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EMPIRICAL INSIGHTS ON MARKET ACCESS AND FOREIGN DIRECT INVESTMENT

by

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and

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Abstract

Motivations for foreign direct investment (FDI) could be multiple. This paper conducts a general examination of the influence of market access conditions on FDI decisions using a unique data set on bilateral FDI outward stocks and novel measures of market access. We find that over the period 1990–2010, export platform and complex-vertical investment strategies have been driving FDI decisions around the world.

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Contents

List of tables

EXECUTIVE SUMMARY

Over the past 20 years, foreign direct investment (FDI) and trade have expanded significantly. Outward FDI stocks rose almost twice as fast as global exports worldwide. To explain the last two decades of globalization characterized by falling trade and investment costs accompanied by booming exports and FDI flows, recent literature has been considering more complex types of multinationals which are neither purely horizontal nor purely vertical. We extend the usual bilateral FDI empirical framework to include the effects of third countries through market access. This very simple econometric model is able to capture the potential interdependence between FDI decisions across host destinations without resorting to more complicated spatial regressions. Our contribution to the FDI literature is twofold. First our estimates are based on a unique data set in terms of country and time coverage. We use UNCTAD bilateral FDI outward stock data. The latter data set contains stock data for 53 exporting countries and 168 importing countries during the period 1990–2010. Our second contribution stays in the inclusion of detailed market access variables constructed from disaggregated tariff and trade data. Our different measures of market access help us testing the validity of various investment strategies of multinationals. We are able to test the relative importance of horizontal, vertical, export-platform and complex-vertical motivations for FDI. Our empirical results suggest that the predominant forms of FDI have been the export platform and the complex-vertical ones. This is true to a large extent for both types of exporting countries we consider, namely OECD and non-OECD members. However, results observed for country subsamples reveal some heterogeneity in the dominant FDI form. They suggest that FDI from OECD countries and directed to other OECD countries does not necessarily take on a precise form. Results on FDI from OECD countries to non-OECD countries clearly support an export-platform or a complex-vertical form. When exporting countries are non-OECD members, then a vertical-complex or an export platform motivation is the most relevant for non-OECD partners. With regard to OECD partners, such forms of FDI seem also to be consistent with our empirical results although a purely vertical form cannot be excluded. Several robustness checks are implemented. The most important one is the correction of a possible selection bias through the implementation of a two-step estimation procedure à la Heckman.

Our results thus suggest that both the location and the form of FDI can be influenced by trade policy decisions. This is at least what has been observed over the last two decades.

1. INTRODUCTION

Over the past 20 years, foreign direct investment (FDI) and trade have expanded significantly. Outward FDI stocks rose almost twice as fast as global exports worldwide (UNCTAD, 2013). This is in apparent contradiction with the prominent theory of trade and FDI based on the proximity-concentration trade-off (Helpman et al., 2004). According to this theory, firms tend to substitute FDI for exports when transport costs are large and plant-level returns to scale are small. As a consequence, falling trade costs should discourage FDI as the benefits of concentrated production increasingly outweigh the gains from improved market access. On the other hand, models considering vertically integrated enterprises (Helpman, 1984) – which engage in trade and seek to exploit international factor price differentials – are not consistent with the evidence showing that the bulk of FDI flows are concentrated in developed countries and take place among similar high per capita income countries (Bergstrand and Egger, 2010).

To explain the last two decades of globalization characterized by falling trade and investment costs accompanied by booming exports and FDI flows, recent literature has been considering more complex types of multinationals which are neither purely horizontal nor purely vertical. In all these models, the standard two countries by two factors setting has been extended to explain FDI and trade complementarity to changes in factor endowments and market access.

In this literature, multinationals' complex (or complex-vertical) integration strategies create dependence between the level of FDI in one country and the characteristics and policies of its neighbours, having important implications for the structure of FDI across countries (Yeaple, 2003). As a consequence, access to local as well as to third markets becomes a key determinant of FDI. For example, Motta and Norman (1996), Raff (2004) and Neary (2002, 2008) elaborate theoretical models predicting that when countries integrate regionally, they boost their attractiveness for investors by increasing the size of their market. Under so-called export platform investments, firms engage in FDI into the host country and also export from there to the partner countries or back to the home country (Elkholm et al., 2007; Mukherjee, 2012). Thus, in contrast to the proximity-concentration hypothesis, trade cost reduction may increase FDI and exports.

Recent empirical work confirms that exports and FDI flows are driven by a "common process" (Bergstrand and Egger, 2007, 2010). However, results on their determinants and in particular on market access have been more mixed. Blomstroem and Kokko (1997) review the evidence on the impact on FDI of three regional integration agreements – United States-Canada Free Trade Agreement, NAFTA and MERCOSUR – and find that while intraregional FDI decreased, extraregional FDI increased. Head and Mayer (2004) find evidence that European market integration in the nineties encouraged Japanese FDI. Similarly, Levy Yeyati et al. (2003) shows a positive average impact of regional integration agreements on bilateral FDI. Elkholm et al. (2007) find that foreign United States affiliates in North America concentrate on home-country export platform while affiliates in Europe concentrate on third-country export platform. Blonigen et al. (2007, 2008), Coughlin and Segev (2000) and Baltagi et al. (2007, 2008) use spatial models to assess the impact of a host country's neighbouring markets on FDI.

Our contribution to the FDI literature is twofold. First, our estimates are based on a unique data set in terms of country and time coverage. While previous studies did focus mainly on the regional integration strategies of developed countries, we are able to verify the importance of market access for a wider set of countries for which factor price differences might still represent a main determinant of investment. We use UNCTAD bilateral FDI outward stock data. The latter data set contains stock data for 53 exporting countries and 168 importing countries during the period 1990–2010. We are thus able to consider different samples of countries on both the exporting and importing sides. This approach allows us to verify the validity of existing FDI theories across differences in geographic characteristics and across different developmental stages. The period covered captures the combined increase of FDI and trade as well as a significant fall in tariffs observed worldwide due to the extension and deepening of the multilateral

trade system and the explosion of regional trade agreements. Our second contribution stays in the inclusion of detailed market access variables constructed from disaggregated tariff and trade data. Our different measures of market access help us in testing the validity of various investment strategies of multinationals. We are able to test the relative importance of horizontal, vertical, export-platform and complex-vertical motivations for FDI. The latter two forms of FDI would involve exports to third markets. However, complex-vertical investment strategies are associated with exports of intermediate inputs to third markets for further processing before being shipped as a final good to the final destination.

Our empirical results suggest that the predominant forms of FDI have been the export platform and the complex-vertical ones. This is true to a large extent for both types of exporting countries we consider, namely OECD and non-OECD members. However, results observed for country subsamples reveal some heterogeneity in the dominant FDI form. They suggest that FDI from OECD countries and directed to other OECD countries does not necessarily take on a precise form. Results on FDI from OECD countries to non-OECD countries clearly support an export-platform or a complex-vertical form. When exporting countries are non-OECD members, then a vertical-complex or an export platform motivation is the most relevant for non-OECD partners. With regard to OECD partners, such forms of FDI also seem to be consistent with our empirical results, although a purely vertical form cannot be excluded. Several robustness checks are implemented. The most important one is the correction of a possible selection bias through the implementation of a two-step estimation procedure à la Heckman.

The remainder of the paper proceeds as follows. In the next chapter we discuss theoretical insights on the possible implications of market access conditions on FDI strategies. Chapter 3 discusses the data and the empirical strategy adopted. Chapter 4 reports estimates and underline the relevance of including market access variables in our set of explanatory variables. Chapter 5 concludes.

2. MOTIVATIONS FOR FDI AND THE ROLE OF MARKET ACCESS: THEORETICAL INSIGHTS

Based on theoretical investigations essentially referred to in the previous section, we briefly review the expected relationship between possible forms of FDI and market access/openness conditions. Four forms of FDI in line with the literature are considered: the classical horizontal and vertical FDI as well as the most recently contemplated export-platform and complex-vertical FDI.

In the horizontal FDI model, investment is motivated by market access and avoidance of trade frictions such as transport costs and import protection in the host country. FDI would thus respond positively to higher trade barriers in any destination country inducing a substitution between trade and investment. This kind of investment is expected to predominate when relative endowments of host and source countries are similar.

Vertical FDI is motivated by international factor price differentials. Accordingly, multinationals invest in low production cost countries and then serve both the domestic and foreign markets. Vertical FDI is considered to be a complement to trade and thus increase if the parent country tariff is reduced. At the same time, the tariff-jumping motivation might still be valid, thereby creating a bit of uncertainty on the sign of the host country tariffs. Theoretical contributions usually adopt scenarios where host country tariffs are not high enough to eliminate the cost advantage coming from the difference in endowments. However, higher tariffs could erode the incentive to invest in labour abundant countries and thus we expect a negative relationship between host country tariffs and FDI, becoming weaker the more similar the countries are in terms of endowments.

Export-platform FDI refers to the situation in which multinationals invest in a country to serve not only the local market and but also to serve the surrounding countries. Market access conditions faced by the host country exporters in neighbouring countries are crucial. Easier access would then translate into increased FDI. Export-platform production facilities could also serve the parent country, and thus the tariff applied by the source country is also expected to be positively correlated to FDI. As usual if the initial host country tariff is high, FDI could be discouraged.

Complex-vertical are the most advanced investment strategies and are motivated by minimization of production cost. Under this type of FDI, also known as fragmentation, multinationals create many production locations specialized in different phases of production. Consequently, third countries' access to the host country and the host country's openness to the rest of the world are definitely important in determining FDI. Predictions on bilateral market access measures are less clear cut, depending in which stage the host country is. For example, for final assemblage countries it might be important to enjoy a low tariff for exporting back to the headquarters country, while for other stages of production market access to third countries might be more relevant.

These theory-based conjectures are summarized in table 1.

Table 1
FDI forms and market access conditions: Expected relationships

FDI type	Tariff in M on goods from X	Tariff in X on goods from M	Openness of M	Market access of M
Horizontal	+	+	0	0
Vertical	-/+	-	0	0
Export-platform	-	-	0	-
Complex-vertical	+/-	+/-	-	-

Note: M refers to the FDI importing country and X to the FDI exporting country.

3. THE EMPIRICAL STRATEGY

Our empirical strategy is based on four core elements. The first consists of a primer data set on bilateral FDI data. The second core element is the elaboration of variables related to market access conditions and based on disaggregated tariff data. The third core element is the inclusion of a set of variables which have become standard determinants of bilateral FDI. The last core element is the estimation of a benchmarked empirical model and the implementation of several robustness checks in line with recent contributions to the empirical literature on FDI.

FDI DATA

The UNCTAD data set includes yearly information on FDI outward stocks for 53 countries in 168 destinations during the 1990–2010 period. The reference unit is thus a country pair observed in year t. This represents the most extensive country-year coverage available. Descriptive statistics computed for our reference sample reveal that the share of bilateral FDI relationships involving exporters from non-OECD countries has increased from 30 per cent in 1990, to 52 per cent in 2010. The share of FDI bilateral relationships involving importers from non-OECD countries however has only increased from 66 per cent to 71 per cent. Moreover, the share of non-OECD bilateral FDI relationships was about 20 per cent in 1990 and jumped to almost 38 per cent in 2010. This has had as an automatic consequence a reduction in the incidence of FDI bilateral relationships among OECD countries out of total FDI bilateral relationships. The financial

crisis of 2008 certainly had an accelerating effect on the composition of FDI country pairs but the tendency towards a rebalancing was already at work before.

Table 2 reports the evolution of the mean and median values of FDI outward stocks at the country pair level for a selection of years. First of all, median values are always much smaller than mean ones. This is an indicator of a possibly strong concentration of FDI outward stocks. Within each country group few countries dominate FDI exports.[1] Looking at the respective evolution of mean and median values this tendency may even have strengthened especially within the non-OECD country group. Mean values have increased significantly for both OECD and non-OECD countries, more than threefold for the former and almost threefold for the latter. The median value has doubled in the case of non-OECD countries and has been multiplied by about 2.9 for OECD countries.

Table 2
FDI outward stock by country of origin
(Millions of United States dollars)

year	X is OECD	FDI outward stock (mean)	FDI outward stock (median)
1990	0	1020	35
1995	0	1171	31
2000	0	1704	24
2005	0	1730	34
2010	0	2893	70
1990	1	2840	274
1995	1	3281	313
2000	1	4879	350
2005	1	6827	409
2010	1	11692	803

Note: "X is OECD" refers to the country group of the exporter (0 means that it is not an OECD country and 1, that it is an OECD country).

MARKET ACCESS VARIABLES

Our novel variables are four different indices of market openness and access in two different versions. All are based on tariffs. Two indices are bilateral, and two are unilateral although bilateral by construction. Bilateral indices measure market access conditions faced by any FDI exporter in a specific destination country and the reverse. Unilateral indices measure the openness of any FDI destination country to imports from the rest of the world and the market access conditions enjoyed by exports from any FDI destination country on international markets. In the wake of Fugazza and Nicita (2013), we consider both absolute and relative measures of market openness and market access.

Absolute measures derive from Anderson and Neary's (1994 and 2003) mercantilist trade restrictiveness index (MTRI) and are directly related to the partial equilibrium simplification developed by Feenstra (1995). This corresponds to a tariff restrictiveness index which provides the uniform tariff rate that yields the same level of imports as the differentiated structure of restrictions. In this paper, we consider four measures that capture direct market access or openness conditions. Both are augmented tariff averages and are bilateral in scope. The first one is the average tariff imposed on exports from the FDI exporting country to the importing one. The

[1] See for instance UNCTAD (2006).

second one is the reverse, namely the average tariff imposed in the source country on exports from the destination country. In the construction of these average tariffs, the aggregation across products takes into account the fact that the imports of some goods may be more responsive than others to a change in tariffs. Intuitively, products where imports are less sensitive to prices (inelastic) should be given less weight because preferential access (a lower tariff) would have a lesser effect on the overall volumes of trade. In formal terms, the average tariff faced by country *j* in exporting to country *k* is

$$avg\_tariff_{jk} = \frac{\sum_{hs} x_{jk,hs} \varepsilon_{k,hs} T_{jk,hs}}{\sum_{hs} x_{jk,hs} \varepsilon_{k,hs}},$$

and the average tariff faced by country *k* in exporting to country *j* is

$$avg\_tariff_{kj} = \frac{\sum_{hs} x_{kj,hs} \varepsilon_{j,hs} T_{kj,hs}}{\sum_{hs} x_{kj,hs} \varepsilon_{j,hs}}.$$

The other two *direct* measures included in our empirical model are unilateral in essence but de facto bilateral. Within each bilateral FDI relationship, the first measure considered represents the average tariff applied by the FDI importing country on exports of goods from the rest of the world excluding exports from the FDI source country. Formally it can be expressed as

$$avg\_tariff^{j}_{ROWk} = \frac{\sum_{hs} \frac{\sum_{i \subset ROW_k, i \neq j} x_{ik,hs} \varepsilon_{k,hs} T_{ik,hs}}{\sum_{hs} x_{ROW_k k,hs} \varepsilon_{k,hs}}}{HS_k}$$

where HS_k is the total number of HS6 products exported to country *k* and subscript ROW_k refers to the set of destinations reached by country *k* exports, excluding country *j*, the FDI exporter.

The second measure represents the average tariff faced by exports from the FDI receiving country to the rest of the world, the FDI source country being excluded. In formal terms the measures is given by

$$avg\_tariff^{j}_{kROW} = \frac{\sum_{i \subset ROW_k, i \neq j} \frac{\sum_{hs} x_{ki,hs} \varepsilon_{i,hs} T_{ki,hs}}{\sum_{hs} x_{k,hs} \varepsilon_{i,hs}}}{ROW_k}$$

where ROW_k is the number of destinations reached by country *k* exports, excluding country *j*, the FDI exporter.

The above measures of market access and openness are also considered in relative terms. Relative measures are expected to capture the possible effect of the system of preferences. The approach adopted to construct those measures builds on arguments originally put forward in Low, Piermartini and Richtering (2009) and Carrère, de Melo and Tumurchudur (2010). These studies recognize that the commonly used measure of preference margins (the difference between the MFN rate and the preferential tariff) generally overestimates the actual benefits of preferences. Given the increase in the number of PTAs, a better measure of the

preferential margin is one where the counterfactual is not the MFN tariff, but the preferential access provided to other foreign competitors. Generally speaking, relative measures are based on the difference, in tariff percentage points, that a determined basket of goods faces when imported from a given country relative to being imported from any other. Two sets of weights need to be considered in the construction of these measures. First, the counterfactual (the tariff faced by foreign competitors) is a weighted average of the tariffs imposed on all other trading partners. Second, the overall tariff imposed on each exporter is a weighted average comprising the tariffs of many products. To calculate the counterfactual, the first step is to calculate the trade-weighted average tariff at the tariff line level that one country imposes on all other countries except the country for which the preferential margin is calculated. We use bilateral imports as weights, so as to take into account the supply capacity of trading partners. The second step is to aggregate across products. This is done by using exports so as to take into consideration the different product compositions across partners. Moreover, demand responses to changes in the tariffs are again accounted for by using import demand elasticities in aggregating across products. In more formal terms, the relative version of avg_tariff_{jk} is

$$R\_avg\_tariff_{jk} = \frac{\sum_{hs} x_{jk,hs}\varepsilon_{k,hs}\left(T_{jk,hs} - T_{wk,hs}\right)}{\sum_{hs} x_{jk,hs}\varepsilon_{k,hs}}$$

where

$$T_{wk,hs} = \frac{\sum_{v} x_{vk,hs}T_{vk,hs}}{\sum_{v} x_{vk,hs}}, v \neq j$$

where notation is as above and *v* denotes countries competing with country *j* in exporting to country *k*, so that the term $T_{wk,hs}$, is the trade-weighted average of the tariffs applied by country *k* to imports originating from each country *v* (for each HS 6-digit product). The construction of the other three relative measures is comparable to that of the relative version of avg_tariff_{jk}. We thus report only the relative version of $avg\_tariff^{j}_{kROW}$. We have that

$$R\_avg\_tariff^{j}_{kROW} = \frac{\sum_{i \subset ROW_k, i \neq j} \frac{\sum_{hs} x_{ki,hs}\varepsilon_{i,hs}\left(T_{ki,hs} - T_{wi,hs}\right)}{\sum_{hs} x_{k,hs}\varepsilon_{i,hs}}}{ROW_k}$$

where

$$T_{wi,hs} = \frac{\sum_{v} x_{vi,hs}T_{vi,hs}}{\sum_{v} x_{vi,hs}}, v \neq k$$

where *v* denotes countries competing with country *k* in exporting to country *i*, so that the term $T_{wi,hs}$, is the trade-weighted average of the tariffs applied by country *i* to imports originating from each country *v*. Note that any measure of relative tariff or preference margin could be either

positive or negative, depending on the disadvantage or advantage of the country with respect to other competing exporters.

In summary, the four relative measures of market access and openness retained are:

- $R\_avg\_tariff_{jk}$: reflecting the overall tariff faced by exports from the parent country to the host country relative to that faced by other foreign competitors;
- $R\_avg\_tariff_{kj}$: reflecting the overall tariff faced by exports from the host country to the parent country relative to that faced by other foreign competitors;
- $R\_avg\_tariff^{j}_{ROWk}$: reflecting the market access that exports from the rest of the world (excluding the parent country) have to the host country;
- $R\_avg\_tariff^{j}_{kROW}$: reflecting the market access that exports from the host country have to the rest of the world relative to that of foreign countries.

Summary statistics indicate that direct market access conditions have generally improved during the period of analysis and that relative market access conditions have evolved from a situation where few bilateral trade relationships enjoyed large preferential margins, to a situation where the system of preferences is beneficial to a larger number of bilateral trade relationships but is overall less discriminatory.

THE EMPIRICAL MODEL AND OTHER FDI DETERMINANTS

Our empirical strategy is based on a gravity-like log linear model. We consider two benchmark specifications which are similar except for the market access variables included. One includes absolute measures and the other relative measures. Our models write,

$$\begin{aligned}
&\ln(FDI_{jkt}) = \alpha_0 + \alpha_1 Border_{jk} + \alpha_2 Language_{jk} + \alpha_3 Colony_{jk} + \alpha_4 \ln(dist_{jk}) \\
&+ \alpha_5 SGDP_{jkt} + \alpha_6 RGDP_{jkt} + \alpha_7 R_Skill_{jkt} + \alpha_{11} BIT_{jkt} \\
&+ \alpha_{15} \ln(1 + avg_tariff^{j}_{ROWkt}) + \alpha_{12} \ln(1 + avg_tariff_{jkt}) \\
&+ \alpha_{13} \ln(1 + avg_tariff_{kjt}) + \alpha_{14} \ln(1 + avg_tariff^{j}_{kROWt}) \\
&+ \alpha_{16} MP_{j,t} + \alpha_{17} I_{it} + \alpha_{18} I_{jt} + \alpha_{19} I_t + \varepsilon_{ijt}
\end{aligned} \tag{1}$$

and

$$\begin{aligned}
&\ln(FDI_{jkt}) = \alpha_0 + \alpha_1 Border_{jk} + \alpha_2 Language_{jk} + \alpha_3 Colony_{jk} + \alpha_4 \ln(dist_{jk}) \\
&+ \alpha_5 SGDP_{jkt} + \alpha_6 RGDP_{jkt} + \alpha_7 R_Skill_{jkt} + \alpha_{11} BIT_{jkt} \\
&+ \alpha_{15} \ln(1 + R_avg_tariff^{j}_{ROWkt}) + \alpha_{12} \ln(1 + R_avg_tariff_{jkt}) \\
&+ \alpha_{13} \ln(1 + R_avg_tariff_{kjt}) + \alpha_{14} \ln(1 + R_avg_tariff^{j}_{kROWt}) \\
&+ \alpha_{16} MP_{j,t} + \alpha_{17} I_{it} + \alpha_{18} I_{jt} + \alpha_{19} I_t + \varepsilon_{ijt}
\end{aligned} \tag{2}$$

The dependent variable ln(*FDI)* is the natural logarithm of outflow FDI stock of country *i* in country *j*. Explanatory variables include some gravity variables. Recent contributions adopting Baysian statistical techniques (i.e. Bloningen and Piger (2011) and Eicher et al. (2011)) concluded almost unequivocally that the most important determinants of FDI are best captured by the standard variables included in a gravity model of FDI. Namely we have dummies for the existence of a common border (*Border*), a common language (*Language*) and a dummy indicating whether

the trade partner was or was not a colony of the source country (*Colony*). We further include the natural logarithm of geographical distance (*dist*) between capitals. Gravity variables are expected to reflect generic costs of international exchanges. While the sign of all dummy variables is expected to be positive, the expected sign of the natural logarithm of distance is not clearly determined as, in theory, distance could be an element in both export costs and investment and monitoring costs. Other standard determinants of FDI are also considered. *SGDP* is the natural logarithm of the bilateral sum of real GDP capturing the joint market size. In the standard literature on FDI this coefficient is positive. *RGDP* captures the relative size of the home and host countries in terms of GDP and is the difference of the natural logarithm of real GDPs; the coefficient on this variable can change depending on the prevalent mode of investment: it will be clearly positive in the case of horizontal FDI and could be negative in the case of vertical FDI. The variable *R_Skills* is a measure of relative skilled labour endowment and is calculated as the difference between the secondary school enrolment rates of the source country and the destination country. There is no clear-cut prediction on the sign of this variable as it is expected to change in accordance with the group of countries studied and the type of investment. Models of vertical FDI predict that headquarters of multinationals are based in skill-abundant countries and hence expect a negative sign on the skill difference; however in other kinds of scenarios there is no clear conclusion. The variable *Surround_Mkt_Pot* is the surrounding market potential variable calculated as the distance-weighted sum of host country surrounding markets in terms of GDP. This measure based on Blonigen et al. (2007) only includes host country neighbours; this allows having a separate measure of the potential market accessible from the host country while still estimating bilateral determinants of investment. The surrounding-market-potential variable together with our host market access variables are expected to help in detecting export-platform investment strategies and possibly complex-vertical investment strategies. The remaining independent variables are our measures of relative market as access explained above. *BIT_years* is the number of years since the signature of a bilateral investment treaty (BIT) and proxies for the bilateral costs of investment. BITs are designed to provide comfort and protection to foreign investors, by clarifying security provisions, fairness, transparency and predictability of the policy and regulatory framework that will govern investment activities. Accordingly, we expect that investments will increase the more well established this framework becomes.

We also include three sets of dummies. The first one is exporter specific. The second set is importer specific and the last set is period specific. The inclusion of country fixed effects is motivated by previous findings such as Blonigen et al. (2007) and by the international trade literature. Such fixed effects are likely to absorb the possible influence of time invariant spatial interactions. The time varying component of spatial interactions are expected to be accounted for by our two-thirds countries effects variables, $avg\_tariff^{j}_{kROW}$ / $R\_avg\_tariff^{j}_{kROW}$ and *Surround_Mkt_Pot.*

4. RESULTS

We first present and discuss results obtained with our reference econometric model discussed above. We then present results for a series of specifications of robustness checks. Particular attention is devoted to correction for a possible selection bias.

4.1 CORE SPECIFICATIONS

Results for the full sample are reported in table 3. The first two columns refer to specifications where we omitted controlling for importer and exporter specific time invariant characteristics. Results reported in the last two columns refer to specifications where importer and exporter fixed effects are accounted for. In the latter two specifications all coefficients are

significantly different from zero, at least at the 5 per cent level. Coefficients of gravity variables and other standard determinants of FDI all have the expected sign. The sign of the *RGDP*, however, changes as we include country fixed effects. Assuming that the benchmark specification should include the latter, the retained *RGDP* coefficient is positive. According to this latter result the predominant mode appears to be that of horizontal FDI.

The sign of the coefficient of *BIT_year* variable is the expected one and suggests that the maturity of a bilateral agreement affects FDI positively.

Table 3
Whole sample

	(Absolute)	(Relative)	(Absolute)	(Relative)
Ln(dist)	-0.205[a]	-0.258[a]	-0.479[a]	-0.522[a]
	(0.0185)	(0.0185)	(0.0199)	(0.0200)
Border	0.327[a]	0.229[a]	0.241[a]	0.194[a]
	(0.0674)	(0.0686)	(0.0639)	(0.0646)
Colony	0.888[a]	0.887[a]	1.001[a]	0.999[a]
	(0.0604)	(0.0612)	(0.0553)	(0.0559)
Language	0.623[a]	0.605[a]	0.661[a]	0.661[a]
	(0.0489)	(0.0501)	(0.0478)	(0.0487)
SGDP	0.493[a]	0.524[a]	0.467[a]	0.515[a]
	(0.0130)	(0.0126)	(0.0315)	(0.0312)
RGDP	-0.0337[a]	-0.0756[a]	0.0606[b]	0.0178
	(0.00804)	(0.00726)	(0.0244)	(0.0240)
R_Skills	-0.249	0.0555	1.455[a]	1.944[a]
	(0.154)	(0.153)	(0.216)	(0.212)
Openness_M	9.141[a]	-0.0316[a]	6.316[a]	-0.00913[b]
	(0.725)	(0.00373)	(0.729)	(0.00364)
Tariff_X*to*M	-5.207[a]	-0.0423[a]	-4.524[a]	-0.0373[a]
	(0.520)	(0.00894)	(0.494)	(0.00870)
Tariff_M*to*X	-5.942[a]	-0.00789[b]	-4.346[a]	-0.00689[b]
	(0.441)	(0.00333)	(0.415)	(0.00286)
Mkt_Access_M	20.18[a]	0.218[a]	-8.859[a]	-0.137[a]
	(1.678)	(0.0338)	(1.543)	(0.0417)
Surround_Mkt_Pot.	0.180[a]	0.136[a]	1.335[a]	1.112[a]
	(0.0397)	(0.0403)	(0.127)	(0.117)
BIT_years	0.0500[a]	0.0536[a]	0.0551[a]	0.0580[a]
	(0.00117)	(0.00118)	(0.00159)	(0.00159)
Exporter FE	No	No	Yes	Yes
Importer FE	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	24 857	24 857	24 857	24 857
R^2	0.293	0.280	0.437	0.431
Adjusted R^2	0.292	0.280	0.433	0.427

Note: Clustered (by country pair) robust standard errors in parentheses: [c] $p < 0.10$, [b] $p < 0.05$, [a] $p < 0.01$. Columns (1) and (3) include absolute measures of market access, and columns (2) and (4) include relative measures of market access.

Trade policy variables, whether they are introduced in their absolute (equation (1)) or relative form (equation (2)), do generate similar results except for the trade openness variables. The coefficient of the latter is positive when in its absolute version ($avg\_tariff^{j}_{ROWk}$) and negative when in its relative version ($R\_avg\_tariff^{j}_{ROWk}$). According to table 3 mapping, the former result remains somewhat puzzling although possibly consistent with any sort of FDI strategy. The latter result is on the other hand in line with a complex-vertical FDI strategy. The coefficient of the average tariff imposed by the FDI destination country on exports from the FDI source country is always negative. This is also the case for the coefficient of the average tariff imposed by the FDI source country on exports from the FDI destination country. These results are compatible with any FDI form except horizontal FDI. Coefficients obtained for measures of market access to the *ROW* of the FDI host country ($avg\_tariff^{j}_{kROWt}$ and $R\_avg\_tariff^{j}_{kROWt}$) and of market potential (*Surround_Mkt_Pot*) suggest a similar qualitative impact on FDI. These findings further point to the significant influence of export-platform motives in framing firms' decisions to invest abroad.

Results shown in table 4 are obtained for two subsamples. This is to account for the possible issue of excessive pooling of countries.[2] In the wake of Bloningen et al. (2007), we created several subsamples based on the OECD membership status of countries. We could legitimately expect that motivations for FDI may differ across country types.

The first two columns of table 4 show results from specifications in which exporters are exclusively OECD countries. Results obtained for this first subsample could be to a large extent compared to those discussed in the literature. The last two columns report results referring to non-OECD exporters. These are mostly novel results due to the very limited access to FDI data for developing countries over a relatively long period of time. From a qualitative point of view, the results are similar across subsamples and are in line with results obtained with the whole sample except for two variables. Distance appears to affect FDI from non-OECD countries positively while the impact is clearly negative for OECD countries. This may simply reflect a still high concentration of FDI from non-OECD countries in OECD countries which are de facto relatively further away than non-partner countries. Our measure of relative skills enters positively for OECD exporting countries and negatively for non-OECD exporting countries. This could suggest that FDI responds to essentially horizontal motives for OECD exporting countries and vertical motives for non-OECD ones. However, as mentioned previously, interpretation remains mixed as these signs could also be consistent with the FDI motivations of export platform or complex-vertical strategies.

Quantitatively, results are often significantly different, with no particular pattern however. Quantitative differences are important essentially for three variables. The border variable is not significantly different from zero for OECD exporting countries, while it is positive and significant at the 1 per cent level for non-OECD ones. The average tariff imposed on exports from the destination country shows a negative coefficient in both subsamples. However, it is significant only for OECD exporting countries. A comparable outcome is observed for the *BIT_years* variable. Its coefficient is positive and significantly different from zero only for non-OECD countries. All in all export-platform and complex-vertical strategies appear to be dominant even once we consider OECD and non-OECD countries separately.

[2] Results in Blonigen and Davies (2004) and Blonigen and Wang (2005) show substantial differences across samples of developed versus less-developed countries.

Table 4
OECD versus non-OECD countries as exporters

	OECD exporters		Non-OECD exporters	
	(Absolute)	(Relative)	(Absolute)	(Relative)
Ln(dist)	-1.023[a]	-1.037[a]	0.212[a]	0.214[a]
	(0.0209)	(0.0204)	(0.0346)	(0.0347)
Border	0.0579	0.0548	1.010[a]	1.002[a]
	(0.0680)	(0.0682)	(0.0978)	(0.0983)
Colony	1.048[a]	1.031[a]	0.496[a]	0.508[a]
	(0.0497)	(0.0496)	(0.146)	(0.147)
Language	0.657[a]	0.663[a]	0.822[a]	0.792[a]
	(0.0476)	(0.0476)	(0.109)	(0.111)
SGDP	0.706[a]	0.693[a]	0.536[a]	0.536[a]
	(0.0352)	(0.0351)	(0.0461)	(0.0460)
RGDP	1.536[a]	1.528[a]	-0.402[a]	-0.419[a]
	(0.0286)	(0.0286)	(0.0308)	(0.0303)
R_Skills	6.743[a]	6.675[a]	-1.826[a]	-1.787[a]
	(0.273)	(0.274)	(0.396)	(0.392)
Openness_M	1.540[b]	-0.00385	4.671[a]	-0.00177
	(0.785)	(0.00348)	(0.961)	(0.00619)
Tariff_X*to*M	-1.030[c]	-0.00785	-4.330[a]	-0.0483[a]
	(0.534)	(0.00940)	(0.648)	(0.0130)
BIT_years	0.0405[a]	0.0402[a]	-0.00005	0.00234
	(0.00224)	(0.00225)	(0.00484)	(0.00486)
Tariff_M*to*X	-2.425[a]	-0.0242[a]	-0.605	-0.00387
	(0.775)	(0.00848)	(0.385)	(0.00266)
Mkt_Access_M	-7.186[a]	-0.115[a]	-9.774[a]	-0.109
	(1.341)	(0.0391)	(2.833)	(0.0701)
Surround_Mkt_Pot.	5.022[a]	4.907[a]	1.576[a]	1.323[a]
	(0.129)	(0.122)	(0.225)	(0.209)
Exporter FE	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	14 577	14 577	10 280	10 280
R^2	0.718	0.718	0.210	0.208
Adjusted R^2	0.715	0.714	0.196	0.194

Note: Clustered (by country pair) robust standard errors in parentheses: [c] $p < 0.10$, [b] $p < 0.05$, [a] $p<0.01$. Columns (1) and (3) include absolute measures of market access, and columns (2) and (4) include relative measures of market access.

Table 5 and table 6 contain results obtained for additional partitioning of the sample. Table 5 relates to FDI from OECD countries exported to other OECD countries or non-OECD countries. Table 6 relates to FDI from non-OECD countries with the same distinction in terms of destinations. In both tables the first two columns show results where destination countries are OECD members and the last two columns, where destination countries are not OECD members.

Generally speaking we observe several differences, both quantitative and qualitative, across subgroups. Table 5 reveals that the border variable coefficient is negative when destination countries are not OECD members. This is likely to reflect the fact that most destination countries in that subgroup do not share a common border with any OECD country.

For other standard FDI determinants, results are consistent across destinations groups. As to market access variables, results are less homogeneous. When destination countries are OECD members results differ based on the sort of measure (absolute or relative) included. However, results are more stable when destination countries are non-OECD and are consistent with results obtained for the whole sample. While estimated coefficients obtained for non-OECD destination countries clearly favour either an export-platform or a complex-vertical strategy motivation for FDI, those obtained for OECD destination countries are less clear cut. This could find an explanation in the fact that investments among OECD countries are mainly driven by mergers and acquisitions, and investment motivations can change considerably from the traditional ones listed above and include competition reduction, technology transfer, economies of scale and coordination of production and marketing decisions.

Table 5
Subsamples: OECD exporters

	OECD importers		Non-OECD importers	
	(Absolute)	(Relative)	(Absolute)	(Relative)
Ln(dist)	-1.010[a]	-0.982[a]	-1.101[a]	-1.101[a]
	(0.0336)	(0.0307)	(0.0313)	(0.0314)
Border	0.216[a]	0.220[a]	-0.285[b]	-0.285[b]
	(0.0749)	(0.0742)	(0.142)	(0.144)
Colony	0.690[a]	0.708[a]	1.172[a]	1.158[a]
	(0.0770)	(0.0774)	(0.0642)	(0.0646)
Language	0.739[a]	0.732[a]	0.574[a]	0.586[a]
	(0.0711)	(0.0717)	(0.0639)	(0.0642)
SGDP	0.388[a]	0.425[a]	0.772[a]	0.752[a]
	(0.0516)	(0.0514)	(0.0615)	(0.0614)
RGDP	1.421[a]	1.443[a]	1.566[a]	1.553[a]
	(0.0347)	(0.0343)	(0.0541)	(0.0540)
R_Skills	7.812[a]	7.806[a]	5.851[a]	5.740[a]
	(0.386)	(0.390)	(0.376)	(0.377)
BIT_years	0.0604[a]	0.0633[a]	0.0349[a]	0.0351[a]
	(0.00387)	(0.00406)	(0.00266)	(0.00267)
Openness_M	2.937	-0.0347[c]	1.240	0.000531
	(2.542)	(0.0179)	(0.851)	(0.00357)
Tariff_XtoM	-1.493	0.0127	-1.069[c]	-0.0274[a]
	(1.518)	(0.0279)	(0.578)	(0.0100)
Tariff_MtoX	1.074	-0.0637[a]	-4.628[a]	-0.0260[a]
	(1.149)	(0.0200)	(1.047)	(0.00966)
Mkt_Access_M	-6.654[a]	-0.115	-4.102[b]	-0.126[a]
	(2.152)	(0.0773)	(1.773)	(0.0451)
Surround_Mkt_Pot	3.306[a]	3.122[a]	5.200[a]	5.358[a]
	(0.281)	(0.284)	(0.165)	(0.153)
Exporter*Year FE	Yes	Yes	Yes	Yes
Importer*Year FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	4 654	4 654	9 923	9 923
R^2	0.733	0.733	0.644	0.643
Adjusted R^2	0.731	0.731	0.638	0.637

Note: Clustered (by country pair) robust standard errors in parentheses: [c] $p < 0.10$, [b] $p < 0.05$, [a] $p < 0.01$. Columns (1) and (3) include absolute measures of market access, and columns (2) and (4) include relative measures of market access.

Table 6
Subsamples: Non-OECD exporters

	OECD importers		Non-OECD importers	
	(Absolute)	(Relative)	(Absolute)	(Relative)
Ln(dist)	0.991[a]	0.962[a]	-0.245[a]	-0.241[a]
	(0.0685)	(0.0673)	(0.0432)	(0.0431)
Border	1.607[a]	1.554[a]	0.571[a]	0.581[a]
	(0.271)	(0.268)	(0.106)	(0.107)
Colony	0.690[a]	0.699[a]	0.545[b]	0.561[b]
	(0.208)	(0.208)	(0.221)	(0.224)
Language	0.383	0.360	0.552[a]	0.551[a]
	(0.242)	(0.242)	(0.124)	(0.127)
SGDP	0.508[a]	0.518[a]	0.710[a]	0.717[a]
	(0.152)	(0.151)	(0.0533)	(0.0532)
RGDP	-0.471[a]	-0.475[a]	-0.486[a]	-0.513[a]
	(0.0561)	(0.0543)	(0.0368)	(0.0361)
R_Skills	-3.396[a]	-2.754[a]	-0.874[b]	-0.793[b]
	(0.914)	(0.893)	(0.406)	(0.403)
BIT_years	-0.00165	0.00144	0.0177[a]	0.0206[a]
	(0.00742)	(0.00736)	(0.00659)	(0.00666)
Openness_M	-1.604	0.0453	4.261[a]	0.00181
	(5.756)	(0.0461)	(0.945)	(0.00607)
Tariff_XtoM	-12.29[a]	-0.176[a]	-3.935[a]	-0.0306[a]
	(2.966)	(0.0364)	(0.629)	(0.00943)
Tariff_MtoX	-0.505	-0.0411	-0.960[b]	-0.00214
	(1.265)	(0.0337)	(0.376)	(0.00246)
Mkt_Access_M	-7.759	0.335	-7.285[b]	-0.204[a]
	(5.857)	(0.218)	(3.070)	(0.0705)
Surround_Mkt_Pot	0.344	-0.515	1.436[a]	1.441[a]
	(0.621)	(0.697)	(0.234)	(0.209)
Exporter*Year FE	Yes	Yes	Yes	Yes
Importer*Year FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	2 922	2 922	7 358	7 358
R^2	0.153	0.157	0.268	0.265
Adjusted R^2	0.144	0.148	0.252	0.249

Note: Clustered (by country pair) robust standard errors in parentheses: [c] $p < 0.10$, [b] $p < 0.05$, [a] $p < 0.01$. Columns (1) and (3) include absolute measures of market access, and columns (2) and (4) include relative measures of market access.

Results shown in table 6 (exporters are non OECD countries) further highlight differences across destination country groups. A positive coefficient is estimated for distance when destination countries are OECD. This could echo the negatively signed coefficient of the border variable reported previously when destination countries were non-OECD. The *SGDP*, *RGDP* and the *R_Skills* coefficients are in line with those reported in the last two columns of table 6 and point to the predominance of vertical FDIs when the latter originate from non-OECD countries. The

latter interpretation would also be consistent with complex-vertical form. Results for market access and openness suggest that the export-platform hypothesis and the complex-vertical form hypothesis are verified only when destination countries are non-OECD. Indeed, better market access and higher surrounding market potential are both found to increase FDIs when directed towards non-OECD countries. In cases where partner countries are OECD, both variables are found to have a nil impact. Also in the case of the *BIT_years* variable, its coefficient is significant only for non-OECD destinations possibly pointing to the fact that non-OECD members are associated with a higher investment risk than OECD members. The only coefficient which is significant at least at the 5 per cent level across all subsamples is the one for the tariff applied on exports from the FDI origin country directed to the host country. As in previous specifications, its sign is negative. The latter result is compatible with all investment strategies but horizontal ones.

4.2. ROBUSTNESS

In order to test the robustness of our benchmark results, we estimated several additional specifications. We considered in turn the inclusion of time trend variables, country pair fixed effects, reformulated relative market access variables and a treatment of a possible selection bias.

Time trend

We first follow Bloningen and al. (2007) by including a time trend plus its square in place of year fixed effects. The results are similar to those obtained in our benchmark specifications of table 3 and table 4.

Country pair fixed effects

We then consider country pair fixed effects instead of exporter and importer fixed effects taken separately. On those remaining variables, meaning all non- bilateral or time varying ones, the sign of the estimated coefficients is never affected. Levels change only marginally and significance drops in only a few cases and never on variables related to market access.

Relative market access measures

We also test the empirical relevance of our relative measures of market access and openness by taking the log of the ratio of the two components of each measure. Namely we use $\ln\left(\frac{1+T^{w}_{jkt}}{1+TTRI_{jkt}}\right)$ instead of $\left(T^{w}_{jkt}-TTRI_{jkt}\right)$ as our relative measure of either openness or market access. The latter remains a satisfactory approximation of the former for small values of both T^{w}_{jkt} and $TTRI_{jkt}$. Again, signs of estimated coefficients are never reverted and significance is maintained for all variables.

Selection bias

Recent developments in the literature[3] have underlined the importance of accounting for the selection bias induced by the structure of existing FDI data. As shown previously, there are still few countries that are FDI exporters while there are a multitude of recipients. This could reflect the fact that data are systematically missing. However, our country coverage is the most

[3] See Eicher and al. (2012) for a comprehensive assessment utilizing Bayesian Model Averaging techniques.

extensive one which is available. Then zeros are expected to reflect the non-profitability of FDI in certain destinations. We adopt a standard Heckman selection methodology. The selected regressors associated with the extensive margin of FDI are those retained for the intensive margin except for the *BIT_years* variable. We include, however, a dummy variable indicating whether a BIT has been signed and implemented. We believe the latter variable is more likely to explain dynamics of the extensive margin than the *BIT_years* variable which better reflects the investment risk associated with a specific destination. As such the signature variable can be considered as our first exclusion restriction. We further include the exclusion restriction suggested in previous work such as Razin et al. (2008) that is a dummy variable indicating whether there was FDI in the previous year. Results are reported in table 7. We reported results obtained using the relative version of openness and market access measures. When considering only significant estimates at least at the 10 per cent levels some patterns in results can be identified. First of all, the inverse Mill's ratio variable is always highly significant implying that selection could play a significant role in determining the impact of variables to explain the intensive margin of FDI. When considering our exclusion restrictions, only the dummy variable for the existence of past FDI is found to affect systematically and in the expected way the decision to invest. The dummy variable for the existence of an implemented BIT enters significantly, and with the expected sign, into the first step estimation for the OECD subsample only. Having a BIT in place with a given country does affect positively the probability of investing there.

We also observe that coefficients of variables included in both estimation steps generally keep the same sign across steps. There are few exceptions, such as distance and relative skills, when exporters are from non-OECD countries and market access of the importing country in all samples. Distance is found to affect positively the probability of investing abroad for exporters from non-OECD countries. The explanation could be similar to the one provided for the positive coefficient found in table 4 and referring to the same group of exporters. However, the corresponding coefficient in the second step estimation is now negative and this is in contrast with table 4 findings. Results for the relative skills variable suggest that the probability of investing abroad decreases with the skills differential but that once investment has occurred its intensity increases with the skills differential. Surrounding market access conditions have contrasting effects on FDI margins. Better conditions affect FDI positively at its intensive margin but negatively at its extensive margin. We cannot find any convincing explanation for the latter results. Estimated coefficients of other market access and openness measures, when significant, are in line with our benchmark results and there is no opposition between the extensive and intensive margins of FDI.

As in the case of distance for non-OECD exporting countries, controlling for selection could revert some of the results found in our benchmark estimations for the intensive margin of FDI. The skills differential now affects the intensive margin of FDI negatively for OECD countries and positively for that of non-OECD countries. The RGDP variable is now found to affect the level of FDI positively for non-OECD exporting countries, privileging a horizontal mode of investment instead of a vertical mode as shown in table 4.

Table 7
Heckman model (two-step procedure)

	Whole sample		OECD exporters		Non-OECD exporters	
	(1st)	(2nd)	(1st)	(2nd)	(1st)	(2nd)
Ln(dist)	-0.0708 [a]	-0.884[a]	-0.2113 [a]	-1.0351 [a]	0.0364 [c]	-0.8164 [a]
	(0.0153)	(0.016)	(0.0377)	(0.0207)	(0.0193)	(0.0289)
Border	0.2834 [a]	0.4012	-0.0645	0.0988	0.4926 [a]	0.4183 [a]
	(0.0716)	(0.0525)	(0.2291)	(0.0525)	(0.0765)	(0.0525)
Colony	0.5071 [a]	0.814[a]	0.5340 [a]	1.0865 [a]	0.3870 [a]	0.1750 [c]
	0.0986	(0.0513)	(0.1640)	(0.0532)	(0.1361)	(0.1054)
Language	0.2323 [a]	0.463[a]	0.1985 [b]	0.5511 [a]	0.3042 [a]	0.2172 [b]
	0.0533	(0.0445)	(0.0868)	(0.0485)	(0.0746)	(0.0947)
SGDP	0.1605 [a]	0.439[a]	0.3096 [a]	1.1282 [a]	0.0639 [a]	0.150 [a]
	0.0087	(0.0213)	(0.0246)	(0.0398)	(0.0109)	(0.0314)
RGDP	0.0122 [b]	0.162[b]	0.0989 [a]	0.5754 [a]	0.0056	0.3198 [a]
	0.00477	(0.073)	(0.0127)	(0.0943)	(0.0054)	(0.1116)
R_Skills	0.2393 [c]	0.587[c]	-0.0675	-0.7301 [b]	-0.3810 [a]	2.0231 [a]
	0.1247	(0.334)	(0.2563)	(0.3476)	(0.1610)	(0.6139)
Openness_M	-0.0078 [a]	0.0003	-0.0044	0.00030	-0.0029	0.0002
	0.0032	(0.003)	(0.0064)	(0.0032)	(0.0039)	(0.0052)
Tariff_X*to*M	-0.0031 [a]	-0.016[a]	-0.0224 [c]	-0.0351 [a]	-0.0022	-0.0186 [a]
	0.0048	(0.0047)	(0.0136)	(0.0080)	(0.0050)	(0.0059)
Tariff_M*to*X	-0.0051 [a]	-0.004	-0.0232 [a]	-0.0158 [b]	-0.0042	0.0034
	0.0028	(0.002)	(0.0088)	(0.0067)	(0.0028)	(0.0033)
Mkt_Access_M	0.1064 [a]	-0.131[a]	0.1315 [b]	-0.1321 [a]	0.1095 [a]	-0.0863 [c]
	0.0256	(0.0326)	(0.0521)	(0.0357)	(0.030)	(0.0432)
Surround_Mkt_Pot.	0.0571 [c]	4.546[a]	-0.0477	4.8277 [a]	0.0060	4.3364 [a]
	(0.0316)	(0.129)	(0.0679)	(0.1173)	(0.0385)	(0.1720)
BIT_years		0.0266[a]		0.0247 [a]		0.0052
		(0.0012)		(0.0019)		(0.0035)
BIT_signed	-0.0312	-	0.1088 [b]	-	0.0212	-
	0.0263		(0.0546)		(0.0339)	
Lag_FDI	2.3831 [a]	-	2.7969 [a]	-	2.1198 [a]	-
	(0.0294)		(0.0685)		(0.0331)	
Mills Lambda	-	-1.1428 [a]	-	-1.1694 [a]	-	-1.119 [a]
		(0.0452)		(0.0742)		(0.0578)
Exporter FE	No	Yes	No	Yes	No	Yes
Importer FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	28 228	28 228	14 961	14 961	13 267	13 267

Note: Robust standard errors in parentheses: [c] $p < 0.10$, [b] $p < 0.05$, [a] $p < 0.01$.

5. CONCLUSIONS

This paper investigates empirically the importance of tariff-driven market access for FDI. We consider both absolute and relative measures of market access. The use of relative measures accounts for the influence of bilateral trade agreements on the access in effective terms that trading partners have to each other's market. Moreover they also account for the access the rest of the world market has to the host market and vice versa. Over the last fifteen years, market access conditions have increasingly been affected by bilateral trade agreements.

The empirical strategy we implement allows us to have a more comprehensive measure of the effects of third countries on bilateral FDI and to verify the relative relevance of various FDI theories.

Results are broadly in line with previous literature and coefficients show the expected signs: bilateral FDI increases in the joint market size and in their difference, with the exception of subsamples where source and host countries are relatively similar. The consolidation of the bilateral relationship, captured by the years since the signature of the bilateral investment treaty, enters positively in the regression, indicating a positive effect on the investment stocks. The surrounding market potential variable always enters positively in the regression highlighting the importance of location in the decisions of multinational enterprises. The market access of FDI-receiving countries seems to be important for multinationals headquartered in OECD countries, with the exception of across OECD investments where most probably market access is already very high. This lends support to a tariff-jumping motive and is consistent with most literature on developed economies and the prevalence among them of horizontal FDI. On the contrary, parent market access is significant whenever the source country is non-OECD suggesting that emerging investors export goods back to the home country. This can be the case of developing economies investing in technology, know-how, natural resources or brand names abroad to better supply not only domestic but also third markets. In fact, corporations based in non-OECD countries seem to value most the host economy's access to third countries. Surprisingly, especially when considering investments targeting developed markets, estimates for non-OECD investors are consistent with export-platform motives.

Our results thus suggest that both the location and the form of FDI can be influenced by trade policy decisions. This is at least what has been observed over the last two decades.

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