Corporate taxation and the location choice of foreign direct investment in EU countries

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Abstract: This paper examines the impact of corporate taxation and other factors on the attractiveness of EU countries to foreign direct investment. In comparison to previous analyses on the location choice of multinational activity in the EU, we use an improved empirical methodology to account for more flexible substitution patterns among alternative locations by considering groups of countries with similar characteristics as location options. In addition, we account for the heterogeneity of investors' behaviour by considering intra-EU investments and investments from outside the EU. Furthermore, we identify and quantify similarities and differences with respect to the effects of corporate taxation and the effects of other factors on the location choice of foreign affiliates in manufacturing and services.

Key Words: Multinational firms, location choice, corporate tax policy

JEL Classification: C25, D22, F23, H25

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1   Introduction

It is widely acknowledged that foreign direct investment (FDI) is associated with new technologies and organisational know-how which contribute to higher aggregate productivity in host countries.[1] While evidence on positive spillovers from foreign affiliates to domestic firms is mixed,[2] governments around the world are competing to attract FDI projects in order to boost productivity and competitiveness. In addition, FDI projects, particularly greenfield investments, are linked to net job creation. When deciding where to locate, multinational firms consider a range of factors such as production costs, market size, market potential and sourcing inputs including human capital and technology.[3] Among these factors corporate taxation could be directly influenced by policy and it is indeed widely used across countries to increase their attractiveness to FDI.

A large literature has found that lower corporate tax rates increase the attractiveness of countries and regions to FDI particularly in small and peripheral countries which could not benefit from other locational characteristics such as market size and market access.[4] Most of the existing studies are based on models using a representative location-seeking investing firm assuming a homogeneous investment behaviour across investing firms. However, it is very likely that investors from different home countries and in different sectors would perceive the benefits of the set of possible locations differently. Moreover, most empirical analyses of the location choice of FDI projects have assumed that each location option is different from all the other alternative locations.[5] This assumption is unrealistic given very likely similarities of locations particularly in the case of those sharing a common history, geography and institutional setting.

To fill this gap, this paper examines the impact of the effective average corporate tax rates (EATRs) and other factors on the attractiveness of EU countries to foreign direct investment. In comparison to previous analyses on the location choice of multinational activity in the EU, we use an improved empirical methodology to account for more flexible substitution patterns among alternative locations by considering groups of countries with similar characteristics as location alternatives. In addition, we account for the heterogeneity of investors' behaviour by considering intra-EU investments and investments from outside the EU. Furthermore, we identify and quantify similarities and differences with respect to the effects of corporate taxation and the effects of other factors on the location choice of foreign affiliates in manufacturing and services.

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[1] A large empirical literature has found that foreign affiliates are more productive than domestic firms. A recent discussion of the international empirical evidence is provided among others by Schiffbauer et al. (2017).

[2] Görg and Strobl (2001) and Meyer and Sinani (2009) review the international evidence on productivity spillovers from foreign affiliates to domestic firms.

[3] Recent reviews of the evidence on determinants of the location choice of foreign affiliates include among others Fontagné and Mayer (2005), Siedschlag et al. (2013a, 2013b), Lawless et al. (2014), and Davies et al. (2016a).

[4] The international evidence has been reviewed by de Mooij and Edverdeen (2003, 2008).

[5] In terms of empirical methodology, this assumption is known as the independence of irrelevant alternatives (IIA).

Consistent with previous research results, the evidence in this paper indicates that on average, other things equal, lower corporate effective average tax rates increase the attractiveness of EU countries to FDI. However, other factors matter too and some of these are relatively more important for the attractiveness of the EU countries to FDI than lower corporate tax rates. When distinguishing between intra-EU FDI projects and those originating from outside the EU, our estimates show that the location choice of FDI projects by investors from outside the EU is highly sensitive to the EATRs in host countries while, the EATR does not seem to matter for the location choice of intra-EU FDI projects.

Our research also finds that investors respond differently to corporate taxation depending on whether they invest in manufacturing or services. While the EATR does not appear to affect significantly the location choice of FDI in manufacturing, higher EATRs reduce the attractiveness of EU countries to FDI in services.

Taken together, our results indicate that while intra-EU investors seem to be mainly motivated by efficiency seeking, investors from outside the EU are seeking access to the EU Single Market. Furthermore, while access to the EU Single Market does not seem to matter for FDI in manufacturing, it matters for FDI in services.

In terms of the sensitivity of the attractiveness of EU countries to changes in country-specific EATRs, our estimates indicate that the most sensitive are Southern European countries (Malta, Greece, Portugal, Spain) and the least sensitive are Germany and the UK. This pattern is similar in the case of investments in manufacturing and services while a different pattern emerges in the case of investments from outside the EU. Ireland appears to be the most sensitive to changes in its EATR in terms of FDI from outside the EU, followed by Malta, Norway, Luxembourg, and Finland.

The rest of this paper is organised as follows. Section 2 discusses the empirical methodology. Next, Section 3 describes the data set and summary statistics. Section 4 presents the empirical results. Section 5 concludes.

2   Empirical Methodology

Location choices by multinational firms have been typically analysed using a random utility maximization framework following McFadden (1974).[6] In this modelling set up, the investor considers the set of alternative locations, and chooses the location with the highest profitability among competing alternatives. Each location alternative's profitability is a function of the location's characteristics. It is assumed that locational characteristics affect the profitability of all investors symmetrically.

Suppose that there are N investors, i=1,...N considering j=1, ...J alternative locations. Firm i considers the investment profitability in each location π_{ij} which is a function of observable

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[6] Recent reviews of this modelling framework include among others Schmidheiny and Brülhart (2011), Siedschlag et al. (2013a, 2013b), and Lawless et al. (2014).

location characteristics X_j and a stochastic term of unobservable profit specific to each firm and location μ_{ij}

$$\pi_{ij} = X_j\beta + \mu_{ij} \tag{1}$$

β is a vector of coefficients related to the corresponding vector of observable location characteristics X_j.

Following McFadden (1974), if, and only if, μ_{ij} follows an extreme-value type 1 distribution and is independent and identically distributed across all investors i and alternative locations j, the probability that location j is chosen by firm i is given by:

$$P_j = \frac{e^{X_j\beta}}{\sum_i e^{X_i\beta}} \tag{2}$$

where $\sum_j P_j = 1$.

Given the assumption that location characteristics affect all investors symmetrically, the location probability P_j quantifies the share of firms choosing to invest in location j.

The assumption about the distribution of stochastic terms μ_{ij} implies a statistical property known as independence of irrelevant alternatives (IIA). Under this assumption, the parameters β can be estimated by a conditional logit model (CLM).

The IIA property implies that the total number of investments is fixed and that changes in the location characteristics affect only the distribution of investments across all location alternatives. This means that if a location becomes more attractive and attracts one additional investment, this will be at the expense of another location.

While the CLM is easy to estimate, because of the restrictive substitution patterns discussed above, the estimated locations' attractiveness to foreign direct investment using this empirical framework are likely to be less realistic. In reality, location alternatives are not perfectly independent of each other. Indeed, location alternatives are likely to share unobserved characteristics such as similar cultural, historical, geographical, and institutional characteristics, which are relevant to corporate investment decisions.

The nested logit model approach (NLM) improves on the CLM by considering groups of similar locations and thus allowing more flexible substitution patterns across alternative locations.[7] This empirical approach follows McFadden (1984). In this empirical set up, corporate investors make their location choices in two steps:

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[7] The location choice of affiliates by multinational firms using nested logit models include among others Griffith and Devereux (1998), Crozet et al. (2004), Siedschlag et al. (2013a), and Davies et al. (2016b).

(1) the choice between groups of similar locations (nests);

(2) the location choice within nests.

The assumption in the NLM approach is that of independence between nests (unobserved locational characteristics are not correlated between nests) while it allows for non-negative correlation of unobserved locational characteristics within nests.

Following McFadden (1984), the sum of utilities generated from alternatives in nest k (known as the inclusive value of nest k, IV_k) can be written as follows:

$$IV_k = \ln \sum_{j \in n_k} \exp(U_{ih} / \tau_k) \tag{3}$$

$\tau_k = \sqrt{1 - \rho_k}$, where ρ_k is the correlation of alternatives in nest k. The probability function of alternative h in nest k being chosen is the product of the probability of choosing nest k ($\Pr(k)$) and the conditional probability of choosing h given that k is chosen ($\Pr(h \mid k)$).

The probability function of alternative h in nest k being chosen can be expressed as follows:

$$\Pr(y = h \mid 1, ..., J) = \Pr(h \mid k)\Pr(k) = \frac{\exp(U_h / \tau_h)}{\exp(IV_h)} \frac{\exp(\tau_h IV_h)}{\sum_K \exp(\tau_k IV_k)} \tag{4}$$

A higher value of τ_k indicates a greater independence and so less correlation among alternative locations within the nest k. If the location alternatives within the nest are perfectly independent (perfectly dissimilar), $\tau_k = 1$. In this case a nested structure is not needed and the location probabilities could be estimated with the CLM. Low values of τ_k indicate high similarity among alternative locations within the nest and a higher degree of substitution among them. $\tau_k = 0$ indicates perfect dependence (similarity) among alternative locations.

Consistency of nested logit estimates with utility maximization could be tested (Kling and Herriges 1995; Herriges and Kling 1996; Train, McFadden and Ben-Akiva 1987; Lee 1999). Values of τ_k between 0 and 1, indicate consistency of the nested structures with utility/profit maximization for all possible values of the explanatory variables. $\tau_k > 1$ indicates nested structures consistent with utility/profit maximization behaviour for some range of the explanatory variables but not for all values. $\tau_k < 0$ indicates that the model is inconsistent with utility maximization.

In this location choice nested logit modelling, in contrast to the conditional logit modelling, the *expected* total number of investments depends on the regressors and estimated parameters and it differs from the *observed* total number of firms. A change in a region's locational attractiveness will affect the total number of firms summed across all alternative locations.[8]

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[8] A more detailed discussion of the comparisons between the conditional and nested logit modelling frameworks is provided by Schmidheiny and Brülhart (2011).

2.1 Baseline model specification

The baseline model specification we estimate is as follows:

$$y_{ij} = \begin{cases} 1 \ \textit{if } \pi_{ij} > \pi_{ik}, \forall j \neq k \\ 0 \ \textit{otherwise} \end{cases} \tag{5}$$

The dependent variable y_{ij} is a binary variable equal to 1 if a new foreign affiliate i was established in country j over the period 2002-2013. π_{ij} is the expected profit for firm i in country j. Country j is chosen if π_{ij} is larger than in any other alternative location k. Since π_{ij} is not known *ex-ante* by the multinational firm, the probability that country j is chosen by firm i depends on the likelihood that its profit will be maximized in country i depending on its characteristics.

The expected profit π_{ij} is a function of observed locational characteristics X_j and a random term of unobserved profit μ_{ij}:

$$\pi_{ij} = X_j \beta + \mu_{ij} \tag{6}$$

The variable of interest in this analysis is the effective average corporate tax rate. Corporate taxes impact on the cost of capital which in turn influences investment decisions. Existing evidence on the effect of corporate taxation on the location choice of foreign affiliates indicates that higher taxes reduce the likelihood of foreign direct investment.[9]

In addition, we analyse the sensitivity of EU countries' attractiveness to other factors which have been found to influence the location choice of foreign affiliates. These factors include:

- demand factors such as market size and market access;
- production costs proxied by GDP per capita;
- technology level and innovation capacity proxied by the R&D expenditure intensity
- trade and investment costs proxied by the distance between the home and host countries;
- cultural and geographical proximity such as sharing a language, sharing borders;

Definitions and descriptions of the explanatory variables are given in Table A1 in the Appendix A.

To identify nested structures, we group EU countries on the basis of similarities of institutional settings, as well as shared history and geographical and cultural proximity. Having tested alternative nested structures,[10] we consider the following four groups of EU countries as location nests:

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[9] Recent reviews of this evidence include among others de Mooij and Ederveen (2003), Barrios et al. (2012) and Lawless et al. (2014).

[10] Details of the composition of the alternative nested structures tested are given in Appendix B. The estimates for these nested structures were not consistent with the profit maximization requirements for all

- *United Kingdom and Ireland*;
- *Core and Northern EU Group*: Austria, Belgium, Denmark, Finland, France, Germany, Luxemburg, the Netherlands, and Norway;[11]
- *Central and Eastern European EU Group*: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia;
- *Southern EU Group*: Greece, Italy, Malta, Portugal, Spain.

2.2   Heterogenous investors

The above baseline model specification considers the behaviour of a representative location-seeking investor. However, previous analyses on the location choice of multinational activity in the EU (Siedschlag 2013a, 2013b) have found that the relevance and importance of location characteristics are perceived differently by investors based in the EU and investors from outside the EU, particularly from the US. To account for this heterogeneity of investment behaviour, we analyse and compare the location decisions of investors with headquarters in the EU and those of investors with headquarters outside the EU.

Further heterogeneity in the location decisions by multinational firms is likely to exist across sectors of economic activity (Siedschlag 2013a, 2013b; Lawless et al. 2014; Davies and Killeen forthcoming). We explore this heterogeneity by analysing separately the location decisions of new foreign affiliates in manufacturing and services.

3   Data and Summary Statistics

This paper uses firm-level information provided by the Bureau van Djik's *Amadeus* dataset for the period 2002-2013. We analyse 18,110 newly established foreign affiliates in EU countries identified on the basis of information on the companies' ownership structure (percentages of ownership for global and domestic ultimate owners). The analysed sample is restricted to projects by global ultimate owners having a direct ownership of at least 50% of the affiliate.

Table 1 shows the number of newly established foreign affiliates by year. The largest number has been recorded in 2007 (2,155 newly established foreign affiliates) and the smallest in 2013 (602 newly established foreign affiliates).

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variables or had a lower estimated log likelihood (a test for model selection following Pollak and Wales 2001). These results are available from the authors upon request.

[11] Norway is included as a location option together with EU countries given its membership in the European Economic Area (EEA) which makes it part of the EU Single Market. While Iceland and Lichtenstein are also members of the EEA, due to limited available data these two countries are not covered in this analysis. Given the very small size of these two countries, the results of this analysis are unlikely to be affected.

Table 1:   **Number of new foreign affiliates by year**

Year	Number of new foreign affiliates
2002	996
2003	1,051
2004	1,257
2005	1,495
2006	1,983
2007	2,155
2008	1,891
2009	1,653
2010	1,848
2011	1,752
2012	1,427
2013	602
Total	**18,110**

Source: Own calculations based on data extracted from the *Amadeus* data set provided by the Bureau van Dijk.

Table 2 shows the distribution of the sample of newly established foreign affiliates by host countries. The top five locations for FDI projects are Germany, the UK, Romania, Italy and the Netherlands accounting for 55% of the total number of FDI projects in the analysed sample.

Table 3 shows the distribution of the FDI projects by country of origin. The top five countries of origin for the analysed FDI projects are Switzerland, the Netherlands, the United States, Germany and Spain, accounting for 56% of the FDI projects analysed.

Table 4 summarises the explanatory variables used in the empirical analysis. Definitions and descriptions of the explanatory variables are given in Table A1 in Appendix A.

Data on the effective average tax rates (the main variable of interest) are taken from Spengel, et al. (2014). The rest of the data comes from various sources. To control for the market size of the host country, we use GDP, per-capita GDP, and market potential (constructed as the sum of other EU countries' GDPs weighted by their distance to the country in question). In addition, to control for technological development we use the R&D expenditure (measured as public R&D expenditures relative to GDP). These variables come from World Development Indicators dataset (WDI) obtained from the World Bank.

Finally, we control for the effects of three variables which have been widely used in the analysis of FDI based on gravity models: contiguity, common language, and distance (measured as the distance between most populated cities calculated using the great circle formula). These were obtained from the CEPII.

Table 2: Number of new foreign affiliates by host country

Country	Number of new foreign affiliates	Share of new foreign affiliates
Germany	3,333	18.40
United Kingdom	2,434	13.44
Romania	1,546	8.54
Italy	1,355	7.48
Netherlands	1,264	6.98
France	969	5.35
Poland	956	5.28
Czech Republic	869	4.8
Austria	788	4.35
Slovakia	786	4.34
Estonia	667	3.68
Portugal	462	2.55
Belgium	346	1.91
Ireland	321	1.77
Denmark	308	1.7
Finland	260	1.44
Norway	250	1.38
Hungary	234	1.29
Estonia	194	1.07
Croatia	191	1.05
Latvia	173	0.96
Luxembourg	134	0.74
Bulgaria	94	0.52
Slovenia	56	0.31
Greece	44	0.24
Malta	44	0.24
Lithuania	32	0.18
Total	**18,110**	**100**

Source: Own calculations based on data extracted from the Amadeus data set provided by the Bureau van Dijk.

Table 3: **Number of new foreign affiliates by country of origin**

Origin	Number of new foreign affiliates	Share in total new FDI projects (%)	Origin	Number of new foreign affiliates	Share in total new FDI projects (%)
Switzerland	3,209	17.72	Cayman Islands	22	0.12
Netherlands	2,274	12.56	Croatia	20	0.11
United States	1,895	10.46	Malta	18	0.1
Germany	1,712	9.45	Romania	17	0.09
Spain	1,087	6	Virgin Islands, British	14	0.08
Sweden	995	5.49	Chile	9	0.05
Italy	932	5.15	Bosnia Herzegovina	8	0.04
Belgium	707	3.9	Bangladesh	7	0.04
United Kingdom	614	3.39	Mexico	7	0.04
Japan	482	2.66	Russia	7	0.04
Austria	451	2.49	Argentina	6	0.03
France	423	2.34	Egypt	5	0.03
Denmark	381	2.1	Indonesia	5	0.03
Czech Republic	363	2	Moldova	5	0.03
Hungary	291	1.61	Taiwan	5	0.03
Finland	285	1.57	Venezuela	5	0.03
Slovak Republic	182	1	Andorra	4	0.02
Portugal	167	0.92	Sri Lanka	4	0.02
Ireland	165	0.91	Nigeria	4	0.02
Luxembourg	112	0.62	Gibraltar	3	0.02
Israel	93	0.51	Pakistan	3	0.02
Turkey	93	0.51	Saudi Arabia	3	0.02
Norway	90	0.5	Angola	2	0.01
Poland	86	0.47	Libya	2	0.01
Lithuania	75	0.41	Marshall Islands	2	0.01
China	72	0.4	Tunisia	2	0.01
Canada	66	0.36	Trinidad and Tobago	2	0.01
Greece	63	0.35	United Arab Emirates	1	0.01
Slovenia	55	0.3	Bahamas	1	0.01
Bermuda	48	0.27	Botswana	1	0.01
India	48	0.27	Belarus	1	0.01
Cyprus	46	0.25	Dominican Republic	1	0.01
Estonia	45	0.25	Georgia	1	0.01
Brazil	42	0.23	Ghana	1	0.01
Latvia	42	0.23	Liberia	1	0.01
Iceland	36	0.2	Macedonia	1	0.01
Hong Kong	35	0.19	Mauritius	1	0.01
South Africa	35	0.19	Malaysia	1	0.01
Australia	28	0.15	Peru	1	0.01
South Korea	28	0.15	Philippines	1	0.01
Bulgaria	27	0.15	San Marino	1	0.01
New Zealand	24	0.13	Suriname	1	0.01

Source: Own calculations based on data extracted from the Amadeus data set provided by the Bureau van Dijk.

Table 4:   **Summary statistics of explanatory variables**

Variable	Obs.	Mean	Std. Dev.	Min	Max
EU market potential	18110	9.73	0.42	8.88	10.65
Market size (GDP)	18110	13.32	1.48	8.70	14.96
GDP per capita	18110	10.10	0.72	8.18	11.36
Trade costs	18110	6.88	1.09	4.09	9.88
Common language	18110	0.26	0.44	0.00	1.00
Common border	18110	0.38	0.49	0.00	1.00
R&D expenditure intensity	18110	1.59	0.77	0.38	3.75
R&D expenditure intensity squared	18110	3.11	2.58	0.14	14.06
Effective average tax rate	18110	3.22	0.29	2.17	3.61

Notes: Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms.

Source: Own calculations based on data extracted from the Amadeus data set provided by the Bureau van Dijk.

Table 5 shows pair-wise correlations between the explanatory variables. Apart from the high correlation between R&D expenditure intensity and its squared term (0.965) the highest correlations are: 0.682 between GDP per capita and R&D expenditure; 0.596 between GDP per capita and the EATR; 0.587 between market size (GDP) and the EATR. However, consistent with existing literature these values are acceptable in terms of possible multicollinearity concerns.

Table 5: Pair-wise correlations between the explanatory variables

Explanatory variables	EU Market potential	Market size (GDP)	GDP per capita	Trade costs	Common language	Common border	R&D expenditure intensity	R&D expenditure intensity squared	Effective average tax rate (EATR)
EU market potential	1.000								
Market size (GDP)	0.225	1.000							
GDP per capita	0.458	0.514	1.000						
Trade costs	-0.332	-0.141	-0.176	1.000					
Common language	0.268	0.135	0.253	-0.233	1.000				
Common border	0.190	0.231	0.168	-0.428	0.520	1.000			
R&D expenditure intensity	0.323	0.428	0.682	-0.150	0.186	0.208	1.000		
R&D expenditure intensity squared	0.172	0.336	0.557	-0.097	0.141	0.172	0.965	1.000	
Effective average tax rate (EATR)	0.180	0.587	0.596	-0.111	0.184	0.196	0.426	0.342	1.000

Notes: Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms.

4   Empirical Results

4.1   All new FDI projects

Table 6 shows the estimates from nested logit models of determinants of the location choice of new foreign affiliates in EU countries over the period 2002-2013. The first column reports the estimates from all investors, while columns 2 and 3 show the estimates for EU investors and non-EU investors, respectively.

On average, other things equal, higher EATRs make EU countries less attractive as locations for FDI. While the location of FDI projects is highly sensitive to the EATR in host countries for non-EU investors, it appears not to matter for intra-EU investments.

As shown in column 1, on average, the effect of corporate taxes on the attractiveness of EU countries to FDI appears to be less important than the effects of other location characteristics such as production costs, trade costs, market size, geographical and cultural proximity, technology level/innovation capacity, and EU market potential (the possibility to access the EU Single Market) Market.

Location characteristics that increase countries' attractiveness to FDI include: market size, access to the EU Single Market, speaking the same language, being neighbours. GDP per capita captures both production costs and skills. Location probabilities are negatively linked to GDP per capita, suggesting that on average, the attractiveness of low cost locations dominates the attractiveness of locations with high skills. Trade costs in the host country relative to home countries decrease the attractiveness of countries to new FDI.

R&D expenditure intensity has a non-linear effect on the attractiveness of countries to FDI. While at low rates of R&D intensity the effect is negative, the effect turns positive once a threshold has been reached. This result indicates that EU countries with a higher technological gap are more attractive to FDI while high levels of technology and innovation increase the attractiveness to FDI.

The dissimilarity parameters (τ_k) indicate that Ireland and the United Kingdom and Southern European countries are perceived as being more similar as location alternatives compared with the other groups of EU countries considered as alternative location nests.

The test for the IIA indicate that the alternative locations inside the considered groups of countries are not independent. This implies that the nested logit estimates are consistent with the IIA assumption. [12]

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[12] Estimates obtained with conditional logit models under the assumption that the IIA holds are reported in Appendix C. The coefficients for the EATR in all model specifications are negative and larger than those obtained with nested logit models. However, the LR test for IIA suggests that these results are biased.

Table 6: Determinants of the location choice for new foreign affiliates in EU countries, 2002-2013

Explanatory variables	All Investors	EU Investors	Non-EU Investors
EATR	**-0.217*****	**0.048**	**-0.793*****
	(0.043)	**(0.056)**	**(0.061)**
Market size (GDP)	0.362***	0.373***	0.390***
	(0.011)	(0.014)	(0.019)
EU market potential	0.078***	-0.338***	0.776***
	(0.021)	(0.033)	(0.033)
GDP per capita	-0.509***	-0.613***	-0.045
	(0.021)	(0.027)	(0.047)
Trade costs-distance to home country	-0.452***	-0.658***	0.162***
	(0.016)	(0.019)	(0.042)
Common language	0.384***	0.308***	0.500***
	(0.022)	(0.032)	(0.038)
Common border	0.467***	0.481***	0.660***
	(0.020)	(0.025)	(0.039)
R&D expenditure intensity	-0.323***	-0.346***	-0.482***
	(0.049)	(0.066)	(0.089)
R&D expenditure intensity squared	0.093***	0.066***	0.178***
	(0.012)	(0.016)	(0.021)
Dissimilarity parameters (τ_k)			
United Kingdom and Ireland EU Group	0.421***	0.535***	0.259***
	(0.020)	(0.032)	(0.019)
Core and Northern EU Group	0.638***	0.735***	0.469***
	(0.012)	(0.017)	(0.017)
Central and Eastern EU Group	0.552***	0.663***	0.532***
	(0.017)	(0.020)	(0.037)
Southern EU Group	0.422***	0.471***	0.489***
	(0.014)	(0.018)	(0.023)
Number of observations	436,846	274,341	162,505
Log likelihood	-47371	-30267	-16175
LR test for IIA (τ_k =1)	χ^2 (4) = 858.17***	χ^2 (4) = 420.22***	χ^2 (4) = 504.43***

Notes: Estimates obtained from a nested logit model. Standard errors are in parentheses. ***, **, *, denote p<0.01, p<0.05, p<0.1, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms. The country compositions of the EU groups are as follows: Core and Northern: Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Norway. Central and Eastern: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia. Southern: Greece, Italy, Malta, Portugal, Spain.

4.2   Intra-EU investment versus investment from outside the EU

Columns 2 and 3 in Table 6 reports results from separate regressions on determinants of the location choice of new foreign affiliates in EU countries by companies with headquarters in the EU and outside the EU. The evidence suggests that EU and non-EU investors perceive and value countries' characteristics differently. While the EATR does not seem to affect the location choice on FDI projects by EU investors, lower EATR increase substantially the location likelihood of FDI by non-EU investors. Another different effect is in the case of production costs proxied by the GDP per capita. While low production costs increase substantially the attractiveness of countries to intra-EU investment, they do not matter for investors with headquarters outside the EU. Additional differences in investment behaviour are in relation to the effects of access to the EU Single Market and trade costs. While in the case of investors with headquarters outside the EU, the location probability increases significantly with distance to other the Single EU Market, from host countries, it decreases for EU– based investors. Also, investing in EU countries is more attractive the further away from the EU investors are. Taken together, these results suggest that, in the presence of trade costs, countries with a greater access to the EU Single Market are particularly attractive to investors with headquarters outside the EU. The results also suggest that while intra-EU investments are efficiency-seeking, FDI by investors from outside the EU are seeking access to the Single EU Market.

The dissimilarity parameters indicate that with the exception of Southern EU countries, non-EU investors perceive countries within the considered nests as more similar than the EU investors. In particular, Ireland and the UK are seen as closer location substitutes by non-EU investors compared with EU investors. This result could be explained by the importance of foreign direct investment by US multinationals in both countries. For EU investors, the countries in the Southern EU group are seen as closer substitutes compared to alternative locations in the other EU groups.

4.3   Differences across sectors

The results shown in Table 7 indicate that foreign investors respond differently to corporate tax in manufacturing and services. While the EATR does not appear to affect significantly the attractiveness of EU countries to FDI in manufacturing, it reduces the probability of location of FDI in services. These results could be explained by the fact that scale matters for investment in manufacturing and larger countries which are more attractive to investment in manufacturing tend to have higher corporate tax rates.

While on average, greater access to the EU Single Market increases the attractiveness of countries to FDI in services, it does not matter for the location choice of FDI in manufacturing.

The dissimilarity parameters indicate that the locations within the four groups considered are more similar in the case of FDI in manufacturing in the cases on the Core and Northern EU group and the Southern European countries.

Table 7: Determinants of the location choice for new foreign affiliates in EU countries, manufacturing and services, 2002-2013

Explanatory variables	All Investors	
	Manufacturing	Services
EATR	**-0.187**	**-0.317***
	(0.135)	**(0.050)**
Market size (GDP)	0.529***	0.354***
	(0.043)	(0.013)
EU market potential	0.111	0.143***
	(0.079)	(0.023)
GDP per capita	-0.899***	-0.396***
	(0.071)	(0.025)
Trade costs- distance to home country	-0.448***	-0.431***
	(0.052)	(0.018)
Common language	0.492***	0.312***
	(0.076)	(0.024)
Common border	0.480***	0.533***
	(0.065)	(0.024)
R&D expenditure intensity	-0.695***	-0.202***
	(0.183)	(0.056)
R&D expenditure intensity squared	0.220***	0.070***
	(0.044)	(0.014)
Dissimilarity parameters (τ_k)		
United Kingdom and Ireland EU Group	0.624***	0.401***
	(0.089)	(0.022)
Core and Northern EU group	0.614***	0.641***
	(0.039)	(0.014)
Central and Eastern EU Group	0.782***	0.561***
	(0.057)	(0.020)
Southern EU Group	0.412***	0.431***
	(0.044)	(0.016)
Number of observations	47,193	338,284
log likelihood	-5105	-36569
LR test for IIA (τ_k =1)	$\chi^2 (4) =$ 116.25***	$\chi^2 (4) =$ 663.90***

Notes: Estimates obtained from a nested logit model. Standard errors are in parentheses. ***, **, *, denote p<0.01, p<0.05, p<0.1, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms. The country compositions of the EU groups are as follows: Core and Northern: Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Norway. Central and Eastern: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia. Southern: Greece, Italy, Malta, Portugal, Spain.

Tables 8 and 9 explore heterogeneous effects in investment decisions across both investors and sectors. Consistent with previous results discussed above, the estimates in Table 8 indicate the EATR does not seem to affect the location choices of intra-EU investments either in manufacturing or in services. In contrast, lower EATR increase the attractiveness of countries to FDI by non-EU investors in both manufacturing and services. Larger market size increases the likelihood of investment in all analysed cases with larger effects in the case of FDI in manufacturing. The different relevance and importance of access to the EU Single Market appears again for EU and non-EU investors. While EU investors are less likely to invest in countries with a greater access to the Single EU Market (large core countries), greater access to the EU Single Market increases substantially the attractiveness to investment by non-EU investors in both manufacturing and services, with a larger effect in the case of FDI in services. We uncover additional heterogeneous effects with respect to the importance of production as well as trade costs. Lower production costs proxied by the GDP per capita attract intra-EU investments in both sectors, while in the case of non-EU investors, this attractiveness factor appears significant only for investment in manufacturing. Higher levels of GDP per capita increase the attractiveness of EU countries to foreign investment by non-EU investors in services. This result might be related to higher demand for services in countries with a higher level of development.

The dissimilarity parameters indicate that the United Kingdom and Ireland are perceived to be more substitutable by non-EU investors investing in services.

In the case of EU investors the countries within the considered EU groups are perceived to be more similar in the case of FDI in services with the exception of the Core and Northern group. Investors from non-EU countries perceive Ireland and the UK and the Central and Eastern EU countries to be more similar for FDI in services in comparison to FDI in manufacturing while Core and Northern countries and Southern countries are perceived to be more similar in the case of FDI in manufacturing.

On the basis of the empirical results discussed above, Table 10 shows the estimated country-specific conditional location probabilities. Consistent with existing literature, larger countries have the highest attractiveness to FDI projects. Among large EU countries, Germany has the highest location probability (15.8% of all FDI projects), followed by the UK, (11.6% of all FDI projects), France (10.6% of all FDI projects), Italy (8.8% of all FDI projects) and Poland (7.6%). The top five EU countries in terms of their attractiveness to investments from other EU countries are Germany, France, Italy, the UK, and Poland. The ranking of the top five most attractive locations for FDI from non-EU investors is as follows: Germany (19%), the UK (15.4%), France (10.0%), Belgium (9.9%), and Italy (8.6). The most attractive countries to FDI in manufacturing are: Germany, (17.7%), the UK (9.7%), France (9.7%), Romania (8.2%) and Italy (7.7%). The top highest location probabilities for FDI in services are Germany (16.6%), the UK (11.9%), France (11.0%), Italy (8.5%), and Belgium (6.8%).

Table 8: Determinants of the location choice for new foreign affiliates by EU investors in manufacturing and services, 2002-2013

Explanatory variables	EU Investors	
	Manufacturing	Services
EATR	**0.066**	**0.000**
	(0.174)	**(0.063)**
Market size (GDP)	0.531***	0.356***
	(0.050)	(0.015)
EU market potential	-0.333***	-0.278***
	(0.114)	(0.037)
GDP per capita	-1.027***	-0.508***
	(0.091)	(0.031)
Trade costs- distance to home country	-0.644***	-0.634***
	(0.059)	(0.022)
Common language	0.373***	0.259***
	(0.106)	(0.035)
Common border	0.545***	0.522***
	(0.080)	(0.029)
R&D expenditure intensity	-0.610***	-0.203***
	(0.233)	(0.076)
R&D expenditure intensity squared	0.174***	0.039**
	(0.057)	(0.019)
Dissimilarity parameters (τ_k)		
United Kingdom and Ireland EU Group	0.640***	0.528***
	(0.122)	(0.036)
Core and Northern EU Group	0.658***	0.734***
	(0.047)	(0.018)
Central and Eastern EU Group	0.863***	0.669***
	(0.067)	(0.024)
Southern EU Group	0.469***	0.459***
	(0.058)	(0.021)
Number of observations	30,144	208,884
log likelihood	-3273	-22983
LR test for IIA (τ_k =1)	χ^2 (4) = 67.30***	χ^2 (4) = 326.98***

Notes: Estimates obtained from a nested logit model. Standard errors are in parentheses. ***, **, *, denote p<0.01, p<0.05, p<0.1, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms. The country compositions of the EU groups are as follows: Core and Northern: Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Norway. Central and Eastern: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia. Southern: Greece, Italy, Malta, Portugal, Spain.

Table 9:   **Determinants of the location choice for new foreign affiliates by non-EU investors in manufacturing and services, 2002-2013**

Explanatory variables	Non-EU Investors	
	Manufacturing	**Services**
EATR	**-0.600***	**-0.868***
	(0.206)	**(0.066)**
Market size (GDP)	0.473***	0.392***
	(0.075)	(0.021)
EU market potential	0.796***	0.827***
	(0.107)	(0.037)
GDP per capita	-0.531***	0.105*
	(0.114)	(0.060)
Trade costs- distance to home country	0.171	0.136***
	(0.145)	(0.048)
Common language	0.661***	0.395***
	(0.142)	(0.042)
Common border	0.361***	0.771***
	(0.127)	(0.045)
R&D expenditure intensity	-0.818***	-0.389***
	(0.311)	(0.103)
R&D expenditure intensity squared	0.291***	0.155***
	(0.073)	(0.025)
Dissimilarity parameters (τ_k)		
United Kingdom and Ireland EU Group	0.460***	0.249***
	(0.098)	(0.021)
Core and Northern EU Group	0.459***	0.483***
	(0.063)	(0.019)
Central and Eastern EU Group	0.612***	0.573***
	(0.107)	(0.045)
Southern EU Group	0.336***	0.529***
	(0.061)	(0.027)
Number of observations	17,049	129,400
log likelihood	-1732	-12901
LR test for IIA (τ_k =1)	χ^2 (4) = 57.81***	χ^2 (4) = 391.53***

Notes: Estimates obtained from a nested logit model. Standard errors are in parentheses. ***, **, *, denote p<0.01, p<0.05, p<0.1, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms. The country compositions of the EU groups are as follows: Core and Northern: Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Norway. Central and Eastern: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia. Southern: Greece, Italy, Malta, Portugal, Spain.

Table 10:   Estimated location probabilities for EU countries

Country	All investors	EU investors	Non-EU investors	Manufacturing	Services
Austria	3.4%	3.3%	3.2%	1.9%	3.8%
Belgium	6.3%	4.3%	9.9%	3.8%	6.8%
Bulgaria	2.9%	3.8%	1.3%	5.0%	2.3%
Czech Republic	3.1%	3.1%	3.0%	3.6%	3.3%
Germany	15.8%	13.5%	19.0%	17.7%	16.6%
Denmark	1.6%	1.5%	1.3%	0.7%	1.9%
Estonia	0.7%	1.1%	0.3%	0.8%	0.7%
Spain	3.9%	4.7%	3.0%	3.2%	3.6%
Finland	2.3%	2.2%	1.9%	2.0%	2.3%
France	10.6%	9.8%	10.0%	9.7%	11.0%
Greece	1.5%	1.9%	1.5%	0.9%	1.3%
Croatia	1.8%	2.1%	1.3%	2.3%	1.7%
Hungary	2.7%	3.1%	2.0%	3.5%	2.6%
Ireland	1.7%	1.5%	3.0%	1.2%	1.9%
Italy	8.8%	9.2%	8.6%	7.7%	8.5%
Lithuania	1.2%	1.7%	0.7%	1.6%	1.1%
Luxembourg	0.7%	0.6%	0.7%	0.1%	0.9%
Latvia	1.2%	1.8%	0.6%	1.7%	1.0%
Malta	0.1%	0.2%	0.1%	0.0%	0.1%
Netherlands	4.4%	3.3%	6.7%	2.4%	5.2%
Norway	1.1%	1.6%	0.4%	0.3%	1.3%
Poland	7.6%	8.8%	4.7%	11.2%	6.4%
Portugal	2.0%	2.6%	1.5%	1.2%	1.9%
Romania	4.5%	6.3%	1.8%	8.2%	3.4%
Slovenia	0.9%	1.0%	1.1%	1.0%	1.2%
Slovakia	2.8%	3.0%	2.6%	3.3%	2.7%
United Kingdom	11.6%	9.1%	15.4%	9.7%	11.9%

Notes: Estimates obtained from a nested logit model.

Given the focus of this paper on the role of corporate taxation on the location choice of FDI projects, Table 11 presents the implied elasticities of the country-specific location probabilities with respect to changes in the country-specific EATRs.

As shown in Column 1, the highest sensitivity of EU countries' attractiveness to FDI with respect to changes in the EATR is in Southern European countries while large countries appear to be the least sensitive. The implied elasticities of location probabilities range from -1.8 in Malta to -0.7 in the UK. Intra-EU investments appear not to be sensitive to changes in the EATR with the related elasticities close to zero. In contrast, the sensitivity of the location probabilities is the highest in the case of investments from outside the EU. Ireland has the highest sensitivity with an elasticity of -7.1 and the UK is the least sensitive with an elasticity of -3.2. In relation to FDI in manufacturing, the elasticity of the location probabilities with respect to the EATR ranges from -1.6 in Malta to -0.5 in Bulgaria.

Relative to FDI in manufacturing, the sensitivity of the attractiveness of EU countries to FDI in services with respect to changes in the EATR is higher. The respective elasticities range from -2.5 in Malta to 1.1 in the UK.

Table 11:   Sensitivity of EU countries' attractiveness to FDI to changes in their own EATR

Country	All FDI	EU Investors	Non-EU Investors	Manufacturing	Services
Austria	-1.0327	0.1989	-5.1564	-0.9428	-1.4964
Belgium	-1.0284	0.2040	-4.7663	-0.9493	-1.4897
Bulgaria	-0.8360	0.1540	-3.2431	-0.5064	-1.2138
Czech Republic	-1.1121	0.2083	-4.1157	-0.6915	-1.5824
Germany	-0.9141	0.1846	-4.1966	-0.7544	-1.3259
Denmark	-1.0538	0.2026	-5.2567	-0.9546	-1.5281
Estonia	-1.0994	0.2018	-4.1824	-0.6710	-1.5787
Spain	-1.5115	0.2996	-4.9872	-1.3186	-2.1769
Finland	-1.0553	0.2030	-5.2778	-0.9437	-1.5365
France	-1.0159	0.1986	-5.0704	-0.9022	-1.4784
Greece	-1.5716	0.3095	-4.9575	-1.4086	-2.2612
Croatia	-1.0595	0.1958	-4.0231	-0.6499	-1.5211
Hungary	-1.0823	0.2007	-4.0824	-0.6664	-1.5508
Ireland	-1.2519	0.2193	-7.0903	-0.7485	-1.9028
Italy	-1.1283	0.2372	-3.6304	-0.9601	-1.6103
Lithuania	-1.0164	0.1867	-3.8691	-0.6206	-1.4610
Luxembourg	-1.1010	0.2117	-5.4688	-0.9939	-1.5975
Latvia	-0.9947	0.1824	-3.7994	-0.6069	-1.4315
Malta	-1.7750	0.3510	-5.6091	-1.5732	-2.5411
Netherlands	-1.0217	0.2000	-4.8554	-0.9383	-1.4738
Norway	-1.0948	0.2087	-5.5006	-0.9920	-1.5891
Poland	-0.9620	0.1807	-3.7436	-0.5960	-1.4076
Portugal	-1.5328	0.3040	-4.9062	-1.3793	-2.1943
Romania	-0.9944	0.1817	-3.9471	-0.5971	-1.4600
Slovenia	-1.1579	0.2139	-4.3314	-0.7093	-1.6541
Slovakia	-1.0686	0.1991	-3.9525	-0.6597	-1.5315
United Kingdom	-0.7303	0.1607	-3.1571	-0.5969	-1.0893

Notes: Elasticities of location probabilities are computed at the country-specific sample means. The elasticity of the location probability for country i with respect to changes in its EATR is obtained following Greene (2000) and Wen and Koppelman (2001):

$$\varepsilon_i = \left[(1 - P_i) + \left(\frac{1 - \lambda_N}{\lambda_N} \right) * (1 - P_{i/N}) \right] * \beta X_i \, . \ \lambda_N \text{ is the estimated dissimilarity parameter for nest N.}$$

P_i is the location probability for country i. $P_{i/N}$ is the location probability for country i conditional on nest N being chosen. β is the estimated parameter for the EATR.

Source: Authors' estimates.

5   Conclusions

The evidence in this paper indicates that on average, other things equal, lower corporate effective average tax rates increase the attractiveness of EU countries to FDI. When distinguishing between intra-EU FDI projects and those originating from outside the EU, our estimates show that the location choice of FDI projects by investors from outside the EU is highly sensitive to the EATRs in host countries while, over and above other factors, the EATR does not seem to matter for the location choice of intra-EU FDI projects.

Our research also finds that investors respond differently to corporate taxation depending on whether they invest in manufacturing or services. While over and above other factors, the EATR does not appear to affect significantly the location choice of FDI in manufacturing, higher EATRs reduce the attractiveness of EU countries to FDI in services.

In addition, a key finding of this paper is that the importance of the corporate taxation for the attractiveness of EU countries varies depending on the origin of investors and sector. While the effect of the EATR on the chance to attract FDI is sizeable in the case of FDI from outside the EU and in services, it does not seem to matter for intra-EU and for FDI in manufacturing. Furthermore, while the EATR has a sizeable impact on the location choice of FDI from non-EU countries in both manufacturing and services, it has a greater impact in the case of FDI in services.

Taken together, our research results indicate that while the corporate taxation is an important determinant in attracting FDI to EU countries, other factors matter too. In particular, market size, market potential, production costs, geographic and cultural proximity, as well as research and innovation capacity are important determinants of the location choice of FDI.

Our results highlight also different patterns with respect to determinants of the location choice of FDI projects by investors from EU countries and investors from outside the EU. While intra-EU investors seem to be mainly efficiency seeking, investors from outside the EU are seeking access to the EU Single Market. Furthermore, while access to the EU Single Market does not seem to matter for FDI in manufacturing, it matters for FDI in services.

In terms of the sensitivity of the attractiveness of EU countries to changes in country-specific EATRs, our estimates indicate that the most sensitive are Southern European countries (Malta, Greece, Portugal, Spain) and the least sensitive Germany and the UK. This pattern is similar in the case of investments in manufacturing and services while a different pattern emerges in the case of investments from outside the EU. Ireland appears to be the most sensitive to changes in its EATR in terms of FDI from outside the EU, followed by Malta, Norway, Luxembourg, and Finland.

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Appendix A   Data Description

Table A1:   **Variables Definitions and Data Sources**

Variable	Definition	Data source
Location choice	Binary variable equal to 1 if a foreign affiliate was established in host country, 0 otherwise	Amadeus data set, Bureau van Dijk
Effective average tax rate (EATR)	The difference of the net present value of a profitable investment project in the absence of tax and the net present value of the same investment in the presence of tax.	Spengel et al. (2014)
Real GDP	GDP in 2005 prices	The World Bank, Economy & Growth Indicators
EU Single Market (market potential)	The sum of GDP in the host country and the inverse distance-weighted GDP of all alternative locations in the European Union other than the host country.	The World Bank, Economy & Growth Indicators, and CEPII
GDP per capita	GDP in 2005 prices over midyear population in host country	The World Bank, Economy & Growth Indicators
Distance	Distance in km between the host and home country capital cities	CEPII
Common language	Binary variable equal to 1 if home and host countries have a common official primary language, 0 otherwise	CEPII
Common border	Binary variable equal to 1 if home and host countries share a border, 0 otherwise	CEPII
R&D expenditure intensity	Public and private R&D expenditure as per cent of GDP	The World Bank, Science & Technology Indicators

Appendix B   Alternative Nested Structures

Table B1:   **Alternative Nested Structures Tested and Reason for Rejection**

Nest Version	Nested Structure	Reason for rejection
A	*United Kingdom and Ireland* *Core EU Group*: Austria, Belgium, France, Germany, Luxemburg, the Netherlands *Central and Eastern European EU Group*: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia *Northern EU Group:* Denmark, Finland, Norway *Southern EU Group*: Greece, Italy, Malta, Portugal, Spain	Estimates were not consistent with the profit maximization requirements for all variables ($\tau_k > 1$).
B	*Northern EU Group:* Denmark, Finland, Norway, United Kingdom, Ireland *Core EU Group*: Austria, Belgium, France, Germany, Luxemburg, the Netherlands *Central and Eastern European EU Group*: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia *Southern EU Group*: Greece, Italy, Malta, Portugal, Spain	Estimates were not consistent with the profit maximization requirements for all variables ($\tau_k > 1$).
Two Nests	*Advanced EU:* Austria, Belgium, France, Germany, Luxemburg, the Netherlands, Denmark, Finland, Norway, United Kingdom, Ireland, Greece, Italy, Malta, Portugal, Spain *Central and Eastern European EU Group:* Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia	Estimated log likelihood was lower than in the selected structure with four nests (the likelihood dominance criterion).

Appendix C   Estimates obtained with a conditional logit model (CLM)

Table C1:   Determinants of the location choice for new foreign affiliates in EU countries, 2002-2013

Explanatory variables	All FDI	EU Investors	Non-EU Investors
EATR	**-0.806***	**-0.433***	**-1.228***
	(0.047)	**(0.062)**	**(0.079)**
EU Single Market	0.281***	-0.121***	1.058***
	(0.032)	(0.040)	(0.065)
Market size (GDP)	0.695***	0.581***	0.888***
	(0.011)	(0.013)	(0.021)
GDP per capita	-0.613***	-0.718***	-0.369***
	(0.026)	(0.032)	(0.048)
Trade costs	-0.224***	-0.345***	0.363***
	(0.016)	(0.015)	(0.106)
Common language	0.638***	0.396***	0.856***
	(0.034)	(0.047)	(0.054)
Common border	1.078***	1.266***	0.832***
	(0.027)	(0.028)	(0.073)
R&D expenditure intensity	-0.677***	-0.543***	-1.095***
	(0.093)	(0.110)	(0.175)
R&D expenditure intensity squared	0.155***	0.115***	0.250***
	(0.022)	(0.026)	(0.042)
Number observations	448,402	285,461	162,941
Log likelihood	-49934	-32303	-16831

Notes: Estimates obtained with a conditional logit model. Standard errors are in parentheses. ***, **, *, denote $p<0.01$, $p<0.05$, $p<0.1$, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms.

Table C2: **Determinants of the location choice for new foreign affiliates in EU countries, 2002-2013, Manufacturing and Services**

Explanatory variables	All FDI		EU Investors		Non-EU Investors	
	Manuf.	Services	Manuf.	Services	Manuf.	Services
EATR	-0.599***	-0.864***	-0.168	-0.495***	-1.122***	-1.258***
	(0.142)	(0.051)	(0.187)	(0.069)	(0.226)	(0.084)
EU Single Market	0.353***	0.343***	0.019	-0.073	0.912***	1.116***
	(0.101)	(0.036)	(0.124)	(0.045)	(0.202)	(0.069)
Market size (GDP)	0.801***	0.665***	0.680***	0.555***	0.990***	0.842***
	(0.032)	(0.012)	(0.039)	(0.015)	(0.057)	(0.022)
GDP per capita	-1.326***	-0.471***	-1.469***	-0.595***	-1.077***	-0.194***
	(0.080)	(0.028)	(0.103)	(0.035)	(0.137)	(0.053)
Trade costs	-0.202***	-0.215***	-0.342***	-0.335***	0.280	0.317***
	(0.047)	(0.019)	(0.046)	(0.017)	(0.304)	(0.114)
Common language	0.759***	0.523***	0.416***	0.321***	1.129***	0.695***
	(0.097)	(0.037)	(0.135)	(0.053)	(0.158)	(0.058)
Common border	0.945***	1.153***	1.182***	1.306***	0.391*	1.005***
	(0.074)	(0.030)	(0.077)	(0.031)	(0.224)	(0.078)
R&D expenditure intensity	-0.806***	-0.514***	-0.673*	-0.333***	-1.199**	-0.990***
	(0.288)	(0.106)	(0.344)	(0.125)	(0.498)	(0.201)
R&D expenditure intensity squared	0.228***	0.118***	0.191**	0.069**	0.337***	0.220***
	(0.070)	(0.025)	(0.084)	(0.030)	(0.117)	(0.048)
Number of observations	48,413	347,115	31,346	217,349	17,067	129,766
Log likelihood	-5281	-38394	-3426	-24440	-1766	-13375

Notes: Estimates obtained with a conditional logit model. Standard errors are in parentheses. ***, **, *, denote p<0.01, p<0.05, p<0.1, respectively. The dependent variable is equal to 1 if a foreign affiliate was established over the period in the host country. Explanatory variables are lagged by one year with respect to the dependent variable. R&D expenditure intensity is in percentages. Trade costs, common language, common border are dummy variables. The rest of the explanatory variables are in logarithms.

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