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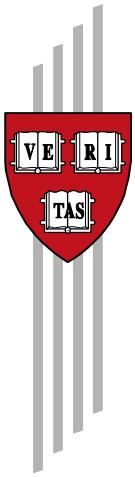
CID Working Paper No. 222

June 2011



Working Papers

Center for International Development at Harvard University

Migration, FDI and the margins of trade[1]

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June 2011

Abstract

Standard neoclassical trade theory models trade, migration and FDI as substitutes in the sense that factor movements reduce the scope for trade and vice versa. This neglects the potential for migration to favor trade and FDI through a reduction in bilateral transaction costs, as emphasized by recent literature on migration and diaspora networks. This paper investigates the relationships between trade, migration and FDI in a context of firms' heterogeneity. We first present a model of exports and FDI-sales by heterogeneous firms where a (migration-induced) reduction in the fixed costs of setting up either an export or a production facility abroad results in an increase in trade (under certain conditions), FDI-sales and most importantly in the FDI-sales to trade ratio. We then test these predictions in a gravity framework using recent bilateral data on migration, trade and FDI. We find that migration – and especially skilled migration -- positively affects trade and FDI (at both the extensive and intensive margins), and more so for the latter, resulting in an increase in the FDI to trade ratio, as predicted by our model.

JEL Classification: F22, O1

Keywords: Migration, trade, FDI, firms' heterogeneity.

[1] This paper is part of a project on "Migration, International Capital Flows and Economic Development" based at the Harvard Center for International Development and funded by the MacArthur Foundation's Initiative on Global Migration and Human Mobility. We thank Elhanan Helpman, Yona Rubinstein and Rodrigo Wagner for stimulating discussions and Jeffrey Frankel for collaboration on the broader project. The paper also benefited from comments by participants at the IVth AFD-World Bank Migration and Development Conference. We are grateful to Xuzhi Liu for remarkable research assistance as well as to Olga Romero and Claudia Ramirez.

1. Introduction

Globalization is characterized by a general increase in international transactions for goods, factors and financial flows, with all these components growing much more rapidly than output. For the 1990s only, the growth rate of international trade has been twice that of world output; even more remarkable is the growth of global FDI flows, which has been triple the growth rate of international trade flows over the period. As a result, between 1990 and 2000, the world export/GDP and FDI/GDP ratio have been multiplied by 1.5 and 3 respectively. International migration is also on the rise, as revealed for example by the fact that the total number of foreign-born individuals residing in OECD countries has increased by 50 percent over the same period, a remarkable figure given the fact that in contrast to the liberalization trend that has characterized trade and FDI, restrictive immigration policies have instead been introduced in most receiving countries with the double objective of decreasing the quantity and increasing the quality of immigration.[2]

Standard trade theory treats trade and factor flows, as well as labor and capital flows, as substitutes in the sense that more of one leads to less of the other. Trade reduces the scope for factor flows as it contributes to factor price equalization and, therefore, lowers the incentives to factor mobility. Similarly, factor movements (beyond the Rybszinski cone) reduce price differentials and, hence, the scope for trade. At the same time, capital is expected to flow to where the type of labor used intensively in production is abundant and, other things equal, workers will supply their labor services where the highest salary can be obtained. Through such mechanisms, migration and FDI are substitute ways to match workers and employers located in different countries.[3]

There is a growing literature, however, emphasizing that migrant networks facilitate bilateral economic transactions through their removing of informational and cultural barriers

[2] Only the second of these objectives has been achieved. Indeed, the number of highly-skilled immigrants (foreign-born individuals with tertiary education) living in an OECD member country has increased by 70 pecent between 1990 and 2000, but the number of low-skill migrants has risen too, although at a lower pace (13 percent) (Docquier and Marfouk, 2006).

[3] In addition, recent studies suggest that there are FDI spillovers on upstream industries in developing countries (e.g., Kugler, 2006). To the extent that such spillovers induce adoption of more skill-intensive technologies, they may magnify the substitution effect between skilled migration and FDI.

between host and origin countries.[4,5] This "diaspora externality" has long been recognized in the sociological literature and, more recently, by economists in the field of international trade.[6] In many instances indeed, trade and migration appear as complements (e.g., Gould, 1994, Head and Ries, 1998, Combes, Lafourcade and Mayer, 2005, Iranzo and Peri, 2009). Interestingly, such a complementarity has been shown to prevail mostly for trade in heterogeneous goods, where ethnic networks help overcoming information problems linked to the very nature of the goods exchanged (Rauch and Casella, 2003, Rauch and Trindade, 2002). While these studies provide evidence that migration networks have trade-creating effects, they do not consider specifically highly skilled migrants. An exception is Felbermayr and Jung (2009), who use bilateral panel data on trade volumes and migration by education levels and find a significant pro-trade effect of migration: a one-percent increase in the bilateral stock of migrants raises bilateral trade by 0.11 percent. However they do not find significant differences across education groups.

In a similar spirit, migration may also facilitate the formation of the types of business links which lead to FDI project deployment in a particular location. Hence, while emigration of workers into a country may mitigate to some extent the incentives for FDI from the host to the origin country of migrants, their sheer presence in the host country can be a catalyst to establish the required links to achieve efficient distribution, procurement, transportation and satisfaction of regulations. An important barrier to a multinational corporation's viability to set up a subsidiary in a developing country can be uncertainty, especially the type of uncertainty linked to low institutional quality in candidate host countries of FDI.[7] To the extent that migrants integrate to the business community, a network can emerge whereby migrants liaise between potential investors and partners (both private and public) in various aspects of setting up a production facility in the country of origin of the migrant. While the channel just described would seem to apply mainly to skilled migrants, there are other channels through which unskilled migrants may also contribute to relax information

[4] There is also, of course, a literature on vertical FDI and intra-firm trade in intermediate outputs that can explain instances where FDI causes trade.

[5] Following Munshi (2003), most studies have used instrumental variables estimation techniques to identify network effects.

[6] See Docquier and Rapoport (2011) for a broader review of the links between skilled emigration and growth in source countries.

[7] This has been suggested as a candidate explanation to the Lucas's (1990) paradox. See Alfaro et al. (2008).

constraints on FDI. Indeed, participation in the destination country's labor force reveals information about the characteristics of workers in their home country, thereby reducing uncertainty about the profitability of FDI. Hence, both skilled and unskilled migration can in principle convey information that will facilitate FDI inflows to the home country.

The first studies to explore the links between migration and FDI have focused on sectoral or regional case studies. For example, Aroca and Maloney (2005) found a negative correlation between FDI flows and low-skill migration between the border states of Mexico and the United States (i.e., substitutability) while in the spirit of Rauch's work on trade, Tong (2005) finds that ethnic Chinese networks promote FDI between South-East Asian countries and beyond, especially where the institutional quality is relatively high. The first paper to introduce the "skill" dimension of migration in a bilateral setting is Kugler and Rapoport (2007). Using bilateral FDI and migration data, they investigate the relationship between migration and FDI for U.S./rest of the world flows during the 1990s. The dependent variable is the growth rate of the capital stock of a country (for 55 host countries) that is financed by FDI from the US between 1990 and 2000. This is regressed on the stock of migrants in the US originating from country i in 1990, on the log-difference of the change of that stock between 1990 and 2000, and a number of standard control variables. Regional fixed effects and their interaction with migration are also introduced to deal with potential unobserved heterogeneity. Their results show that manufacturing FDI towards a given country is negatively correlated with current low-skill migration, as trade models would predict, while FDI in both the service and manufacturing sectors is positively correlated with the initial U.S. high-skill immigration stock of that country. Javorcik et al. (2011) confirm these results after instrumenting for migration using passport costs and migration networks with a 30-year lag.

Finally, at a micro level, Foley and Kerr (2008) quantify firm-level linkages between high-skill migration to the US and US FDI in the sending countries. They combine US firm-level data on FDI and on patenting by ethnicity of the investors and find robust evidence that firms with higher proportions of their patenting activity performed by inventors from a certain ethnicity subsequently increase their FDI to the origin country of the inventors. They use ethnicity-year fixed effects to control for unobserved heterogeneity, and also instrument the ethnic workforce share in each firm using city-level data on invention growth by ethnicity.

They find that a one percent increase in the extent to which a firm's pool of inventors is comprised of a certain ethnicity is associated with a 0.1 percent increase in the share of affiliate activity conducted in the country of origin of that ethnicity. This provides firm-level evidence of a complementary relationship between high-skill immigration and multinational firms' activity.

However, to the best of our knowledge, this paper is first to investigate the relationships between trade, migration and FDI in a unified framework, and to do so while acknowledging the role of firms' heterogeneity (Melitz, 2003) in determining the margins of trade. In section 2 we present a model of exports and FDI by heterogeneous firms where a (migration-induced) reduction in the fixed costs of setting up either an export or a production facility abroad results in an increase in FDI and, most importantly, in the FDI to export sales ratio. We then test these predictions in a gravity framework using recent bilateral data on migration, trade and FDI. Section 3, 4 and 5 respectively describes the data used, the empirical methodology and the results. We find that migration – and especially skilled migration -- positively affects trade and FDI (at both the extensive and intensive margins), and more so for the latter, resulting in an increase in the FDI to trade ratio, as predicted by our model. Section 6 concludes.

2. Theoretical framework

The model builds on Helpman, Melitz and Yeaple (2004) (henceforth HMY) and Helpman, Melitz and Rubinstein (2008) (henceforth HMR), from whom we borrow the notations.

2.1 basic setup

Consider a world with J countries, indexed by j=1,2,…,J. Each country is assumed to consume and produce a continuum of goods indexed by *l*. Country j's utility function is given by:

$$u_j = \left(\int_{l \in B_j} x_j^{\alpha}(l)dl\right)^{1/\alpha}$$

where B_j is the set of products available for consumption in country j. $x_j(l)$ is country j's consumption of product *l*. The parameter $0<\alpha<1$ determines the elasticity of substitution across products, which is $\varepsilon = 1/(1-\alpha) > 1$. This elasticity is the same in every country.

Let Y_j be the income of country j, which is equal to its expenditure level. Then country j's demand for product *l* is:

$$x_j(l) = \frac{\breve{p}_j(l)^{-\varepsilon}}{P_j^{1-\varepsilon}} Y_j$$

where $\breve{p}_j(l)$ is the price of product *l* in country *j* and P_j is country j's ideal price index, given by:

$$P_j = (\int_{l\in B_j} \breve{p}_j(l)^{1-\varepsilon} dl)^{1/(1-\varepsilon)}$$

It uses *a* units of bundles to produce one unit of the differentiated good. The cost of one unit of bundle is c_j in country j. Suppose every country has the same distribution of *a*, therefore *a* is only a measure of comparative productivity across firms within the same country. Any difference across countries would be subsumed in c_j. Therefore, every firm in country j draws its productivity from the distribution G(*a*). Note that since *a* is the unit cost, $1/a$ is a measure of productivity.

Some of the products are produced domestically, where others are produced in foreign countries. Each firm produces a distinct good, and firms in different countries produce different goods. Suppose country j has N_j firms, then the total number of differentiated product is given by $\sum_{j=1}^{J} N_j$.

Suppose also that each firm uses an expenditure-minimizing combination of inputs that costs $c_j a$, where c_j is the cost of a bundle of inputs, and *a* measures the number of bundles of the country's inputs used by the firm per unit output. c_j is country specific, reflecting differences in factor prices across countries. *a* is firm specific, reflecting productivity differences across firms in the same country. The inverse of a, 1/a, represents the firm's

productivity level. *a* has a cumulative Pareto distribution of G(*a*) with support $[a_L, a_H]$, which is the same for all countries.

Finally, suppose there are two additional costs associated with exporting: a fixed cost $c_j f_{ij}$ of getting the exporting permission and build up the sales network, and a melting iceberg transportation cost τ_{ij}. Here we choose to express the fixed cost in units of c_j. This choice is arbitrary but it does not affect the results since any other differences could be subsumed by the coefficient f_{ij}. If the firm chooses to serve foreign markets in the form of FDI, it does not bear transportation costs but will produce in the foreign country and face c_i as bundle cost (the productivity of the firm remains the same). Moreover, there is an additional cost of setting up foreign subsidiaries $c_j g_{ij}$, in addition to building up the sales network. Therefore the total fixed cost of FDI is given by $c_i(f_{ij} + g_{ij})$.

There is monopolistic competition in final products. The price charged to maximize profits by each firm is $c_j a / \alpha$ in domestic market, $\tau_{ij} c_j a / \alpha$ in the foreign market in case of exports, and $c_i a / \alpha$ in the foreign market in case of FDI.

2.2 Determination of bilateral trade and FDI activities

The profit from serving the domestic market is given by:

$$(1-\alpha)(\frac{c_j a}{\alpha P_j})^{1-\varepsilon} Y_j > 0,$$

meaning that it is profitable for all the existing firms to serve the domestic market.

In addition, firms can also serve the foreign market, with the profit from exporting being given by:

$$(1-\alpha)(\frac{\tau_{ij} c_j a}{\alpha P_i})^{1-\varepsilon} Y_i - c_j f_{ij}.$$

This defines the required productivity threshold for exporting:

$$a_{ij}^{X} = (\frac{(1-\alpha)Y_i}{c_j f_{ij}})^{\frac{1}{\varepsilon-1}} \frac{\alpha P_i}{\tau_{ij} c_j}.$$

Alternatively, firms can serve the foreign market by building up a production subsidiary abroad, which would yield the following profits:

$$(1-\alpha)[(\frac{c_i a}{\alpha P_i})^{1-\varepsilon} - (\frac{\tau_{ij} c_j a}{\alpha P_i})^{1-\varepsilon}]Y_i - c_j g_{ij}.$$

The productivity threshold required for FDI to be profitable, therefore, is given by:

$$a_{ij}^{I} = (\frac{(1-\alpha)Y_i}{c_j g_{ij}})^{\frac{1}{\varepsilon-1}} (\frac{\alpha P_i}{\tau_{ij} c_j})((\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} - 1)^{\frac{1}{\varepsilon-1}}.$$

Implicitly this requires $(\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} > 1$, that is, $\tau_{ij} c_j > c_i$. Intuitively, in order to make FDI more profitable than trade, the variable cost of producing in the foreign country must be lower than that of trade, given the higher fixed costs associated with FDI over trade.

Ensuring that $a_{ij}^{X} > a_{ij}^{I}$, that is, the most productive firms engage in FDI, the less productive firms engage in exporting, and the least productive firms only serve domestic market (which is in line with reality – see for example the empirical evidence in HMY) requires that:

$$\frac{a_{ij}^{X}}{a_{ij}^{I}} = \frac{(\frac{(1-\alpha)Y_i}{c_j f_{ij}})^{\frac{1}{\varepsilon-1}} \frac{\alpha P_i}{\tau_{ij} c_j}}{(\frac{(1-\alpha)Y_i}{c_j g_{ij}})^{\frac{1}{\varepsilon-1}} (\frac{\alpha P_i}{\tau_{ij} c_j})((\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} - 1)^{\frac{1}{\varepsilon-1}}} = \frac{(\frac{g_{ij}}{f_{ij}})^{\frac{1}{\varepsilon-1}}}{((\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} - 1)^{\frac{1}{\varepsilon-1}}} > 1$$

This is equivalent to: $\frac{g_{ij} + f_{ij}}{f_{ij}} > (\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} > 1$. The first term is the ratio of fixed costs for FDI and trade. The second term is the ratio of variable cost of trade v. FDI. The second inequality ensures that the threshold for FDI is positive. The first inequality ensures that the threshold for FDI is higher than that for trade.

Since for each firm, the productivity indicator *a* is drawn from a cumulative Pareto distribution of G(*a*) with support $[a_L, a_H]$, with different a_L and a_H there could be different patterns of trade/FDI for each country pair. If we assume $a_H > a_{ij}^{X} > a_{ij}^{I} > a_L$, the

most productive firms in country j engage in FDI with country i, the less productive firms engage in trade with country i, and the least productive firms only serve their domestic market. Nothing that:

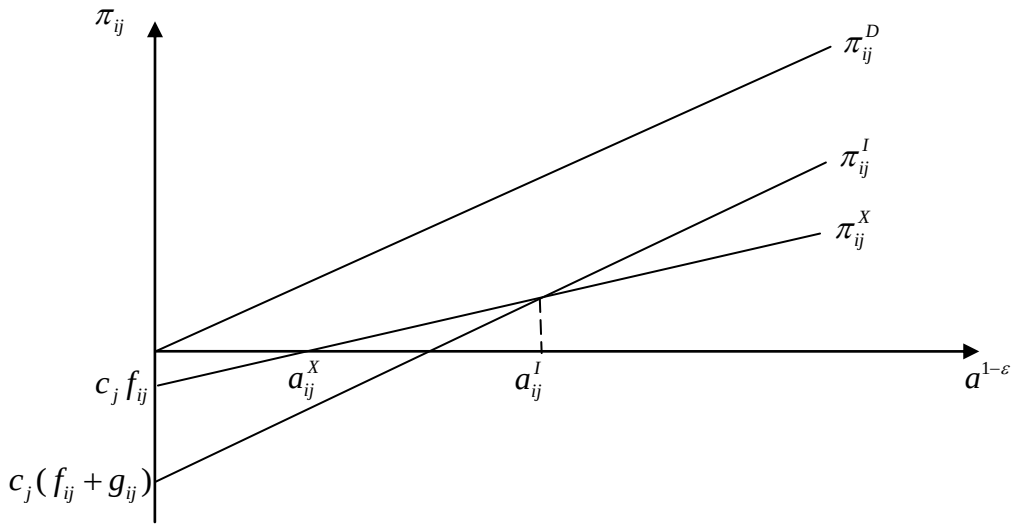
$$\pi_{ij}^{D} = (1-\alpha)(\frac{\alpha P_j}{c_j})^{\varepsilon-1} Y_j a^{1-\varepsilon}$$

$$\pi_{ij}^{X} = (1-\alpha)(\frac{\alpha P_i}{\tau_{ij} c_j})^{\varepsilon-1} Y_i a^{1-\varepsilon} - c_j f_{ij}$$

$$\pi_{ij}^{I} = (1-\alpha)(\frac{\alpha P_i}{c_i})^{\varepsilon-1} Y_i a^{1-\varepsilon} - c_j (f_{ij} + g_{ij})$$

and similarly to HMY, we can draw a graph illustrating the relationships between firms' decisions and productivity (see Figure 1) and showing the different productivity thresholds at hand.

Figure 1: Exports v. FDI for global firms



2.3 Reduced fixed costs and the ratio of FDI-sales to trade

We now focus on those country pairs that have both positive trade and positive FDI. Suppose the distribution of productivity G(*a*) is Pareto distribution with parameter *k* and support $[a_L, a_H]$. As in Helpman, Melitz and Yeaple (2004) we assume that $k > \varepsilon - 1$ to

ensure that both the distribution of productivity draws and the distribution of firms' sales have finite variances. Then $G(a) = \frac{a^k - a_L^k}{a_H^k - a_L^k}$.

The amount of trade from country *j* to country *i* is given by:

$$s_{ij}^X = \int_{a_{ij}^I}^{a_{ij}^X} (\frac{\tau_{ij} c_j a}{\alpha P_i})^{1-\varepsilon} Y_i N_j dG(a) = \frac{k Y_i N_j}{a_H^k - a_L^k} (\frac{\tau_{ij} c_j}{\alpha P_i})^{1-\varepsilon} \int_{a_{ij}^I}^{a_{ij}^X} a^{k-\varepsilon} da$$

The FDI-related sales from country *j* to country *i* is given by:

$$s_{ij}^I = \int_{a_L}^{a_{ij}^I} (\frac{c_i a}{\alpha P_i})^{1-\varepsilon} Y_i N_j dG(a) = \frac{k Y_i N_j}{a_H^k - a_L^k} (\frac{c_i}{\alpha P_i})^{1-\varepsilon} \int_{a_L}^{a_{ij}^I} a^{k-\varepsilon} da$$

Finally, the ratio of trade to FDI-sales is:

$$\frac{s_{ij}^X}{s_{ij}^I} = (\frac{c_i}{\tau_{ij} c_j})^{\varepsilon-1} \frac{\int_{a_{ij}^I}^{a_{ij}^X} a^{k-\varepsilon} da}{\int_{a_L}^{a_{ij}^I} a^{k-\varepsilon} da} = (\frac{c_i}{\tau_{ij} c_j})^{\varepsilon-1} \frac{(a_{ij}^X)^{k-\varepsilon+1} - (a_{ij}^I)^{k-\varepsilon+1}}{(a_{ij}^I)^{k-\varepsilon+1} - (a_L)^{k-\varepsilon+1}}$$

where

$$a_{ij}^X = (\frac{(1-\alpha) Y_i}{c_j f_{ij}})^{\frac{1}{\varepsilon-1}} \frac{\alpha P_i}{\tau_{ij} c_j}$$

$$a_{ij}^I = (\frac{(1-\alpha) Y_i}{c_j g_{ij}})^{\frac{1}{\varepsilon-1}} (\frac{\alpha P_i}{\tau_{ij} c_j}) ((\frac{\tau_{ij} c_j}{c_i})^{\varepsilon-1} - 1)^{\frac{1}{\varepsilon-1}}$$

A proportional, possibly migration-induced decrease in the fixed costs for setting up subsidiaries (for exports or foreign production) abroad would affect the productivity thresholds required to do either FDI or trade. More precisely:

<u>Proposition 1:</u> *A proportional decrease in the fixed costs to set up a foreign subsidiary either for exports or local production will increase the ratio of FDI-sales to exports.*

Proof: Noting the fixed cost for trade as $f_{ij}^* = \frac{f_{ij}}{\omega(M_{ji})}$ *and the fixed cost for FDI as* $g_{ij}^* = \frac{g_{ij}}{\omega(M_{ji})}$,

where M_{ji} *is the level of migration from country j to country i, and* $\omega(M_{ji})$ *is a function of migration that*

satisfies the following properties: $\omega(0)=1,\ \omega'(.)>0$. *The new productivity threshold required for exports and FDI are given by:*

$$a_{ij}^{X*}=(\frac{(1-\alpha)Y_i}{c_j f_{ij}^*})^{\frac{1}{\varepsilon-1}}\frac{\alpha P_i}{\tau_{ij}c_j}=a_{ij}^X\omega^{\frac{1}{\varepsilon-1}}=a_{ij}^X(1+\beta)$$

$$a_{ij}^{I*}=(\frac{(1-\alpha)Y_i}{c_j g_{ij}^*})^{\frac{1}{\varepsilon-1}}(\frac{\alpha P_i}{\tau_{ij}c_{ji}})((\frac{\tau_{ij}c_j}{c_i})^{\varepsilon-1}-1)^{\frac{1}{\varepsilon-1}}=a_{ij}^I\omega^{\frac{1}{\varepsilon-1}}=a_{ij}^I(1+\beta)$$

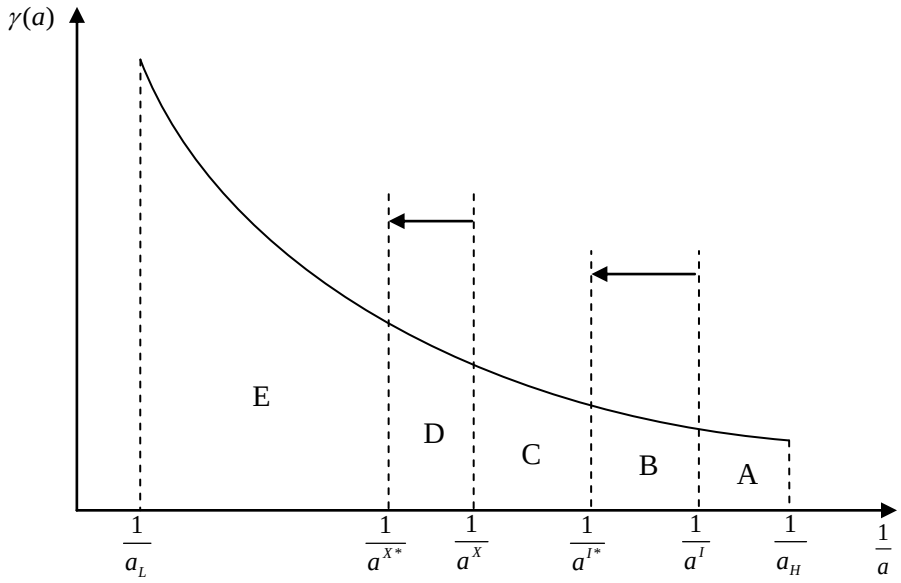
where $\beta\equiv\omega^{\frac{1}{\varepsilon-1}}-1>0$ *and the new ratio of trade to FDI-related sales by:*

$$\frac{s_{ij}^{X*}}{s_{ij}^{I*}}=(\frac{c_i}{\tau_{ij}c_j})^{\varepsilon-1}\frac{(a_{ij}^{X*})^{k-\varepsilon+1}-(a_{ij}^{I*})^{k-\varepsilon+1}}{(a_{ij}^{I*})^{k-\varepsilon+1}-(a_L)^{k-\varepsilon+1}}=(\frac{c_i}{\tau_{ij}c_j})^{\varepsilon-1}\frac{(a_{ij}^{X})^{k-\varepsilon+1}-(a_{ij}^{I})^{k-\varepsilon+1}}{(a_{ij}^{I})^{k-\varepsilon+1}-(\frac{a_L}{1+\beta})^{k-\varepsilon+1}}$$

This new ratio differs from the original ratio only in its denominator, and the denominator is larger than in the original formula given that $k>\varepsilon-1$. *The ratio of exports to FDI-sales therefore decreases when fixed-costs decrease by some fraction.*

Figure 2 intuitively shows the extent to which this result is driven by the number of firms doing trade and FDI, respectively. Hence, the main testable implication of our model, following from proposition 1, is that the ratio of FDI-sales to exports should increase with migration. However, there is no cross-country bilateral data on the sales of foreign subsidiaries. In our empirical application, therefore, we will use FDI data to proxy for FDI-related sales. In Appendix A, we validate this procedure by showing that for only country for which we have sectoral bilateral data on FDI and FDI-related sales, namely, the United States, there is a clear linear relationship between the two.

Figure 2: The effect of migration on sales: exports v. FDI.[8]



As shown on Figure 2, a proportional decrease in the fixed costs moves the productivity thresholds of both exports $\frac{1}{a^X}$ and foreign direct investment $\frac{1}{a^I}$ to their new positions $\frac{1}{a^{X*}}$ and $\frac{1}{a^{I*}}$ to the left. Note that a proportional decrease reduces the productivity threshold by the same factor $(1+\beta)$, therefore $\frac{1}{a^I}$ moves more to the left than $\frac{1}{a^X}$ does. Before the decrease, the share of firms doing FDI is given by the area A and that doing exports by the area B+C. After the decrease, these shares respectively become A+B and C+D. Therefore, the ratio of the number of firms doing FDI v. exports is given by:

Before the decrease: $R_{IX} = \frac{Area(A)}{Area(B)+Area(C)} = \frac{A}{B+C}$

[8] The x-axis labels the productivity $\frac{1}{a}$, and the y-axis labels the probability distribution function $\gamma(a)$. The productivity follows Pareto distribution.

After the decrease: $R_{IX}^{*} = \frac{Area(A)+Area(B)}{Area(C)+Area(D)} = \frac{A+B}{C+D}$

$$R_{IX}^{*} - R_{IX} = \frac{A+B}{C+D} - \frac{A}{B+C} = \frac{A(B-D)+BB}{(C+D)(B+C)}$$

When A(B-D)+BB>0, the ratio of number of firms in FDI to exports increases as the fixed cost decreases. The model in this section shows this is always verified if the distribution of firms is Pareto.

3. Data

We describe in this section our data sources and treatment.

3.1. Trade data:

The bilateral trade flows are from the CEPII gravity dataset. It provides a "square" gravity dataset for all world pairs of countries for the period 1948 to 2006. There are 203 "country titles" in the dataset over the period 2001-2006. All the countries are identified by their ISO3 code. In the original dataset, data was restricted to observations where trade flows are non-missing. Other trade-related data taken from this dataset including indicators of: using the same currency (or belong to currency union), existence of regional trade agreement (free trade agreement), and sharing common legal system.

We expanded the dataset to cover all the pairs between the 203 countries, and assumed zero trade flows if they were missing. In our analysis, the trade data is calculated by taking the average of six year's trade flows during 2001 and 2006. The original data used current dollar as unit, therefore we used the US CPI-U data to deflate it before taking the average.

The dataset is available at http://www.cepii.fr/anglaisgraph/bdd/gravity/col_regfile09.zip. A description of the dataset can be found on the CEPII website at http://www.cepii.fr/anglaisgraph/bdd/gravity.htm.

3.2. FDI data.

The bilateral FDI position (accumulated FDI) are from the OECD International Direct Investment Statistics. It provides foreign direct invest record for inflows from all countries

to the OECD countries and outflows from the OECD countries to all countries. These records come from each member country. It is possible that country A keeps a record of inflow from country B, and country B keeps a record of outflow from country A. These two records do not need to be equal. The dataset covers the period from 1990 to 2010.

In order to fully utilize the fdi dataset, we combined the inflow and out flow dataset into one dataset. In the cases where both inflow and outflow source data are available, we take the outflow source data in our combined dataset. As a result, our dataset covers all the country pairs with at least one of the two countries belonging to OECD.

In our analysis, the fdi data is calculated by taking the average of six year's fdi positions during 2001 and 2006. The original data used current dollar as unit, therefore we used the US CPI-U data to deflate it before taking the average. For certain countries, the earliest available data in the series is later than 2001. In these cases we start from the earliest data-available date of the period 2001-2006, and take the average of the following years. For example, Estonia has fdi outflow data only starting from the year 2003. In this case, we took the average of 2003-2006 deflated fdi for Estonia, instead of taking the average of 2001-2006 by assuming zero-value observations in 2001 and 2002. In our study, negative fdi is treated as zero.

The dataset is available at OECD ilibrary http://www.oecd-ilibrary.org.

The ratio of FDI to trade is directly computed by dividing fdi by trade. In the case of zero trade, the ratio data is treated as missing (not included in the regressions except for the probit regression). In our probit analysis, zero ratio is considered equivalent to zero fdi.

3.3. Migration data.

We use the Docquier, Marfouk, Ozden and Parsons (2010) data set, the last extension of the Docquier and Marfouk (2006) dataset which has been extended to include bilateral data on migration by country of birth, skill category (skilled v. unskilled, the former having college education) and gender for 195 sending/receiving countries in 1990 and 2000. The main addition novelty is that the dataset now captures South-South migration based on mainly on observations and occasionally on estimated data points (for the skill structure). See http://perso.uclouvain.be/frederic.docquier/filePDF/DMOP-ERF.pdf.

3.4. Other data.

The geographic data is from CEPII Distances dataset. There are two datasets: country level file geo_cepii.dta and bilateral file distance_cepii.dta. Bilateral variables from distance_cepii dataset include: indicators of sharing border, sharing official language, history of coloniazing; geographic distance. We take the country-specific "landlocked" entry from the geo_cepii dataset. We assigned "1" to the "landlocked" variable of those country pairs where has at least one of the two countries is considered landlocked.

The dataset is available at http://www.cepii.fr/anglaisgraph/bdd/distances.htm.

The "doing business" data is available at http://www.doingbusiness.org. In our analysis, several different doing business indicators were used as restriction variables for our 2-stage regressions. These indicators include: time (days) to start a business, procedures to start a business, and procedures to register for property. We build the indicators from the original doing business dataset by translating them into 0-1 dummy variables. Take the "time (days) to start a business" indicator as an example. If the receiving country of fdi (trade) has a value above the median of all the countries, we will assign "1" to the "time to start a business" indicator of this country pair. Similarly, we can build other two indicators.

4. Empirical methodology.

The HMR framework to estimate trade flows takes into account selection and firm heterogeneity effects. That is, it predicts zero and positive trade flows selecting which countries will be trading partners and it allows for the number of firms to vary across destination countries decomposing the extensive and intensive margins of trade volumes. The model yields a generalized gravity equation that accounts for the self-selection of firms into export markets and their impact on trade volumes. Based on the model, HMR develop a two-stage estimation procedure that uses an equation for selection into trade partners in the first stage and a trade flow equation in the second.

We use the HMR framework augmented in two dimensions. First, we introduce migration as a determinant of trade flows. Second, we consider the determination of FDI flows in addition to trade flows. In the previous section, we extended the theoretical model that

motivates the estimation procedure. The model is based on HMY and delivers testable implications as to how changes in migration induce changes in exports and FDI sales. We postulate that migration from the country where firms are targeting sales reduces the costs of both exporting to that country and the costs of setting up a subsidiary in that country. Then the model predicts that a proportional reduction in the fixed costs of selling abroad and the fixed costs of setting up a subsidiary brought about by migration has the effect of increasing both exports and FDI sales. Furthermore, the model predicts the increase in FDI sales exceeds the increase in exports.

Based on the model we estimate various versions of the following equation,

$$s_{ij} = \beta_0 + \theta_i + \vartheta_j + \beta_m m_{ji} - \beta_d d_{ij} + \varphi_{ij} + \beta_\omega \omega_{ij}^* + u_{ij}.$$

The LHS is sales abroad. That is either exports or FDI sales. The first term on the RHS is a constant. The second and third terms are selling country and buying country fixed effects respectively. The variable m_{ji} is the migration from country *j* to country *i* reflecting the role of migration from the buying country to the selling country to reduce the transaction costs for sellers. The term d_{ij} is a generic representation of distance including standard bilateral variables commonly included in gravity equation estimation, such as geographic distance, common border, colonial ties, common language and same legal system. The variable $\varphi_{ij} = \ln\{\exp[\delta(z_{ij} + \omega_{ij}^*)] - 1\}$ is a term representing the effect of firm heterogeneity. The variable ω_{ij}^* is the standard Heckman (1979) correction for sample selection. A consistent estimate of this term is obtained from the inverse Mills ratio. However, it does not correct for the biases due to underlying unobserved firm heterogeneity. In order to correct both for biases due to trading partner selection and firm heterogeneity, we estimate the equation using nonlinear least squares parametrically, semiparametrically and nonparametrically finding robust effects of migration in reducing barriers to trade and FDI. Finally, the term u_{ij} is an i.i.d. error with a normal distribution and zero mean.

5. Results.

We first present results for exports in the same fashion as in HMR. Our results are similar to theirs using data from a different time period, namely 2001-2006. We find that exports to foreign locations are explained both by selection patterns whereby trading partners are matched as well as underlying unobserved firm heterogeneity determining the extensive and intensive margins of trade volume growth. As in HMR, we find that firm heterogeneity induces more substantial biases in estimating the effects of trade frictions in explaining sales abroad.

We then introduce migration as an explanatory variable using the lagged stock of migrants from the importing country living in the exporting country in 2000. We use both total migration and skilled migration stocks, and find differentiated results as to the elasticity of FDI sales and trade flows. We find that the elasticity of both exports and FDI with respect to the stock of migrants is higher when we consider skilled migrants as opposed to all migrants. We estimate the elasticity of exports to the country of origin of migrants to be 9% when we use the stock of skilled migrants.[9] We estimate the corresponding elasticity of FDI to be 25%. This indicates that FDI is more sensitive to migration to the home country of multinational corporations than are exports to migration from the importing to exporting country.

Our model predicts that the ratio of FDI sales to export sales will be increasing with migration into the exporting country that is also home base to multinationals. We find indeed that the ratio of FDI to exports is higher, the higher the stock of migrants from the buying country. This effect is more pronounced in the case of skilled migrants. The elasticity of the FDI to exports ratio with respect to skilled migration is 18%. This means that for a given increase in migration from country *j* to country *i* there is a propensity for from *i* to *j* FDI to grow 18% more than exports from *i* to *j*. Indeed, the theory predicts that given a proportional fall due to migration in the fixed costs of selling abroad and the fixed costs of

[9] When we use the stock of total migrants, we obtain elasticities that are lower. This is true for all specifications. This suggests that skilled migration is the type of migration that is most relevant for understanding the role of migration in reducing transaction costs from selling abroad. The elasticities reported in the text refer to the estimations using the stock of skilled migrants. In the tables, we report the elasticities using both stock variables.

setting up production abroad, there is a larger increase in sales associated with FDI than exports.

For each table, the results in column 1 present the first stage probit estimation and column 2 the corresponding Heckman flow equation estimation. The exclusion restriction used when we estimate the exports equation is the number of days to start a business in the importing country from the *Doing Business* database. The number of days to start a business is related to the fixed costs associated with establishing a distribution network in the importing country. When we estimate the FDI equations, we use the number of procedures to start a business in the host country as the exclusion restriction. This represents the fixed cost of setting up a subsidiary production facility. Column 3 provides a benchmark equation that does not correct for any biases. Column 4 provides the parametric estimation correcting for both selection and firm heterogeneity using nonlinear least squares. Columns 5 and 6 are nonparametric estimations. Column 7 is a semiparametric estimation. Column 8 represents the case where only firm heterogeneity is controlled for and column 9 represents the case in which only selection is corrected.

6. Conclusion

The evidence on globalization suggests that while international trade has risen dramatically in recent decades, the rise in FDI and skilled migration is even more pronounced. It is important to understand the linkages among these various dimensions of globalization. In the current paper we explore the relationship between skilled migration and sales abroad (both export and FDI related). The channel we analyze is the international information transmission of migrants about business opportunities in their country of origin. These business opportunities arise both for exporters and investors.

The traditional view from the standard trade literature is that migration and sales abroad are substitutes. In that framework, either workers migrate to satisfy foreign demand or foreign demand is satisfied by sales abroad (merchandise shipments or multinational corporation subsidiary set-up). However, when migration reduces transaction costs associated with sales abroad (through business network formation and information diffusion), migration may

complement rather than substitute trade and FDI. In particular, migrants who engage in economic activity in their destination country through their interactions convey information to businesses about sales opportunities (both for exports and FDI) in their country of origin.

We find that the elasticity of both exports and FDI with respect to the stock of migrants is higher when we consider skilled migrants as opposed to all migrants. The effect is more pronounced in the case of skilled migrants in the sense that when we use the stock of total migrants, we obtain elasticities that are lower. This is true for all specifications. This suggests that skilled migration is the type of migration that is most relevant for understanding the role of migration in reducing transaction costs from selling abroad.

We build a model that augments Helpman, Melitz and Yeaple (2004) and Helpman, Melitz and Rubinstein (2008) by incorporating the possibility that the transaction costs (especially their fixed component) associated with selling and producing abroad are reduced by migration. Our model predicts that the ratio of FDI sales to export sales will be increasing with migration into the exporting country that is also home base to multinationals. Indeed, the theory predicts that given a proportional fall, due to migration, in the fixed costs of selling abroad and the fixed costs of setting up production abroad, there is a larger increase in sales associated with FDI than exports. Empirically, we find indeed that the ratio of FDI to exports is higher, the higher the stock of migrants from the buying country living in the seller country.

We estimate the elasticity of exports to the country of origin of migrants to be 9%, when we use the stock of skilled migrants. We estimate the corresponding elasticity of FDI to be 25%. This indicates that FDI is more sensitive to migration to the home country of multinational corporations than are exports to migration from the importing to the exporting country.

The elasticity of the FDI to exports ratio with respect to skilled migration is 18%. This means that for a given increase in migration from country j to country i there is a propensity for FDI from i to j to grow 18% more than exports from i to j. The predicted theoretical impact of migration in stimulating FDI sales exceeds the impact on export sales. Empirically, we find as reported above that indeed the elasticity of FDI with respect to migration from the buying country is larger than that of exports, and that indeed the FDI/exports ratio tends to rise with migration.

Our results suggest the importance of migration for the formation of international networks for business information diffusion. Both information about foreign distribution and doing business abroad appears to be transmitted by migrants in their destination country about sales in their country of origin. In particular, even after controlling for origin and destination country fixed effects, as well as bilateral variables measuring geographic and institutional distance, migration is a robust determinant of both exports and FDI from the destination country of the migrants to their origin country. The information channel is consistent with the fact that skilled migration rather than total migration has the stronger link with exports and FDI.

As the model predicts, we also find that migration has a stronger impact on FDI than on exports. This makes sense since migrants not only transmit information about distribution which is useful for both exports and FDI sales but also transmit information about setting up of production facility which is useful for the multinational corporations in choosing the location of their subsidiaries. The analysis suggests that to the extent that international transactions are facilitated by the information transmitted by migrants, the impact is stronger on FDI than on trade. This is consistent with the view that setting up a subsidiary in a new country requires much more information than simply shipping merchandise.

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8. Appendix.

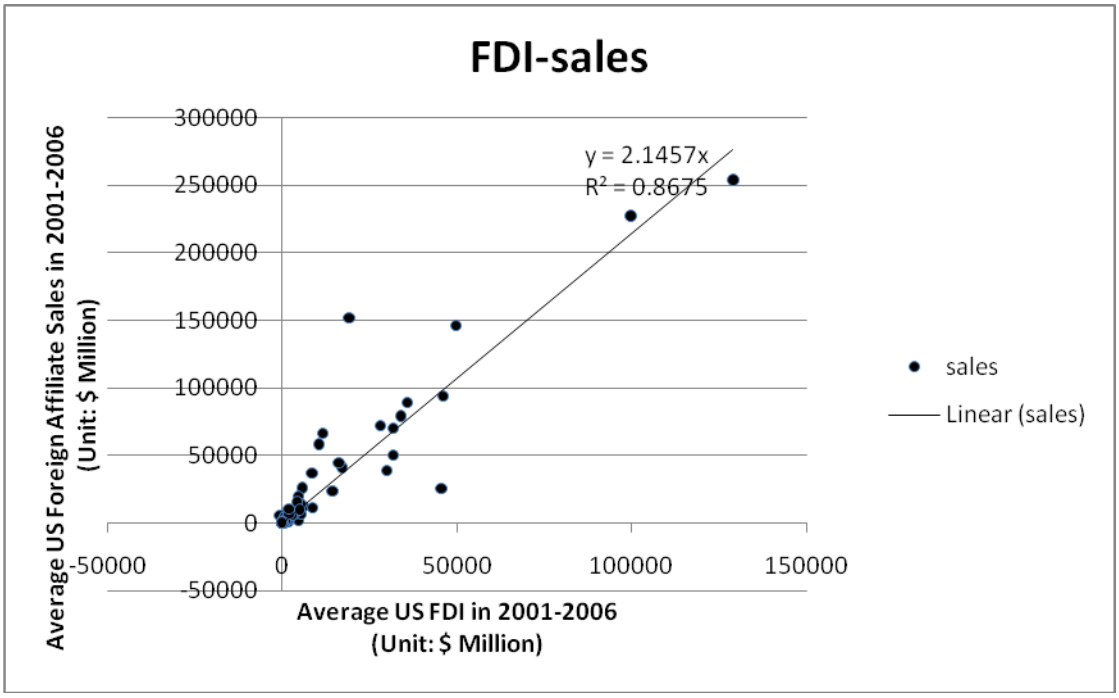
As is shown in section 2, proposition 1, a proportional decrease in the fixed costs to set up a foreign subsidiary either for exports or local production will increase the ratio of FDI-related sales to exports. In order to testify the proposition, we need to gather data on FDI-related sales. Unfortunately, in most instances, data on FDI-related sales is not available. In this appendix, we attempt to overcome this data constraint by empirically approximating FDI-related sales with FDI data. We used the US sample, which is the only available source for FDI-related data.

The data on operations of US multinational companies comes from the BEA (Bureau of Economic Analysis) International Economic Accounts database. The data are from benchmark and annual sample surveys of U.S. direct investment abroad. It is available online at http://www.bea.gov/international/index.htm#omc

The following graph depicts the relationship between the amount of US FDI and the foreign affiliate sales in 147 countries worldwide. Countries with missing data on FDI or affiliate sales were excluded from this graph. FDI refers to the yearend FDI position, taking the average of 2001-2006 after deflating by the US CPI_U index. Sales refers to the sales of all foreign affiliates. A "foreign affiliate" is a foreign business enterprise in which there is U.S.

direct investment, that is, in which a U.S. person owns or controls 10 percent of the voting securities or the equivalent. Here FDI data comes from the CEPII dataset, in line with other sections of this paper.

Figure A1: US FDI and US foreign affiliate sales, average of 2001-2006



The correlation between the two is 0.9354, indicating a very high linear relationship. Regressing foreign affiliate sales data on FDI with various specifications yields the following result:

Table A1: Regression of foreign affiliate sales on FDI

	(1)	(2)	(3)
VARIABLES	sales	sales	sales
FDI	2.765***	2.115***	2.146***
	(0.341)	(0.0681)	(0.0649)
FDI^2	-1.50e-05		
	(1.02e-05)		
FDI^3	7.36e-11		
	(6.30e-11)		
Constant	643.4	1,659	
	(1,213)	(1,140)	
F-Stat	331.15	965.58	1092.96
Observations	147	147	147
Adjusted R-squared	0.874	0.869	0.882
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Specification (1) includes both higher order products of FDI and constant term. Specification (2) includes only FDI and constant term. Specification (3) includes only FDI and suppresses the constant term.

As we can see, adding higher order products does not help increase the explaining power of FDI on FDI-sales. The coefficient on FDI^2, FDI^3 and the constant term are not significant. After suppressing the higher order terms, the adjusted R-squared decreases a little bit, but the overall significance of the model increases substantially as the F-stat tripled. The significance of coefficient on FDI also increases. The constant term is again not significant. This suggests us to try specification (3). This specification yields the highest adjusted R-square stats, F-stat, and the significance of coefficient on FDI.

The results show that there is a robust linear relationship between US foreign affiliate sales and US FDI. If we assume that this linear relationship also holds for data on other countries, then our analysis in section 2 would hold for the ratio of FDI to trade. This would validate our empirical study in section 3.

Table 1: 2001-2006 Average Trade, Total Migration

VARIABLES	(1) Ind(trade) probit	(2) ln(trade) ols	(3) ln(trade) benchmark	(4) ln(trade) nls	(5) ln(trade) bin50	(6) ln(trade) bin100	(7) ln(trade) poly	(8) ln(trade) firm heterogeneity	(9) ln(trade) firm selection
ln(total migration in 2000)	0.00182*	0.0958***	0.0958***	0.0663***	0.0716***	0.0727***	0.0726***	0.0620***	0.0924***
	(0.000946)	(0.00960)	(0.00960)	(0.0110)	(0.00952)	(0.00956)	(0.00948)	(0.00956)	(0.00961)
ln(distance)	-0.0529***	-1.595***	-1.595***	-1.015***	-1.089***	-1.107***	-1.127***	-0.936***	-1.656***
	(0.00320)	(0.0341)	(0.0341)	(0.0658)	(0.0515)	(0.0509)	(0.0471)	(0.0518)	(0.0348)
Common border	-0.0265	0.288**	0.288**	0.539***	0.521***	0.512***	0.510***	0.570***	0.253*
	(0.0256)	(0.134)	(0.134)	(0.151)	(0.133)	(0.133)	(0.132)	(0.134)	(0.136)
Currency union	0.0235***	0.802***	0.802***	0.439**	0.451**	0.459**	0.464**	0.395**	0.889***
	(0.00575)	(0.203)	(0.203)	(0.199)	(0.196)	(0.197)	(0.196)	(0.197)	(0.205)
Free trade agreement	0.0276***	0.715***	0.715***	0.451***	0.565***	0.574***	0.594***	0.406***	0.707***
	(0.00349)	(0.0867)	(0.0867)	(0.100)	(0.0833)	(0.0832)	(0.0828)	(0.0849)	(0.0878)
Country is landlocked	-0.0149*	-0.643***	-0.643***	-0.464***	-0.456***	-0.450***	-0.457***	-0.444***	-0.665***
	(0.00792)	(0.129)	(0.129)	(0.127)	(0.127)	(0.127)	(0.127)	(0.128)	(0.130)
Same legal system	0.00807***	0.391***	0.391***	0.303***	0.334***	0.333***	0.343***	0.288***	0.390***
	(0.00259)	(0.0480)	(0.0480)	(0.0483)	(0.0479)	(0.0479)	(0.0475)	(0.0479)	(0.0480)
Same official language	0.0248***	0.767***	0.767***	0.384***	0.408***	0.420***	0.426***	0.336***	0.814***
	(0.00272)	(0.0693)	(0.0693)	(0.0791)	(0.0748)	(0.0747)	(0.0732)	(0.0741)	(0.0697)
Colonial tie	-0.347	0.263	0.263	1.516***	1.262***	1.231***	1.201***	1.695***	0.222
	(0.220)	(0.165)	(0.165)	(0.259)	(0.168)	(0.169)	(0.164)	(0.172)	(0.171)
Time (days) to start a business	-0.0781**	-0.0284							
	(0.0335)	(0.890)							
δ				1.044***					
				(0.103)					
z							3.199***	1.236***	
							(0.558)	(0.0705)	
z^2							-0.485***		
							(0.169)		
z^3							0.0260		
							(0.0165)		
η				0.486***			1.755***		0.605***
				(0.131)			(0.282)		(0.126)
Observations	17,898	14,447	14,447	14,447	14,447	14,447	14,447	14,447	14,447
R-squared		0.667	0.667	0.673	0.677	0.679	0.676	0.672	0.668

Table 2: 2001-2006 Average Trade, High Skilled Migration

VARIABLES	(1) Ind(trade) probit	(2) ln(trade) ols	(3) ln(trade) benchmark	(4) ln(trade) nls	(5) ln(trade) bin50	(6) ln(trade) bin100	(7) ln(trade) poly	(8) ln(trade) firm heterogeneity	(9) ln(trade) firm selection
ln(skilled migration in 2000)	0.000826	0.0950***	0.0950***	0.0812***	0.0903***	0.0912***	0.0907***	0.0780***	0.0859***
	(0.00158)	(0.0120)	(0.0120)	(0.0141)	(0.0116)	(0.0117)	(0.0116)	(0.0118)	(0.0120)
ln(distance)	-0.0540***	-1.620***	-1.620***	-0.987***	-1.064***	-1.052***	-1.106***	-0.927***	-1.682***
	(0.00328)	(0.0340)	(0.0340)	(0.0673)	(0.0537)	(0.0530)	(0.0489)	(0.0531)	(0.0348)
Common border	-0.0152	0.485***	0.485***	0.629***	0.631***	0.631***	0.613***	0.639***	0.455***
	(0.0208)	(0.135)	(0.135)	(0.146)	(0.132)	(0.132)	(0.132)	(0.134)	(0.136)
Currency union	0.0238***	0.909***	0.909***	0.508**	0.513***	0.495**	0.540***	0.477**	0.988***
	(0.00572)	(0.204)	(0.204)	(0.199)	(0.197)	(0.197)	(0.197)	(0.198)	(0.206)
Free trade agreement	0.0288***	0.805***	0.805***	0.485***	0.605***	0.600***	0.635***	0.442***	0.799***
	(0.00334)	(0.0863)	(0.0863)	(0.100)	(0.0831)	(0.0831)	(0.0822)	(0.0846)	(0.0874)
Country is landlocked	-0.0149*	-0.637***	-0.637***	-0.450***	-0.446***	-0.435***	-0.444***	-0.436***	-0.659***
	(0.00796)	(0.130)	(0.130)	(0.127)	(0.128)	(0.128)	(0.128)	(0.129)	(0.130)
Same legal system	0.00802***	0.387***	0.387***	0.293***	0.326***	0.320***	0.334***	0.281***	0.388***
	(0.00260)	(0.0482)	(0.0482)	(0.0484)	(0.0482)	(0.0480)	(0.0477)	(0.0481)	(0.0482)
Same official language	0.0253***	0.788***	0.788***	0.369***	0.397***	0.395***	0.412***	0.333***	0.838***
	(0.00276)	(0.0694)	(0.0694)	(0.0799)	(0.0755)	(0.0754)	(0.0739)	(0.0746)	(0.0699)
Colonial tie	-0.332	0.300*	0.300*	1.584***	1.319***	1.351***	1.247***	1.728***	0.273
	(0.217)	(0.174)	(0.174)	(0.259)	(0.175)	(0.175)	(0.171)	(0.177)	(0.179)
Time (days) to start a business	-0.0790**	-0.0419							
	(0.0338)	(0.892)							
δ				1.111***					
				(0.103)					
z							3.292***	1.271***	
							(0.560)	(0.0714)	
z^2							-0.497***		
							(0.170)		
z^3							0.0269		
							(0.0166)		
η				0.416***			1.728***		0.599***
				(0.132)			(0.282)		(0.127)
Observations	17,898	14,447	14,447	14,447	14,447	14,447	14,447	14,447	14,447
R-squared		0.666	0.666	0.666	0.677	0.678	0.675	0.672	0.667

Table 3: 2001-2006 Average Trade, Low Skilled Migration

VARIABLES	(1) Ind(trade) probit	(2) ln(trade) ols	(3) ln(trade) benchmark	(4) ln(trade) nls	(5) ln(trade) bin50	(6) ln(trade) bin100	(7) ln(trade) poly	(8) ln(trade) firm heterogeneity	(9) ln(trade) firm selection
ln(low skilled migration in 2000)	0.00154	0.0961***	0.0961***	0.0697***	0.0754***	0.0739***	0.0753***	0.0659***	0.0927***
	(0.000972)	(0.00984)	(0.00984)	(0.0112)	(0.00973)	(0.00977)	(0.00969)	(0.00978)	(0.00986)
ln(distance)	-0.0533***	-1.598***	-1.598***	-1.014***	-1.108***	-1.106***	-1.128***	-0.934***	-1.659***
	(0.00321)	(0.0340)	(0.0340)	(0.0663)	(0.0522)	(0.0515)	(0.0476)	(0.0521)	(0.0348)
Common border	-0.0244	0.279**	0.279**	0.516***	0.487***	0.489***	0.490***	0.546***	0.244*
	(0.0250)	(0.135)	(0.135)	(0.152)	(0.133)	(0.133)	(0.133)	(0.135)	(0.136)
Currency union	0.0236***	0.803***	0.803***	0.439**	0.468**	0.460**	0.464**	0.394**	0.892***
	(0.00576)	(0.203)	(0.203)	(0.199)	(0.196)	(0.198)	(0.197)	(0.197)	(0.205)
Free trade agreement	0.0278***	0.715***	0.715***	0.446***	0.570***	0.571***	0.590***	0.400***	0.707***
	(0.00347)	(0.0868)	(0.0868)	(0.100)	(0.0833)	(0.0835)	(0.0829)	(0.0850)	(0.0879)
Country is landlocked	-0.0149*	-0.641***	-0.641***	-0.463***	-0.460***	-0.455***	-0.456***	-0.443***	-0.664***
	(0.00794)	(0.129)	(0.129)	(0.127)	(0.127)	(0.127)	(0.127)	(0.128)	(0.130)
Same legal system	0.00805***	0.392***	0.392***	0.303***	0.339***	0.336***	0.344***	0.288***	0.391***
	(0.00260)	(0.0480)	(0.0480)	(0.0483)	(0.0480)	(0.0480)	(0.0476)	(0.0480)	(0.0480)
Same official language	0.0250***	0.771***	0.771***	0.386***	0.424***	0.421***	0.429***	0.336***	0.819***
	(0.00272)	(0.0692)	(0.0692)	(0.0792)	(0.0749)	(0.0749)	(0.0732)	(0.0741)	(0.0697)
Colonial tie	-0.343	0.270	0.270	1.517***	1.230***	1.251***	1.203***	1.697***	0.229
	(0.219)	(0.165)	(0.165)	(0.259)	(0.168)	(0.169)	(0.163)	(0.172)	(0.171)
Time (days) to register for property	-0.163***	0.397							
	(0.0463)	(0.789)							
δ				1.048***					
				(0.104)					
z							3.195***	1.240***	
							(0.559)	(0.0710)	
z^2							-0.483***		
							(0.169)		
z^3							0.0258		
							(0.0166)		
η				0.488***			1.756***		0.614***
				(0.131)			(0.282)		(0.126)
Observations	17,897	14,446	14,446	14,446	14,446	14,446	14,446	14,446	14,446
R-squared		0.667	0.667	0.673	0.677	0.678	0.676	0.672	0.668

Table 4: 2001-2006 Average Trade, No Migration

VARIABLES	(1) Ind(trade) probit	(2) ln(trade) ols	(3) ln(trade) benchmark	(4) ln(trade) nls	(5) ln(trade) bin50	(6) ln(trade) bin100	(7) ln(trade) poly	(8) ln(trade) firm heterogeneity	(9) ln(trade) firm selection
ln(distance)	-0.0522***	-1.663***	-1.663***	-1.052***	-1.154***	-1.144***	-1.176***	-0.955***	-1.732***
	(0.00285)	(0.0307)	(0.0307)	(0.0627)	(0.0505)	(0.0501)	(0.0452)	(0.0492)	(0.0314)
Common border	-0.0182	0.725***	0.725***	0.859***	0.859***	0.844***	0.847***	0.884***	0.662***
	(0.0221)	(0.132)	(0.132)	(0.139)	(0.128)	(0.128)	(0.129)	(0.131)	(0.134)
Currency union	0.0221***	0.842***	0.842***	0.491**	0.500**	0.502**	0.516***	0.433**	0.935***
	(0.00600)	(0.202)	(0.202)	(0.193)	(0.196)	(0.196)	(0.195)	(0.195)	(0.205)
Free trade agreement	0.0275***	0.897***	0.897***	0.551***	0.675***	0.667***	0.695***	0.495***	0.881***
	(0.00344)	(0.0846)	(0.0846)	(0.0968)	(0.0825)	(0.0822)	(0.0811)	(0.0832)	(0.0859)
Country is landlocked	-0.0140*	-0.647***	-0.647***	-0.478***	-0.477***	-0.486***	-0.475***	-0.454***	-0.673***
	(0.00771)	(0.128)	(0.128)	(0.124)	(0.127)	(0.127)	(0.126)	(0.127)	(0.128)
Same legal system	0.00754***	0.359***	0.359***	0.262***	0.296***	0.298***	0.301***	0.246***	0.359***
	(0.00246)	(0.0461)	(0.0461)	(0.0461)	(0.0460)	(0.0461)	(0.0457)	(0.0461)	(0.0461)
Same official language	0.0237***	0.819***	0.819***	0.431***	0.469***	0.463***	0.478***	0.372***	0.869***
	(0.00256)	(0.0652)	(0.0652)	(0.0743)	(0.0703)	(0.0704)	(0.0687)	(0.0693)	(0.0655)
Colonial tie	-0.291	0.541***	0.541***	1.744***	1.494***	1.515***	1.451***	1.932***	0.479***
	(0.200)	(0.175)	(0.175)	(0.245)	(0.174)	(0.173)	(0.168)	(0.176)	(0.182)
Time (days) to start a business	-0.0955**	0.0362							
	(0.0401)	(0.881)							
δ				1.126***					
				(0.0998)					
z							3.250***	1.330***	
							(0.527)	(0.0699)	
z^2							-0.493***		
							(0.159)		
z^3							0.0277*		
							(0.0156)		
η				0.543***			1.810***		0.749***
				(0.125)			(0.263)		(0.118)
Observations	19,547	15,800	15,800	15,800	15,800	15,800	15,800	15,800	15,800
R-squared		0.687	0.687	0.693	0.696	0.697	0.695	0.693	0.688

Table 5: 2001-2006 Average FDI Position, Total Migration

VARIABLES	(1) Ind(fdi) probit	(2) ln(fdi) ols	(3) ln(fdi) benchmark	(4) ln(fdi) nls	(5) ln(fdi) bin50	(6) ln(fdi) bin100	(7) ln(fdi) polynomial	(8) ln(fdi) firm heterogeneity	(9) ln(fdi) firm selection
ln(total migration in 2000)	0.0254***	0.190***	0.190***	0.168***	0.170***	0.168***	0.168***	0.144***	0.204***
	(0.00317)	(0.0217)	(0.0217)	(0.0258)	(0.0235)	(0.0237)	(0.0236)	(0.0241)	(0.0219)
ln(distance)	-0.162***	-0.997***	-0.997***	-0.906***	-0.960***	-0.921***	-0.930***	-0.762***	-1.070***
	(0.0176)	(0.100)	(0.100)	(0.123)	(0.113)	(0.115)	(0.112)	(0.112)	(0.103)
Common border	0.114	0.182	0.182	0.129	0.186	0.177	0.152	0.120	0.139
	(0.103)	(0.256)	(0.256)	(0.240)	(0.259)	(0.263)	(0.258)	(0.259)	(0.263)
Currency union	0.300***	0.224	0.224	0.0760	0.136	0.132	0.106	0.0461	0.112
	(0.112)	(0.208)	(0.208)	(0.252)	(0.210)	(0.215)	(0.209)	(0.214)	(0.213)
Free trade agreement	0.0226	0.0937	0.0937	0.0516	0.106	0.132	0.0667	0.0278	0.0880
	(0.0350)	(0.254)	(0.254)	(0.203)	(0.249)	(0.253)	(0.249)	(0.251)	(0.251)
Country is landlocked	0.0217	0.443	0.443	0.633	0.795*	0.780	0.706	0.563	0.538
	(0.0550)	(0.427)	(0.427)	(0.450)	(0.448)	(0.475)	(0.430)	(0.422)	(0.428)
Same legal system	0.0792***	0.451***	0.451***	0.444***	0.419***	0.437***	0.439***	0.362***	0.535***
	(0.0221)	(0.115)	(0.115)	(0.120)	(0.120)	(0.121)	(0.118)	(0.117)	(0.117)
Same official language	0.0986**	0.583***	0.583***	0.510**	0.574***	0.533***	0.527***	0.475**	0.565***
	(0.0405)	(0.204)	(0.204)	(0.218)	(0.204)	(0.206)	(0.204)	(0.205)	(0.206)
Colonial tie	0.230***	0.744***	0.744***	0.611***	0.660***	0.661***	0.616***	0.429*	0.853***
	(0.0552)	(0.213)	(0.213)	(0.235)	(0.226)	(0.231)	(0.227)	(0.225)	(0.217)
procedures to start a business	-0.570***	0.359							
	(0.112)	(0.699)							
δ				0.00634					
				(0.270)					
z							3.457***	0.525***	
							(0.935)	(0.110)	
z^2							-0.941***		
							(0.307)		
z^3							0.0856***		
							(0.0317)		
η				0.920***			1.537***		0.516***
				(0.151)			(0.335)		(0.146)
Observations	7,483	2,337	2,337	2,337	2,337	2,337	2,337	2,337	2,337
R-squared		0.760	0.760	0.755	0.773	0.777	0.765	0.762	0.762

Table 6: 2001-2006 Average FDI Position, High Skilled Migration

VARIABLES	(1) Ind(fdi) probit	(2) ln(fdi) ols	(3) ln(fdi) benchmark	(4) ln(fdi) nls	(5) ln(fdi) bin50	(6) ln(fdi) bin100	(7) ln(fdi) polynomial	(8) ln(fdi) firm heterogeneity	(9) ln(fdi) firm selection
ln(skilled migration in 2000)	0.0299***	0.243***	0.243***	0.215***	0.220***	0.210***	0.217***	0.193***	0.254***
	(0.00400)	(0.0253)	(0.0253)	(0.0297)	(0.0280)	(0.0281)	(0.0277)	(0.0282)	(0.0255)
ln(distance)	-0.167***	-0.977***	-0.977***	-0.911***	-0.950***	-0.907***	-0.918***	-0.764***	-1.042***
	(0.0178)	(0.101)	(0.101)	(0.122)	(0.114)	(0.113)	(0.112)	(0.112)	(0.103)
Common border	0.131	0.187	0.187	0.140	0.208	0.213	0.169	0.120	0.155
	(0.107)	(0.253)	(0.253)	(0.239)	(0.256)	(0.256)	(0.255)	(0.256)	(0.260)
Currency union	0.291**	0.169	0.169	0.0596	0.0891	0.0361	0.0871	0.0271	0.0695
	(0.113)	(0.206)	(0.206)	(0.251)	(0.211)	(0.214)	(0.208)	(0.211)	(0.211)
Free trade agreement	0.0185	0.0396	0.0396	0.0174	0.0770	0.0872	0.0265	-0.0112	0.0373
	(0.0349)	(0.252)	(0.252)	(0.203)	(0.247)	(0.246)	(0.247)	(0.249)	(0.250)
Country is landlocked	0.0250	0.445	0.445	0.613	0.812*	0.897*	0.702	0.554	0.528
	(0.0559)	(0.424)	(0.424)	(0.449)	(0.454)	(0.478)	(0.428)	(0.421)	(0.426)
Same legal system	0.0791***	0.415***	0.415***	0.419***	0.398***	0.401***	0.402***	0.337***	0.489***
	(0.0223)	(0.115)	(0.115)	(0.120)	(0.120)	(0.121)	(0.118)	(0.117)	(0.117)
Same official language	0.100**	0.574***	0.574***	0.518**	0.528**	0.477**	0.528***	0.479**	0.560***
	(0.0413)	(0.203)	(0.203)	(0.217)	(0.206)	(0.207)	(0.203)	(0.204)	(0.205)
Colonial tie	0.258***	0.757***	0.757***	0.645***	0.735***	0.655***	0.627***	0.450**	0.859***
	(0.0570)	(0.211)	(0.211)	(0.235)	(0.225)	(0.227)	(0.226)	(0.223)	(0.215)
procedures to start a business	-0.373***	-0.474							
	(0.0653)	(0.496)							
δ				0.000340					
				(0.266)					
z							3.423***	0.475***	
							(0.941)	(0.107)	
z^2							-0.931***		
							(0.309)		
z^3							0.0837***		
							(0.0319)		
η				0.849***			1.503***		0.440***
				(0.148)			(0.336)		(0.145)
Observations	7,483	2,337	2,337	2,337	2,337	2,337	2,337	2,337	2,337
R-squared		0.762	0.762	0.755	0.772	0.779	0.767	0.764	0.763

Table 7: 2001-2006 Average FDI Position, Low Skilled Migration

VARIABLES	(1) Ind(fdi) probit	(2) ln(fdi) ols	(3) ln(fdi) benchmark	(4) ln(fdi) nls	(5) ln(fdi) bin50	(6) ln(fdi) bin100	(7) ln(fdi) polynomial	(8) ln(fdi) firm heterogeneity	(9) ln(fdi) firm selection
ln(total migration in 2000)	0.0269***	0.195***	0.195***	0.171***	0.167***	0.166***	0.172***	0.147***	0.209***
	(0.00324)	(0.0222)	(0.0222)	(0.0265)	(0.0243)	(0.0247)	(0.0242)	(0.0248)	(0.0224)
ln(distance)	-0.162***	-0.994***	-0.994***	-0.905***	-0.937***	-0.928***	-0.929***	-0.768***	-1.066***
	(0.0176)	(0.0997)	(0.0997)	(0.122)	(0.113)	(0.114)	(0.111)	(0.111)	(0.102)
Common border	0.108	0.158	0.158	0.111	0.178	0.179	0.134	0.107	0.114
	(0.102)	(0.257)	(0.257)	(0.240)	(0.260)	(0.263)	(0.259)	(0.259)	(0.264)
Currency union	0.304***	0.227	0.227	0.0820	0.127	0.0991	0.114	0.0534	0.118
	(0.113)	(0.208)	(0.208)	(0.252)	(0.210)	(0.216)	(0.210)	(0.214)	(0.214)
Free trade agreement	0.0217	0.0866	0.0866	0.0451	0.0939	0.108	0.0596	0.0230	0.0801
	(0.0349)	(0.254)	(0.254)	(0.203)	(0.249)	(0.252)	(0.248)	(0.251)	(0.251)
Country is landlocked	0.0222	0.454	0.454	0.641	0.826*	0.824*	0.712*	0.571	0.546
	(0.0551)	(0.427)	(0.427)	(0.450)	(0.442)	(0.474)	(0.431)	(0.423)	(0.428)
Same legal system	0.0799***	0.452***	0.452***	0.442***	0.420***	0.438***	0.437***	0.364***	0.534***
	(0.0222)	(0.115)	(0.115)	(0.120)	(0.119)	(0.120)	(0.118)	(0.117)	(0.117)
Same official language	0.0968**	0.571***	0.571***	0.502**	0.564***	0.512**	0.521**	0.470**	0.554***
	(0.0404)	(0.204)	(0.204)	(0.218)	(0.204)	(0.206)	(0.204)	(0.206)	(0.206)
Colonial tie	0.225***	0.736***	0.736***	0.605***	0.612***	0.642***	0.612***	0.433*	0.841***
	(0.0551)	(0.213)	(0.213)	(0.234)	(0.226)	(0.231)	(0.226)	(0.225)	(0.217)
procedures to start a business	-0.569***	0.354							
	(0.112)	(0.702)							
δ				0.000230					
				(0.269)					
z							3.396***	0.512***	
							(0.937)	(0.109)	
z^2							-0.923***		
							(0.308)		
z^3							0.0837***		
							(0.0318)		
η				0.909***			1.509***		0.499***
				(0.149)			(0.336)		(0.146)
Observations	7,483	2,337	2,337	2,337	2,337	2,337	2,337	2,337	2,337
R-squared		0.760	0.760	0.764	0.772	0.775	0.765	0.762	0.762

Table 8: 2001-2006 Average FDI Position, No Migration

VARIABLES	(1) Ind(fdi) probit	(2) ln(fdi) ols	(3) ln(fdi) benchmark	(4) ln(fdi) nls	(5) ln(fdi) bin50	(6) ln(fdi) bin100	(7) ln(fdi) polnomial	(8) ln(fdi) firm heterogeneity	(9) ln(fdi) firm selection
ln(distance)	-0.199***	-1.250***	-1.250***	-1.089***	-1.077***	-1.091***	-1.069***	-0.868***	-1.347***
	(0.0169)	(0.100)	(0.100)	(0.133)	(0.116)	(0.118)	(0.121)	(0.119)	(0.104)
Common border	0.161	0.395	0.395	0.273	0.353	0.365	0.329	0.252	0.357
	(0.109)	(0.273)	(0.273)	(0.246)	(0.276)	(0.274)	(0.274)	(0.276)	(0.282)
Currency union	0.339***	0.202	0.202	0.0225	-0.0187	-0.00151	0.0283	-0.0919	0.0912
	(0.116)	(0.210)	(0.210)	(0.257)	(0.215)	(0.215)	(0.214)	(0.219)	(0.215)
Free trade agreement	0.0294	0.258	0.258	0.191	0.261	0.239	0.206	0.150	0.260
	(0.0353)	(0.253)	(0.253)	(0.207)	(0.243)	(0.240)	(0.247)	(0.250)	(0.250)
Country is landlocked	0.0358	0.444	0.444	0.624	0.632	0.739	0.730	0.567	0.543
	(0.0576)	(0.458)	(0.458)	(0.458)	(0.469)	(0.489)	(0.461)	(0.452)	(0.459)
Same legal system	0.0761***	0.595***	0.595***	0.573***	0.575***	0.550***	0.550***	0.491***	0.693***
	(0.0213)	(0.117)	(0.117)	(0.123)	(0.121)	(0.122)	(0.120)	(0.119)	(0.119)
Same official language	0.126***	0.632***	0.632***	0.515**	0.547***	0.563***	0.537***	0.466**	0.628***
	(0.0409)	(0.208)	(0.208)	(0.222)	(0.207)	(0.210)	(0.207)	(0.209)	(0.209)
Colonial tie	0.327***	1.253***	1.253***	0.994***	0.937***	0.968***	0.932***	0.700***	1.409***
	(0.0561)	(0.204)	(0.204)	(0.250)	(0.233)	(0.237)	(0.235)	(0.231)	(0.210)
Time(days) to start a business	-0.316***	-0.485							
	(0.104)	(0.319)							
δ				0.131					
				(0.246)					
z							4.355***	0.665***	
							(0.953)	(0.116)	
z^2							-1.179***		
							(0.315)		
z^3							0.108***		
							(0.0328)		
η				0.888***			1.752***		0.546***
				(0.157)			(0.336)		(0.148)
Observations	7,671	2,373	2,373	2,337	2,373	2,373	2,373	2,373	2,373
R-squared		0.750	0.750	0.756	0.763	0.769	0.757	0.753	0.751

Table 9: Ratio of 2001-2006 Average FDI Position/Exports, Total Migration

VARIABLES	(1) Ind(rat) probit	(2) ln(rat) ols	(3) ln(rat) benchmark	(4) ln(rat) nls	(5) ln(rat) bin50	(6) ln(rat) bin100	(7) ln(rat) polynomial	(8) ln(rat) firm heterogeneity	(9) ln(rat) firm selection
ln(total migration in 2000)	0.0254***	0.126***	0.126***	0.124***	0.130***	0.131***	0.131***	0.0833***	0.148***
	(0.00317)	(0.0215)	(0.0215)	(0.0267)	(0.0236)	(0.0239)	(0.0232)	(0.0240)	(0.0217)
ln(distance)	-0.162***	0.0833	0.0833	0.0793	0.0196	0.0500	0.0304	0.303***	-0.0194
	(0.0176)	(0.103)	(0.103)	(0.127)	(0.111)	(0.112)	(0.109)	(0.116)	(0.102)
Common border	0.114	0.107	0.107	0.0396	0.0861	0.101	0.0708	0.0515	0.0462
	(0.103)	(0.216)	(0.216)	(0.248)	(0.218)	(0.221)	(0.218)	(0.221)	(0.221)
Currency union	0.300***	0.399**	0.399**	0.208	0.317	0.294	0.282	0.235	0.236
	(0.112)	(0.203)	(0.203)	(0.260)	(0.206)	(0.211)	(0.203)	(0.213)	(0.207)
Free trade agreement	0.0226	0.184	0.184	0.165	0.198	0.211	0.183	0.127	0.183
	(0.0350)	(0.253)	(0.253)	(0.210)	(0.252)	(0.252)	(0.249)	(0.251)	(0.250)
Country is landlocked	0.0217	0.421	0.421	0.609	0.658	0.689	0.684*	0.532	0.559
	(0.0550)	(0.407)	(0.407)	(0.464)	(0.416)	(0.441)	(0.402)	(0.397)	(0.398)
Same legal system	0.0792***	0.0949	0.0949	0.166	0.143	0.171	0.173	0.0129	0.220*
	(0.0221)	(0.116)	(0.116)	(0.124)	(0.119)	(0.120)	(0.117)	(0.118)	(0.116)
Same official language	0.0986**	0.284	0.284	0.220	0.269	0.224	0.245	0.183	0.256
	(0.0405)	(0.200)	(0.200)	(0.225)	(0.202)	(0.203)	(0.200)	(0.203)	(0.200)
Colonial tie	0.230***	0.176	0.176	0.190	0.236	0.244	0.227	-0.119	0.332
	(0.0552)	(0.205)	(0.205)	(0.242)	(0.216)	(0.218)	(0.214)	(0.220)	(0.205)
procedures to start a business	-0.570***	1.455							
	(0.112)	(1.284)							
δ				0.000398					
				(0.280)					
z							1.928*	0.487***	
							(0.993)	(0.113)	
z^2							-0.492		
							(0.323)		
z^3							0.0402		
							(0.0332)		
η				0.924***			1.465***		0.763***
				(0.156)			(0.365)		(0.150)
Observations	7,483	2,334	2,334	2334	2,334	2,334	2,334	2,334	2,334
R-squared		0.548	0.548	0.565	0.569	0.579	0.557	0.551	0.554

Table 10: Ratio of 2001-2006 Average FDI Position/Exports, High Skilled Migration

VARIABLES	(1) Ind(rat) probit	(2) ln(rat) ols	(3) ln(rat) benchmark	(4) ln(rat) nls	(5) ln(rat) bin50	(6) ln(rat) bin100	(7) ln(rat) polynomial	(8) ln(rat) firm heterogeneity	(9) ln(rat) firm selection
ln_migh2000	0.0299***	0.183***	0.183***	0.179***	0.189***	0.177***	0.187***	0.139***	0.202***
	(0.00400)	(0.0254)	(0.0254)	(0.0299)	(0.0278)	(0.0277)	(0.0276)	(0.0284)	(0.0256)
ln(distance)	-0.167***	0.121	0.121	0.0281	0.0281	0.0705	0.0569	0.313***	0.0242
	(0.0178)	(0.103)	(0.103)	(0.123)	(0.111)	(0.110)	(0.109)	(0.117)	(0.103)
Common border	0.131	0.0915	0.0915	0.119	0.119	0.110	0.0710	0.0328	0.0443
	(0.107)	(0.213)	(0.213)	(0.247)	(0.217)	(0.216)	(0.215)	(0.218)	(0.218)
Currency union	0.291**	0.361*	0.361*	0.280	0.280	0.239	0.265	0.236	0.207
	(0.113)	(0.202)	(0.202)	(0.258)	(0.206)	(0.208)	(0.203)	(0.210)	(0.206)
Free trade agreement	0.0185	0.128	0.128	0.182	0.182	0.159	0.138	0.0862	0.131
	(0.0349)	(0.252)	(0.252)	(0.208)	(0.248)	(0.247)	(0.248)	(0.250)	(0.249)
Country is landlocked	0.0250	0.422	0.422	0.764**	0.853**	0.889**	0.669*	0.519	0.551
	(0.0559)	(0.401)	(0.401)	(0.473)	(0.417)	(0.441)	(0.398)	(0.393)	(0.394)
Same legal system	0.0791***	0.0536	0.0536	0.148	0.127	0.134	0.133	-0.0158	0.170
	(0.0223)	(0.116)	(0.116)	(0.120)	(0.120)	(0.120)	(0.117)	(0.118)	(0.117)
Same official language	0.100**	0.275	0.275	0.213	0.240	0.187	0.247	0.189	0.251
	(0.0413)	(0.199)	(0.199)	(0.216)	(0.200)	(0.201)	(0.199)	(0.201)	(0.199)
Colonial tie	0.258***	0.139	0.139	0.252	0.316	0.220	0.207	-0.136	0.294
	(0.0570)	(0.204)	(0.204)	(0.235)	(0.213)	(0.213)	(0.213)	(0.220)	(0.204)
procedures to start a business	-0.590***	1.578							
	(0.111)	(1.293)							
δ				0.000323					
				(0.277)					
z							1.776*	0.422***	
							(1.001)	(0.110)	
z^2							-0.452		
							(0.326)		
z^3							0.0361		
							(0.0334)		
η				0.877***			1.379***		0.690***
				(0.155)			(0.370)		(0.149)
Observations	7,483	2,334	2,334	2334	2,334	2,334	2,334	2,334	2,334
R-squared		0.552	0.552	0.568	0.573	0.585	0.559	0.554	0.557

Table 11: Ratio of 2001-2006 Average FDI Position/Exports, Low Skilled Migration

VARIABLES	(1) Ind(rat) probit	(2) ln(rat) ols	(3) ln(rat) benchmark	(4) ln(rat) nls	(5) ln(rat) bin50	(6) ln(rat) bin100	(7) ln(rat) polynomial	(8) ln(rat) firm heterogeneity	(9) ln(rat) firm selection
ln_migh2000	0.0269***	0.131***	0.131***	0.132***	0.130***	0.132***	0.136***	0.0875***	0.152***
	(0.00324)	(0.0219)	(0.0219)	(0.0274)	(0.0243)	(0.0246)	(0.0238)	(0.0246)	(0.0221)
ln(distance)	-0.162***	0.0881	0.0881	0.0806	0.0361	0.0456	0.0327	0.299***	-0.0139
	(0.0176)	(0.102)	(0.102)	(0.126)	(0.111)	(0.112)	(0.108)	(0.116)	(0.101)
Common border	0.108	0.0885	0.0885	0.0207	0.0831	0.0901	0.0531	0.0427	0.0257
	(0.102)	(0.217)	(0.217)	(0.248)	(0.219)	(0.223)	(0.219)	(0.221)	(0.221)
Currency union	0.304***	0.401**	0.401**	0.216	0.304	0.274	0.288	0.243	0.240
	(0.113)	(0.203)	(0.203)	(0.260)	(0.206)	(0.212)	(0.203)	(0.213)	(0.207)
Free trade agreement	0.0217	0.177	0.177	0.156	0.183	0.183	0.175	0.122	0.175
	(0.0349)	(0.253)	(0.253)	(0.210)	(0.251)	(0.254)	(0.249)	(0.250)	(0.249)
Country is landlocked	0.0222	0.428	0.428	0.617	0.744*	0.788*	0.688*	0.536	0.564
	(0.0551)	(0.407)	(0.407)	(0.464)	(0.413)	(0.458)	(0.403)	(0.398)	(0.398)
Same legal system	0.0799***	0.0937	0.0937	0.165	0.137	0.169	0.171	0.0127	0.217*
	(0.0222)	(0.116)	(0.116)	(0.124)	(0.119)	(0.120)	(0.117)	(0.118)	(0.116)
Same official language	0.0968**	0.276	0.276	0.218	0.273	0.205	0.241	0.181	0.248
	(0.0404)	(0.200)	(0.200)	(0.225)	(0.201)	(0.202)	(0.200)	(0.203)	(0.200)
Colonial tie	0.225***	0.165	0.165	0.180	0.194	0.252	0.217	-0.116	0.317
	(0.0551)	(0.205)	(0.205)	(0.242)	(0.214)	(0.217)	(0.214)	(0.220)	(0.205)
procedures to start a business	-0.569***	1.376							
	(0.112)	(1.280)							
δ				0.000414					
				(0.278)					
z							1.876*	0.472***	
							(0.994)	(0.112)	
z^2							-0.477		
							(0.324)		
z^3							0.0386		
							(0.0332)		
η				0.909***			1.440***		0.748***
				(0.155)			(0.366)		(0.150)
Observations	7,483	2,334	2,334	2,334	2,334	2,334	2,334	2,334	2,334
R-squared		0.548	0.548	0.56	0.567	0.574	0.557	0.551	0.554

Table 12: Ratio of 2001-2006 Average FDI Position/Exports, No Migration

VARIABLES	(1) Ind(rat) probit	(2) ln(rat) ols	(3) ln(rat) benchmark	(4) ln(rat) nls	(5) ln(rat) bin50	(6) ln(rat) bin100	(7) ln(rat) polynomial	(8) ln(rat) firm heterogeneity	(9) ln(rat) firm selection
ln(distance)	-0.199***	-0.0664	-0.0664	-0.0576	-0.0377	-0.0775	-0.0702	0.276**	-0.204**
	(0.0169)	(0.0994)	(0.0994)	(0.134)	(0.108)	(0.109)	(0.111)	(0.123)	(0.0996)
Common border	0.161	0.263	0.263	0.156	0.213	0.235	0.217	0.139	0.212
	(0.109)	(0.221)	(0.221)	(0.251)	(0.225)	(0.224)	(0.224)	(0.228)	(0.228)
Currency union	0.339***	0.355*	0.355*	0.175	0.144	0.168	0.201	0.0969	0.196
	(0.116)	(0.201)	(0.201)	(0.262)	(0.203)	(0.202)	(0.201)	(0.215)	(0.204)
Free trade agreement	0.0294	0.310	0.310	0.264	0.357	0.333	0.307	0.220	0.322
	(0.0353)	(0.250)	(0.250)	(0.211)	(0.243)	(0.245)	(0.247)	(0.248)	(0.247)
Country is landlocked	0.0358	0.428	0.428	0.622	0.589	0.797*	0.710*	0.536	0.572
	(0.0576)	(0.425)	(0.425)	(0.467)	(0.436)	(0.452)	(0.419)	(0.413)	(0.416)
Same legal system	0.0761***	0.233**	0.233**	0.260**	0.295**	0.278**	0.301**	0.140	0.377***
	(0.0213)	(0.115)	(0.115)	(0.125)	(0.119)	(0.120)	(0.117)	(0.117)	(0.116)
Same official language	0.126***	0.351*	0.351*	0.235	0.285	0.320	0.300	0.202	0.342*
	(0.0409)	(0.203)	(0.203)	(0.227)	(0.202)	(0.204)	(0.201)	(0.205)	(0.202)
Colonial tie	0.327***	0.457**	0.457**	0.476*	0.386*	0.439**	0.434**	-0.0362	0.683***
	(0.0561)	(0.197)	(0.197)	(0.254)	(0.216)	(0.218)	(0.217)	(0.229)	(0.197)
procedures to register for property	0.897***	-0.426							
	(0.0906)	(0.640)							
δ				0.000575					
				(0.279)					
z							2.805***	0.591***	
							(1.000)	(0.118)	
z^2							-0.752**		
							(0.327)		
z^3							0.0660*		
							(0.0337)		
η				1.011***			1.705***		0.804***
				(0.156)			(0.366)		(0.151)
Observations	7,671	2,370	2,370	2,334	2,370	2,370	2,370	2,370	2,370
R-squared		0.545	0.545	0.56	0.569	0.578	0.557	0.550	0.552