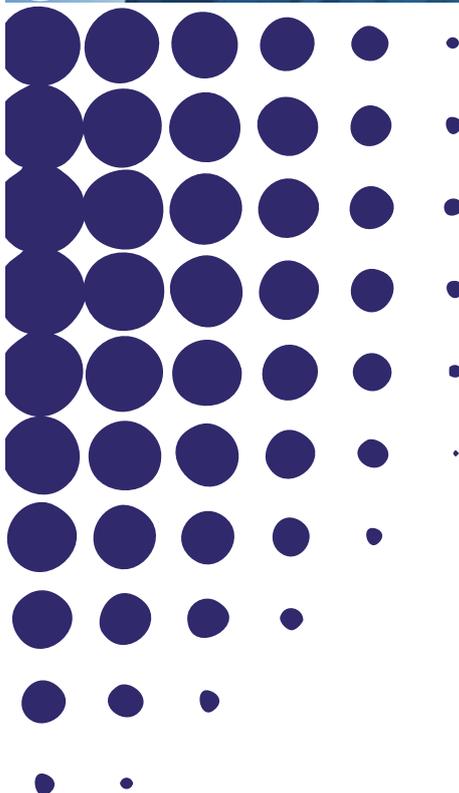


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MNEs location decisions in EU neighbouring countries
and economic institutions

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MNEs location decisions in EU neighbouring countries and economic institutions.

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Abstract

This paper investigates how the location behaviour of Multinational Enterprises (MNEs) is shaped by recipient countries' economic institutions. These include Government Size, Legal System & Property Rights, Sound Money and Market Regulation. By employing data on individual investment projects undertaken from 2003 to 2008, the study examines the location strategies of 6,905 European MNEs into a set of 23 countries, which include European New Member States, accession and candidate countries, European Neighbourhood Policy countries, and the Russian Federation. From a methodological point of view, the paper firstly implements standard Conditional and Nested Logit models, while, in a second step, the analysis benefits of the advantages associated with random-coefficient Mixed Logit. The latter allows unbinding the estimation from restrictions associated with IIA as well as evaluating MNEs heterogeneous preferences over location attributes. Results appear to be robust across different sample specifications and methodologies.

KEY-WORDS: Economic Institutions; Location Choice; Multinational Enterprises, Mixed Logit

JEL: F23, P33, L20, R30.

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1. Introduction

In recent years the European Union (EU) has strongly intensified the economic and political relationships with neighbouring countries. Two rounds of enlargement in 2004 and 2007 have brought several old socialist economies under the aegis of the EU, and more countries are nowadays candidate to membership. Moreover, the European Neighbourhood Policy (ENP) has been launched in 2004, with the aim of creating a ring of countries across the Mediterranean and the East with which the EU could intensify economic linkages as well as develop peaceful and cooperative relationships (COM, 2004; Wesselink and Boschma, 2012). The complex set of connections that the EU has gradually established with a wide range of actors in the area has gradually enhanced the economic and institutional integration between the EU itself and these new actors. While full economic integration is attained with New Member States (NMS), the interactions with candidate countries and ENP countries are still increasing. In this scenario, European Multinational Enterprises (MNEs) have the opportunity to exploit a larger number of markets and have a wider set of locations where to invest and set up their foreign operations.

The aim of this paper is primarily concerned with studying the patterns of investment undertaken by European MNEs towards a wide set of locations that are geographically close to the EU, including NMS, accession and candidate countries as well as ENP countries and the Russian Federation¹. Investigating the location strategies of MNEs is relevant for several reasons. Firstly, the presence of foreign-owned firms is frequently claimed to be beneficial for domestic firms. Indeed, MNEs are thought to carry more advanced technology and skills (Markusen and Venables, 1999), which are asserted to benefit domestic firms through increases in both local factors' productivity (Javorcik, 2004; Haskel et al., 2007; Blalock and Gertler, 2008; Greenstone et al., 2010) and innovative performance (Ascani and Gagliardi, 2013). Therefore, the occurrence of potential effects, both positive and negative, that MNEs exert on recipient economies represents a fair justification to investigate in depth the location strategies of these international actors. Secondly, MNEs global activities are important by themselves. In fact, in the last twenty years, the volume of FDI has dramatically increased (UNCTAD, 2012) and the attraction of affiliates of MNEs has reached the core of the policy agenda in most countries.

This paper contributes to the existing literature in several ways. First, while most studies on MNEs location decisions focus on European regions and countries, the US, specific transition economies and, more recently, China, the present work contributes by studying MNEs strategies in a wide set of countries that has remained largely unexplored. This is relevant for both academic research and policy making at the EU level, considering that the EU

¹ Countries considered in this paper are 23, namely: (a) NMS: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia; (b) Accession and candidate countries: Albania, Croatia and Turkey; (c) ENP: Ukraine; Algeria, Egypt, Israel, Jordan, Morocco, Syria, Tunisia; (d) Russian Federation.

Commission is strongly active in strengthening the interactions with most neighbouring countries. Secondly, from a methodological point of view, this work studies MNEs location behaviour by means of a random-coefficient Mixed Logit model, which is rarely employed in previous research despite its clear advantages over more commonly used methods². In fact, the great majority of studies tend to model MNEs location decisions through Conditional Logit or Nested Logit. The present analysis will implement both these latter models and will compare results with the Mixed Logit. Last but not least, this work focuses on the specific role played by economic institutions in shaping the patterns of MNEs behaviour. This is rarely considered in the related literature, which mostly explores agglomeration forces and locational advantages mainly conceptualized in terms of factor endowments³. Nonetheless, evaluating the relevance of economic institutions for foreign investors that undertake operations in transition and developing economies appears to be a crucial area for analysis.

Section 2 provides an overview of the literature on location choices and also a theoretical background about the role of economic institutions in economic performance. In section 3 data is described along with paper's hypotheses. The methodological setting is then introduced in section 4, while section 5 discusses results. Finally, some concluding remarks and policy comments are offered.

2. Background

In this section, the literature on location choices is firstly surveyed, highlighting that the majority of research focuses on relative location advantages or on some forms of agglomeration forces in shaping firms strategies. By contrast, the role of the institutional environment is rarely investigated. Secondly, the section will therefore review briefly the main insights emerging from studies on the effects of economic institutions on economic performance. As it will emerge in the following sections, this paper will attempt to combine the theory of firm location choices with the insights provided by the strands of literature that emphasize the relevance of economic institutions.

Theories of firm location choices

The study of location choices has developed along different lines of research, mainly associated with theories and ideas ascribable to economists such as David Ricardo and Alfred Marshall.

On the Ricardian side, traditional trade theory can be smoothly turned into a theory of location, where firm location choices are basically influenced by locations' comparative advantages and relative factor endowments (Krugman and Obstfeld, 2008). In this perspective, location decisions are strongly shaped by market characteristics, the relative costs of factors of production, which in turn depend upon their relative scarcity, and trade costs. Associated with this general view, empirical work mainly develops in the realm of international economics, where relative

² See Defever (2006; 2012) and Cheng (2008) for previous modelling of MNEs location choices with random-coefficient Mixed Logit.

³ The study by Du et al. (2008) is instead particularly related to this work since they investigate the relationship between economic institutions and US MNEs location choices in China. However, their study is developed by means of simple Conditional Logit.

factor endowments are intended in a broader sense and include various elements such as physical infrastructure (Coughlin et al., 1991), tax differentials (Devereux and Griffith, 1998), governance costs (Henisz, 2000), policy instruments (Basile et al., 2008), differences in environmental regulation (Dean et al., 2009), labour costs (Liu et al., 2010) and firms' heterogeneity (Chen and Moore, 2010).

Beside of that, following the increasing attention to the role of location in economic activity asserted by a number of relevant and diverse contributions in the last two decades (Krugman, 1991a and 1991b; Porter, 1994; Storper, 1997), a large portion of substantial research on location choices explores the role played by agglomeration forces in driving the behaviour of firms. Underpinned by this relatively recent attention to the role of location-bound elements which renews Marshall's story on agglomeration economies, most scholars in urban and regional economics argue that the spatial concentration of economic activity crucially shapes the nature of location behaviour (Head et al. 1995; 1999; Guimarães et al., 2000; Crozet et al., 2004; Disdier and Mayer, 2004; Devereux et al., 2007; Pusterla and Resmini, 2007; Mayer et al. 2010; Hilber and Voicu, 2010; Spies, 2010). Not only firms are proven to replicate the location decisions of previous firms with similar attributes, but it is suggested that agglomeration effects also act through demand linkages (Head and Mayer, 2004) as well as specialised inputs supply (LaFountain, 2005). Several works investigate patterns of localisation of foreign firms according to functional lines, highlighting that MNEs location behaviour and the fragmentation of the production process into different stages along global value chains also respond to concentration mechanisms (Defever, 2006; 2012; Strauss-Kahn and Vives, 2009). Furthermore, while the great majority of studies focus on agglomeration forces that are external in nature with respect to firms, research in management and business suggests that internal agglomeration economies are also suggested to be a determinant of within-firm co-location strategies across value chains (Mariani, 2002; Alcacer and Delgado, 2012).

More relevant to the interest of present analysis, a small number of studies are concerned with the role played by the institutional attributes of recipient economies in the selective location strategies of MNEs. In this vein, Du et al. (2008) investigate the location decisions of US MNEs investing in Chinese provinces over the period 1993-2001 looking at several indicators of economic institutions, such as intellectual property rights protection, government intervention in business operations, government corruption and contract enforcement. By implementing a conditional logit model, this study suggests that US MNEs location behaviour is positively sensitive to economic institutions variables. Recently, Crescenzi et al., (2012) analyse how innovation and socio-institutional conditions shape the geography of foreign investment in European regions in the period 2003-2008, highlighting that MNEs decisions are crucially associated with the quality of the socio-economic environment of host locations. Furthermore, the disaggregated analysis of value chain stages operated in this study suggests that the location of different business functions may follow different corporate strategies. In particular, in the case of more

sophisticated and knowledge-intensive stages of the value chain, local socio-economic conditions represent a strong incentive for foreign investment.

Economic institutions

The importance of economic institutions for economic performance is widely acknowledged in the political economy literature (Acemoglu and Robinson, 2005; Acemoglu et al., 2005). Generally, it is believed that economic institutions are relevant because they affect the structure of incentives and constraints within an economy, conferring stability and predictability to market exchanges. These elements, in turn, shape investment propensity, the organisation of economic activities as well as the distribution of resources within a society. In the following paragraphs, some contributions associated with specific aspects of economic institutions that are in the interest of the present research are briefly reviewed.

The role and size of government in economic growth are long debated (Ram, 1986; Carr, 1989; Barro, 1991). Nonetheless, it is not entirely clear whether increasing public expenditure yields positive or detrimental effects to economic performance (Agell et al., 1997). From a theoretical point of view, a large role of government (usually associated with high taxation) could lead to inefficiencies and rent-seeking (Shleifer and Vishny, 1999), thus hampering economic performance. On the other hand, if government produces an optimal level of public goods, this would benefit the entire economy. Empirical evidence remains fundamentally ambiguous⁴, with studies offering mixed indications including those arguing that large government size negatively correlates with growth (Fölster and Henrekson, 2001; Bergh and Karlsson, 2010) and others claiming that the relationship is insignificant (Agell et al., 2006).

Among economic institutions, the role of property rights in economic performance is also widely debated. In their well-known contribution on cross-country differences in economic growth, Acemoglu et al. (2001) claim that the protection property rights plays a crucial role in shaping long-run development trajectories. The literature acknowledges four main channels that connect property rights to economic performance (De Soto, 1989; Besley and Ghatak, 2009). Firstly, it is thought that more secure property rights both encourage individuals to invest and raise return rates by protecting against expropriation from the government or powerful groups (Demsetz, 1967; Besley, 1995; Goldstein and Udry, 2008). Secondly, insecure property rights may determine costs that individuals have to pay to protect their property. Thirdly, secure property rights may facilitate gains from trade by enabling the mobility of assets as factors of production (Besley, 1995). Finally, property rights are supportive of other market transactions.

⁴ See Bergh and Henrekson (2011) for a survey of studies.

Economic institutions are also connected to the stability of prices and market regulation. High inflation is believed to be harmful for investment since it increases the cost of capital (Madsen, 2003; Mallick and Mohsin, 2010). As far as market regulations are concerned, it is suggested that tighter regulatory constraints have a depressing effect on investment rate, and that both liberalisation aimed at increasing market entry and privatisation are beneficial (Alesina et al., 2005). Similarly, Djankov et al. (2002) argue that excessive regulation may hinder start-ups and entrepreneurship in general.

3. Data

Dependent variable

The hypotheses will be tested by employing information on individual investment projects undertaken by multinational firms over the period 2003-2008. Data come from *FDI Markets-Financial Times Business* database, which includes all cross-border greenfield and expansion investment. Joint ventures are tracked in this database only when they lead to new physical operation, whereas Mergers & Acquisitions as well as other equity investment are not included. Overall, the inclusion in the dataset is conditional on the fact that investment projects generate new jobs or capital investment. Foreign firms' operations are identified by Financial Times analysts through a wide variety of sources, including nearly 9,000 media sources, project data provided from over 1,000 industry organizations and investment agencies, and data purchased from market research and publication companies. Furthermore, each project is cross-referenced across multiple sources and more than 90% of investment projects are validated with company sources.

Specifically, this paper makes use of investment projects originated in EU countries and directed towards EU New Member States (NMS) and European Neighbouring Countries (NCs), the latter being Accession Countries (ACC), European Neighbourhood Policy (ENP) countries and the Russian Federation. Investment from the entire world towards the same destination countries are also employed to test the attractiveness of the countries of interest towards global capital. The dataset contains information on both greenfield (new investment) as well as brownfield (expansion investment). Since the aim of the analysis is to investigate MNEs location choices, only data on greenfield investment is considered. The reason for this is that the location of brownfield investment is clearly made in function of a greenfield investment undertaken in a previous period. Hence, only greenfield investment are subject to a choice based on location attributes. Table 1 provides information on new investment projects originating from EU-15 countries and locating in NMS (panel A) and NCs (panels B and C), namely: Balkan and Eastern countries (panel B) and Northern African and Middle East countries (panel C). It is not surprising that about 62% of EU-15 investors choose to remain in the EU by selecting a destination among NMS. In this area, Romania, Poland and Hungary are the top three destinations, with about 14.7%, 10.8% and 9.8% of EU-15 investment, respectively. However, it is worth noting that the most selected destination is outside the European Union borders.

Indeed, Russia is selected by EU-15 multinational companies in about 19% of cases. In the rest of the Balkans and the East, an additional 10% of EU-15 multinationals investment locates. Finally, with respect to Northern Africa and Middle East, 8.2% of EU-15 companies select a destination country in this group.

Table 2 is similar to Table 1 in describing investment projects by destination country. In this case, data for multinational firms from NMS is presented. Similarly to EU-15 companies, NMS firms tend to locate in the other NMS overall, with over 62% of location decisions choosing the EU enlargement area. Latvia, Romania and Bulgaria are the most selected destinations, with figures of about 13.9%, 12.2% and 10.6% respectively. Nevertheless, the most selected destination for investment remains Russia, with about 18% of firms choosing this location. In the Balkan and Eastern region, Ukraine performs well with slightly more than 12% of NMS companies being attracted.

Table 1: EU-15 investment projects by destination country, 2003-2008.

Destination Country	N of investment	Percentage
<i>A. New Member States</i>		
Bulgaria	551	7.98
Czech Republic	443	6.42
Estonia	142	2.06
Hungary	674	9.76
Latvia	152	2.20
Lithuania	139	2.01
Malta	6	0.09
Poland	748	10.83
Romania	1,012	14.66
Slovakia	319	4.62
Slovenia	100	1.45
Subtotal	4286	62.07
<i>B. Balkans and the East</i>		
Albania	38	0.55
Croatia	139	2.01
Russia	1,315	19.04
Turkey	298	4.32
Ukraine	263	3.81
Subtotal	2053	29.73
<i>C. Northern Africa and Middle East</i>		
Algeria	105	1.52
Egypt	84	1.22
Israel	37	0.54
Jordan	23	0.33

Morocco	203	2.94
Syria	11	0.16
Tunisia	103	1.49
Subtotal	566	8.20
Total	6,905	100

Source: own elaboration based on FDi Markets – FT Business.

Differently from EU-15 multinational firms, NMS firms seem not to attach particular importance to location drivers of Northern Africa and Middle East countries. As a matter of fact, virtually all investment originating from NMS locates in other NMS or in Balkan and Eastern neighbours. The main difference between information in Table 1 and Table 2 regards the magnitude of investment originating from the two areas.

Table 2: EU New Member States' investment projects by destination country, 2003-2008.

Destination Country	N of investment	Percentage
<i>A. New Member States</i>		
Bulgaria	87	10.60
Czech Republic	29	3.53
Estonia	34	4.14
Hungary	20	2.44
Latvia	114	13.89
Lithuania	60	7.31
Malta	0	0.00
Poland	21	2.56
Romania	100	12.18
Slovakia	41	4.99
Slovenia	4	0.49
Subtotal	510	62.12
<i>B. Balkans and the East</i>		
Albania	4	0.49
Croatia	49	5.97
Russia	148	18.03
Turkey	4	0.49
Ukraine	103	12.55
Subtotal	308	37.52
<i>C. Northern Africa and Middle East</i>		
Algeria	0	0.00
Egypt	1	0.12

Israel	1	0.12
Jordan	0	0.00
Morocco	1	0.12
Syria	0	0.00
Tunisia	0	0.00
Subtotal	3	0.37
Total	821	100

Source: own elaboration based on FDi Markets – FT Business.

This is more clearly described in Table 3, where investment by country of origin is presented. Data tells that nearly 90% of investment originates from EU-15 countries while only 10% come from NMS. Unsurprisingly, the top countries of origin in terms of number of investment projects are Germany, with over 22% of total investment, followed at fair distance by France, with nearly 12%, and United Kingdom, with about 10%. It is also worth mentioning that Austria has about the same weight of United Kingdom in this ranking. As far as NMS multinational firms are concerned, it seems that there are not large disparities across countries and their overall weight is rather comparable. This is apparent from the second last column of Table 3, where the reported percentage is the ratio between the information in column ‘N of investment’ over the total number of investment reported in the last row of the table. This last number represents the total number of investment originating from the EU-27. However, the situation appears significantly different if the total number of investment originating from NMS is considered instead of the EU-27 total. This ratio is presented in the last column of Table 3. Numbers in this column suggest that in the NMS area there are two broad groups of countries: those that generates a fair amount of foreign investment towards the destination countries of interest, such as Lithuania (17.7%), Estonia (16%), Poland (14%), Czech Republic (12.3%) and Hungary (11.5%), and those weighting much less as a percentage of the total number of investment. In this latter group, about 11.5% of investment is jointly generated by Bulgaria, Cyprus, Malta, Romania and Slovakia. Finally, between these two extreme groups, Slovenia and Latvia are home countries to multinationals responsible for about 9.6% and 7.6% of investment, respectively. However, it is worth remembering that, in absolute terms, total investment from NMS is about the same of that generated by UK multinationals only.

Economic institutions variables

As far as variables of interest are concerned, a large number of institutional variables are publicly traceable, ranging from measures of governance to political indicators. Nevertheless, as mentioned in previous sections, this paper is primarily concerned with the notion of economic institutions. For this reason, we employ data from the *Fraser Institute* which reflects the economic dimension of national institutional contexts. Particularly, four indicators are included in the analysis: Size of Government, Legal System and Property Rights, Sound Money and Market

Regulation. The following discussion combines the database description provided in Gwartney et al. (2012) with intuitions about the interactions between multinational firms and economic institutions.

Table 3: Investment projects by country of origin, 2003-2008.

Origin Country	N of investment	Percentage	
<i>A. EU-15</i>			
Austria	741	9.59	
Belgium	204	2.64	
Denmark	186	2.41	
Finland	348	4.50	
France	917	11.87	
Germany	1,755	22.72	
Greece	192	2.49	
Ireland	78	1.01	
Italy	459	5.94	
Luxembourg	64	0.83	
Netherlands	383	4.96	
Portugal	34	0.44	
Spain	397	5.14	
Sweden	380	4.92	
United Kingdom	767	9.93	
Subtotal	6905	89.37	
<i>B. New Member States</i>			
Bulgaria	18	0.23	2.19
Cyprus	27	0.35	3.29
Czech Republic	101	1.31	12.30
Estonia	131	1.70	15.96
Hungary	94	1.22	11.45
Latvia	62	0.80	7.55
Lithuania	145	1.88	17.66
Malta	6	0.08	0.73
Poland	115	1.49	14.01
Romania	31	0.40	3.78
Slovakia	12	0.16	1.46
Slovenia	79	1.02	9.62
Subtotal	821	10.63	100
Total	7,726	100	-

Source: own elaboration based on FDI Markets – FT Business.

With respect to Size of Government, this indicator measures the weight of political interactions in allocating resources, goods and services in the economy. Fundamentally, it is expected that when the political process substitutes individual choice and the ratio between public spending and private spending increases, then aggregate allocative efficiency decreases as well as economic freedom. This, in turn, discourages foreign investors because they expect that invasive government decision-making might interfere with their operations. Similarly, the presence of state-owned enterprises that usually operate in protected markets and rely on public resources rather than markets, consumers and capital investment, can easily represent a disincentive for foreign companies' location decisions. As far as Legal System and Property Rights are concerned, this indicator measures the extent to which governments perform their protective functions. Therefore, rule of law, security of property rights, independence of judiciary and courts are considered in this variable. Foreign firms are expected to locate in countries where their employees are protected, their property rights and contracts are legally enforced and where litigations are impartially conducted. In a sense, this dimension of economic institutions underpins the concept of market efficiency, since firms are more likely to engage in productive activity when their investment and efforts are rightfully protected. With respect to Sound Money, this indicator basically refers to the access of economic actors to a stable currency. Therefore, Sound Money is primarily connected to the concept of price stability. Indeed, with high inflation rates, prices are more likely to be distorted, thus limiting private actors' capacity to plan future businesses. In addition, contracts might be negatively affected through volatile inflation because this tends to erode property prices. In this respect, Sound Money appears fundamental to secure property rights. Hence, in countries where governments tend to finance public spending by generating money, foreign investors might face a situation of risk where contracts are violated through price distortion and private property is expropriated through depreciation. Because the Sound Money indicator is mainly concerned with the access to a stable currency, this variable is constructed in such a way that also potential access to alternative and more credible currencies within a single country is considered. Therefore, in two countries with similar rates of inflation and monetary policies, the quality of Sound Money will be higher where it is relatively easier to access more reliable currencies through the local banking system. Finally, this paper considers Market Regulation as an additional dimension of economic institutions. This basically refers to regulatory constraints to market entry as far as credit, labour and product markets are concerned. It is expected that markets that more heavily regulated discourage foreign investors because regulatory and bureaucratic restraints might represent an obstacle to market exchange, competition and private business. Unfortunately, although data exists for these three individual subcomponents, they are not available for all countries of interest and only an aggregate measure of Regulation encompassing credit, labour and product markets is employable with the sample of this paper. Hence, the analysis only accounts for overall market regulation without investigating the specific kind of market where this regulation operates. These *Fraser Institute*

variables are constructed on a scale from 0 to 10 where greater values indicate that economic institutions reflect more economic freedom. Over time these variables have been enriched with more comprehensive data and information. Therefore, it may happen that variables contain portions of artificial variation due to methodological improvement rather than actual variation in economic institutions. Hence, comparing data from different years would be problematic because variables could be built upon different measures across time. However, this paper employs the chain-linked indicators available in the database, which are essentially conceived to contrast this problem. Basically, chain-linked data takes into account changes in the measurement of indicators across time. Hence, variations in the chain-linked variables only reflect actual variations in the economic institutional dimensions, while variations due to changes in how institutions are measured are fundamentally eliminated.

Other independent variables

The analysis of multinational firms' location behaviour requires that characteristics of locations are taken into consideration. In line with the literature on firm location choices, this paper employs several groups of variables that reflect different potential drivers for localisation strategies of MNEs.

First, demand is considered as one of the main factors attracting European investors into foreign markets. Both internal and external demands are taken into account. Internal demand fundamentally reflects the market size of host countries and it is measured through countries' own GDP in constant prices US dollars 2005. In line with theory and existing evidence, it is expected that larger market size will attract more foreign investors. With respect to external demand, this is essentially countries' market potential (MP) *à la* Harris (1954). Therefore:

$$MP_j = \sum_{c=j} (GDP_c / d_{ic})$$

where market potential of location j is the distance-weighted internal demand of neighbouring countries c . The value of distance d is fixed at 1000km. This means that market potential of location j is given by the internal demand of its neighbouring countries c within a radius of 1000km. Similar to internal market demand, it is expected that market potential is positively associated with the location strategies of MNEs.

Secondly, trade costs are controlled for by employing a measure of geographical distance between the most populated cities of origin and destination countries in the sample. In line with theory, greater geographical distance is expected to discourage foreign investors. Furthermore, a dummy variable indicating geographical contiguity between origin and destination countries is included.

Thirdly, some characteristics of the national labour market are controlled for. The education level of host countries is taken into account by means of the ratio between secondary school age population and total population. Notwithstanding the existence of better measures of the stock of human capital at national level, this appears to be the only indicator that is available for destination countries in the sample. A positive relationship is expected

between this variable and the location of MNEs. Moreover, the effect of average wage is indirectly captured through per capita GDP (see Alsan et al., 2006). Indeed, wage data are rarely available for most destination countries in the sample and per capita GDP may represent a fair alternative to actual wage data since it provides a measure of the national average gross output. Consequently, a negative relationship is expected between this proxy for input cost and MNEs location behaviour.

Fourthly, different measures of agglomeration economies are considered. The percentage of urban population on total population is included to control for the relative importance of cities in generating externalities. Moreover, an indicator for the stock of past multinational firms investing in location j is constructed.

Table 4: List and description of variables

Variable	Description	Source
Dependent		
Choice	Dummy indicating location choices among 23 destination countries	FDi Markets
Independent		
<i>Economic Institutions</i>		
Government Size	Index (0-10) indicating the weight of public sector in economic life of location j .	Fraser Institute
Legal System and Property Rights	Index (0-10) indicating the extent to which government of location j protects economic and social actors.	Fraser Institute
Sound Money	Index (0-10) indicating the stability of prices and the reliability of currency in location j .	Fraser Institute
Regulation in Markets	Index (0-10) indicating regulatory restraints in labour, credit and product markets of location j .	Fraser Institute
<i>Demand</i>		
Ln Market Size _{$t-1$}	Log of GDP of destination j at time $t-1$.	WDI
Ln Market Potential _{$t-1$}	Log of the sum of distance-weighted GDP of all countries c within 1,000km from location j at time $t-1$, i for each $c \neq j$.	WDI / CEPII
<i>Trade Costs</i>		
Geogr. Distance	Physical distance measured in km.	CEPII
Geogr. Contiguity	Dummy equal to 1 if country of origin r and destination j are contiguous.	CEPII
<i>Labour Market</i>		
Ln Education Level	Log of the ratio between secondary school age population and total population in location j .	UNESCO
Ln Average Wage	Log of per capita GDP in location j .	WDI
<i>Agglomeration</i>		
Urban Agglomeration	Percentage of urban population on total population.	WDI
National Ownership	Stock of investment in location j from the same country of origin r of firm i .	FDi Markets
<i>Culture</i>		
Official Language	Dummy equal to 1 if country of origin r and location j share an official common language.	CEPII
Unofficial Language	Dummy equal to 1 if country of origin r and location j share an unofficial common language.	CEPII
Common Colonizer after 1945	Dummy equal to 1 if country of origin r and location j had a common colonizer after 1945.	CEPII
Colonial Link after 1945	Dummy equal to 1 if country of origin r and location j had a colonial tie after 1945.	CEPII
Same Country	Dummy equal to 1 if country of origin r and location j have been part of the same country in the past.	CEPII

This measure is adopted to capture any firm specific agglomeration effect that may derive from advantages that a multinational company might exploit when locates where other multinational firms have previously invested. Hence, the existing stock of investment should inform whether firms' past experience drives further location decisions. When constructing this variable also available information on brownfield investment is considered because corporate expansions signal to a new investor that previous multinational firms attach additional importance to a specific location. Since the mere count of investment projects undertaken in previous years does not reveal much about investors' behaviour, the analysis takes into consideration the potential occurrence of a 'national ownership' effect which would suggest the existence of patterns in the strategies of MNEs on the basis of the nationality. Therefore, a stock variable is generated for each location in each time period according to MNEs' country of origin. In line with studies exploring the role of agglomeration externalities, a positive relationship is expected with the location choice.

Fifthly, a set of cultural variables are included in the analysis. These consist of dummies indicating whether origin and destination countries share any cultural characteristics. By doing this, we are able to control whether countries speak common official or unofficial languages, had a common colonizer after 1945, had a colonial relationship after 1945, and have been a single national entity.

Finally, national fixed effects are included to control for any unobserved factor that operates at the country level and may play a role in attracting foreign investment.

Table 4 provides a description of all variables employed in the analysis. All variables are available for years from 2003 to 2008.

4. Methodology

Basic modeling: Conditional Logit

Following McFadden (1974), the great majority of the empirical literature on investment location decisions implies that MNEs strategies are fundamentally driven by individual maximization choices. In other words, it is thought that MNEs select locations on the basis of the expected utility or profit that each site may yield. Formally, the location choice problem can be written as follows:

$$(1) \quad \pi_{ij} = A_{ij} + \varepsilon_{ij}$$

where A_{ij} is a deterministic part that systematically impact profit π of firm i in location j . Profits π are also affected by an idiosyncratic component ε_{ij} , which includes all random forces that remain unobserved to researchers. The maximization of profit π implies that location j will be selected by firm i with the following probability:

$$P_{ij} = P(y_i = j) = P(\pi_{ij} > \pi_{ik}) = P(A_{ij} - A_{ik} > \varepsilon_{ik} - \varepsilon_{ij}), \forall k, k \neq j$$

that is, when locating in location j yields a greater profit than that associated with locating in every other location k . McFadden (1974) has demonstrated that, assuming that the random component ε is i.i.d., the probability that location j will yield firm i the greatest profit among all other alternative locations can be written:

$$P_{ij} = \frac{e^{A_{ij}}}{\sum_k e^{A_{ik}}}$$

This is simply a logit choice probability that can be estimated by means of Maximum Likelihood (ML) techniques. Considering the deterministic component only in the profit equation, it can be assumed that this is linear in parameters ($A_{ij} = \beta'x_{ij}$). Hence, it is possible to write the logit choice probability as

$$(2) \quad P_{ij} = \frac{e^{\beta'x_{ij}}}{\sum_k e^{\beta'x_{ik}}}$$

To calculate this probability, a Conditional Logit (CL) model is implemented and estimated by Maximum Likelihood (ML), as customary in the literature. This model basically allows exploring the effect of alternative-specific attributes on the probabilities that firms select a particular location among the set of alternatives. The main assumption in the CL is the Independence of Irrelevant Alternatives (IIA), which implies that the error term ε_{ij} is independent across locations. As a consequence, the CL does not take into consideration the potential correlation of unobserved forces across alternative options. For instance, this means that the presence or absence of an alternative in the sample has no effect on the probability of other alternatives to be selected by an individual firm. In this respect, the IIA appears as a rather strong assumption since it is very likely that similar alternatives are affected by similar unobserved factors. In the empirical case of this paper it is plausible to think that unobservable characteristics of locations are correlated: for instance, Northern African countries are likely to be affected by common random shocks.

Partitioning alternatives: Nested Logit

The standard analysis based on the CL is successively extended to a Nested Logit (NL) model. By doing this, the analysis means to explore the systematic patterns of substitution between alternatives that may emerge in MNEs' location strategies. An advantage of NL over CL is that the former allows modeling location decisions when there are reasons to believe that some locations are similar in unobserved terms. Hence, considering H non-overlapping nests denoted B_1, \dots, B_h , it is plausible to cluster similar alternatives in the same nest where the unobserved portion ε_{ij} of the profit equation (1) is correlated across locations. As a consequence, for nested locations, the ratio of probabilities of being selected is independent of the existence or attributes of alternative locations grouped in different nests B_g . In other words, IIA is still valid within each nest because probabilities rise proportionally when an alternative is eliminated in a different nest. From the point of view of MNEs location strategies, this would imply that locations in the same nest B_h are closer substitutes than locations in different nests B_g . At the same time, IIA does not hold across nests because ε_{ij} is uncorrelated for locations partitioned in different nests. Therefore, for

locations grouped in different nests, the ratio of probabilities of being selected depends on the existence or characteristics of alternative locations in the nests. Daly and Zachary (1978) and McFadden (1978) show that in the NL the choice probability for alternative j becomes:

$$(3) \quad P_{ij} = \frac{e^{\beta' x_{ij}/\lambda_h} (\sum_{k \in B_h} e^{\beta' x_{ik}/\lambda_h})^{\lambda_h - 1}}{\sum_{g=1}^H (\sum_{k \in B_g} e^{\beta' x_{ik}/\lambda_g})^{\lambda_g}}$$

where $\lambda_h - 1$ indicates the level of independence in the unobservable component ε_{ij} for locations partitioned in the same nest h . Higher values of λ_h imply larger independence within nest h whereas lower values mean stronger correlation. When $\lambda_h = 1$ for all H there is perfect independence in all nests and the choice probability of NL collapse to that of CL. In this respect, estimating a NL for MNEs strategies can provide interesting information substitution pattern among alternative locations.

In this paper, 23 alternative locations are grouped into three different nests, namely NMS, ACC and ENP. By doing this, it is possible to investigate whether MNEs strategic behaviour can be tracked along political-economic lines. In other words, European MNEs could be sensitive to asymmetries in economic and political integration between alternative locations and the EU. Therefore, to reflect this possible scenario, the three nests are designed to include locations that exhibit different political and economic relationships with the EU.

MNEs heterogeneous preferences over location attributes: Mixed Logit

A further extension of the analysis of MNEs' location behaviour is developed by implementing a Mixed Logit (MXL) model. This fundamentally is a generalization of the standard logit and offers the possibility to relax completely any restriction associated with the IIA. MXL has been mainly applied in research fields such as households' choices of appliances (Revelt and Train, 1998), transportation (Ben-Akiva and Bolduc, 1996; Bhat, 1998), multiparty elections (Glasgow, 2001) and health economics (Regier et al., 2009) and has become more popular since the advent of simulation techniques and increased computation speed of computers. The existing literature on MNEs location choices has rarely employed MXL, despite the advantages associated to it. Notable exceptions are very recent and include works by Defever (2006; 2012), Cheng (2008) and Basile et al. (2008). The present analysis implements a random-coefficient derivation of the MXL, in line with the Defever (2006; 2012) and Cheng (2008), with the aim of analysing whether MNEs have heterogeneous preferences over location attributes when they strategically select a location for greenfield investment⁵. In fact, while this paper hypothesizes that MNEs prefer good quality economic institutions, it is unrealistic to expect unambiguous results. Forces that shape location choices are not

⁵ Basile et al. (2008) adopt an error-component derivation aimed at investigating substitution patterns among alternative locations.

straightforward to evaluate for location characteristics might play a dual role in affecting MNEs behaviour (Barba Navarretti and Venables, 2004). In other words, in the present framework, it might be that some MNEs tend to prefer locations with poorer economic institutions because they aim at bypassing or eluding transparent market mechanisms when undertaking business operations. For instance, weaker economic institutions might facilitate rent-seeking or moral hazard behaviour, the creation of monopolistic positions, or simply allow capturing a share of host countries' public resources, through lobbying, subsidies or less legalized channels, such as corruption. This is particularly relevant in the case of the present study since the locations of interest encompass several transition economies and developing economies that are characterized by little transparency, weak democratic decision-making processes as well as strong vested interests that may influence market mechanisms. To take this into consideration, random coefficients are attached to variables of economics institutions, while fixed coefficients are kept for the remaining regressors.

Accounting for heterogeneity of MNEs locations' characteristics formally means that the parameter β , associated with an observable characteristic x of location j , can vary randomly across MNEs. Hence, recalling that the deterministic portion A of profit π is linear in parameters, the profit equation in (1) becomes:

$$(4) \quad \pi_{ij} = \beta_i' x_{ij} + \varepsilon_{ij}$$

where the vector of parameters β' for firm i reflects firm's preference over observable location attributes x . Thus, in the setting of random-coefficient MLX parameters β are not fixed as in CL and NL, but they can reveal MNEs' taste variation regarding location characteristics. Coefficients vary across MNEs in the population with distribution density $f(\beta)$. Following Train (2003), each MNE knows its own β_i (as well as ε_{ij}) for all alternatives and select the location that offers higher profit. However, random coefficients β_i remain unobserved and it is only possible to specify a distribution for them⁶. By doing this, parameters ϑ (i.e. mean b and standard deviation s) of the coefficients β_i can be estimated. In this paper, a normal distribution is specified for random coefficients associated with economic institutions. Thus, the analysis will inform whether MNEs exhibit heterogeneous tastes over different economic institutional settings. The unconditional choice probability to be estimated takes the following form:

$$(5) \quad P_{ij} = \int \left(\frac{e^{\beta' x_{ij}}}{\sum_k e^{\beta' x_{ik}}} \right) f(\beta|\vartheta) d\beta$$

This is the MXL probability, which basically consists of a weighted average of the product of logit equations evaluated at different values of β and where weights depend on the density $f(\beta | \vartheta)$ (Train, 2003). As mentioned, the aim is to estimate parameters ϑ , which is possible by means of simulation methods. Basically, simulation allows approximating probabilities for any given value of parameters ϑ . Thus, the simulated probability SP is initially computed as an average probability at different levels of β :

⁶ If the researcher knows β_i , this would allow estimating a choice probability similar to CL.

$$SP_{ij} = \frac{1}{R} \sum_{r=1}^R \frac{e^{\beta^r x_{ij}}}{\sum_k e^{\beta^r x_{ik}}}$$

where R is the number of draws, or replications. Basically, for calculating the SP_{ij} , the logit equation (2) is computed with each draw r , and eventually averaged. In the present analysis, $R=500$. Successively, SP_{ij} is entered into the log-likelihood function to obtain the following simulated log-likelihood SLL :

$$SLL = \sum_{i=1}^I \sum_{j=1}^J y_{ij} \ln SP_{ij}$$

where $y_{ij}=1$ if firm i chooses location j , zero otherwise. Therefore, it is possible to obtain the Maximum Simulated Likelihood (MSL) estimator, which takes the value of ϑ that maximizes SLL .

5. Results and discussion

All estimations are conducted for EU-15 and EU-27 MNEs investing in European New Member States, ENP countries and the Russian Federation. Additionally, an estimation including investment from the entire world is also run in order to evaluate the attractiveness of the locations of interest towards global capital.

Baseline results

CL results for EU-15, EU-27 and World MNEs investing in the area of interest are presented in Table 5, 6 and 7, respectively. In these Tables, column 1 shows results for the baseline specification where only the institutional features of host countries enter the model, controlling for national fixed effects. Results suggest that all the four indicators of the quality of economic institutions exhibit a positive relationship with the location strategies of MNEs from EU-15, EU-27 and World. In column 2, traditional market demand variables and trade costs are added. The inclusion of these controls does not affect the significance level of the institutional coefficients. Surprisingly, countries' internal demand appears to be insignificant for MNEs strategies. By contrast, market potential matters for MNEs from EU-15 and EU-27, but not for World MNEs, while greater geographical distance, implying higher trade costs, significantly discourages foreign investors. In column 3, dummies for geographical contiguity and cultural characteristics enter the specification. Economic institutions are still strongly significant, with the only exception of Market Regulation that loses some ground, especially in the EU-15 and EU-27 specifications. Next, in column 4 and 5, labour market characteristics are gradually included. Market Regulation completely loses its significance for MNEs from EU-15 and EU-27, while it remains weakly correlated with the location choice in the case of World MNEs. With respect to market demand variables, internal demand turns to be positive and significant when controlling for average wages, but in Table 7. Similarly, market potential is still strongly and positively correlated with MNEs strategies, with the exception of World MNEs. As expected, the education level of recipient countries seems to matter, while higher average wages discourage MNEs. Finally, in columns 6 and 7, measures of

agglomeration are gradually controlled for. Nonetheless, even in these full specifications, Government Size, Legal System & Property Rights and Sound Money still exhibit a 1% level positive relationship with MNEs location decisions in all the CL Tables, whilst Market Regulation, despite being positively correlated with the location choice, is no longer significant. Internal market size confirms its strong and positive association with MNEs decisions, whereas market potential becomes slightly less significant (10% level), with the exception of Table 7 where it is insignificant. Education still matters for EU-27 and World MNEs, but not for EU-15, suggesting that MNEs from old EU member states probably delocalize in the area of interest some business functions for which more basic skills are needed. Average wage is negatively correlated with the decision to invest in all CL Tables, as expected. Finally, both measures of agglomeration are strongly and positively associated with the dependent variable. This suggests that agglomeration economies are likely to play a role in attracting MNEs. Similarly, it exist a pattern of localization that follows national ownership lines. In other words, MNEs from the same country of origin tend to undertake investment projects in the same locations.

Table 5: Conditional Logit estimation of EU-15 MNEs location behaviour (6,905 greenfield investments).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable: Choice	CL	CL	CL	CL	CL	CL	CL
Government Size	0.177*** (0.032)	0.180*** (0.033)	0.179*** (0.033)	0.173*** (0.033)	0.191*** (0.033)	0.204*** (0.034)	0.212*** (0.034)
Legal System & Property Rights	0.231*** (0.059)	0.238*** (0.060)	0.229*** (0.059)	0.294*** (0.063)	0.312*** (0.064)	0.332*** (0.064)	0.313*** (0.064)
Sound Money	0.110*** (0.022)	0.096*** (0.026)	0.093*** (0.026)	0.100*** (0.026)	0.094*** (0.026)	0.106*** (0.026)	0.073*** (0.026)
Market Regulation	0.163** (0.075)	0.160** (0.077)	0.145* (0.078)	0.103 (0.078)	0.085 (0.079)	0.027 (0.082)	0.026 (0.082)
Ln Market Size _{t-1}		-0.590 (0.641)	-0.580 (0.644)	0.345 (0.702)	2.098** (0.881)	1.978** (0.883)	3.760*** (0.904)
Distance		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Ln Market Potential _{t-1}		1.793** (0.784)	1.887** (0.788)	2.707*** (0.824)	2.769*** (0.824)	2.255*** (0.846)	1.470* (0.850)
Ln Education Level				1.548*** (0.474)	0.951* (0.494)	0.534 (0.510)	0.800 (0.517)
Ln Average Wage					-2.409*** (0.744)	-1.744** (0.775)	-2.533*** (0.778)
Urban Agglomeration						0.148*** (0.053)	0.140*** (0.053)
National Ownership							0.003*** (0.000)
Observations	158,815	158,815	158,815	158,815	158,815	158,815	158,815
National dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographical contiguity	No	No	Yes	Yes	Yes	Yes	Yes
Cultural dummies	No	No	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.171	0.196	0.207	0.207	0.207	0.208	0.209
log likelihood	-17943	-17398	-17171	-17166	-17161	-17157	-17122

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: Conditional Logit estimation of EU-27 MNEs location behaviour (7,726 greenfield investments)

Dependent Variable: Choice	(1) CL	(2) CL	(3) CL	(4) CL	(5) CL	(6) CL	(7) CL
Government Size	0.192*** (0.031)	0.193*** (0.031)	0.184*** (0.031)	0.173*** (0.031)	0.186*** (0.032)	0.197*** (0.032)	0.208*** (0.032)
Legal System & Property Rights	0.221*** (0.057)	0.234*** (0.058)	0.221*** (0.058)	0.277*** (0.060)	0.294*** (0.061)	0.314*** (0.061)	0.295*** (0.061)
Sound Money	0.101*** (0.021)	0.0833*** (0.024)	0.0723*** (0.025)	0.0788*** (0.025)	0.0754*** (0.024)	0.0875*** (0.025)	0.0507** (0.025)
Market Regulation	0.221*** (0.072)	0.197*** (0.073)	0.145* (0.075)	0.115 (0.075)	0.098 (0.075)	0.043 (0.078)	0.035 (0.078)
Ln Market Size _{t-1}		-0.551 (0.594)	-0.561 (0.599)	0.426 (0.661)	1.687** (0.831)	1.585* (0.833)	3.607*** (0.847)
Distance		-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Ln Market Potential _{t-1}		2.058*** (0.743)	2.141*** (0.756)	2.874*** (0.782)	2.990*** (0.785)	2.545*** (0.805)	1.564* (0.806)
Ln Education Level				1.476*** (0.426)	1.143*** (0.435)	0.793* (0.447)	1.086** (0.452)
Ln Average Wage					-1.726** (0.692)	-1.113 (0.725)	-2.038*** (0.726)
Urban Agglomeration						0.138*** (0.051)	0.131*** (0.051)
National Ownership							0.004*** (0.000)
Observations	176,904	176,904	176,904	176,904	176,904	176,904	176,904
National dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographical contiguity	No	No	Yes	Yes	Yes	Yes	Yes
Cultural dummies	No	No	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.165	0.197	0.215	0.215	0.215	0.215	0.218
log likelihood	-20189	-19429	-18997	-18990	-18987	-18984	-18919

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Conditional Logit estimation of World MNEs location behaviour (11,764 greenfield investments)

Dependent Variable: Choice	(1) CL	(2) CL	(3) CL	(4) CL	(5) CL	(6) CL	(7) CL
Government Size	0.155*** (0.025)	0.161*** (0.026)	0.163*** (0.025)	0.158*** (0.026)	0.168*** (0.026)	0.178*** (0.026)	0.194*** (0.026)
Legal System & Property Rights	0.176*** (0.045)	0.187*** (0.045)	0.178*** (0.046)	0.225*** (0.048)	0.234*** (0.048)	0.253*** (0.049)	0.252*** (0.049)
Sound Money	0.075*** (0.016)	0.080*** (0.018)	0.086*** (0.019)	0.094*** (0.019)	0.094*** (0.019)	0.101*** (0.019)	0.054*** (0.019)
Market Regulation	0.174*** (0.057)	0.158*** (0.058)	0.143** (0.059)	0.116** (0.059)	0.105* (0.059)	0.060 (0.061)	0.071 (0.061)
Ln Market Size _{t-1}		-0.743 (0.478)	-0.694 (0.481)	0.058 (0.528)	1.048 (0.665)	0.926 (0.666)	2.707*** (0.675)
Distance		-0.0007*** (0.000)	-0.0005*** (0.000)	-0.0005*** (0.000)	-0.0005*** (0.000)	-0.0005*** (0.000)	-0.0005*** (0.000)
Ln Market Potential _{t-1}		0.680 (0.575)	0.489 (0.583)	1.002* (0.602)	0.983 (0.603)	0.728 (0.610)	-0.133 (0.610)
Ln Education Level				1.116*** (0.331)	0.798** (0.351)	0.510 (0.360)	0.793** (0.366)
Ln Average Wage					-1.347** (0.553)	-0.782 (0.578)	-1.643*** (0.582)
Urban Agglomeration						0.124*** (0.039)	0.145*** (0.039)
National Ownership							0.004*** (0.000)
Observations	269,112	269,112	269,112	269,112	269,112	269,112	269,112
National dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographical contiguity	No	No	Yes	Yes	Yes	Yes	Yes
Cultural dummies	No	No	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.148	0.172	0.192	0.192	0.192	0.193	0.197
log likelihood	-31377	-30485	-29745	-29739	-29736	-29731	-29577

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Overall, in line with this paper's hypotheses, the CL estimation suggests that economic institutions are important drivers of MNEs location decisions, with the only exception of Market Regulation, which turns out not to be a significant predictor for MNEs location strategies in the geographical area of interest. However, as explained in the methodology section, CL imposes the IIA restriction that treats the substitution of alternative locations in a rather unrealistic manner. For this reason, the analysis is not limited to the above mentioned results, but it further explores the relationship between MNEs strategic behaviour and the economic institutional environment of recipient economies.

Analysis of nests

As explained in the previous sections, the investigation of MNEs location strategies is expanded firstly by means of a NL analysis. This is based on the generation of three nests where 23 alternative locations are partitioned according to the nature of their economic and political integration with the EU. Hence, this modeling allows MNEs to select between locations that are European NMS, ACC or ENP. As evidenced in Table 8, NL estimation proves to be RUM-consistent, suggesting that partitioning locations into groups according to the quality and intensity of their relationship with the EU can provide relevant insights on the strategic behaviour of MNEs. More formally, the consistency of the proposed nested structure suggests that unobservable random shocks in the profit equation (1) affect MNEs decisions in a similar way within the same nest. Table 8 presents NL results for the most extended specification (similar to that in column 7 in Tables 5 to 7), where all regressors are included. CL results are broadly confirmed by the NL analysis in terms of significance and signs. With respect to economic institutions, all variables are positively related to MNEs location decisions. However, it becomes clear that foreign investors attach more importance to some specific features rather than others when selecting a location for establishing a foreign affiliate. Government Size and Legal System & Property Rights are highly significant determinants of MNEs location strategies, suggesting that European (and World) MNEs prefer locations where the role of the state in the economy is weaker and where legal contracts and rules are more frequently enforced. Sound Money is still significant, but less than in the CL, revealing that MNEs tend to locate where monetary stability and reliable currencies are available.

Table 8: Nested Logit estimation of MNEs location behaviour (Nests: NMS, ACC, ENP)

Dependent Variable: Choice	(1) EU-15 MNEs	(2) EU-27 MNEs	(3) World MNEs
Government Size	0.142*** (0.025)	0.130*** (0.021)	0.123*** (0.018)
Legal System & Property Rights	0.156*** (0.047)	0.130*** (0.038)	0.112*** (0.031)
Sound Money	0.050** (0.021)	0.031* (0.016)	0.030** (0.014)
Market Regulation	0.014 (0.057)	0.024 (0.047)	0.057 (0.039)
Ln Market Size _{t-1}	2.698*** (0.694)	2.313*** (0.586)	2.198*** (0.462)
Distance	-0.0009*** (0.000)	-0.0008*** (0.000)	-0.0005*** (0.000)
Ln Market Potential _{t-1}	0.822 (0.668)	0.833 (0.564)	-0.137 (0.447)
Ln Education Level	0.367 (0.352)	0.407 (0.284)	0.334 (0.230)
Ln Average Wage	-1.617*** (0.560)	-1.360*** (0.469)	-1.265*** (0.378)
Urban Agglomeration	0.061 (0.041)	0.049 (0.033)	0.042 (0.027)
National Ownership	0.003*** (0.000)	0.003*** (0.000)	0.004*** (0.000)
Observations	158,815	176,904	269,112
N of cases	6,905	7,726	11,764
National dummies	Yes	Yes	Yes
Geographical contiguity	Yes	Yes	Yes
Cultural dummies	Yes	Yes	Yes
RUM-consistent	Yes	Yes	Yes
log likelihood	-17057	-18823	-29409

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Market Regulation exhibits a positive relationship with location choices, but its coefficient is never significantly different from zero. Differently from CL, it is worth noting that the NL estimation provides smaller coefficients in terms of magnitude for these variables.

As far as traditional market demand variables and trade costs are concerned, market size is confirmed to play a relevant role, as in the more extended CL specifications, whilst locations' market potential is no longer statistically significant. Again, greater geographical distance appears to discourage foreign investors. With respect to labour market characteristics, the level of education does not play a role, despite being positively associated to MNEs decisions, whereas the proxy for average wage suggests that MNEs take into strong consideration the level of this cost when selecting a location for foreign operations. Finally, agglomeration measures are both positively connected to the decisions of MNEs to localize, but while agglomeration

economies associated to urbanity lose the significant effect predicted by CL, the country of origin effect passing through the ownership of the parent company still plays an important role.

Preference heterogeneity

A further extension in analysis is represented by MXL estimation. One first advantage of implementing MXL is that it completely unbinds the estimation from the restriction of the IIA. Furthermore, adopting a random-coefficient derivation of MXL, it is possible to investigate the potential heterogeneity of preferences of MNEs over location characteristics. As mentioned in the methodology section, heterogeneity is allowed to occur only for coefficients associated with economic institutions, while other regressors are kept fixed. Therefore, MXL estimates coefficient parameters ϑ , namely means b and standard deviations s , for variables that are specified to be random. MXL estimation results are showed in Table 9. The more extended specification is run for EU-15, EU-27 and World MNEs (columns 1, 3, and 5, respectively). As far as economic institutions are concerned, previous results are largely confirmed by the estimated means b of coefficients. MNEs strategies appear to be driven by process of allocation of resources that are underpinned by market mechanisms rather than public intervention or expenditure, thus supporting similar findings in Du et al. (2008) and corroborating the view that larger government size can be detrimental for economic performance (Fölster and Henrekson, 2001; Bergh and Karlsson, 2010). However, this paper does not argue that downsizing the role of the state in the economic life of a country will attract more MNEs. A more appropriate interpretation requires a contextualization of this positive and significant relationship. It is very plausible that government failures and waste of public resources are high in most of the countries in consideration, including Arab countries as well as most transition economies, or that most of the government spending is aimed at maintaining the political support to the government itself rather than providing a proper system of welfare and adequate services to citizens. This might discourage foreign investors that would face situations in which business climate is crucially deteriorated by the presence of large bureaucracies (Goel and Nelson, 1998; Ehrlich and Lui, 1999; Reinikka and Svensson, 2004).

Table 9: Mixed Logit estimation of MNEs location behaviour

Dependent Variable: Choice	ϑ	(1)	(2)	(3)	(4)	(5)	(6)
		EU-15 MNEs		EU-27 MNEs		World MNEs	
		Value	% > 0	Value	% > 0	Value	% > 0
Government Size	<i>b</i>	0.200*** (0.036)		0.185*** (0.034)		0.175*** (0.029)	
	<i>s</i>	-0.001 (0.008)		0.001 (0.005)		0.019 (0.105)	
Legal System & Property Rights	<i>b</i>	0.188*** (0.068)	66%	0.168*** (0.065)	68%	0.171*** (0.052)	72%
	<i>s</i>	0.471*** (0.103)		0.362*** (0.099)		0.302** (0.134)	
Sound Money	<i>b</i>	0.153*** (0.035)	65%	0.154*** (0.032)	64%	0.118*** (0.025)	63%
	<i>s</i>	0.389*** (0.044)		0.428*** (0.039)		0.349*** (0.033)	
Market Regulation	<i>b</i>	0.055 (0.086)		0.081 (0.082)		0.106 (0.065)	
	<i>s</i>	0.024 (0.020)		0.005 (0.010)		-0.003 (0.004)	
Ln Market Size _{t-1}		4.083*** (0.943)		4.110*** (0.892)		2.969*** (0.696)	
Distance		-0.001*** (0.000)		-0.001*** (0.000)		-0.0005*** (0.000)	
Ln Market Potential _{t-1}		1.644* (0.899)		1.847** (0.863)		-0.069 (0.642)	
Ln Education Level		0.993* (0.553)		1.399*** (0.485)		1.050*** (0.403)	
Ln Average Wage		-2.790*** (0.809)		-2.333*** (0.760)		-1.814*** (0.603)	
Urban Agglomeration		0.126** (0.054)		0.113** (0.052)		0.118*** (0.040)	
National Ownership		0.003*** (0.000)		0.004*** (0.000)		0.005*** (0.000)	
Observations		158,815		176,904		269,112	
N of cases		6,905		7,726		11,764	
National dummies		Yes		Yes		Yes	
Geographical contiguity		Yes		Yes		Yes	
Cultural dummies		Yes		Yes		Yes	
log likelihood		-17100		-18889		-29552	

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

With respect to property rights and the legal system, in line with research supporting the role of these institutions for economic performance and investment (Acemoglu et al., 2001; Goldstein and Udry, 2008), locations that perform better in their protective functions, thus increasing market efficiency, are more likely to be selected by MNEs. In a similar vein, price stability and reliability of monetary policies, which increase the capacity to plan future operations, represent a remarkable driver of MNEs location strategies, supporting the

general idea associated with the literature on inflation and price stability (Madsen, 2003). By contrast, despite being positively associated with the location decision, the presence of markets characterized by less bureaucratic burdens and restraints does not play a significant role in attracting foreign investors. As far as the standard deviation s of economic institution variables is concerned, this is statistically different from zero only in the case of Legal System & Property Rights and Sound Money, suggesting that the associated coefficient does vary in the sample of MNEs considered. Instead, evidence of heterogeneous coefficients does not emerge for Government Size and Market Regulation, indicating that preferences over these factors tend to be more uniform across foreign investors.

Values of b and s are employed in columns 2, 4 and 6 in order to provide an intuition about the extent of the heterogeneous preferences in MNEs strategies. For instance, in the case of EU-15 MNEs, Legal System & Property Rights takes parameters $b=0.188$ and $s=0.471$, such that 66% of the distribution is above zero, while the 34% is below. In other words, about two-thirds of greenfield FDI originating in the EU-15 systematically locates where contracts and rules are better enforced, while the rest prefers to locate where these are less protected. This figure does not vary substantially when EU-27 MNEs are considered, while it attains 72% in the case of World MNEs. More similar figures across samples emerge for the random coefficient associated to Sound Money, which also suggests slightly more heterogeneity in MNEs tastes than Legal System & Property Rights. The heterogeneity of these relationships poses interesting questions regarding MNEs strategies and their motives for investing in foreign markets. Despite being beyond the reach of the present study, investigating the roots of heterogeneous preferences over economic institutions represents a relevant question for future research. In this respect, it is suspected that the origin of heterogeneous tastes is associated with unobserved factors operating at the firm-level. Therefore, unveiling the systematic nature of heterogeneity of preferences over economic institutions will require adequate data that provides information on MNEs attributes.

For instance, with respect to the heterogeneity in MNEs preferences over Sound Money, it might be that there are underlying differences at the MNE individual level with respect to the modes of financing subsidiaries' activities. Therefore, MNEs that undertake operations in locations with higher rates of inflation may set up affiliates that borrow money externally from local financial markets rather than internally from the parent company. Since external debt is more plausibly expressed in local currency than internal, higher inflation can erode foreign affiliates' debt. While this can be one explanation of the heterogeneity of MNEs preferences over Sound Money, this paper does not suggest that locations should adopt high inflation rates or less stable currencies to attract foreign investment. Indeed, not only the large majority of MNEs in the sample systematically select locations where inflation is under control and currencies are reliable, but a lower level of Sound Money would also imply detrimental side-effects on the rest of the economy. According to the figures emerging from MXL estimation, there is also remarkable group of MNEs locating where economic institutions associated with property rights protection and the rule of law are weaker. Of course, this appears rather counterintuitive. Nonetheless, there could be situations in which some actors prefer poor economic institutions if they can capture advantages from these weaknesses. Such an institutional subversion phenomenon is

particularly documented in the case of transition economies, where political and economic elites basically replicate a system of flawed economic institutions that give them advantage over the rest of the population (Helmann, 1998; Helmann et al., 2000). A similar argument is developed by Sonin (2003) who argues that weak property rights allow rich agents to both benefit from unproductive activities such as rent-seeking and, at the same time, maintain expropriation instruments over the rest. Further, Glaeser et al. (2003) suggest that this subversion of economic institutions is intimately associated with inequality and that less secure property rights as well as weaker legal systems eventually favour a country's establishment, which aims at perpetuating the mechanisms that allow it accumulating power. In this vein, the argument is supported by the notions that economic institutions are generated by groups that exert *de jure* and *de facto* political power in a country (Acemoglu et al., 2005) and that political incumbents support imperfect institutions in order to maintain their benefits (Glaeser and Shleifer, 2002). In this picture, it is possible that some MNEs are oriented towards locations where they can establish influential connections with political and economic elites, which in turn allow them taking advantage of institutional poorness by obtaining rents or circumventing market rules. A similar argument is proposed by management scholars: pervasive government corruption can influence the entry modes of MNEs, which can find beneficial to enter new markets via FDI by engaging in corrupt behaviour (Rodriguez et al., 2005). Again, this can represent one explanation for the heterogeneity of results associated with Legal System & Property Rights. However, most MNEs prefer locations where the rule of law is enforced and property is protected. Furthermore, more secure property rights and functioning rule of law are beneficial for the economy even beyond their role in attracting foreign companies.

With respect to control variables, MXL estimation suggests that all variables considered have the predicted sign and are significantly different from zero, the only exception being represented by market potential in the case of World MNEs, which is non-significant.

6. Concluding remarks

In recent years the EU has intensified economic and institutional integration with its neighbouring countries, though with different intensity. Some countries have become EU members, some are candidate for membership and some others are part of the European Neighbouring Policy. In this scenario of growing integration, European firms have increased their operations in neighbouring countries through the setting up of new foreign affiliates.

This paper examines how recipient countries' economic institutions shape the location strategies of European MNEs in a large set of developing and transition countries that are geographically close to the EU. Theoretically, the well-known literature on location choices is combined with research strands that study the role of different economic institutions in economic performance. Data on individual investment projects are employed to investigate the location decisions of 6,905 European firms in 23 countries over the period 2003-2008. From a methodological point of view, empirical analysis starts with standard CL and NL models, as customary in the literature, and it successively is extended to a random-coefficient MXL, which is instead rarely adopted in studies on location decisions. Results are robust across specifications with different data samples as well as

across methodologies. Evidence suggests that, controlling for traditional drivers of location behaviour, economic institutions matter for MNEs strategies, with only one exception. First, countries where the government plays a larger role in the economy discourage foreign investors. Second, more secure property rights and a functioning legal system are important for foreign firms. Thirdly, stable rates of inflation and reliable currencies are positively associated with MNEs decisions. Fourthly, less regulatory constraints and burdens in markets appear not to be a significant driver of MNEs choices. Generally, these results are similar to Du et al. (2008), who looks at US MNEs investing in China in a CL setting. Moreover, the nested analysis reveals that MNEs do perceive the different levels of integration between EU and the destination countries when they select a location for investment. Finally, the random coefficient estimation suggests that MNEs do have heterogeneous tastes over recipient countries' economic institutions as far as variables indicating Legal System & Property Rights as well as Sound Money are concerned. It emerges that there is a minor portion of European firms that select locations where these economic institutions are less strong. Despite being beyond the scope of the present analysis, exploring the roots of this heterogeneity appears extremely relevant for future research. This is very likely related to heterogeneous characteristics at the firm level. In the case of Sound Money, it could be that heterogeneity is connected to different modalities of funding subsidiaries' activities (external vs. internal borrowing). With respect to heterogeneity in the case of Legal System & Property Rights, it may happen that some MNEs are able to establish influential connections with political and economic elites, which allow foreign investors taking advantage of institutional poorness by obtaining rents or bypassing market rules.

In terms of policy implications, it is suggested that improving economic institutions is very likely to be evaluated as a positive signal by foreign investors overall. This is even more relevant in the case of developing and transition economies, where economic institutions are frequently poor whilst MNEs are increasingly interested in expanding into the new markets that they represent.

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