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2017 / 15

Castellón (Spain)

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Abstract

This paper models and quantifies the role played by migrants occupying a variety of jobs positions (managers, professional and non-qualified) in Foreign Direct Investment (FDI). Higher shares of migrants with management skills are expected to mitigate management and transaction costs of foreign affiliates. We test our model on a global panel data set of Greenfield bilateral investment with wide variety of gravity specifications, both at the extensive and intensive margins. The paper provides a novel rationale for the heterogeneous effects of low-skilled migration and new insights into the mechanisms by which migration operates in the firm's FDI decisions, with particular attention to the relevance of firm size and activity.

Keywords: migration; foreign Direct Investment; FDI; job skills; gravity equation; extensive margin

JEL classification: F21, F22, F23

Migration and FDI: The role of job skills

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30th November 2017

Abstract

This paper models and quantifies the role played by migrants occupying a variety of jobs positions (managers, professional and non-qualified) in Foreign Direct Investment (FDI). Higher shares of migrants with management skills are expected to mitigate management and transaction costs of foreign affiliates. We test our model on a global panel data set of Greenfield bilateral investment with wide variety of gravity specifications, both at the extensive and intensive margins. The paper provides a novel rationale for the heterogeneous effects of low-skilled migration and new insights into the mechanisms by which migration operates in the firm's FDI decisions, with particular attention to the relevance of firm size and activity.

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1 Introduction

This paper seeks to explain the role played by migrants with different levels of human capital in cross-border investments. In contrast with previous studies, we focus on migrants' occupational skills rather than on their educational level. Our approach deals with the controversial previous evidence regarding the role played by the educational attainment of migrants as well as with the occupation-education mismatch.

We start the analysis by presenting a model to explain how high-skilled migration can affect the firm's FDI strategy both at the intensive and the extensive margins. In our model, a key feature is job heterogeneity within the production process: The affiliate combines headquarters' blueprints (which requires management skills) with capital and low-skilled jobs to produce goods. The migrant composition in terms of job skills can facilitate this process.

The intuition behind our model may be understood through a historical analogy to the Navajo code talkers during World War II. The United States Marine Corps used the Navajo language to cipher war messages. The complexity of the language made it unintelligible to anyone without extensive exposure and training. At the outbreak of World War II, fewer than 30 non-Navajo could understand the language (Nez & Avila, 2011). To be able to navigate, the submarine requires at least one Navajo code talker to decode the scrambled messages. Increasing the number of Navajo code talkers in the Pacific makes it possible to boost both the number of deployed submarines and the efficiency and ship capacity (e.g., they can work in shifts). The rest of the crew members have no effect on the number or capacity of submarines, thus, the crew is a *submarine* fixed effect. Now, let us imagine there is a particular submarine where most of the crew is ethnically Navajo, but unable to speak the Navajo language. This particular submarine faces higher search costs to

identify the one and only true Navajo code talker. Taken to the extreme, when all the crew is unskilled in terms of Navajo language, the submarine will not be able to navigate.

Certain elements of this historical example operate in similar ways in FDI. High-skilled migrants are defined as those individuals born in the investor's home country occupying managerial or professional positions in the host country of investment. These individuals acquire management or professionals skills which enables them to manage the relationship with the headquarters, like Navajo code talkers do. Therefore, abundant stocks of skilled migrants should have a positive effect on both FDI's extensive and intensive margins, similarly to the Navajo's effect on the number and submarine capacity.

Low-skilled migrants are defined as those individuals born in the investor's home country occupying non-qualified job positions in the host country, regardless of their educational attainment. Their wage is pegged to host country unskilled wage and consequently the stock of non-qualified migrants, like the non-code talkers, should have no significant effect on FDI. However, previous empirical results challenged this prediction, finding that an increase in low-skilled migrants has a negative and significant impact on FDI flows. Our model reconciles theory with data by showing that what matters is the job skills' composition. In line with migrant labor supply models, an increase in the migrant stock has a perceptible wage effect on previous fellow migrants (Borjas, 2017; Ottaviano & Peri, 2012). Therefore, the high-skilled labor cost of the affiliate increases as management skills become relatively less abundant.

To the best of our knowledge, our study constitutes a novel attempt to fill some gaps in the literature of heterogeneous migrants and FDI. Firstly, we incorporate job skills into a standard model of heterogeneous firms that delivers a tractable FDI gravity equation with sharp predictions regarding migration and FDI. Secondly, we

use a panel dataset of OECD host countries to estimate the impact of the migrant job composition on FDI's margins, activities and investment levels. Thirdly, we uncover which specific job skills have a greater appeal for multinational enterprises. In line with our theoretical expectations, estimates suggest that a higher share of managers in the migrant stock has the largest positive effect on FDI.

The rest of the paper is organized as follow. Section 2 provides an overview of the relevant literature. Section 3 presents the model. Section 4 describes the data and the econometric specification. Section 5 details the results and section 6 concludes.

2 Background

"An efficient way to organize multinational production across locations (...) is to hire talented workers who are able to carry out production activities with very little supervision" (Cristea, 2015, p. 257). Therefore, hiring talented migrants may constitute a mechanism to mitigate communication costs between headquarters and their foreign affiliates. As stated by De Smet, "The ease of hiring skilled expatriates is one of the factors that are taken into consideration in the location decision of multinationals. When the required expertise cannot be sourced in the hosting country, skilled immigrants are necessary to start-up new subsidiaries and train workers" (2013, p. 4).

By acting as an information-revealing network, migrants may reduce transactions costs, encouraging bilateral investments. They understand the language, culture, values and practices of their home as well as their host country. The positive association between ethnic networks and FDI has already been found by previous papers (see Gao, 2003; Buch et al., 2006; Kugler & Rapoport, 2007; Murat & Pistoresi, 2009; Federici & Giannetti, 2010; Foad, 2012 and Burchardi et al., 2016; among others).

The main mechanisms through which this association takes place are the demand and the information channels. The former may occur when people living abroad demand products or services from their home country and companies try to satisfy these needs by investing abroad. The information channel is less straightforward but it seems to be particularly relevant for FDI decisions: Foreign investment implies a long-term investment and therefore requires a wide variety of information about the legal framework and business structure in the host country (Javorcik et al., 2011). FDI also involves higher risk of expropriation and thus information about the investment environment is more valuable (Leblang, 2011).

Migrants can also foster trust, especially in countries where the rule of law is uncertain and doing business with foreigners entails a degree of insecurity (Mundra, 2014). As stated by Burchardi et al. (2016), individuals who have social ties may generate a competitive advantage for the firms at which they work and the regions where they live by reducing informational frictions. Migrants may open new channels for profitable investment through their networks with fellow professionals from their home country. They can help companies to identify business opportunities, local tastes and foreign preferences and can even help investors find joint venture partners. Accordingly, migrant networks seem to matter more for bilateral FDI than for trade (Javorcik et al., 2011; Tong, 2005). Daude & Fratzscher (2008) emphasized that FDI flows are more sensitive to information frictions than investment portfolio equity and debt securities.

As information exchange is crucial for investment decisions, personal migrants' characteristics come to the forefront of the analysis as they explain how migrants participate in channeling this information. The existing migration-FDI studies that controlled for migrants' skills heterogeneity (which are summarized in Table 1) fo-

cused on educational attainment[1]. The main idea highlighted by the studies shown in Table 1 is that high-skilled migrants are expected to have a greater influence on FDI as they bring with them higher levels of information and influence (Docquier & Lodigiani, 2010). Well-educated individuals may have specialized knowledge about how to conduct business with investors of their own particular ethnicity. They also have the language skills and cultural sensitivity that would promote collaboration with business developers in host countries. Skilled migrants are likely to have a more in-depth understanding of customer behavior and to be able to provide insights about the type of products that would generate higher levels of demand. This type of migrants may even be personally involved in investments from their country of origin, boosting capital flows (Foley & Kerr, 2013).

[Table 1 about here.]

However, the role played by the educational attainment is controversial, at least. Thus, Felbermayr & Jung (2009) find that low- and high-skilled migrants strongly boost bilateral trade while medium-skilled migration does not seem to matter. This could be explained by the mismatch between formal educational skills and job skills, which is a common feature of the labour market in general and seems to be particularly pronounced for migrants (Aleksynska & Tritah, 2013). The mismatch that occurs when a person has a level of formal education above that required for her job is referred to as over-education, and the opposite as under-education. Aleksynska & Peri (2014) stress that migrants are more likely than native-born workers to be either under- or over-educated with respect to the jobs that they hold. Saxenian (1999) provides casual evidence of this mismatch by showing that the superior educational attainment of Silicon Valley's Asian immigrants is only partially reflected in their

[1]The only exception is Tomohara (2017a), who constructs two broad skill groups based on a wide rage of occupational categories for Japan only.

occupational status.

Our empirical strategy relies on the evidence obtained by a handful of studies which advocate using migrants' job position rather than education as a suitable proxy for the migrants' effective job skill-sets and decision-making power (Aleksynska & Peri, 2014; Martín-Montaner et al., 2014). According to these studies, migrants' proximity to decision-making positions appears to have a more crucial influence on international trade than their formal knowledge or abilities: Occupations such as business directors or managers may play a particularly important role in facilitating trade connections. Such professionals have a direct role in channeling relevant information and knowledge of potential export markets and import opportunities, as well as in facilitating the understanding of differences in culture and business practices. As illustrated by Mundra (2014), an immigrant who is a homemaker or a student might not participate in professional networking or move in entrepreneurship circles, and will thus have a lower information effect on trade than an engineer or a CEO. Moreover, there will be a greater exchange of ideas across managerial and professional immigrant groups, which increases the potential for lowering transactions costs through access to more extensive information about foreign markets as well as through personal business contacts. To the best of our knowledge, our micro-founded analysis is the first attempt to examine the role played by migrants' job skills and occupation in influencing foreign investment in a multi-country framework.

Recent studies highlight the inverse relationship between migrant wages and migrant labor supply that we explore in our model (Borjas, 2017; Ottaviano & Peri, 2012). Thus, foreign affiliates face lower management costs (e.g., searching, identification and communications costs) when management skills become relatively more abundant (i.e., an increase of high-skilled migrants or a decrease of low-skilled migrants). Additionally, these skilled individuals might reduce financial costs related

to FDI (Cuadros et al., 2016).

Finally, the effects of migrants' job skills on FDI may also vary depending on the activity at which the investment is targeted. This could be explained by the fact that different types of FDI may require different types of skills according to their main activity (e.g., extraction industries, manufacturing or provision of services; see Checchi et al., 2007). Moreover, the determinants of foreign entry decisions may vary between services and manufacturing activities (Kolstad & Villanger, 2008). These arguments suggest that it is appropriate to account for the specific activity at which the FDI is targeted. To the best of our knowledge, within the migration-FDI literature, just a handful of studies have dealt with the sector composition of FDI. Kugler & Rapoport (2007) find a dynamic complementarity between skilled migration and US outward FDI in services, and contemporaneous substitution between unskilled migration and US outward FDI in manufacturing. Javorcik et al. (2011) examine whether the positive relationship between migration and US FDI abroad that they obtain at the aggregate level is also present at the industry level.

3 Theoretical framework

3.1 Setup

The basic setup is a world of J countries with the assumption of a Cobb-Douglas utility function for a representative consumer $U_j = X_{NTj}^{\mu} X_{Tj}^{1-\mu}$, for a two-sector economy with NT (non-traded) and T (traded) goods. The parameter μ is the share of total spending R_j in each industry, which consists of a continuum of differentiated products. The aggregate consumption in this sector is the sum of all goods produced. The term X_{Tj} is a standard CES aggregator across the continuum of products (l): $X_j = \left[\int x_j(l)^{\iota} dl\right]^{1/\iota}$, where $\sigma \equiv (1-\iota)^{-1} > 1$ is the elasticity of substitution between

any two products. The maximization of the demand of the good l is $x_j(l) = \frac{p_j^{-\sigma} Y_j}{P_j^{1-\sigma}}$, where $Y_j \equiv (1-\mu)R_j$, p_j in the price of the good and P_j the price index is the traded sector $P_j = \left[\int_l {p_j}^{1-\sigma} dl\right]^{1/(1-\sigma)}$.

3.2 Production

Production is undertaken by price-acceptant firms in monopolist competition. To produce the good l, a firm z uses three inputs: capital K, skilled inputs or services S (which are provided by high-skilled labour), and low-skilled inputs or services L (which are provided by low-skilled labour). The firm combines high-skilled labor (e.g., management or engineering) with capital and low-skilled labour in a second step. To model production, we use a Cobb-Douglas variant of a two-level CES production function by Krusell et al. (2000):

$$x_{jz}(l) = S^s [K^k L^l]^{1-s}, \tag{1}$$

where the positive constants $s < 1$ and , $k + l < 1$ measure the intensity with which the inputs are used in production and constant at the sectoral level.

Upon entry, the firm discovers its total factor productivity $1/\alpha$, where α is the number of input units per input bundle used by the firm to produce one unit of output. We follow the standard assumption that the distribution of α across firms is continuous Pareto c.d.f. $G(\alpha)$ with $[\underline{\alpha}, \bar{\alpha}]$. The density of $G(\alpha)$ is denoted by $g(\alpha)$ and the distribution is the same across countries.

To produce a good, a domestic firm incurs a marginal cost of:

$$\omega_j^{Dom}(\alpha) \equiv \alpha(\bar{w}_j S + r_j K + w_j L), \tag{2}$$

where each unit of capital comes at a cost of $r_j > 1$, which reflects the capital,

interest and search costs. The high-skilled and low-skilled wage are respectively $\bar{w}_j > w_j > 1$. This assumption is based on the fact that management skills are relatively less abundant than low-skilled skillsets.

The firm incurs in a fixed cost of production f_j and sells its product at prices p_j. Thus, the problem of the firm is:

$$\max_{K,S,L} \pi_{iz}^{Dom} = \max\{p_j S^s [K^k L^l]^{1-s} - \omega_j^{Dom}(\alpha) - f_j\}. \tag{3}$$

In equilibrium the market clears and the firm determines the optimal levels of capital investment and labor. The optimal equilibrium for capital is:

$$K_j^{Dom} = \left(\frac{(k - sk)p_j}{\alpha r_j^{1-\eta-sk+k} \left(\frac{k-sk}{s}\bar{w}_j\right)^s \left(\frac{k-sk}{l-sl}w_j\right)^{l-sl}} \right)^{\frac{1}{1-\eta}}, \tag{4}$$

where $\eta = s - sk + l - ls + k$.

Equation 4 meets economic intuition, which would suggest that productive firms (with lower α) in markets with higher demand and lower factor costs tend to be larger in terms of capital.

The least productive firm determines the minimum capital required to enter the market is $K_j^{Dom}(\bar{\alpha})$. Firms that enter the market and discover that their productivity is such that the capital is lower than $K_j^{Dom}(\bar{\alpha})$ do not produce in that market.

3.2.1 Foreign entry

Now let a foreign firm from country i enter the market in country j with an affiliate that uses headquarter's blueprints to produce product l with domestic capital and labor. The only difference between a domestic and a foreign firm is that management is needed to translate blueprints and communicate with the headquarters.

In this setup, the affiliate incurs in a marginal cost of:

$$\omega_{ij}^{FDI}(\alpha) \equiv \alpha(\bar{w_{ij}}S + r_j K + w_j L) \tag{5}$$

where $\bar{w_{ij}}$ is the cost of high-skilled management that translates headquarter's blueprints to local low-skilled workers. We assume that this specific skill-set is relatively less abundant, meaning that $\bar{w_{ij}} > \bar{w}_j$. Intuitively, the affiliate requires managers with certain translation abilities and face high search and attrition costs. Conversely, low-skilled labor is sourced locally from a pool of workers with similar characteristics.

Therefore the problem of the affiliate yields an optimal capital of:

$$K_{ijz}^{FDI} = \left(\frac{\bar{w}_j}{\bar{w_{ij}}}\right)^{\frac{s}{1-\eta}} K_{jz}^{Dom}. \tag{6}$$

Lets assume that $\bar{w_{ij}}$ comes in the from of iceberg costs $\psi_{ij} > 1$ with respect to local wages $\bar{w_{ij}} = \psi_{ij}\bar{w}_j$. Therefore, we can express the capital in terms of the minimum capital to enter the market as:

$$K_{ijz}^{FDI} = \left(\frac{1}{\psi_{ij}}\right)^{\frac{s}{1-\eta}} \left(\frac{\bar{\alpha}}{\alpha}\right)^{\frac{1}{1-\eta}} K_j^{Dom}(\bar{\alpha}), \tag{7}$$

Equation (7) imposes a productive threshold of $\alpha^* = \frac{\bar{\alpha}}{\psi_{ij}^s}$. Therefore, in line with ample empirical evidence, for the same level of capital, foreign entry imposes a productivity markup. Our model offers a new insight: the higher productivity of foreign entrants holds only for skill intensive sectors. In other sectors that rely exclusively on low skilled labor and capital ($s \to 0$), foreign and domestic capital and productivity are equal (for example a farm).

3.2.2 Multiple firms

The capital investment is defined as the sum of the capital invested from the most productive firm $\underline{\alpha}$ to the least productive of foreign firms firm α^*.

$$\tilde{K_{ij}} = N_i \int_{\underline{\alpha}}^{\alpha^*} K_{jz}^{FDI} \frac{g(\alpha)}{G(\alpha^*)} d\alpha = \\ = N_i K_j^{Dom}(\bar{\alpha}) \left(\frac{1}{\psi_{ij}}\right)^{\frac{s}{1-\eta}} \int_{\underline{\alpha}}^{\alpha^*} \left(\frac{\bar{\alpha}}{\alpha}\right)^{\frac{1}{1-\eta}} \frac{g(\alpha)}{G(\alpha^*)} d\alpha, \quad (8)$$

where N_i is the total number of firms in country i.

To calculate the foreign capital invested by foreign firms, we follow the assumptions of Helpman et al. (2008), which where adapted for FDI in Cuadros et al. (2016), to obtain a log-linear and estimable equation from (8):

$$FDI \equiv \ln \tilde{K_{ij}} \quad = \quad n_i + k_j - \frac{s}{1-\eta} \ln \psi_{ij} + \omega_{ij}, \quad (9)$$

where $n_i = \ln N_i$ and $n_j = \ln K_j^{Dom}(\bar{\alpha})$ are home and host country fixed effects, respectively, and parameter ω controls firm selection as in Helpman et al. (2008). Equation 9 is effectively a gravity equation for foreign capital, where the total foreign capital investment is the result of home fixed effect (the number of firms or the country's economic mass), a host fixed effect (minimum capital requirements determined by host's factor endowments and demand via prices), a bilateral transaction cost (related to high-skilled labor costs) and a selection into investing mechanism.

3.3 Migration

To obtain an empirical equation that allows us to estimate equation 9, we must parametrize adequately ψ_{ij}. Affiliates need to hire skilled labor which is able to translate headquarters blueprints. Consequently, the parameter ψ_{ij} captures wage

differences and communication costs between the affiliate and headquarters. The assumption that $\psi_{ij} > 1$ comes from both higher search and distance costs. The standard approach is use distance as a proxy for transaction costs. Let's assume that the firm pays management a markup over home salaries that depends on distance to the headquarters $\bar{w}_{ij} = d_{ij}^{\upsilon}\bar{w}_i$, where $\upsilon > 0$ is the foreign distance-wage elasticity. Then,

$$\psi_{ij} = d_{ij}^{\upsilon}\frac{\bar{w}_i}{\bar{w}_j}.$$

Unfortunately, high-skilled wage differentials are not directly observable to the econometrician. However, high-skill labor mobility has an effect on wage differentials and is directly observable. Given a downward-sloping of labor demand curve, an increase in supply should be expected to lower wages. Recent studies suggest that the wage effects of migrants affect particularly wages of previous migrants (Borjas, 2017; Ottaviano & Peri, 2012). Therefore, allowing for labor mobility between country pairs, an increase of the share of high-skilled i-born workers (with management skills) in country j is expected to reduce ψ_{ij} as these skills become more abundant. The intuition being that the affiliate faces lower communication and labor search costs when the supply the supply of management skills (who can intermediate between headquarters and affiliate) is higher. Therefore,

$$\psi_{ij} = \frac{d_{ij}^{\upsilon}}{e^{\bar{m}_{ij}\cdot\epsilon_{ij}}} \tag{10}$$

where $\bar{m}_{ij}$ is the share of high-skilled migrants and ϵ is a stochastic error term.

Therefore an empirical equation to estimate is:

$$FDI = n_i + k_j - \frac{s\upsilon}{1-\eta}\ln d_{ij} + \frac{s}{1-\eta}\bar{m}_{ij} + \omega_{ij} + \epsilon_{ij}. \tag{11}$$

From equation 11, our expectations are that an exogenous increase in the share

of high-skilled migrants should increase bilateral FDI as management skills become relatively more abundant. Conversely, a decrease in this share (i.e., increase in low-skilled immigrant share) reduces the relative ratio of management skills and should affect negatively the volume of bilateral FDI.

It is interesting to note that parameter ψ_{ij} affects both the capital invested (intensive margin) and the productivity threshold (extensive margin). Therefore we should expect that an increase in high-skilled migration reduces the productivity threshold α^*. Therefore, we should expect that high-skilled bilateral migration has a positive effect both on the number of foreign firms and on the their capital investment volumes.

4 Data and Econometric Specification

A naïve gravity augmented empirical gravity equation of (9) would have the for

$$lnFDI_{ijt} = \beta gravity_{ijt} + \beta_2 \ln manager_{ijt} + \gamma_{it} + \gamma_{jt} + u_{ijt} \quad (12)$$

where FDI_{ijt} is the aggregate capital expenditure on foreign projects from country i to country j in year t; $gravity_{ijt}$ is a standard set of gravity control variables specified in Table 2; $manager_{ijt}$, represents the stock of people born in country i working in country j as managers. Lastly, γ refers to country-year fixed effects to control for multilateral resistance (time-varying third-country effects) and u is an stochastic error term. The FDI source country (i) matches the migrant's country of origin; and the FDI recipient country (j) is the migrant's host country.

The baseline gravity equation (12) suffers from several biases. In first place, omitted variable bias occurs since we do not control for other types of job skills. Therefore, an appropriate empirical specification should simultaneously control for

all types of migration. Inferences from regressions that introduce separately the two types of migrants are difficult to interpret. For example, one cannot be sure that a positive sign on low-skilled migration can be a confounding effect of increasing high-skilled migration.

The second set of potential biases are related to the gravity specification of (12). The log version of the gravity equation has a self-selection bias, which stems from the omission of zeros. Additionally, the estimation of FDI capital expenditure flows suffers a potential over-aggregation bias. We adopt different empirical strategies to hedge against these empirical issues. Silva & Tenreyro (2015) show that Helpman et al.'s (2008) two-stage estimation imposes overly strict homoscedasticity restrictions on the error term. Alternatively, the authors show that the simpler Pseudo-Poisson Maximum Likelihood (PPML) method yields similar results to the two-step procedure. To overcome this issue, we use a non-linear variant of the gravity equation in line with that proposed by Silva & Tenreyro (2006), which does not require a log-linearization[2]. Therefore, we use the following non-linear specification for the intensive margin[3]:

$$FDI_{ijt} = \exp\left(\begin{array}{c} \beta gravity_{ijt} + \\ \beta_2 \ln manager_{ijt} + \beta_3 \ln professional_{ijt} + \beta_4 \ln nonqual_{ijt} + \\ \gamma_{it} + \gamma_{jt} \end{array}\right) + u_{ijt} \tag{13}$$

where $professionals_{ijt}$, and $nonqual_{ijt}$ represent the stock of people born in *country* i working in country j as managers, professionals and non-qualified workers respect-

[2]Additionally, we can observe directly the extensive margin with firm-level data. Therefore, we can observe directly the selection mechanism $\omega_{ij}$of our empirical equation.

[3]The equation for the extensive margin follows the same specification, but substituting the left hand-side variable for the number of firm-level projects N_{ijt}

ively[4].

Table (2) describes the gravity controls and the source of each variable. Table (3) reports the descriptive statistics and correlations of the data. As in similar studies, the migrant source data is taken from the DIOC-E database on immigrants in OECD and non-OECD countries (Dumont & Widmaier, 2010), which constrains the analysis to a cross-section of 91 source countries and 24 host economies (the complete list is reported in the Appendix). The DIOC-E provides information about the percentage of migrants in occupations such as business directors or managers, who are more directly related to the creation of international linkages and investment opportunities abroad.

[Table 2 about here.]

[Table 3 about here.]

The migrant data refer to the year 2001 and 2004 and provide information about migrants' job positions. As in similar studies, we apply a three-year lag (2004 and 2007) to the FDI data to reduce the potential bias of reverse causality (Bratti et al., 2014; Peri & Requena-Silvente, 2010). We apply also several instrumental variable techniques to rule out potential endogeneity bias.

Certain aspects of the data on the stock of migrants should be noted. DIOC-E uses the standard 2-digit ISCO-88 classification for all but three countries (Argentina, Turkey and the United States). In order to keep the United States in the sample, categories from ISCO-88 and US were aggregated up to the three broad groups used in equation (13): non-qualified, non-managerial qualified and managers. It is worth emphasizing two issues regarding these categories. First, ISCO-88 categories are defined by the skills required for each job regardless of the way those skills were

[4]With this specification, we are controlling of the share of each skill group in line with our model.

acquired. Second, the categories refer to the tasks associated with the job rather than the employer/employee status of the person carrying them out. More specifically, the three categories defined by aggregating the 2-digit ISCO-88 are described in Table (4).

[Table 4 about here.]

In Table 5 we list the host countries in the sample and some statistics about the distribution of migrants in the different job positions by countries of origin. The distribution of migrants across job positions is fairly even across countries, with approximately 12% of migrants working in managerial positions (on average), 30% as professionals and almost 60% in non-qualified jobs. These figures hold remarkably well for migration flows from the investing country towards the FDI recipient country but also for flows in the opposite direction.

[Table 5 about here.]

We estimate equation (13) using Silva & Tenreyro's (2006) PPML estimator for both the intensive (FDI flows) and the extensive margin (number of projects). The PPML estimator is a way of dealing with known gravity estimation issues such as the presence of zeros in the dependent variable and heteroscedasticity. The dataset is unbalanced with 70% zeros. Therefore, we follow Paniagua (2016) to construct efficient gravity datasets with many zeros. Additionally, we control for firm size with the the quantile regression method of Paniagua et al. (2015).

5 Results

The gravity estimates reported in Table 6 constitute our baseline results. The first four columns show the results for aggregate FDI flows (intensive margin) and the last four are those corresponding to the explanation of the extensive margin.

[Table 6 about here.]

We start by analyzing the determinants of the investment decision (extensive margin). Our results are consistent with those obtained by previous studies estimating a gravity equation for FDI. The market size has the standard positive effect on the dependent variables, whereas geographical obstacles such as distance and one of the countries being landlocked display a standard negative impact (however, sharing a border is not relevant). On the cultural side, the investment decision is positively affected by the existence of a common language or past political links such as a former colonial relationship. Finally, the existence of bilateral agreements displays heterogeneous effects[5]. The outcomes for the intensive margin are quite similar to those of the extensive margin, although the impact of distance seems less clear in this case, and the common language is not significant in any case.

Next, we focus on the results obtained for our variable of interest: the effects of migrants occupying different job positions. The three considered categories are included separately for both the intensive and the extensive margin equations. According to our model, migrant with particular job skills foster FDI. In this sense, the results in Table 6 fit our expectations: The number of migrants with management and professional skills is highly significant for the intensive margin of the FDI. The highest impact comes from management skills, followed by professionals. A similar pattern can be observed in the estimates for the extensive margin, as expected.

Finally, our outcomes shows that low-skilled workers born in i also contribute positively to the volume of FDI (intensive margin), but they do not affect the number of investment projects (extensive margin). These results, however, do not control for job skill composition adequately since we do not include the number of migrants in the rest of job categories. More specifically, the positive result for the impact of the

[5]Paniagua et al. (2015) explain that the negative effect of BIT is explained by firm-heterogeneity bias. To overcome this bias, the authors develop a quantile regression procedure.

stock of non-qualified migrants on FDI might reflect the (omitted) positive effect of managers and/or professionals[6]. The inclusion of all three variables simultaneously in columns 4 and 8 reveals that migrants on non-qualified positions affect negatively FDI at both margins. To rule out confounding effects, we re-estimate our baseline model controlling for the aggregate migrant stock in the remaining positions. This specification amounts to analyze the impact of the share of each job category. The results are displayed in Table 7 only for our variables of interest.

[Table 7 about here.]

Some interesting differences appear now in Table 7. On the one hand, managers are always significant and positive, whereas the remaining migrants are not significant (in the intensive margin, column 1) or display a negative sign (in the extensive margin, column 2). These results confirm our hypothesis regarding the key role of migrants with management skills. In contrast, migrants working in non-qualified jobs always show a negative impact on both margins, whereas migrants in other jobs still present a positive impact, which is consistent with our results in columns (1) and (4). Professionals are significant only for the extensive margin (column 5), whereas the addition of managers and non-qualified jobs is not significant in both cases, which is unsurprising given the heterogeneity of this aggregation.

This negative effect of non-qualified migrants on FDI, which is not new in the literature (as shown in the literature review in Table 1) is compatible with our model. Other things equal (including skilled migrants), an increase of non-qualified migrants results in a decrease in the share of managers and professionals. From another angle, pairs of countries where the share of migrants in managerial positions is higher have on average higher levels of FDI. At the same time, increasing the share of non-

[6]As the number of individuals from country i working in country j is distributed across all the job positions, all of them might increase or decrease simultaneously in this specification.

qualified migrants reduces by definition the share of management and professional skills, increasing their cost. As discussed earlier this cost stems from scarcity but also from difficulties in identifying migrants endowed with informational skills (managers and, to a lesser extent, professionals). It is precisely the shift in the skills composition what affects FDI. Our interpretation allows a better understanding of earlier puzzling results, for which previous studies had offered explanations that were ad-hoc at best[7].

We aim to confirm this effect by directly testing the impact of the share of the different categories of migrants on both the extensive and the intensive margins of FDI. In our next set of estimates, displayed in Table 8, we follow Aleksynska & Peri (2014) and Javorcik et al. (2011) and introduce separately shares of managers, professionals and non-qualified migrant together with the total stock of migrants. This latter variable absorbs omitted variables that affect both FDI and total migration, so the direct effect of skilled migrants (e.g., business networks) on FDI can be singled out[8].

[Table 8 about here.]

A noticeable outcome from Table 8, is that the stock of migrants coming from the investing country is significant in all cases, as is the share of skilled migrants (managers and professionals)[9]. As in our previous result, the share of non-qualified migrants has a negative effect over the total migrant stock, confirming the existence

[7]According to Flisi & Murat (2011), this negative relationship could be interpreted as a substitution effect between low-skilled migrants and FDI abroad. In a previous version of that work, the authors stated that this negative sign could be reflecting the preference of the firms from the migrants' countries of origin to invest in countries with a greater presence of skilled nationals and business networks. Gheasi et al. (2013) also report a negative influence of low-skilled migrants, albeit with no convincing explanation.

[8]Additionally, this specification allows us to distinguish between Mundra's (2010) information and demand channels. Thus, the migrant's share measures the information channel. The migrant stock controls for the demand channel, by which FDI can be attracted by the demand for goods and services from the country of origin of migrants created by the stock of migrants from this country.

[9]This evidence is compatible with the existence of the demand and information channels aforementioned.

of the composition effect mentioned above.

Additionally, migrants born in country j but living in country i can also provide useful information to potential investors (see Cuadros et al. (2016); Javorcik et al. (2011) among others). To check this hypothesis, we introduce the variable (Migrants $j \rightarrow i$) by relying on the specification already used in Table 7. The new outcomes appear in Table 9. As can be seen, in the case of the intensive margin, the new variable is only significant in column (1), where we analyze the impact of managers vs. the other job positions. However, this variable is significant and shows a positive sign in all the estimations for the extensive margin. In other words, the information provided by these migrants facilitates the decision to invest in their countries of origin, but it is less likely to affect the amount of the investment (let us label this an information effect).

[Table 9 about here.]

With regard to the job categories indicators, the results obtained after the inclusion of this indicator do not deviate qualitatively from those displayed in Table 7, as they retain their sign and significance. However, in quantitative terms, the impact of all the indicators reduces significantly. This latter effect suggests that the skill premium of i-born migrants becomes less once the information provided by j-born migrants is taken into account.

Our model predicted that the effect of migrant manager share would only be perceptible is sectors with an intensive use of high-skilled inputs ($s \gg 0$). Our database allows us to check whether the previous results vary across activities that receive investment. We should expect a higher impact of migrants in those activities that make an intensive use of high-skilled workers. Thus, we split our dependent variable into four possible activities at which the investment project might be targeted: Manufacturing, Sales, Construction and Services. As becomes clear from the outcomes

displayed in Table 11, most of the impact of migrants centers on two types of activity: Manufacturing and Sales. Management skills still have a positive impact on FDI flows in those activities, where the dissuasive effect of more migrants in non-qualified jobs is also observed. Professional skills only have a significant impact on FDI in sales (where it is even higher than that of managers). There is no significant effect on FDI in either construction or in services, with the latter being sensitive to the presence of migrants from the FDI host country (Migrants j→i).

These results seem plausible: on the one hand, the construction activity appears to have less intensive requirements for non-official information about local conditions; on the other hand, services constitute an activity too heterogeneous to obtain a more conclusive outcome. As pointed out by Bouquet et al. (2004), service multinationals seem to face unique challenges when expanding abroad. Because many services are people-centered, differences between employees in terms of skills, education or specialized knowledge create considerable variance in performance when it comes to the provision of services.

[Table 10 about here.]

It it is a reasonable to expect that the effect of skilled migrants will depend on firm size. To control for this source of heterogeneity, we rely on investment volume, which is likely to be associated with the size of the investing firm. We employ on quantile regressions, which are appropriate for the estimation of skewed data such as that on international trade (Baltagi & Egger, 2016; Machado et al., 2016) and FDI (Myburgh & Paniagua, 2016; Paniagua et al., 2015). We follow Baker's (2014) procedure to fit a censored quantile regression model, with investments considered separately depending on the amount invested (i.e., only accounting for the intensive margin) and the results conditional on the values of the migration indicator. The

results are presented in Table 10. We use the set of regressors displayed in Table 4, including Migrants $j \rightarrow i$ as control.

[Table 11 about here.]

As expected, managers have a higher impact on the lowest levels of FDI, populated by smaller firms. The positive effect of managers decreases with FDI quantiles, while the negative effect of low-skilled migrants increases (becomes more negative) Accordingly, we also observe a decrease in the negative impact of low-skilled migrants. This opposing trend is in line with our model where the negative effect of low-skilled migrants is due to the migrant job skills' composition. Therefore, in those levels of FDI where management skills have less of an impact, the negative effect of low-skilled migrants surfaces as a consequence of the relative composition of migrants' jobs skills.

5.1 Endogeneity

Our econometric specification, where the FDI is measured in flows and migration is lagged stocks, should reduce the possibility of endogeneity bias. To rule the concern of double causality in our estimates, we perform several additional tests based on an instrumental variable approach. Several studies that deal with migrant endogeneity have sought different instruments like passport costs (Hatzigeorgiou, 2010), dual citizenship (Mundra, 2014) and ancestors (Burchardi et al., 2016). We use these instruments in a step-wise manner that allows us to differentiate between skilled (managers and professionals) and non-skilled migrants.

Current migration stock of skilled and non-skilled migrants relates to ancient migration patterns (Burchardi et al., 2016; Card, 2001; Peri & Requena-Silvente, 2010). However, ancient migration distribution should have a weak relationship with

present FDI flows. Therefore, we use as an instrument for all occupational categories the proportion of the ancestors in 1500 defined as the share of the year 2000 population in every host country (Putterman & Weil, 2010). We also add as an instrument for all migrant types a dummy variable which captures the possibility that the home country allows for dual citizenship as in Mundra (2014). To differentiate between skill endowments, in addition to ancestors and dual citizenship, we instrument non-qualified workers with passport costs as a percentage of gross national income (Hatzigeorgiou, 2010). Passports might be a strong barrier for the low-income level migrants but not for managers and professionals.

[Table 12 about here.]

The results are shown in Table 12. The instrumental variable two-set least-squares (IV-2SLS) regression results do not deviate substantially from our previous standard regression results. The Hansen J statistic suggests that risk of over-identification is relatively low (except for professionals in the extensive margin). The signs and relative magnitudes of the estimated coefficients for the different occupation are in line with our expectations both in the extensive and extensive margins. Management skills have a positive and significant effect on FDI which is bigger than the effect of professionals. Non-qualified migrants have a negative and significant effect on FDI, after controlling for other job skills.

6 Concluding remarks

This paper disentangles some unexplored mechanisms behind the migration-FDI nexus. Our study reveals that job skills are relevant to analyze the impact of migration on FDI flows.

Our findings show that migrants with management skills exert a positive and significant influence on both the extensive and the intensive margins of FDI. Professional skills are also relevant, especially for the extensive margin. Therefore, a more efficient way to organize multinational production across locations might be to hire talented migrant workers with managerial and professional skills.

We showed the relevance of controlling for investment level and activity as well as endogeneity. Our analysis reveals that the observed effects are larger on the lower levels of FDI, populated by smaller investment projects, where management skills might be more useful. This is the case for affiliates with activities dedicated to manufacturing and sales.

One of the main novelties of our analysis is to provide a rationale for the puzzling negative effect of non-qualified migrants on FDI. This negative effect is only perceptible after controlling for the rest of job skill-sets, suggesting that the marginal effect of non-qualified migration is explained by a change in the job skills composition. An appropriate sterilization policy seems straight forward: policy-makers should foster high-skilled migration.

Appendix

[Table 13 about here.]

Acknowledgments

The authors gratefully acknowledge financial support from the Ministerio de Economía y Competitividad (ECO2011-27619; ECO2014-58975; ECO2015-68057-R), Pla de Promoció de la Investigació, Universitat Jaume I (P1.1B2013-22) and Generalitat Valenciana (GV/2017/052). They are also indebted to valuable comments

from Antonio Navas.

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Table 1: Literature review summary

STUDY	COUNTRY / PERIOD	MAIN RESULTS
Kugler & Rapoport (2007)	United States1990 and 2000	Higher unskilled emigration in 1990 is associated with higher growth of total FDI inflows over the following decade. **Negative impact for migrants with secondary education in the manufacturing sector**
Docquier & Lodigiani (2010)	Cross section 114 countries. Panel data/ 83 countries	Strong network externalities mainly associated with the skilled diaspora
Ivlevs & De Melo (2010)	1990-2000 103 migration sending countries	If exports are low skill intensive, emigration of high-skilled labour leads to positive FDI
Flisi & Murat (2011)	Immigrant networks for France, Germany, UK, Italy and Spain	Skilled immigrants increase bilateral FDI in UK, France and Germany. In Italy and Spain, FDI is influenced by their emigrant diaspora network. **Negative impact for unskilled migrants**: substitution effect between low-skilled immigration and investment abroad
Javorcik et al. (2011)	United States 1990 and 2000	Outward FDI (stock) positively related with the presence of migrants in US (stock). Stronger effect for the share of tertiary educated migrants
Leblang (2011)	26 OECD reporting countries and 120 destination countries 2000 and 2001	Migrant networks encourage cross-border investments (FDI and portfolio). The effect on FDI is substantially larger. Stronger for migrants with tertiary education
Foad (2012)	50 US states, 10 source countries 1990 and 2000 for immigration	Presence of immigrants leads to new FDI from immigrants native countries. This effect is stronger for skilled migrants and might take a few years to occur
Gheasi et al. (2013)	United Kingdom 2001-2007	FDI abroad positively related with the presence of migrants. More educated migrants have a higher positive effect on FDI. **Negative impact of low-skilled migrants on FDI**
Tomohara (2017b)	Japan 1996-2011	FDI inflows become more dominant compared to imports when skilled immigration flows increase and less dominant when unskilled immigration flows increase
Tomohara (2017a)	Japan 1996-2011	**Contemporaneous negative relationship between of low skill migration on FDI**

Table 2: Variable description and sources

Variable	Description	Source
FDI_{ijt}	Intensive margin: Aggregate bilateral greenfield investments	FDIMarkets
N_{ijt}	Extensive margin: Number of investment projects (firm-level)	
$\ln(Y_{it} * Y_{jt})$	Logarithm of the gross domestic products of home and host countries respectively	World Bank
D_{ij}	Distance in kilometres between country capitals	
$border_{ij}$	Takes the value 1 when countries share a common border, and 0 otherwise	CEPII
$lang_{ij}$	Takes the value 1 if both countries share the same official language	
$colony_{ij}$	Takes the value 1 if the two countries have ever had a colonial link, and 0 otherwise	
$locked_{ij}$	Number of landlocked countries in the pair (0,1,2)	
FTA_{ijt}	Is a dummy that indicates whether both countries have a free trade agreement in force	UNCTAD
BIT_{ijt}	Is a dummy that takes the value of 1 if the country pair has a bilateral investment treaty in force	
$manager_{ijt}$	Stock of manager migrants	
$professionals_{ijt}$	Stock of professional migrants	OECD
$nonqual_{ijt}$	Stock of non-qualified migrants	
$migra_{ijt}$	Total migration defined as $migra_{ijt} = manager_{ijt} + professionals_{ijt} + nonqual_{ijt}$	

Table 3: Descriptive statistics and correlations

	mean	sd	FDI_{ij}	Nij	$\ln(Y_i \cdot Y_j)$	$\ln(D_{ij})$	$border_{ij}$	$lang_{ij}$	$colony_{ij}$	$locked_{ij}$	BIT_{ij}	FTA_{ij}	$manager_{ij}$	$professionals_{ij}$
FDI_{ij}	115.35	84.99	1											
Nij	1.40	1.14	0.388***	1										
$\ln(Y_i \cdot Y_j)$	27.31	1.40	0.162***	0.368***	1									
$\ln(D_{ij})$	8.33	1.00	-0.002	-0.027	0.281***	1								
$border_{ij}$	0.06	0.24	0.076**	0.146***	-0.036	-0.473***	1							
$lang_{ij}$	0.16	0.36	0.039	0.120***	0.053	0.053	0.180***	1						
$colony_{ij}$	0.05	0.21	0.049	0.155***	0.064*	0.015	0.117***	0.357***	1					
$locked_{ij}$	0.26	0.47	-0.037	-0.029	-0.025	-0.065*	0.060*	0.039	0.010	1				
BIT_{ij}	0.37	0.48	-0.075**	-0.091**	-0.167***	-0.093***	-0.029	-0.147***	0.081**	0.058	1			
FTA_{ij}	0.24	0.42	-0.028	-0.030	-0.309***	-0.739***	0.252***	-0.0821**	-0.064*	0.036	0.024	1		
$manager_{ij}$	5.35	2.50	0.142***	0.270***	0.572***	0.050	0.215***	0.363***	0.280***	0.013	-0.182***	-0.116***	1	
$professionals_{ij}$	6.81	2.70	0.126***	0.241***	0.528***	0.006	0.242***	0.347***	0.277***	0.019	-0.191***	-0.110***	0.954***	1
$nonqual_{ij}$	6.11	2.78	0.112***	0.195***	0.510***	0.050	0.214***	0.304***	0.261***	0.022	-0.185***	-0.156***	0.918***	0.962***

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: 2-digit ISCO-8

variables	2-digit ISCO-8
manager	Legislators, senior officials and managers
professional	Professionals
	Technicians and associate professionals
	Skilled agricultural and fishery workers
	Craft and related trade workers
	Plant and machine operators and assemblers
nonqual	Clerks
	Elementary occupations

Table 5: Migrant shares in the sample

	Emigrants ($i \to j$)				Immigrants ($j \to i$)			
Country (i)	Total	Managers	Professionals	Non-qual	Total	Managers	Professionals	Non-qual
Australia	0.03	0.16	0.22	0.62	0.24	0.08	0.28	0.64
Austria	0.04	0.12	0.25	0.63	0.14	0.09	0.34	0.57
Belgium	0.04	0.14	0.22	0.63	0.10	0.20	0.22	0.57
Canada	0.05	0.14	0.33	0.52	0.21	0.10	0.24	0.66
Switzerland	0.07	0.14	0.25	0.60	0.25	0.06	0.51	0.43
Czech Rep	0.02	0.11	0.26	0.63	0.04	0.15	0.23	0.62
Denmark	0.03	0.16	0.27	0.58	0.06	0.01	0.61	0.38
Spain	0.02	0.14	0.30	0.55	0.07	0.10	0.39	0.50
Finland	0.06	0.07	0.31	0.62	0.02	0.02	0.43	0.55
France	0.03	0.13	0.27	0.59	0.09	0.14	0.22	0.64
UK	0.07	0.15	0.24	0.60	0.09	0.16	0.29	0.55
Greece	0.06	0.14	0.43	0.43	0.14	0.11	0.36	0.53
Hungary	0.04	0.11	0.29	0.60	0.03	0.14	0.22	0.65
Ireland	0.21	0.15	0.31	0.54	0.12	0.13	0.32	0.54
Italy	0.05	0.11	0.37	0.52	0.05	0.10	0.33	0.57
Luxembourg	0.09	0.13	0.25	0.63	0.43	0.10	0.28	0.62
Mexico	0.12	0.03	0.57	0.40	0.00	0.19	0.30	0.50
Netherlands	0.03	0.17	0.22	0.61	0.10	0.04	0.30	0.66
New Zealand	0.17	0.13	0.26	0.62	0.20	0.12	0.32	0.56
Poland	0.07	0.04	0.34	0.62	0.01	0.13	0.14	0.73
Portugal	0.15	0.10	0.33	0.57	0.09	0.12	0.29	0.60
Slovakia	0.08	0.08	0.27	0.65	0.03	0.13	0.25	0.62
Sweden	0.02	0.14	0.31	0.55	0.11	0.03	0.50	0.48
United States	0.00	0.16	0.17	0.67	0.14	0.09	0.42	0.50

Table 6: Results (CYFE)

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\ln(Y_{it} * Y_{jt})$	0.717***	0.797***	0.814***	0.693***	0.793***	0.835***	0.860***	0.762***
	(0.17)	(0.14)	(0.15)	(0.17)	(0.13)	(0.11)	(0.12)	(0.10)
$\ln D_{ij}$	-0.391*	-0.320	-0.358	-0.371	-0.381***	-0.396***	-0.354**	-0.298**
	(0.23)	(0.21)	(0.23)	(0.27)	(0.13)	(0.13)	(0.14)	(0.14)
$border_{ij}$	0.050	0.060	0.154	0.108	-0.039	-0.138	0.045	0.067
	(0.32)	(0.33)	(0.35)	(0.33)	(0.23)	(0.22)	(0.26)	(0.20)
$lang_{ij}$	0.003	0.058	0.187	-0.075	0.138	0.183	0.370*	0.072
	(0.26)	(0.25)	(0.27)	(0.28)	(0.21)	(0.21)	(0.22)	(0.20)
$colony_{ij}$	1.007***	1.079***	1.084***	0.930***	0.793***	0.800***	0.875***	0.695***
	(0.27)	(0.28)	(0.29)	(0.28)	(0.26)	(0.26)	(0.30)	(0.19)
$smcntry_{ij}$	0.339	0.642	0.671	0.404	0.735	0.929	1.080*	0.765
	(0.71)	(0.74)	(0.74)	(0.74)	(0.60)	(0.63)	(0.56)	(0.62)
$locked_{ij}$	-0.580***	-0.605***	-0.558***	-0.539**	-0.442***	-0.434***	-0.417***	-0.428***
	(0.20)	(0.21)	(0.22)	(0.21)	(0.12)	(0.12)	(0.12)	(0.11)
BIT_{ijt}	-0.797***	-0.909***	-0.901***	-0.684***	-0.752***	-0.774***	-0.698***	-0.635***
	(0.23)	(0.22)	(0.23)	(0.23)	(0.15)	(0.15)	(0.15)	(0.14)
FTA_{ijt}	0.273	0.447	0.391	0.260	0.051	0.037	0.110	0.064
	(0.61)	(0.52)	(0.57)	(0.69)	(0.33)	(0.32)	(0.31)	(0.35)
$\ln manager_{ij}$	0.245***			0.446*	0.173***			0.393**
	(0.07)			(0.23)	(0.07)			(0.16)
$\ln professionals_{ijt}$		0.180***		0.140		0.162***		0.398**
		(0.06)		(0.24)		(0.06)		(0.17)
$\ln nonqual_{ijt}$			0.139**	-0.285*			0.082	-0.539***
			(0.06)	(0.15)			(0.07)	(0.11)
Observations	1021	1066	1041	998	1021	1066	1041	998
R^2	0.620	0.602	0.613	0.639	0.562	0.563	0.589	0.714

Notes: Robust standard errors in parentheses (PPML estimation in levels). Home*year and source*year country fixed effects.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Results controlling for other jobs

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Managers	0.553***			0.636***		
	(0.20)			(0.14)		
Other jobs	-0.133			-0.209***		
	(0.08)			(0.06)		
Professionals		0.257			0.562**	
		(0.24)			(0.22)	
Other jobs		-0.006			-0.190	
		(0.13)			(0.12)	
Non-qualified			-0.325**			-0.539***
			(0.14)			(0.10)
Other jobs			0.313***			0.395***
			(0.08)			(0.06)
Observations	998	998	998	998	998	998
R^2	0.641	0.633	0.638	0.672	0.615	0.714

Notes: Robust standard errors in parentheses (PPML estimation in levels).
Home*year and source*year country fixed effects included.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Occupation shares

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Managers share	0.349***			0.342***		
	(1.17)			(0.71)		
Professionals share		0.235**			0.362***	
		(0.99)			(0.74)	
Non-qualified share			-0.195**			-0.350***
			(0.95)			(0.62)
Total migrant stock	0.234***	0.191***	0.230***	0.163**	0.176***	0.222***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.05)	(0.06)
Observations	1009	1023	1014	1009	1023	1014
R^2	0.612	0.606	0.626	0.578	0.657	0.699

Notes: Robust standard errors in parentheses (PPML estimation in levels).

Home*year and source*year country fixed effects included.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Results controlling for other jobs and other migrants

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Managers	0.583***			0.344***		
	(0.17)			(0.09)		
Other jobs	-0.165			-0.188***		
	(0.10)			(0.07)		
Professionals		0.298			0.354***	
		(0.37)			(0.24)	
Other jobs		0.038			-0.279**	
		(0.15)			(0.11)	
Non-qualified			-0.290*			-0.358***
			(0.15)			(0.09)
Other jobs			0.323***			0.202***
			(0.07)			(0.04)
Migrants j→i	0.137*	0.066	0.077	0.286***	0.166***	0.239***
	(0.08)	(0.09)	(0.08)	(0.06)	(0.06)	(0.05)
Observations	263	263	263	263	263	263
R^2	0.736	0.727	0.732	0.901	0.904	0.913

Notes: Robust standard errors in parentheses (PPML estimation in levels).

Home*year and source*year country fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: FDI by activity

	Manufacturing			Sales			Construction			Services		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Managers	0.626***			0.530***			0.142			-0.001		
	(0.22)			(0.20)			(0.25)			(0.16)		
Other jobs	-0.411***			-0.066			-0.012			-0.064		
	(0.14)			(0.11)			(0.16)			(0.12)		
Professionals		0.412			1.068***			0.891			0.244	
		(0.55)			(0.41)			(0.58)			(0.42)	
Other jobs		-0.200			-0.171			-0.287			-0.167	
		(0.25)			(0.17)			(0.25)			(0.20)	
Non-qualified			-0.716***			-0.283*			-0.174			-0.114
			(0.23)			(0.16)			(0.21)			(0.17)
Other jobs			0.321***			0.387***			0.155			-0.008
			(0.12)			(0.11)			(0.13)			(0.08)
Migrants j→i	0.251	0.078	0.169	0.782***	0.613***	0.702***	0.224	0.129	0.212	0.589***	0.554***	0.582***
	(0.16)	(0.20)	(0.16)	(0.16)	(0.16)	(0.16)	(0.18)	(0.16)	(0.15)	(0.16)	(0.17)	(0.16)
Observations	241	241	241	248	248	248	147	147	147	217	217	217
R^2	0.717	0.706	0.716	0.853	0.869	0.869	0.721	0.725	0.730	0.885	0.885	0.886

Notes: Robust standard errors in parentheses (PPML estimation in levels). Home*year and source*year country fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Quantile regression

	Intensive Margin			
	(1)	(2)	(3)	(4)
	Q(0.25)	Q(0.50)	Q(0.75)	Q(0.90)
Average project size (mUSD):	14	28	61	79
Managers	0.933***	0.818***	0.342***	0.363***
	(0.10)	(0.16)	(0.11)	(0.10)
Other jobs	-0.454***	-0.346***	-0.067	-0.141*
	(0.08)	(0.06)	(0.07)	(0.08)
Migrants j→i	0.677***	0.631***	0.409***	0.483***
	(0.11)	(0.07)	(0.06)	(0.09)
Professionals	0.544***	0.307***	0.544***	0.254*
	(0.11)	(0.08)	(0.08)	(0.13)
Other jobs	0.006	-0.184**	-0.121	0.029
	(0.13)	(0.07)	(0.08)	(0.08)
Migrants j→i	0.596***	0.343***	0.335***	0.485***
	(0.10)	(0.12)	(0.05)	(0.10)
Non-qual	-0.263***	-0.581***	-0.540***	-0.814***
	(0.08)	(0.07)	(0.07)	(0.07)
Other jobs	0.141**	0.430***	0.338***	0.566***
	(0.06)	(0.05)	(0.04)	(0.06)
Migrants j→i	0.621***	0.471***	0.528***	0.333***
	(0.09)	(0.08)	(0.07)	(0.10)
Observations	269	269	269	269

Notes: Robust standard errors in parentheses (Dep variable $\ln(FDI+1)$).

Home*year and source*year country fixed effects included.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Endogeneity

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Managers	3.167***			1.237**		
	(1.02)			(0.49)		
Other jobs	-1.27***			-0.505**		
	(0.41)			(0.20)		
Professionals		1.29*			0.381	
		(0.74)			(0.226)	
Other jobs		-0.620*			-0.190	
		(0.36)			(0.123)	
Non-qualified			-2.699***			-0.883***
			(0.50)			(0.19)
Other jobs			1.466***			0.471***
			(0.27)			(0.10)
Observations	998	998	998	998	998	998
R^2	0.45	0.48	0.23	0.60	0.27	0.27
Hansen J statistic	5.30*	8.5*	5.38*	3.81*	6.82***	4.34

Notes: Robust standard errors in parentheses, clustered by country pair. Dependent variables+1 in logs
Instruments: Ancestors (j), Dual citizenship (i). For non-qual Passport cost (% GNI) is added.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.1: List of Countries

Source countries (i):
Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Belgium, Bangladesh, Bulgaria, Bahrain, Belarus, Bermuda, Brazil, Canada, Switzerland, Chile, China, Colombia, Costa Rica, Cayman Islands, Cyprus, Czech Republic, Germany, Denmark, Dominican Republic, Algeria, Ecuador, Egypt, Spain, Estonia, Finland, France, UK, Greece, Hong Kong, Croatia, Hungary, Indonesia, India, Ireland, Iraq, Iceland, Israel, Italy, Jamaica, Jordan, Japan, Kazakhstan, South Korea, Kuwait, Lebanon, Sri Lanka, Lithuania, Luxembourg, Latvia, Morocco, Mexico, Macedonia, Malta, Malaysia, Nigeria, Netherlands, Norway, New Zealand, Pakistan, Panama, Peru, Philippines, Papua New Guinea, Poland, Portugal, Qatar, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, Sweden, Togo, Thailand, Trinidad & Tobago, Tunisia, Turkey, Taiwan, Ukraine, Uruguay, United Arab Emirates, United States, Venezuela, Vietnam, South Africa.
Host countries (j):
Portugal, Australia, Canada, Switzerland, France, UK, Ireland, Italy, New Zealand, United States, Mexico, Czech Republic, Denmark, Spain, Hungary, Luxembourg, Poland, Sweden, Finland, Greece, Slovakia, Austria, Belgium, Netherlands.