indicating that there are diminishing returns to experience.

The OLS-FE results presented in this section hints at a positive relationship between import experience and export market entry, but the concern for endogeneity entails that these results cannot be interpreted in a causal way. The next section uses the IV strategy described earlier to establish causality.

4.2 IV results

Table 6 shows the results with the IV strategy. Column 1 uses the benchmark instrument with initial weights, and shows that lagged import status increases the probability of export market entry by a staggering 11 percentage points—much larger than the 3.2 percentage points found without using an IV. Column 2, which instruments for import market entry, shows that lagged import entry raises export market entry likelihood by 46 percentage points. Again, a striking result that seems to indicate that learning about a client from a supplier can be extremely fast. Column 3 shows that an additional year of importing increases the probability of market entry by 3 percentage points, larger than the 1.2 percentage point effect that was found earlier. These results suggest that the coefficients that were estimated with OLS were downward biased. One possible explanation for this is the measurement

[25] Five years is the maximum number of experience years allowed by the sample period (2003-08). Note that five here means *at least* five years as I do not observe the earlier periods.

Table 4: OLS-FE Results

(a) One-year lags

$S_{i,c,t-1}$:	(1)	**(2)**	(3)
import status	0.032***	**0.032*** **	0.009***
	(0.003)	**(0.003)**	(0.001)
no. of obs.	4,895,216	**4,895,216**	4,895,216
R^2	0.05	**0.10**	0.56
import entry	0.017***	**0.015*** **	0.003***
	(0.002)	**(0.002)**	(0.001)
no. of obs.	3,655,951	**3,655,951**	3,655,951
R^2	0.05	**0.10**	0.64
import years	0.012***	**0.012*** **	0.023***
	(0.001)	**(0.001)**	(0.002)
no. of obs.	4,895,216	**4,895,216**	4,895,216
R^2	0.05	**0.10**	0.56

(b) Two-year lags

$S_{i,c,t-2}$:	(1)	**(2)**	(3)
import status	0.029***	**0.028*** **	0.003***
	(0.003)	**(0.003)**	(0.001)
no. of obs.	4,895,216	**4,895,216**	4,895,216
R^2	0.05	**0.10**	0.56
import entry	0.007***	**0.006*** **	-0.001
	(0.002)	**(0.002)**	(0.002)
no. of obs.	2,427,474	**2,427,474**	2,427,474
R^2	0.04	**0.10**	0.77
import years	0.013***	**0.013*** **	0.021***
	(0.001)	**(0.001)**	(0.002)
no. of obs.	4,895,216	**4,895,216**	4,895,216
R^2	0.05	**0.10**	0.56
FE	FY, CY	**FY, CNY**	FY, CY, FC

Notes: The dependent variable is $F_{i,c,t}$. Each coefficient represents an estimate from a separate regression. All regressions include $\ln IM_{i,c,t}$ and a region experience dummy which are both positive and significant at the 1 percent level (omitted in the table for brevity). Fixed effects (FE) definitions are: FY (firm-year), CY (country-year), CNY (country-industry-year), and FC (firm-country). Standard errors clustered multiway by firms (6,716) and countries (191) in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

Table 5: Number of Importing Years

No. of importing years:	β_1 (1 year)	β_2 (2 years)	β_3 (3 years)	β_4 (4 years)	β_5 (5 years)
	0.014***	0.028***	0.037***	0.045***	0.049***
	(0.001)	(0.003)	(0.004)	(0.005)	(0.005)
H_0: β_i=β_{i+1}		0.00	0.00	0.04	0.25

Notes: The dependent variable is $F_{i,c,t}$ and the independent variables are number of importing year dummies. The omitted category is "no importing experience." The explanatory variables also include $\ln IM_{i,c,t}$, region experience dummy, and firm-year and country-industry-year fixed effects. Number of observations is 4,895,216 and R^2 is 0.10. Standard errors in parentheses are clustered multiway by firms (6,716) and countries (191). ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively. The last row tests the equality of coefficients, and the column entries show $Prob > F$.

error of the binary $S_{i,c,t-1}$ in proxying for the number of suppliers a firm has in the destination country—by instrumenting it using 2SLS, $\widehat{S_{i,c,t-1}}$ becomes a continuous variable that is potentially better at predicting the size of a firm's supplier network.[26]

Columns 4 to 6 and 7 to 9 of Table 6 use average and uniform weights respectively as sensitivity analyses and find that results are robust with coefficients that are similar in magnitude. In all columns, I find that lagged imports of the country from the rest of the world, which proxies for demand shocks, increases the probability of export market entry as expected. Similarly, the region experience dummy is statistically significant and has a consistent magnitude of 1.7 percentage points; however, a comparison between this variable and the import experience dummy shows that they are statistically different from each other revealing that same-country import experience is more important than similar-country export experience. The F-stat form of the Kleibergen-Paap statistic, which measures the strength of the instruments, is always higher than the critical value of 16.38 based on a 10 percent maximum IV size.[27] The first-stage results depicted in the lower half of Table 6 indicates that the instrument is statistically significant at the 1 percent level in all specifications.

Table 7 does several sensitivity analyses to the main results from columns 1-3 of Table 6. Column 1 excludes EU countries from the sample since the formation of the EU-Turkey Customs Union in 1995 had caused many Turkish firms to be entrenched in European supply chains, possibly diminishing the role of the "learning from supplier" hypothesis in 2003-08. Nevertheless, column 1 indicates that excluding the EU does not affect the results. Column 2 excludes countries that have less than $1B average GDP over the 2003-08 period, as the learning mechanisms in these small countries might be quite distinct: even though they have a lower number of potential clients, the importance of knowing a supplier might be more crucial in accessing small-sized networks. Results show that excluding these countries does not change the statistical significance of the coefficients but the magnitudes slightly decrease. Column 3 leaves out the year 2008 as the second half of 2008 corresponds to the beginning of the Great Recession, and the coefficients are qualitatively the same.

[26] In all 2SLS regressions, like I did for OLS regressions, I confirm that predicted probabilities lie in the unit interval.
[27] This statistic is a version of the Cragg-Donald statistic adjusted for clustered standard errors.

Table 6: IV Strategy

	(a) initial weights			(b) avg. weights			(c) uni. weights		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	status	entry	years	status	entry	years	status	entry	years
$S_{i,c,t-1}$	0.113***	0.458***	0.033***	0.108***	0.386***	0.034***	0.170***	0.469***	0.054***
	(0.014)	(0.060)	(0.004)	(0.014)	(0.053)	(0.004)	(0.028)	(0.077)	(0.009)
$ln(IM)_{i,c,t}$	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
region experience$_{i,c,t-1}$	0.017***	0.017***	0.017***	0.017***	0.017***	0.017***	0.017***	0.017***	0.017***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
First-stage									
$ln(EX)_{i,c,t-1}$	0.004***	0.001***	0.014***	0.005***	0.001***	0.015***	0.003***	0.001***	0.009***
	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.002)
$ln(IM)_{i,c,t}$	0.002***	0.000***	0.008***	0.003***	0.000***	0.009***	0.003***	0.000***	0.010***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)	(0.002)
region experience$_{i,c,t-1}$	0.011***	0.001***	0.033***	0.011***	0.001***	0.033***	0.011***	0.001***	0.033***
	(0.003)	(0.000)	(0.008)	(0.003)	(0.000)	(0.008)	(0.003)	(0.000)	(0.008)
no. of obs.	4,895,216	3,655,951	4,895,216	4,895,216	3,655,951	4,895,216	4,895,216	3,655,951	4,895,216
R^2 (centered)	0.09	-0.02	0.09	0.09	0.02	0.09	0.07	-0.02	0.08
Kleibergen-Paap stat.	61.41	79.32	63.07	60.38	83.03	60.59	27.33	45.43	27.02

Notes: Columns differ in the variable used for $S_{i,c,t-1}$. All regressions include firm-year and country-industry-year fixed effects. Standard errors clustered multiway by firms (6,716) and countries (191) in parentheses. All logs and instruments are calculated by adding 1 to the relevant value before taking the natural log to avoid zeros. The critical value for Kleibergen-Paap statistic based on a 10 percent maximal IV size is 16.38. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

Table 7: IV Sensitivity Analysis

$S_{i,c,t-1}$:	(1) w/o EU	(2) w/o small	(3) w/o 2008	(4) one-year margin	(5) two-year lags	(6) intermed.
import status	0.112***	0.096***	0.115***	0.118***	0.117***	0.037***
	(0.020)	(0.014)	(0.014)	(0.014)	(0.014)	(0.007)
no. of obs.	4,274,906	4,278,239	3,686,043	6,147,107	4,895,216	807,601
R^2 (centered)	0.08	0.10	0.09	0.09	0.09	0.05
KP stat.	36.42	60.20	62.21	61.54	62.45	84.16
import entry	0.456***	0.380***	0.428***	0.425***	0.416***	0.255***
	(0.085)	(0.064)	(0.061)	(0.051)	(0.058)	(0.050)
no. of obs.	3,196,855	3,193,300	2,446,778	4,895,216	2,427,474	603,865
R^2 (centered)	-0.01	0.02	-0.01	-0.01	-0.01	-0.01
KP stat.	41.59	75.15	80.91	81.32	80.23	166.64
import years	0.033***	0.029***	0.040***	0.041***	0.049***	0.012***
	(0.006)	(0.004)	(0.005)	(0.005)	(0.006)	(0.002)
no. of obs.	4,274,906	4,278,239	3,686,043	6,147,107	4,895,216	807,601
R^2 (centered)	0.09	0.10	0.09	0.10	0.09	0.06
KP stat.	38.32	61.85	63.39	63.79	64.33	78.92

Notes: Each coefficient represents an estimate from a separate 2SLS regression. All regressions include ln $IM_{i,c,t}$ and a region experience dummy which are both positive and significant at the 1 percent level. All regressions include firm-year and country-industry-year fixed effects (FE). Standard errors clustered multiway by firms (6,716, except for column 6 where the number of firms is 1,094) and countries (191, except for columns 1 and 2 where the number of countries is 164 and 168, respectively) in parentheses. The critical value for Kleibergen-Paap (KP) statistic based on a 10 percent maximal IV size is 16.38. First-stage results are omitted for brevity. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

On column 4, I change the definition of entry and require only a one-year margin, meaning the earliest entry can be in 2004. This adds more than a million observations to the benchmark sample and the coefficients stay qualitatively the same. In column 5, I use two-year lags as I did in the OLS-FE section and find that results are robust. Finally, in column 6, I replace my sample of manufacturing firms with the set of non-manufacturing intermediary firms. These are firms whose 4-digit NACE industry is listed as trade wholesaler or trade retailer in the Industrial and Services Statistics Database.[28] Since these firms do not manufacture and simply search for export/import markets to expand, the β coefficient is less likely to be confounded by GVC-linkages. As shown in column 6, even though I have less than a million observations due to having only 1,094 firms, the results are robust, albeit with lower magnitudes—lagged import status increases the probability of market entry by 3.7 percentage points for intermediaries.[29] This result implies that the learning mechanism might be quite different between manufacturing and non-manufacturing firms, but this is beyond the scope of this paper and is left for future research.

[28]Like I did for manufacturing firms, I make sure that these intermediaries existed for the entire 2003-08 period to avoid entry/exit dynamics.

[29]For column 6, I use firm-year and country-year FE since firms are all in the same "intermediary" industry disallowing me to use country-industry-year FE.

4.3 Robustness: Multiple IVs

Thus far I have shown that instruments are strong but only assumed that they are exogenous. To be more convinced that they do satisfy the exclusion restriction, I add a second instrument based on tariffs to the 2SLS system in (7) and (8);[30] it is defined in the following form:

$$TTAR_{i,c,t} = \sum_h \omega_{i,h} \ (Turkey's \ tariffs)_{c,h,t} \ , \tag{9}$$

and I add the relevant additional control variable:

$$DTAR_{i,c,t} = \sum_h \eta_{i,h} \ (destination \ tariffs)_{c,h,t} \ , \tag{10}$$

where I use initial weights are as before. Intuitively, (9) measures the weighted average bilateral tariff imposed by Turkey on the set of products a firm has imported in 2003-08, and (10) is the weighted average bilateral tariff faced by a Turkish firm on the set of products that it has exported. I exclude EU countries from this analysis as the existence of the customs union implies that tariff changes between EU and Turkey is *de minimis*, limiting statistical variation.

The system I estimate for export market entry with two instruments becomes the following:

$$S_{i,c,t-1} = \rho \ln EX_{i,c,t-1} + \theta_2 \ln IM_{i,c,t} + \lambda \ln TTAR_{i,c,t-1} + \tau_2 \ln DTAR_{i,c,t} + \delta_{2c,n,t} + \eta_{2i,t} + \varepsilon_{2i,c,t-1}, \tag{11}$$

$$F_{i,c,t} = \beta \ \widehat{S_{i,c,t-1}} + \theta_1 \ln IM_{i,c,t} + \tau_1 \ln DTAR_{i,c,t} + \delta_{1c,n,t} + \eta_{1i,t} + \varepsilon_{1i,c,t}. \tag{12}$$

Table 8 shows the results; importantly, the Hansen p-values are comfortably higher than 0.10, which means that the exogeneity of the chosen instruments cannot be rejected. The Kleibergen-Paap (KP) statistics are not as high as in Table 6, but they are sufficiently large for inference. Column 1 shows that previous import experience increases the probability of exporting by 5.5 percentage points, about half the magnitude found with a single IV, but still higher than the OLS-FE results. Similarly, the coefficients of 26 and 1.5 percentage points in columns 2 and 3 are lower than their corresponding results with a single IV. Note that the first-stage results in Table 8 indicate that Turkey's tariffs are often not significant predictors of importing, whereas destination tariffs play a role in export entry. Overall, these findings establish that a conservative estimate of the effect of lagged import status on export entry is 5.5 percentage points.

5 Heterogeneous Effects

After establishing that having a supplier in the destination makes a firm more likely to start selling to that country, I now explore *what* contributes to this learning from suppliers. More specifically, I analyze whether local and remote search for clients have complementarities that depend on destination,

[30] I get MFN and preferential tariff data at the country-HS6 level from COMTRADE (WITS).

firm, and product characteristics, making the probability distribution $g(.)$ a function of additional variables.[31] The following subsections explore these heterogeneities by using both OLS-FE and the IV strategy.[32]

Table 8: Multiple IVs

	(1) status	(2) entry	(3) years
$S_{i,c,t-1}$	0.055***	0.263**	0.015***
	(0.021)	(0.111)	(0.006)
$ln(IM)_{i,c,t}$	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
$ln(DTAR)_{i,c,t}$	-0.005***	-0.004***	-0.005***
	(0.001)	(0.002)	(0.001)
region experience$_{i,c,t-1}$	0.017***	0.016***	0.017***
	(0.002)	(0.001)	(0.002)
First-stage			
$ln(EX)_{i,c,t-1}$	0.003***	0.000***	0.009***
	(0.000)	(0.000)	(0.002)
$ln(TTAR)_{i,c,t-1}$	-0.006	0.008	-0.022
	(0.040)	(0.011)	(0.136)
$ln(IM)_{i,c,t}$	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
$ln(DTAR)_{i,c,t}$	0.012***	0.002	0.037***
	(0.004)	(0.002)	(0.014)
region experience$_{i,c,t-1}$	0.006**	0.000	0.017**
	(0.002)	(0.000)	(0.007)
no. of obs.	3,111,393	2,341,262	3,111,393
R^2 (centered)	0.002	0.000	0.003
Kleibergen-Paap stat.	19.24	30.18	18.88
Hansen p-value	0.77	0.62	0.78

Notes: Columns differ in the variable used for $S_{i,c,t-1}$. All regressions include firm-year and country-industry-year fixed effects. Standard errors clustered multiway by firms (5,506) and countries (150) in parentheses. EU countries are dropped in order to have meaningful variation in the tariff instrument. All logs and instruments are calculated by adding 1 to the relevant value before taking the log to avoid zeros. The critical value for Kleibergen-Paap statistic based on a 10 (15) percent maximal IV size is 19.93 (11.59). ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

[31] As Cavusgil and Zou (1994) and Tesfom and Lutz (2006) emphasize, the nature of export barriers largely depend on host-market and industry characteristics.

[32] Summary statistics for all interaction variables can be found in Appendix Table A.2.

5.1 Country characteristics

As detailed in Table A.1 in the Appendix there is substantial country-heterogeneity in the data. In this section, I take advantage of this dimension by interacting the experience variable with five gravity-type measures: GDP, distance to Turkey, language proximity to Turkish, whether the country has an RTA with Turkey, and development status. The GDP proxies for the size of network that the initial supplier contact has access to in a given country, and this is expected to increase the probability of the firm to find a client. If there are complementarities between local and remote search, one might argue that firms would be more likely to start exporting to closer destinations, even when they have a supplier contact.[33] Language proximity is also expected to increase the probability of exporting as this would enable the firm to ease its way into the network of clients that can be accessed through the supplier. For RTAs, which have been found to increase bilateral trade between countries, the effect of importing on export entry is not clear-cut since RTAs might erode informational barriers and thus eliminate the need to having an initial contact in the destination country in order to access clients.[34] The development status on the other hand, which proxies for institutional quality and thus the fluidity of networks, is expected to increase the likelihood of export market entry given having a supplier.

Table 9 panel (a) has the OLS-FE results, and panel (b) has the corresponding IV results. Looking at columns 1 and 5 reveals that the coefficients on GDP and distance are both significant with the predicted signs. This result is not surprising since there are more export opportunities in larger countries that can be accessed easily given having a supplier, and export entry should be more likely in more proximate countries that enable smoother communication and frequent interactions with the existing supplier. However, the IV strategy turns the statistically insignificant coefficient on language proximity to significant and positive—this implies that language (or cultural) proximity does smooth learning. In addition, the coefficient on RTA is negative in the IV results—one might argue that signing an RTA substitutes for having an initial contact as client networks become readily accessible with information generated by RTAs. To give a clearer interpretation, back-of-the-envelope calculations from column 5 indicates that having an existing supplier in Russia increases the probability of starting to export there by 15 percentage points larger than the analogous effect for USA, as Russia's proximity to Turkey more than offsets for its smaller market-size. Moreover, the effect for Russia is 8 percentage points larger than the one for Turkey's top trading-partner Germany, where the import experience effect is abated by the existence of the EU-Turkey Customs Union. Small and distant countries often have much lower effects, with import experience from Thailand having 17 percentage points less effect than the one for Germany. A small country with a substantial import experience effect is Kazakhstan with only a percentage point less than Russia's, thanks to the similarity of Kazakh to Turkish.

In column 2, I interact previous importing with development status indicators and find that the effect is nonexistent for low income countries (the omitted category), and significant and positive for

[33] This would be the case if the probability distribution $g(.)$ is a function of home location regardless of the location of previous contacts, as in $g(0, y, x)$.

[34] See Baier and Bergstrand (2007) and Baier et al. (2014) who establish that signing RTAs increases bilateral trade using frontier econometric techniques with the gravity equation.

Table 9: Country Characteristics and Network Effects

	(a) OLS-FE				(b) IV			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$S_{i,c,t-1}$	-0.047	0.000	0.014***	0.012***	0.410	-0.129	0.041**	0.031
	(0.033)	(0.005)	(0.002)	(0.003)	(0.344)	(0.098)	(0.019)	(0.024)
$X\ ln(GDP)_{c,t-1}$	0.007***				0.039***			
	(0.001)				(0.010)			
$X\ ln(dist.)_c$	-0.014***				-0.165***			
	(0.003)				(0.043)			
$X\ LP_c$	-0.002				0.299*			
	(0.012)				(0.154)			
$X\ RTA_{c,t-1}$	0.010**				-0.136**			
	(0.004)				(0.056)			
$X\ LMI_c$		0.018**				0.182*		
		(0.008)				(0.099)		
$X\ UMI_c$		0.021***				0.276***		
		(0.006)				(0.102)		
$X\ HI_c$		0.037***				0.247***		
		(0.006)				(0.096)		
$X\ ln(peers)_{c,n,t-1}$			0.012***				0.046***	
			(0.001)				(0.010)	
$X\ ln(migrants)_c$				0.003***				0.011***
				(0.000)				(0.003)
no. of obs.	4,343,477	4,868,576	4,895,216	4,549,520	4,343,477	4,868,576	4,895,216	4,549,520
no. of cty.	171	190	191	178	171	190	191	178
R^2	0.10	0.10	0.10	0.10	0.08	0.09	0.09	0.09
KP stat.	.	.	.	.	8.46	1.82	30.78	15.83

Notes: X indicates interacted with $S_{i,c,t-1}$. All regressions include $\ln IM_{i,c,t}$ and a region experience dummy which are omitted in the table. All regressions include firm-year and country-industry-year fixed effects. Standard errors clustered multiway by firms (6,716) and countries (number depends on data availability; see the table) in parentheses. Language proximity (LP) is a continuous index based on data from CEPII. Development groups based on World Bank classification are defined as lower-middle income (LMI), upper-middle income (UMI), and high-income (HI); the omitted category is low-income (LI). $ln(peers)$ is the log of the number of same-industry firms that already export to the destination country. $ln(migrants)$ is the log of the stock of Turkish emigrants residing in the destination country (all logs are created by adding 1 to the value). R^2 is centered for columns 5-8. The critical value for Kleibergen-Paap (KP) statistic based on a 10 percent maximal IV size is 7.03 for columns 7 and 8. First-stage results are omitted for brevity. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

all other countries. This result is confirmed in column 6 with the IV strategy, and the equality of the coefficients for the three groups cannot be rejected at the 5 percent level. This result reveals that having a supplier helps only in higher income countries, perhaps due to the rigidity of business networks in low-income countries.

In the rest of the table, following the literature on network effects, I examine whether having (i) same-industry Turkish firms that already export to that destination (number of "peers"), and (ii) a sizable Turkish community in the destination country matter. Both of these variables are expected to increase the probability of export market entry as both should erode informational barriers. Table 9 columns 3 and 7 show that experience matters regardless of whether there are any existing peers. Nonetheless, the number of peers does increase the probability of market entry once interacted with previous importing—column 7 indicates that a one standard deviation (0.871) increase in $ln(peers)$ increases the probability of export market entry by 4 percentage points when interacted with previous import experience. Similarly, columns 4 and 8 show that the size of the Turkish immigrant community matters. Interestingly, column 8 with the IV strategy reveals that having a supplier is not helpful unless there exists at least some Turkish community in the destination country.[35]

5.2 Firm and product characteristics

In this subsection, I examine firm and product characteristics that proxy the strength of the firm's relationship with its supplier. The variables I consider are value of imports, number of HS6 products imported, the value share of the country in a firm's *total* imports, the share of differentiated products in a firm's imports,[36] and the share of intermediates in a firm's imports. All of these variables are expected to increase the probability of export market entry as they predict tighter supplier-buyer relationships. A "tighter" relationship should lead a firm to spend more time and effort with that supplier resulting in a higher likelihood to learn about a client. Similarly, trading of differentiated products might require a closer relationship and enhance the transmission of market knowledge learned through importing. In addition, I conjecture that importing an input, which goes into the firm's production function, might generate larger learning effects due to its higher importance than, for instance, a final good. Note that I am not using interactions here as these variables are firm-specific, making them potentially endogenous. Using import experience interactions would require additional instruments to identify the interactions. I avoid this issue by simply replacing the lagged import experience dummy with the variable in question; this is a caveat to bear in mind when interpreting the coefficients.

Table 10 panel (a) has the OLS-FE results, whereas panel (b) has the IV results. A glance at the

[35]The largest Turkish immigrant community is in Germany with about a 2 million inhabitants in 2000 (the latest year of data availability from the World Bank). Non-European countries like USA, Saudi Arabia, and Israel also had sizable Turkish communities in 2000.

[36]I classify differentiated versus non-differentiated goods based on the index created by Rauch. He assigns a heterogeneity value (w: homogenous goods, r: reference priced goods, and n: differentiated goods) for each SITC (rev.2) industry. I concord that to HS6 products using concordance tables provided by the UN Statistics Division, and bundle homogenous and reference priced goods together as non-differentiated products. Results reported are with Rauch's conservative definition but using the liberal definition does not change the results.

Table 10: Firm and Product Characteristics

(a) OLS-FE

	(1)	(2)	(3)	(4)	(5)
$ln(imports)_{i,c,t-1}$	0.003***				
	(0.000)				
$ln(no.\ of\ prod.)_{i,c,t-1}$		0.037***			
		(0.003)			
$import\ share_{i,c,t-1}$			0.040***		
			(0.005)		
$share\ of\ diff._{i,c,t-1}$				0.035***	
				(0.003)	
$share\ of\ inputs_{i,c,t-1}$					0.030***
					(0.003)
no. of obs.	4,895,216	4,895,216	4,895,216	4,895,216	4,895,216
R^2	0.10	0.10	0.10	0.10	0.10

(b) IV

	(1)	(2)	(3)	(4)	(5)
$ln(imports)_{i,c,t-1}$	0.010***				
	(0.001)				
$ln(no.\ of\ prod.)_{i,c,t-1}$		0.111***			
		(0.015)			
$import\ share_{i,c,t-1}$			0.511***		
			(0.094)		
$share\ of\ diff._{i,c,t-1}$				0.218***	
				(0.032)	
$share\ of\ inputs_{i,c,t-1}$					0.143***
					(0.017)
no. of obs.	4,895,216	4,895,216	4,895,216	4,895,216	4,895,216
R^2 (centered)	0.09	0.09	0.07	0.06	0.08
KP stat.	63.84	43.63	33.72	25.21	69.34

Notes: All regressions include $\ln IM_{i,c,t}$ and a region experience dummy which are omitted in the table. All regressions include firm-year and country-industry-year fixed effects. Standard errors clustered by firms (6,716) and countries (191) in parentheses. The critical value for Kleibergen-Paap (KP) statistic based on a 10 percent maximal IV size is 16.38. First-stage results are omitted for brevity. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

two panels reveals that the coefficients have the expected positive signs with the IV magnitudes larger than the OLS-FE magnitudes as in the main results. I focus on panel (b) for inference. The Kleibergen-Paap statistics are comfortably larger than the critical value of 16.38 in all columns, indicating that the instrument is strong enough to predict these continuous variables as well. Column 1 shows that a one standard deviation (1.503) increase in $ln(imports)$ increases entry probability by 1.5 percentage points. Column 2 has a similar interpretation: a one standard deviation (0.162) increase in $ln(no.\ of\ prod.)$ raises the probability of export market entry by 1.8 percentage points. Column 3 shows that a country's share in a firm's imports matter in determining that firm's export expansion. A one standard deviation (0.040) increase in this share increases export market entry probability by 2.04 percentage points. Column 4 reveals that a firm that imports only differentiated products is much more likely to start exporting to a country when compared to a firm that imports entirely homogeneous or reference priced goods. Similarly, column 5 indicates that an importer of mostly intermediate goods would be more likely to start exporting to that country; in this case, a one standard deviation increase has a 1.67 percentage point effect.

Note that these regressions are not able to clearly identify the *additional* effect of the variables since they are not interactions with the binary import experience variable. Even though the variables have a positive effect on export market entry, the absence of suitable additional instruments in this case means that the firm and product characteristics results should be interpreted with caution.

6 Conclusion

In this paper, following Chaney's (2014) conjecture of dynamic network formation where firms learn about potential clients using their existing *clients* in other destinations, I analyzed whether firms can use their existing *suppliers* to acquire their first clients in those countries based on an "extended-Chaney" information channel. Previous literature on the importance of sunk and fixed costs for the extensive margin of trade have largely ignored the supplier dimension and thus this is the first paper that analyzes a firm's export-market entry probability by examining its *other* trading activity—importing.

Using a detailed dataset of Turkish firms during 2003-08, I empirically tested whether the probability of exporting depends on a firm's previous import experience with that country using an IV strategy with multiple high-dimensional fixed effects, identifying previous importing with exogenous supply levels in the destination country. The IV results showed that having a supplier in the destination country increases export market entry probability by at least 5.5 percentage points (11 percentage points in the main IV specification). The general downward bias in OLS-FE coefficients was attributed to the potential measurement error of import status in proxying for the number of suppliers a firm has in a country. Several sensitivity analyses such as using different samples, experience measures, and multiple instruments showed that results are robust.

The richness of the dataset enabled me to dig deeper and explore heterogeneities. Using gravity-

type interactions, I found that the "learning from supplier" effect is more substantial when trading with larger and more proximate countries, as well as nations that speak a similar language to Turkish. The RTAs, on the other hand, did not have a positive effect on learning. I confirmed the findings of the literature on network effects by showing that the number of domestic peers as well as the size of the Turkish community in the destination country increase the probability of export market entry, even when the firm has a supplier in that country. Moreover, I found that variables that proxy the strength of the firm's relationship with its supplier such as the share of imported products that are differentiated are positive predictors of export market entry.

This paper contributes to the literature by documenting for the first time the "market knowledge" effect, revealing that having a supplier in the destination country is important for a firm's export-market diversification. Whether it is learning about a country's culture, customs procedures, supply/demand functions, or simply getting into a network of a country's buyers and sellers as in Chaney (2014), "market knowledge" is an important determinant of entering a market. These results suggest that large-scale trade policy implementations such as unilateral tariff liberalization can have additional spillover effects by allowing firms to find suppliers in new markets that can lead to new clients in those markets. My findings also give credit to government subsidies for market research and international trade fairs where firms can find contacts to expand their geographical diversification. In fact, Turkey implemented a legislature to provide subsidies to attend international trade fairs in 2009, and to conduct (or purchase) market research for export market entry for small and medium enterprises in 2011, which I plan to analyze in future research.

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A Summary Statistics

Table A.1: Summary Statistics by Country

(1) Country	(2) Dev. status	(3) GDP	(4) Dist.	(5) LP	(6) RTA	(7) Export status	(8) Export entry	(9) Import status	(10) Import entry	(11) Import exp.	(12) Export exp.
Germany	HI	2,936,033	2.17	0.23	1	0.32	0.08	0.50	0.12	0.54	0.23
Italy	HI	1,867,412	1.73	0.23	1	0.21	0.05	0.44	0.10	0.64	0.12
Kazakhstan	UMI	59,991	3.33	0.76	0	0.21	0.13	0.10	0.07	0.01	0.23
UK	HI	2,437,255	2.92	0.17	1	0.20	0.05	0.27	0.06	0.39	0.20
France	HI	2,226,878	2.48	0.28	1	0.19	0.05	0.27	0.06	0.34	0.23
Greece	HI	255,097	0.78	0.26	1	0.19	0.04	0.08	0.03	0.12	0.40
Bulgaria	UMI	30,454	0.71	0.34	1	0.16	0.05	0.07	0.02	0.08	0.32
Israel	HI	146,298	0.94	0.24	1	0.16	0.03	0.06	0.02	0.08	0.40
Netherlands	HI	690,560	2.49	0.17	1	0.15	0.04	0.19	0.05	0.27	0.20
Romania	UMI	104,561	0.88	0.30	1	0.15	0.04	0.06	0.02	0.08	0.38
USA	HI	13,123,400	9.71	0.18	0	0.14	0.03	0.24	0.05	0.38	0.15
Spain	HI	1,179,318	2.97	0.27	1	0.13	0.04	0.20	0.05	0.32	0.17
Belgium	HI	392,157	2.49	0.22	1	0.12	0.03	0.18	0.04	0.32	0.17
Russia	HI	803,220	2.42	0.28	0	0.12	0.04	0.07	0.02	0.10	0.26
Egypt	LMI	94,400	1.12	0.39	1	0.10	0.03	0.04	0.02	0.09	0.27
Iran	UMI	198,881	1.85	0.40	0	0.10	0.03	0.03	0.01	0.05	0.33
UAE	HI	187,401	2.72	0.39	0	0.10	0.03	0.02	0.01	0.03	0.45
Poland	HI	317,993	1.69	0.17	1	0.09	0.03	0.06	0.02	0.09	0.28
Switzerland	HI	417,418	2.12	0.24	1	0.08	0.02	0.18	0.04	0.37	0.12
Austria	HI	321,157	1.64	0.22	1	0.08	0.02	0.14	0.03	0.26	0.17
Saudi Arabia	HI	337,977	2.12	0.39	0	0.08	0.02	0.02	0.01	0.05	0.30
Denmark	HI	266,800	2.37	0.13	1	0.07	0.02	0.08	0.02	0.20	0.17
Hungary	UMI	112,135	1.35	0.33	1	0.07	0.02	0.05	0.02	0.12	0.17
Ukraine	LMI	89,839	1.12	0.24	0	0.07	0.03	0.04	0.01	0.07	0.21
Syria	LMI	28,757	0.75	0.39	1	0.07	0.02	0.01	<0.01	0.01	0.27
Azerbaijan	UMI	16,334	1.46	0.78	0	0.07	0.03	<0.01	<0.01	0.01	0.29
Lebanon	UMI	22,068	0.78	0.39	0	0.07	0.02	<0.01	<0.01	0.01	0.58
Jordan	UMI	13,177	0.98	0.39	0	0.07	0.02	<0.01	<0.01	0.01	0.55
Sweden	HI	396,227	2.45	0.19	1	0.06	0.02	0.11	0.03	0.22	0.12
Czech Republic	HI	140,291	1.74	0.24	1	0.06	0.02	0.09	0.03	0.23	0.12
Serbia	UMI	26,894	.	.	0	0.06	0.02	0.01	<0.01	0.02	0.38
Georgia	LMI	6,790	1.07	0.19	0	0.06	0.02	0.01	<0.01	<0.01	0.21
Iraq	UMI	49,856	1.35	0.39	0	0.06	0.02	<0.01	<0.01	0.01	0.63
Portugal	HI	199,483	3.52	0.23	1	0.05	0.01	0.05	0.02	0.11	0.16
Canada	HI	1,172,203	8.63	0.20	0	0.05	0.01	0.04	0.02	0.12	0.12
South Africa	UMI	265,275	7.67	0.00	0	0.05	0.01	0.02	0.01	0.08	0.25
Morocco	LMI	62,010	3.50	0.39	1	0.05	0.02	0.01	0.01	0.03	0.32
Macedonia	UMI	6,195	0.92	0.31	1	0.05	0.02	0.01	<0.01	0.01	0.32
Algeria	UMI	103,041	2.54	0.39	0	0.05	0.01	<0.01	<0.01	<0.01	0.39
China	UMI	2,459,220	7.23	0.18	0	0.04	0.02	0.28	0.10	0.60	0.03
India	LMI	876,162	4.71	0.00	0	0.04	0.02	0.15	0.04	0.35	0.08
Finland	HI	209,426	2.48	0.33	1	0.04	0.01	0.05	0.01	0.19	0.11
Ireland	HI	213,529	3.29	0.17	1	0.04	0.01	0.03	0.01	0.10	0.17
Australia	HI	705,559	14.18	0.17	0	0.04	0.01	0.02	0.01	0.05	0.17

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Table A.1 – *Continued from previous page*

(1) Country	(2) Dev. status	(3) GDP	(4) Dist.	(5) LP	(6) RTA	(7) Export status	(8) Export entry	(9) Import status	(10) Import entry	(11) Import exp.	(12) Export exp.
Tunisia	UMI	33,518	1.95	0.39	1	0.04	0.01	0.01	<0.01	0.03	0.24
Latvia	HI	16,776	2.02	0.25	1	0.04	0.01	0.01	<0.01	0.01	0.21
Bosnia and Herzegovina	UMI	11,345	1.27	0.29	1	0.04	0.02	<0.01	<0.01	0.01	0.33
Libya	UMI	44,940	1.70	0.39	0	0.04	0.02	<0.01	<0.01	0.01	0.12
Albania	UMI	8,657	1.05	0.29	1	0.04	0.01	<0.01	<0.01	0.01	0.41
Kuwait	HI	82,298	1.88	0.39	0	0.04	0.01	<0.01	<0.01	0.01	0.28
Japan	HI	4,599,343	8.72	0.20	0	0.03	0.01	0.15	0.04	0.39	0.04
Korea, Rep.	HI	925,249	7.94	0.00	0	0.03	0.01	0.12	0.03	0.40	0.05
Hong Kong	HI	186,457	7.82	0.18	0	0.03	0.01	0.07	0.02	0.24	0.08
Slovenia	HI	37,778	1.58	0.26	1	0.03	0.01	0.03	0.01	0.12	0.14
Slovakia	HI	66,592	1.46	0.24	1	0.03	0.01	0.03	0.01	0.12	0.12
Pakistan	LMI	111,340	3.74	0.29	0	0.03	0.01	0.03	0.01	0.08	0.08
Norway	HI	305,902	2.81	0.21	1	0.03	0.01	0.03	0.01	0.07	0.18
Uzbekistan	LMI	15,097	3.09	1.00	0	0.03	0.01	0.01	0.01	0.05	0.09
Croatia	HI	46,601	1.44	0.29	1	0.03	0.01	0.01	0.01	0.02	0.20
Turkmenistan	UMI	8,756	2.36	0.75	0	0.03	0.01	0.01	<0.01	<0.01	0.11
Taiwan	HI	.	8.26	0.18	0	0.02	0.01	0.15	0.04	0.43	0.02
Indonesia	LMI	296,033	9.21	0.16	0	0.02	0.01	0.06	0.02	0.15	0.03
Malaysia	UMI	148,156	8.23	0.19	0	0.02	0.01	0.05	0.02	0.20	0.07
Brazil	UMI	909,948	10.22	0.23	0	0.02	0.01	0.05	0.02	0.14	0.06
Thailand	UMI	180,501	7.23	0.25	0	0.02	0.01	0.05	0.02	0.14	0.04
Singapore	HI	133,045	8.38	0.18	0	0.02	0.01	0.03	0.01	0.07	0.07
Mexico	UMI	885,475	11.61	0.27	0	0.02	0.01	0.02	0.01	0.08	0.07
Belarus	UMI	31,949	1.63	0.28	0	0.02	0.01	0.01	<0.01	0.02	0.08
New Zealand	HI	114,036	16.82	0.17	0	0.02	<0.01	0.01	<0.01	0.05	0.08
Bahrain	HI	16,647	2.29	0.39	0	0.02	0.01	<0.01	<0.01	0.08	0.15
Estonia	HI	14,458	2.24	0.29	1	0.02	0.01	<0.01	<0.01	0.02	0.10
Malta	HI	6,110	1.60	0.23	1	0.02	0.01	<0.01	<0.01	0.01	0.30
Oman	HI	32,554	3.04	0.39	0	0.02	0.01	<0.01	<0.01	0.01	0.21
Qatar	HI	53,529	2.42	0.39	0	0.02	0.01	<0.01	<0.01	0.01	0.08
Sudan	LMI	28,374	2.80	0.39	0	0.02	0.01	<0.01	<0.01	0.00	0.30
Yemen	LMI	16,934	3.06	0.39	0	0.02	0.01	<0.01	<0.01	0.00	0.29
Lithuania	HI	27,276	1.86	0.31	1	0.02	0.01	<0.01	<0.01	0.00	0.21
Kosovo	LMI	3,860	.	.	0	0.02	0.01	<0.01	<0.01	0.00	0.20
Moldova	LMI	3,032	0.92	0.30	0	0.02	0.01	<0.01	<0.01	0.00	0.17
Kyrgyzstan	LMI	2,583	3.55	0.81	0	0.02	0.01	<0.01	<0.01	0.00	0.11
Nigeria	LMI	115,169	4.39	0.00	0	0.02	0.01	<0.01	<0.01	0.00	0.08
Argentina	UMI	230,945	12.47	0.27	0	0.01	0.01	0.02	0.01	0.05	0.07
Vietnam	LMI	59,758	7.74	0.23	0	0.01	<0.01	0.01	0.01	0.03	0.04
Philippines	LMI	106,365	9.06	0.20	0	0.01	<0.01	0.01	0.01	0.02	0.07
Luxembourg	HI	38,030	2.32	0.22	1	0.01	<0.01	0.01	<0.01	0.25	0.04
Bangladesh	LI	62,789	5.72	0.30	0	0.01	<0.01	0.01	<0.01	0.03	0.05
Afghanistan	LI	6,578	3.25	0.33	0	0.01	0.01	<0.01	<0.01	0.00	0.00
Chile	HI	126,825	13.30	0.27	0	0.01	<0.01	<0.01	<0.01	0.03	0.03
Sri Lanka	LMI	25,540	5.98	0.26	0	0.01	<0.01	<0.01	<0.01	0.02	0.12
Colombia	UMI	152,634	11.01	0.27	0	0.01	<0.01	<0.01	<0.01	0.02	0.09
Iceland	HI	17,240	4.39	0.13	1	0.01	<0.01	<0.01	<0.01	0.02	0.00

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Table A.1 – *Continued from previous page*

(1) Country	(2) Dev. status	(3) GDP	(4) Dist.	(5) LP	(6) RTA	(7) Export status	(8) Export entry	(9) Import status	(10) Import entry	(11) Import exp.	(12) Export exp.
Ethiopia	LI	13,215	3.45	.	0	0.01	<0.01	<0.01	<0.01	0.01	0.21
Cote d'Ivoire	LMI	17,271	5.23	0.00	0	0.01	<0.01	<0.01	<0.01	0.01	0.11
Ghana	LMI	11,203	4.93	0.00	0	0.01	<0.01	<0.01	<0.01	0.00	0.25
Panama	UMI	16,575	11.22	0.27	0	0.01	<0.01	<0.01	<0.01	0.00	0.17
Angola	UMI	32,847	5.82	0.23	0	0.01	<0.01	<0.01	<0.01	0.00	0.14
Venezuela	UMI	150,955	10.12	0.27	0	0.01	<0.01	<0.01	<0.01	0.00	0.14
Mauritius	UMI	6,518	7.17	0.22	0	0.01	<0.01	<0.01	<0.01	0.00	0.13
Peru	UMI	79,375	12.39	0.27	0	0.01	<0.01	<0.01	<0.01	0.00	0.13
Congo	LMI	6,124	5.20	0.00	0	0.01	<0.01	<0.01	<0.01	0.00	0.10
Tajikistan	LI	2,411	3.20	0.37	0	0.01	<0.01	<0.01	<0.01	0.00	0.08
Kenya	LI	19,312	4.60	0.27	0	0.01	<0.01	<0.01	<0.01	0.00	0.06
Cameroon	LMI	16,905	4.29	0.00	0	0.01	<0.01	<0.01	<0.01	0.00	0.00
Senegal	LMI	8,788	5.49	0.24	0	0.01	<0.01	<0.01	<0.01	0.00	0.00
Tanzania	LI	14,646	5.12	0.27	0	0.01	<0.01	<0.01	<0.01	0.00	0.00
Macao	HI	12,681	7.98	.	0	<0.01	<0.01	<0.01	<0.01	0.13	0.00
Occ.Pal.Terr	.	4,412	.	.	1	<0.01	<0.01	<0.01	<0.01	0.02	0.50
Ecuador	UMI	42,013	11.94	0.27	0	<0.01	<0.01	<0.01	<0.01	0.02	0.05
Uganda	LI	9,668	4.34	0.00	0	<0.01	<0.01	<0.01	<0.01	0.02	0.00
Montenegro	UMI	2,427	.	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.40
Bahamas	HI	7,715	9.75	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.33
Cuba	UMI	44,945	10.17	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.25
Trinidad and Tobago	HI	17,114	9.56	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.20
Mali	LI	5,546	4.82	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.11
Liechtenstein	HI	3,800	.	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.05
Andorra	HI	2,584	2.56	0.28	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Antigua and Barbuda	HI	1,073	9.13	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Aruba	HI	2,296	10.13	0.24	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Barbados	HI	3,969	9.22	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Belize	UMI	1,133	11.17	0.21	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Benin	LI	4,487	4.62	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Bermuda	HI	5,020	8.30	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Bolivia	LMI	9,842	11.89	0.25	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Botswana	UMI	10,527	7.04	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Burkina Faso	LI	5,590	4.54	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Burundi	LI	1,165	4.79	0.19	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Cambodia	LI	6,623	7.70	0.22	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Central African Republic	LI	1,434	4.10	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Chad	LI	6,211	3.53	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Comoros	LI	382	5.86	0.26	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Congo, DR	LI	12,335	.	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Costa Rica	UMI	21,024	11.45	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Cyprus	HI	17,440	0.63	0.35	1	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Djibouti	LMI	734	3.32	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Dominican Republic	UMI	36,031	9.68	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00

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Table A.1 – *Continued from previous page*

(1) Country	(2) Dev. status	(3) GDP	(4) Dist.	(5) LP	(6) RTA	(7) Export status	(8) Export entry	(9) Import status	(10) Import entry	(11) Import exp.	(12) Export exp.
El Salvador	LMI	17,449	11.53	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Equatorial Guinea	HI	7,827	4.70	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Faeroe Islands	HI	1,731	3.61	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Gabon	UMI	8,791	4.95	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Gambia	LI	637	5.53	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Grenada	UMI	670	9.46	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Guatemala	LMI	28,292	11.56	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Guinea	LI	2,977	5.52	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Haiti	LI	4,255	9.87	0.28	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Honduras	LMI	10,006	11.31	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Jamaica	UMI	11,076	10.27	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Lao PDR	LMI	2,884	7.21	0.20	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Lesotho	LMI	1,418	7.69	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Liberia	LI	600	5.62	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Madagascar	LI	5,229	6.74	0.29	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Malawi	LI	2,869	6.02	0.20	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Marshall Islands	UMI	139	13.23	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Mauritania	LMI	1,937	5.07	0.39	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Mongolia	LMI	2,675	5.79	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Mozambique	LI	6,772	6.76	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Namibia	UMI	7,537	7.03	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Nepal	LI	8,301	5.01	0.24	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Nicaragua	LMI	6,465	11.42	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Niger	LI	3,552	3.88	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Papua New Guinea	LMI	4,985	12.70	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Paraguay	LMI	9,096	11.68	0.19	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Saint Lucia	UMI	972	9.27	0.28	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
San Marino	HI	1,403	1.69	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Sao Tome and Principe	LMI	133	5.07	0.23	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Seychelles	UMI	970	5.49	0.25	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Sierra Leone	LI	1,698	5.61	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
St. Vincent and the Grenadines	UMI	572	9.35	0.17	1	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Suriname	UMI	1,823	9.32	0.17	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Swaziland	LMI	2,636	7.35	.	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Togo	LI	2,168	4.74	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Uruguay	HI	17,813	12.21	0.27	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Zambia	LMI	8,765	6.00	0.00	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Zimbabwe	LI	5,609	6.48	0.21	0	<0.01	<0.01	<0.01	<0.01	0.00	0.00
Brunei	HI	9,694	9.06	0.20	0	<0.01	<0.01	<0.01	0.00	0.00	.
Eritrea	LI	1,069	2.84	0.19	0	<0.01	<0.01	<0.01	0.00	0.00	.
Guyana	LMI	825	9.55	0.17	0	<0.01	<0.01	<0.01	0.00	0.00	.
Rwanda	LI	2,747	4.64	0.19	0	<0.01	<0.01	<0.01	0.00	0.00	.
Greenland	HI	1,756	5.74	0.13	0	<0.01	0.00	<0.01	<0.01	.	0.00
Bhutan	LMI	882	5.47	0.26	0	<0.01	<0.01	0.00	0.00	0.00	.
Cabo Verde	LMI	1,042	6.01	0.17	0	<0.01	<0.01	0.00	0.00	0.00	.

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Table A.1 – *Continued from previous page*

(1) Country	(2) Dev. status	(3) GDP	(4) Dist.	(5) LP	(6) RTA	(7) Export status	(8) Export entry	(9) Import status	(10) Import entry	(11) Import exp.	(12) Export exp.
Dominica	UMI	391	9.21	0.28	0	<0.01	<0.01	0.00	0.00	0.00	.
Fiji	UMI	2,999	15.99	0.28	0	<0.01	<0.01	0.00	0.00	0.00	.
Guinea Bissau	LI	593	5.58	0.00	0	<0.01	<0.01	0.00	0.00	0.00	.
Maldives	UMI	1,169	5.78	.	0	<0.01	<0.01	0.00	0.00	0.00	.
Palau	UMI	201	10.56	0.21	0	<0.01	<0.01	0.00	0.00	0.00	.
Saint Kitts and Nevis	HI	550	9.01	0.17	0	<0.01	<0.01	0.00	0.00	0.00	.
Timor-Leste	LMI	497	.	.	0	<0.01	<0.01	0.00	0.00	0.00	.
Tonga	UMI	257	16.72	0.17	0	<0.01	<0.01	0.00	0.00	0.00	.
Tuvalu	UMI	23	15.18	0.22	0	<0.01	<0.01	0.00	0.00	0.00	.
Armenia	LMI	5,284	1.11	0.34	0	0.00	0.00	<0.01	<0.01	.	0.00
Samoa	LMI	469	16.33	.	0	0.00	0.00	<0.01	0.00	.	.

Notes: Table includes the 191 countries that Turkey has traded with during 2003-08 sorted by (1) the percentage of firms that export to that country and (2) the percentage of firms that import from that country. Column 2 shows the World Bank's development status classification: HI (high income), UMI (upper-middle income), LMI (lower-middle income), and LI (low income). Column 3 is the average real GDP over 2003-08 in millions of $ (from the World Development Indicators of the World Bank), column 4 is the distance to Turkey in 1,000 kilometres, and column 5 is the language proximity index for Turkish (both from CEPII; see Mayer and Zignago (2011)). Column 6 shows whether the country has an RTA with Turkey during 2003-08 (from De Sousa (2012)). Columns 7-10 show the means for export status, export entry, import status, and import entry dummies. Column 11 is the mean for lagged import status of new exporters, and column 12 is the mean for lagged export status of new importers. All means are calculated using the 6,716 firms for 2003-08. The earliest entry is in 2005 due to imposing a minimum of two-year margin. <0.01 indicates that the share is less than 1 percent but positive.

Table A.2: Summary Statistics for Regressions

Variable	mean	sd.	min.	max.
Export entry$_{i,c,t}$	0.008	0.089	0	1
Import status$_{i,c,t-1}$	0.018	0.134	0	1
Import entry$_{i,c,t-1}$ (RHS)	0.005	0.070	0	1
No. of import years$_{i,c,t-1}$	0.059	0.392	0	5
Region experience$_{i,c,t-1}$	0.122	0.328	0	1
$ln(IM)_{i,c,t}$	4.410	4.276	0	17.685
$ln(EX)_{i,c,t-1}$	3.096	3.989	0	17.514
GDP$_{c,t-1}$	\$215B	\$991B	\$21.80M	\$13,700B
$ln(GDP)_{c,t-1}$	23.473	2.301	16.899	30.247
Distance$_c$	5,955	3,889	628	16,823
$ln(distance)_c$	8.430	0.786	6.443	9.731
Language proximity$_c$	0.230	0.153	0	1
RTA$_{c,t-1}$	0.173	0.378	0	1
Low income$_c$	0.170	0.376	0	1
Lower-middle income$_c$	0.237	0.425	0	1
Upper-middle income$_c$	0.280	0.449	0	1
High income$_c$	0.313	0.464	0	1
Peers$_{c,n,t-1}$	2.140	6.969	0	166
$ln(peers)_{c,n,t-1}$	0.525	0.871	0	5.118
Migrants$_c$	11,227	115,144	0	2.01M
$ln(migrants)_c$	3.526	3.220	0	14.513
Value of imports$_{i,c,t-1}$	TL16,872	TL1.13M	0	TL1,040M
$ln(imports)_{i,c,t-1}$	0.200	1.503	0	20.764
No. of imported prod.$_{i,c,t-1}$	0.048	0.636	0	141
$ln(no.\ of\ prod.)_{i,c,t-1}$	0.020	0.162	0	4.956
Import share$_{i,c,t-1}$	0.003	0.040	0	1
Share of differentiated$_{i,c,t-1}$	0.011	0.102	0	1
Share of inputs$_{i,c,t-1}$	0.014	0.117	0	1

Notes: Summary statistics are based on the sample used for the main IV regressions in Table 6.

B Turning the tables: Searching for suppliers through clients?

Here, I empirically examine whether firms can also learn about new suppliers using their existing network of clients in a country. Results below, in a sense "turn the tables," and replicate the main analysis by changing the dependent variable to import market entry and define analogous explanatory export experience variables.

Table B.1 shows that the effect of previous exporting on import market entry is very similar to the results in Table 4, where I examined the effect of previous importing on export market entry. A comparison between the two tables reveals that the learning effect seems to work in both ways. In fact, panel (a) column 3 shows that a positive export status in $t-1$ increases the probability of import market entry by 3.2 percentage points, equivalent to the effect found in Table 4 panel (a) column 2.

In Table B.2, I instrument having a client in the destination country with that country's exogenous import demand level, created analogously as in Section 2.3. Again, similar to the findings in Table 6, the coefficients rise in magnitude. However, panel (b) shows that using multiple instruments causes the export experience variable to lose its statistical significance. Moreover, the Hansen p-values in columns 4 and 6 reveal that the exogeneity of the instruments is rejected at the 5 percent level.[37] Hence, the results found for the effect of export experience on import entry are not conclusive and thus I relegate the analysis to the Appendix. More research is needed to understand firms' search for new suppliers as the model provided by Chaney (2014) does not give a clear prediction for this channel.

[37] I exclude EU countries in order to have variation in the tariff instrument.

Table B.1: Effect of Exporting on Import-Market Entry - OLS-FE

$F_{i,c,t-1}$:	(1)	**(2)**	(3)
export status	0.032***	**0.032*** **	0.013***
	(0.003)	**(0.003)**	(0.001)
no. of obs.	4,908,902	**4,908,902**	4,908,902
R^2	0.05	**0.11**	0.58
export entry	0.023***	**0.022*** **	0.005***
	(0.002)	**(0.002)**	(0.001)
no. of obs.	3,669,128	**3,669,128**	3,669,128
R^2	0.04	**0.11**	0.65
export years	0.011***	**0.011*** **	0.021***
	(0.001)	**(0.001)**	(0.002)
no. of obs.	4,908,902	**4,908,902**	4,908,902
R^2	0.05	**0.11**	0.58
FE	FY, CY	**FY, CNY**	FY, CY, FC

Notes: The dependent variable is $S_{i,c,t}$. Each coefficient represents an estimate from a separate regression. All regressions include $\ln EX_{i,c,t}$ (omitted in the table for brevity). Fixed effects (FE) definitions are: FY (firm-year), CY (country-year), CNY (country-industry-year), and FC (firm-country). Standard errors clustered multiway by firms (6,716) and countries (191) in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.

Table B.2: Effect of Exporting on Import-Market Entry - IV

	(a) single IV			(b) multiple IVs		
	(1)	(2)	(3)	(4)	(5)	(6)
	status	entry	years	status	entry	years
$F_{i,c,t-1}$	0.299***	0.827***	0.092***	0.006	0.018	0.002
	(0.039)	(0.111)	(0.012)	(0.032)	(0.130)	(0.009)
$ln(EX)_{i,c,t}$	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$ln(TTAR)_{i,c,t}$				0.005	0.001	0.005
				(0.013)	(0.012)	(0.013)
no. of obs.	4,908,902	3,669,128	4,908,902	3,102,216	2,332,854	3,102,216
R^2 (centered)	-0.07	-0.55	-0.01	0.12	0.12	0.12
KP stat.	59.51	66.91	62.68	19.24	20.86	19.11
Hansen p-value	.	.	.	0.04	0.32	0.04

Notes: Columns differ in the variable used for $F_{i,c,t-1}$. All regressions include firm-year and country-industry-year fixed effects. Standard errors clustered multiway by firms (6,716 in columns 1-3, 5,506 in columns 4-6) and countries (191 in columns 1-3, 148 in columns 4-6) in parentheses. In columns 4-6, EU countries are dropped in order to have meaningful variation in the tariff instrument. All logs and instruments are calculated by adding 1 to the relevant value before taking the log to avoid zeros. For columns 1-3 (4-6), the critical value for Kleibergen-Paap (KP) statistic based on a 10 percent maximal IV size is 16.38 (19.93). First-stage results are omitted for brevity. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels respectively.