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## Economic Institutions and the Location Strategies of European Multinationals in their Geographical Neighbourhood

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THE LONDON SCHOOL  
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LSE 'Europe in Question' Discussion Paper Series

# Economic Institutions and the Location Strategies of European Multinationals in their Geographical Neighbourhood

Andrea Ascani, Riccardo Crescenzi & Simona  
Iammarino

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# Economic Institutions and the Location Strategies of European Multinationals in their Geographical Neighbourhood

Andrea Ascani\*, Riccardo Crescenzi\*\* & Simona Iammarino\*\*\*

## Abstract

This paper investigates how the location behaviour of Multinational Enterprises (MNEs) is shaped by the economic institutions of the host countries. The analysis covers a wide set of geographically proximate economies with different degrees of integration with the 'Old' 15 European Union (EU) members: New Member States, Accession and Candidate Countries, as well as European Neighbourhood Policy (ENP) countries and the Russian Federation. The paper aims to shed new light on the heterogeneity of MNE preferences for the host countries' regulatory settings (including labour market and business regulation), legal aspects (i.e. protection of property rights and contract enforcement) and the weight of the government in the economy. By employing data on 6,888 greenfield investment projects, the random-coefficient Mixed Logit analysis here applied shows that, while the quality of the national institutional framework is generally beneficial for the attraction of foreign investment, MNEs preferences over economic institutions are highly heterogeneous across sectors and business functions.

**Keywords:** Multinational Enterprises, Economic Institutions, Location Choice, European Union

**JEL Code:** F23, P33, L20, R30

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# **Economic Institutions and the Location Strategies of European Multinationals in their Geographical Neighbourhood**

## **1. Introduction**

Over the past two decades the European Union (EU) has strongly intensified economic and political relationships with its geographically neighbouring countries. Two rounds of enlargement in 2004 and 2007 brought several ex-socialist economies under the aegis of the EU, Croatia joined in 2013, and more countries are currently candidate to membership. In addition, the European Neighbourhood Policy (ENP) was launched in 2004, with the aim of creating a ring of countries across the Mediterranean and the East of Europe 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 established with a wide range of actors in the area has gradually enhanced the economic and institutional integration between the EU itself and its counterparts. While full economic integration was attained with the New Member States (NMS), the interactions with candidate countries and ENP countries are still growing.

In this scenario, Multinational Enterprises (MNEs) from the Old EU-15 members have had wide and increasing opportunities to expand their operations within the continent and beyond its immediate borders. The aim of this paper is to study the location of investments undertaken by EU-15 MNEs towards a wide set of locations integrated or linked to different extents the Union: NMS, Accession and Candidate Countries as well as ENP countries and the Russian Federation.<sup>1</sup> This is a highly heterogeneous group of EU members, transition and developing countries, the latter two groups having in common their geographical proximity to the EU. This entails a set of privileged relationships with the Union, ranging from full membership in the case of NMS, accession treaties, action plans within the ENP framework, and bilateral agreements in the case of Russia.

In particular the paper aims to analyse the role of economic institutions in shaping MNE greenfield investment location decisions once new opportunities and geographical options are made available by tighter economic integration or more favourable preconditions for foreign investments as a result of formal agreements. By exploiting the unique conditions offered by the selected group of countries with varying degrees of economic integration with the EU and highly heterogeneous institutional conditions, the paper focuses on three key dimensions of the recipient economies: (i) regulatory characteristics connected to both national labour markets and business conditions; (ii) legal aspects relevant in market transactions, i.e. property rights protection and degree of contract enforcement; (iii) weight of government intervention in the host countries' economies.

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<sup>1</sup> The countries here considered are 21, namely: (a) NMS: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia; (b) Accession and candidate countries: Albania, Croatia (which joined the EU in July 2013) and Turkey; (c) ENP: Ukraine; Algeria, Egypt, Israel, Jordan, Morocco and Tunisia; (d) Russian Federation.

The contribution of the paper is threefold. First, it innovatively combines the literature on institutional conditions with the analysis of MNEs location strategies by focusing, differently from other existing works, on economic institutions and their different dimensions. Second, the paper acknowledges right from the start the high heterogeneity of MNE behaviour with reference to economic institutions, therefore making use in the empirical strategy of random-coefficient Mixed Logit (MXL) models (still rarely employed in this field of research)<sup>2</sup> in order to fully capture this heterogeneity and its drivers.<sup>3</sup> Third, notwithstanding the increasing geo-political and economic importance of the EU 'neighbourhood', there is very limited empirical evidence on the (evolving) position in global investment networks of this set of countries. Filling this gap is crucially important for the design of appropriate development policies by the European Union, as well as for national governments and a number of international organisations active in the area (e.g. United Nation Development Programme and the World Bank among others).

The analysis is based on the combination of data on 6,888 greenfield investment projects undertaken between 2003 and 2008 by MNEs from EU-15 countries into a set of 21 destination countries, and Fraser Institute data on their economic institutional conditions. The paper firstly applies a standard Conditional Logit model in order to maximise comparability with existing studies and, in a subsequent step, explores MNEs' behavioural heterogeneity by means of random-coefficient Mixed Logit. Although we should refrain from any causal interpretation of the results, the empirical analysis suggests that economic

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

<sup>3</sup> This methodology allows to model variation of preferences over location attributes in MNEs strategies.



institutions play a highly significant role in shaping greenfield investment decisions after controlling for other economic characteristics of the host economies, showing significant heterogeneity in MNEs' preferences over different institutional settings both by sector and by function of the MNE.

The paper is structured as follows: Section 2 provides an overview of the relevant literature on MNE location behaviour and on the role of economic institutions in attracting foreign investors, identifying the main research questions and hypotheses to be tested. Section 3 describes data and variables used in the analysis, and provides some descriptive evidence about the location of European foreign investment in the group of countries of interest and their institutional conditions. The methodology is discussed in Section 4, while Section 5 presents the empirical results. Finally, some concluding remarks and tentative policy implications are drawn in Section 6.

## 2. MNEs location strategies, host economy advantages and institutional conditions

### 2.1. MNEs and host economy advantages

The analytical framework for the analysis of MNE location decisions is Dunning (1977, 1988)'s Ownership-Location-Internalisation (OLI) eclectic paradigm. The OLI framework implies that the existence of ownership-specific advantages (O) possessed by some firms may lead to the decision to internalise (I) activities and

to undertake operations in sites endowed with location-specific advantages (L). Consequently, the combination of (O), (L) and (I) advantages justifies MNEs' existence and their ability to maximize their productive efficiency while minimising the impact of uncertain and imperfect markets on their operations.

However, whilst the interactions between ownership and internalisation advantages have been extensively investigated (see for example the seminal work by Buckley and Casson, 1976; Teece, 1977; Rugman, 1981; Hennart, 1982), the study of location advantages has suffered from a number of conceptual and empirical constraints, among which the problematic conceptualisation of space and the severe restriction in data availability (McCann and Mudambi, 2005; Iammarino and McCann, 2013).

In the traditional empirical economics literature attention has been directed to factor endowments in a broad sense, including, among other location drivers, physical infrastructure (e.g. Coughlin et al., 1991), tax differentials (e.g. Devereux and Griffith, 1998), policy instruments (Basile et al., 2008), and labour costs (e.g. Liu et al., 2010). Urban and regional economics contributions have focused on agglomeration economies, spatially bounded externalities and the geographical concentration of economic activity as drivers of MNEs' location behaviour (e.g. Head et al. 1995; 1999; Guimarães et al., 2000; Crozet et al., 2004; Disdier and Mayer, 2004; Devereux et al., 2007; Mayer et al. 2010; Hilber and Voicu, 2010; Spies, 2010). Furthermore, empirical studies within the New Economic Geography have shown that not only MNEs tend to replicate the location decisions of previous firms with similar attributes, but agglomeration effects also act through demand linkages (Head and Mayer, 2004) as well as specialised inputs supply (LaFountain, 2005).

The Economic Geography literature has more recently focussed on the fragmentation of international activities of MNEs along functional lines. This stream of research has highlighted that MNE location behaviour and the fragmentation of production processes into different functions respond to spatial concentration mechanisms (Defever, 2006 & 2012; Strauss-Kahn and Vives, 2009). The concept of Global Value Chains has been more recently added to this debate with the analysis of the linkages between MNEs location behaviour along value chains and the innovative and socio-economic environment of host locations (Crescenzi et al., 2014). These analyses suggest that MNE location of different business functions/Global Value Chain stages may follow different corporate strategies according to the characteristics of the investor, the location and the specific operation offshored. Besides, the location choice is influenced by the phase of firms' life cycle, leading to a co-evolution of location decisions and accumulation of firms' capabilities (Stam, 2007). Entry modes of MNEs into foreign markets are also shaped by spatial heterogeneity through the interaction between the strength of local externalities and firms' competencies (Mariotti et al., 2014).

Technological regimes and systems of innovation conditions have been extensively analysed in the literature at the intersection between Economic Geography and International Business (Beugelsdijk and Mudambi, 2013). The international spatial allocation of MNE activities tends to be marked by the existence of 'core and periphery' patterns according to the complexity of activities (McCann and Mudambi, 2005), leading to differences in territorial trajectories and growth dynamics and to cumulative causation mechanisms (e.g. Cantwell and Iammarino, 1998 & 2001). Since technological development tends

to be cumulative in nature and characterised by elements that are bounded in specific places, it is suggested that MNEs establish networks for innovation across locations by tapping into regional profiles of specialisation and strengthening local technological competencies, thus feeding a regional hierarchy of centres across and within national boundaries (Cantwell and Iammarino, 2003). The interactions between regional knowledge bases and MNEs technological strategies are investigated in terms of knowledge spillovers and externalities, particularly in the European (e.g. Cantwell and Santangelo, 1999; Cantwell and Piscitello, 2005; Ascani and Gagliardi, 2014) and the US context (Almeida, 1996).

## 2.2. Economic institutions and MNEs investments

The importance of economic institutions for economic performance and investments is widely acknowledged in the political economy literature (Knack and Keefer, 1995; Hall and Jones, 1999; Acemoglu and Robinson, 2005). Economic institutions affect the structure of incentives in the economy, influencing the stability and predictability of market (and non-market) transactions. In this sense they play a crucial role in shaping capital accumulation and (public and private) investments at all levels (Acemoglu et al., 2005). However, empirical research has primarily focused on domestic capital formation, with limited attention to the importance of economic institutions in driving foreign MNE investment decisions. Institutions influence MNEs' operations abroad by a) directly shaping the returns on their investments and the associated risk (direct effect); b) indirectly impacting upon other key investment drivers such as human capital and infrastructure (indirect effect) (see Knack and Keefer, 1995).

In particular the existing literature – still rather limited in terms of geographical coverage – has failed both to agree on the direct importance of institutional conditions versus other location drivers, and to reach a clear consensus on what typologies of institutions matter (if at all) for MNE investment decisions. The seminal contribution by Wheeler and Mody (1992) – looking at foreign investments of US Multinationals – combines a number of institutional indicators (including ‘stability of labour’, ‘red tapes’, ‘quality of the legal system’, etc.) and compares them with ‘classical’ factor endowment, agglomeration and ‘openness’ indicators. The empirical analysis concludes that US investments abroad are not driven by the institutional environment of the recipient economies but by other factors only indirectly influenced by institutions: even though sectoral and geographical heterogeneity turns out to be significant, factor endowments and openness remain the key investment drivers.

This evidence has been challenged by a number of subsequent studies that try to open the institutional ‘black-box’, aiming to disentangle the relative importance of specific sub-components of the host institutional environment and its ‘distance’ from that of the MNE’s home country. Very diverse sets of institutional conditions have been tested in different studies under the constraint of data availability for different groups of countries and time periods. Wei (2000) is the first study to re-open the debate by means of a comprehensive data set on bilateral FDI flows: his results suggest a negative relationship between corruption in the host country and FDI. Henisz (2000) looks at the negative impact of governance costs, while Campos and Kinoshita (2003) suggest that bureaucracy quality and rule of law are relevant drivers of FDI. In a similar vein, Globerman and Shapiro (2002) look at both inward and outward FDI in a large

sample of countries, finding a significant and positive association between MNEs' investments and a composite indicator of institutional quality. Meon and Sekkat (2004) investigate the Middle East and North Africa (MENA) economies suggesting that it is political risk in general, rather than one particular institutional aspect, which limits FDI into a given country in the area. Bénassy-Quéré et al. (2007) – who look at the link between bilateral FDI flows and institutional quality (captured by means of Fraser Institute indicators as in the present paper) – conclude that “good institutions almost always increase the amount of FDI received” (p.780), at the same time stressing the heterogeneity associated to distance in terms of institutional arrangements between the origin and the destination country of the investment.

A few complementary studies have looked at MNE location strategies at the sub-national level: within countries the degree of economic integration is higher and (formal) institutional arrangements are generally more homogenous, making it easier to capture the impact of other aspects of governance quality. Phelps et al. (2003), Phelps (2004), and Fuller (2005) find evidence of the importance of sub-national supportive institutions in different areas of the UK. Du et al. (2008) investigate the location decisions of US MNEs investing in Chinese provinces over the period 1993-2001 by looking at several indices of economic institutions. Using a conditional logit model the authors suggest that US MNE location behaviour reacts positively to stronger protection of property rights, relatively limited role of government in business, lower government corruption and more adequate contracting environment. These elements provide strong incentives to US MNEs to locate in Chinese provinces.

Another small number of studies have concentrated their attention on specific economic institutions and MNE behaviour. Three key dimensions emerge as the core components of economic institutions with a potential direct impact on the location decisions of foreign investments: regulatory framework conditions (with reference to both labour and capital investments, i.e. labour market and business regulations respectively), the legal environment (property rights and contracts' enforcement) and the role of public expenditure in the economy.

### *Labour market regulation*

Existing literature on the relationship between labour market regulation and foreign investment is scant. Using OECD data, Dewitt et al. (2003) highlight that unfavourable employment protection differential between destination and origin countries is harmful for investment. Other studies suggest that more flexible labour markets in recipient countries are positively correlated to higher inflows of investment from abroad (Cooke, 1997; Javorcik and Spatareanu, 2005). On the other hand, locating in a country with a more regulated labour market could be associated with a firm's higher productivity: thus, some stages of production or certain sectors will tend to locate in more regulated labour markets (Haucap et al., 1997).

Therefore, beyond the conventional belief and weak evidence that more rigid labour markets represent a cost for foreign investors, it is possible to argue that countries with different labour market regulations attract different types of foreign investment. For instance, Lee (2003) suggests that the existence of labour unions positively affects firms' greenfield location of new plants in the Korean

automotive industry. Delbecque et al. (2014) – evaluating the impact of labour market institutions on the location strategies of French MNEs in the OECD countries – suggest that labour market rigidity might reduce FDI attractiveness, but the magnitude of the effect is limited when compared to other investment drivers such as market potential.

### *Business regulation*

The empirical literature on the role of business regulation in general economic performance has only recently appeared (Djankov et al., 2006). In this respect, the quality of the business environment is a crucial determinant of performance since it stimulates investment. Accordingly, more business-friendly environments can be attractive for MNEs, which can operate in a context where bureaucratic and administrative costs are less relevant. Daude and Stein (2007) suggest that the regulatory quality is the single most important investment driver. Similar conclusions are reached by Kaditi (2013) looking at South-eastern European countries. Positive effects of a more deregulated business environment are also suggested by Kaplan et al. (2011): however, the latter study also highlights that such effects are only temporary and much less important than conventional wisdom holds. Globerman and Shapiro (2002) conclude that it is not regulation per se that matters but the effectiveness of its implementation and enforcement.

### *Property rights*

The role of property rights is widely debated in the existing literature on economic institutions. Acemoglu et al. (2001) claim that the protection of



property rights plays a crucial role in shaping long-run development trajectories. First, more secure property rights both encourage individuals to invest and raise return rates by protecting against expropriation from the government or powerful groups (Besley, 1995; Goldstein and Udry, 2008). Secondly, uncertain 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). As a consequence, MNEs may prefer locations where property rights are better acknowledged and rightfully protected by the legal system. Again there is no consensus in the empirical literature on the practical importance of this particular institutional aspect: Bénassy-Quéré et al. (2007) and Du et al. (2008) find a positive and significant effect, while Daniele and Marani (2011) suggest that only organised crime works as a deterrent for foreign investments while there is no effect of other property rights infringements.

### *Contract enforcement*

The importance of contract enforcement relies on the fact that market transactions and the general functioning of the economy are more predictable when economic agents know that contracts will be legally binding and they can use courts to resolve business disputes. In this respect, Markusen (2001) suggests that MNEs benefit from locations with strong and reliable contract enforcement since they can credibly commit to investment. Daude and Stein (2007) find a positive and significant impact in a large cross section of world economies, Kaditi (2013) confirms this result for Southern-European countries and Du et al. (2008)

find evidence that better contract enforcement in Chinese regions attracts US multinationals.

### *Government Intervention*

From a conceptual point of view, a large role of government could lead to inefficiencies and rent-seeking (Shleifer and Vishny, 1999). Therefore, MNEs may prefer location where governments play a relatively marginal role in the economy. For instance, Du et al. (2008) argue that stronger government intervention in business operations tends to discourage MNEs from locating in a particular region. Pogrebnyakov and Maitland (2011) reach similar conclusions looking at the telecommunication market in Europe and South America. On the other hand, however, governments often buy products from foreign firms, either directly or through state-owned enterprises, or purchase goods from domestic firms that are vertically connected with MNEs' subsidiaries. In this sense, larger public sector consumption may be an appealing feature for MNEs since it increases the size of host countries' markets.

## 3. Data

### 3.1. MNE Investment

We employ information on individual investment projects undertaken by MNEs over the period 2003-2008 provided by the *FDi Markets-Financial Times Business*

database, which includes all cross-border greenfield and brownfield investment.<sup>4</sup> Foreign firms' operations are identified by Financial Times analysts through a wide variety of sources, including nearly 9,000 media sources, project data from over 1,000 industry organisations 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. In addition, Crescenzi et al. (2014) show that investment decisions captured by this database are highly correlated with other macro-level data on FDI from UNCTAD and the World Bank.

Specifically, this paper makes use of investment projects originated in EU-15 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.<sup>5</sup> Since the aim of the analysis here is to investigate MNE location choices, only data on greenfield investment are considered, since the location of brownfield investment is clearly a function of greenfield investments undertaken in previous periods: hence, only greenfield investment are subject to a choice based on location attributes.

Table 1 provides information on new investment projects in 2003-2008 originating from EU-15 countries in NMS (panel A) and NCs, that is Balkan and Eastern countries (panel B) and Northern African and Middle East countries

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<sup>4</sup> In this database joint ventures are tracked only when they lead to new physical operations, 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 employment or capital investment.

<sup>5</sup> Investment from the EU-27 and the whole world towards the same destination countries are also employed to test the attractiveness of the countries of interest with different samples.

(panel C). It is not surprising that about 62% of EU-15 investors still choose to remain in the EU by selecting a destination among NMS.<sup>6</sup> In this area, Romania, Poland and Hungary are the top three destinations, with about 14.7%, 10.9% and 9.8% of EU-15 investment, respectively. The trend over the 2000s, however, suggests that the huge attractiveness of NMS reached its peak in anticipation to the full EU membership and it is now declining, replicating a pattern rather typical of previous EU enlargements and restructuring. In the NCs, instead, MNEs' presence has increased particularly since the mid-2000s. In terms of cumulative inflows, the most selected destination outside the European Union is Russia, with a share of 19%. The rest of the Balkans and the East attracts an additional 10% of EU-15 investment in the area, whilst Northern Africa and Middle East account for about 8%.

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<sup>6</sup> Most of NMS entered the EU in 2004, while Romania and Bulgaria joined in 2007.

## Location Strategies of EU-15 MNEs in the European Neighborhood

**Table 1: EU-15 investment projects and quality of economic institutions, 2003-2008.**

Host Countries	MNEs Investments		Quality of Economic Institutions				
	N of investment	% investment	Labour market regulation	Business regulation	Protection of property rights	Legal enforcement of contracts	Government expenditure
<i>A. New Member States</i>							
Bulgaria	551	8.00	6.96	5.60	4.09	4.77	17.97
Czech Republic	443	6.43	7.47	5.16	5.72	3.59	21.46
Estonia	142	2.06	5.87	7.37	7.25	6.02	17.58
Hungary	674	9.79	6.84	6.12	6.51	7.06	22.45
Latvia	152	2.21	6.43	6.29	5.88	7.25	18.50
Lithuania	139	2.02	5.45	6.50	5.80	7.35	19.04
Poland	748	10.86	6.52	5.49	4.66	4.27	18.12
Romania	1,012	14.69	5.91	6.54	4.77	5.17	12.19
Slovakia	319	4.63	7.61	5.85	5.98	4.59	18.42
Slovenia	100	1.45	5.44	6.34	6.27	3.93	18.46
Subtotal / Average*	4,280	62.14	6.45*	6.13*	5.69*	5.40*	18.42*
<i>B. Balkans and the East</i>							
Albania	38	0.55	5.79	5.67	3.30	5.17	9.31
Croatia	139	2.02	5.65	5.62	4.70	5.40	19.95
Russia	1,315	19.09	6.03	4.73	3.34	7.53	17.38
Turkey	298	4.33	4.09	6.29	5.06	6.16	12.34
Ukraine	263	3.82	6.22	4.08	3.40	5.29	18.18
Subtotal / Average*	2,053	29.81	5.56*	5.28*	3.96*	5.91*	15.43
<i>C. Northern Africa and Middle East</i>							
Algeria	105	1.52	4.96	5.62	4.25	4.39	12.43
Egypt	84	1.22	5.01	5.06	5.77	3.41	12.03
Israel	37	0.54	4.84	6.64	6.98	3.46	25.71
Jordan	23	0.33	8.38	6.45	7.18	3.38	22.01
Morocco	203	2.95	3.62	6.09	5.62	4.3	18.31
Tunisia	103	1.50	6.30	6.79	7.00	4.88	16.67
Subtotal / Average*	555	8.06	5.52*	6.11*	6.13*	3.97*	17.86*
Total / Overall Average*	6,888	100	5.97*	5.92*	5.41*	5.11*	17.55*

Source: own elaboration based on FDi Markets – FT Business and Fraser Institute Data

### 3.2. Institutional Conditions

A large number of institutional variables are publicly available, 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. The aim is in fact covering some aspects of national institutional settings that directly characterise a country's economic life and affect the degree of attractiveness towards foreign investment.

In line with other existing studies on foreign investments and institutions (e.g. Bénassy-Quéré et al. 2007; Delbeque et al. 2011), we employ data from the Fraser Institute as it provides information for all countries covered in our analysis. This dataset contains a number of indicators reflecting several economic dimensions of national institutional contexts. In particular, we employ the following four measures of institutional quality: labour market regulation, business regulation, protection of property rights, and legal enforcement of contracts. In addition, we use data from the World Bank's World Development Indicators (WDI) to include the relevance of government expenditure in destination countries. With these five indicators we cover three main areas of the economic-institutional environment: (i) regulatory aspects (in labour market and business), (ii) legal aspects (property rights and contract enforcement), and (iii) extent of public intervention in the economy.

*Labour market regulation:* our variable for labour market regulation proxies the flexibility of national labour markets. This is an index encompassing information on countries' hiring and firing rules, collective bargaining, worker dismissal

costs, conscription, working hours and minimum wage. Higher values of the index are associated to more flexible regulatory settings.

*Business regulation:* this indicator includes costs associated to bureaucracy, taxes, bribes and other administrative burdens that may discourage MNEs from starting a business in a country. As above, this is an index with higher values reflecting a less regulated environment.

*Protection of property rights:* we measure property rights protection by means of an index assuming higher values when property rights are more protected.

*Legal enforcement of contracts:* this aspect refers to the capacity and effectiveness of courts to enforce rules and contracts between parties. This is measured with an index taking higher values for countries with better contracting environments.

*Government intervention:* we employ the percentage of general government's final consumption expenditure on GDP, as provided by the World Bank's WDI.

Table 1 above includes information on the characteristics of the economic institutions of the countries under analysis. Institutional conditions are heterogeneous across the countries of the EU geographical vicinity but generally comparable. The NMs show, on average, higher values of the institutional indicators and generally higher shares of public expenditure in total GDP when compared to other countries in the group. The Balkans and the East, in comparison with the NMs, show lower average values for the economic institution indicators: this group includes some countries candidate to EU membership, a process that formally requires gradual institutional convergence towards EU standards. The final set of countries includes Northern Africa and

the Middle East. In this group average values of the institutional indicators are upward biased by Israel and Jordan: after excluding these latter two countries, the average institutional quality of the area is lower than in the other groups. Overall, the countries covered in the analysis offer an ample variety of institutional arrangements that is deemed particularly suitable to test the location behaviour of MNEs.

### 3.3. Other location drivers

The analysis of the link between MNE location choices and economic institutions requires taking into account other relevant characteristics of the host economies. In line with the literature on MNE location choices, this paper employs several control variables that reflect different potential drivers for the localisation strategies of MNEs.

First, demand is considered as one of the main factors attracting European investors into foreign markets. Both internal and external demand is taken into account. Internal demand fundamentally reflects the market size of the host countries and it is measured through their own GDP at constant prices, in 2005 US dollars. In line with theory and existing evidence, it is expected that a larger market size will attract more foreign investors (Wheeler and Mody, 1992; Billington, 1999). External demand is instead captured by means of a standard market potential (MP) indicator *à la* Harris (1954), as customary in the literature. Similar to the internal market demand, it is expected that market potential is positively associated with the location strategies of MNEs.



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: intuitively, greater geographical distance is expected to discourage foreign investors (Bevan and Estrin, 2004; Kleinert and Toubal, 2010). Furthermore, a dummy variable indicating national border contiguity between origin and destination countries is included.

Some characteristics of national labour markets are also controlled for. The education level of host countries is taken into account by means of the ratio of secondary school age population to total population. Notwithstanding the existence of better proxies of human capital at the national level, this appears to be the only available indicator for the destination countries in our 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. A negative relationship is expected between this proxy for input cost and MNEs location behaviour.

Furthermore, 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 (Glaeser et al., 1992; Head et al., 1995). An indicator for the stock of past foreign investment in location  $j$  is constructed. This measure captures firm-specific agglomeration effects that may derive from the advantages accruing to an MNE by locating where other MNEs have previously invested. Hence, the existing stock of investment should inform whether firms' past experience drives further location

decisions (Basile et al., 2008). In constructing this variable available information on brownfield investment is also 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 in each time period, which would suggest the existence of patterns in the strategies of MNEs on the basis of their nationality. Therefore, a stock variable is generated for each location according to the MNEs' country of origin: in line with studies exploring the role of agglomeration externalities, a positive relationship is expected with the location choice (Wheeler and Mody, 1992; Barrell and Pain, 1999).

A set of cultural variables includes dummies indicating whether origin and destination countries share cultural characteristics, thereby controlling for 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. These variables are frequently employed in studies on the internationalisation decisions of firms (Rauch, 1999; Perez-Villar and Seric, 2014).

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 A.1 in Appendix A provides a description of all variables employed in the analysis; all are available for years from 2003 to 2008.

## 4. Methodology

### 4.1. Capturing MNEs heterogeneous preferences for economic institutions: Mixed Logit Models

Following McFadden (1974), the great majority of the empirical literature on investment location decisions implies that MNE 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 on the basis of the characteristics of the host economies. Conditional Logit (CL) models allow 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  $\varepsilon_{ij}$  is independent across locations.

An extension of the analysis of MNE location behaviour is developed by implementing a Mixed Logit (MXL) model. This is basically a generalization of the standard logit and offers the possibility to relax completely any restriction associated with the IIA. The existing literature on MNE location choices has rarely employed MXL, despite the advantages associated to it. Notable exceptions are relatively 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 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

investment.<sup>7</sup> The analysis of the literature has shown that it is unrealistic to expect unambiguous results. Indeed, this paper aims to test if the lack of consensus on the role of specific institutional features of host economies might be explained precisely by the heterogeneity of MNEs' preferences over specific institutional attributes. It is plausible that some MNEs tend to prefer locations with weaker economic institutions because they aim at bypassing or eluding transparent market mechanisms when undertaking business operations abroad. 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 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 location drivers.

Accounting for heterogeneity of MNE locations' characteristics formally means that the parameter  $\beta$ , associated with an observable characteristic  $x$  of location  $j$ , can vary randomly across MNEs. Formally, the profit equation that each firm maximizes when investing abroad can be specified as:

$$(1) \quad \pi_{ij} = \beta_i' x_{ij} + \varepsilon_{ij}$$

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<sup>7</sup> Basile et al. (2008) adopt an error-component derivation aimed at investigating substitution patterns among alternative locations.

where the vector of parameters  $\beta'$  for firm  $i$  reflects firm's preference over observable location attributes  $x$ . Thus, in the setting of random-coefficient MLX parameters  $\beta$  are not fixed as in CL, 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  $\beta_i$  (as well as  $\varepsilon_{ij}$ ) for all alternatives and select the location that offers higher profit. However, random coefficients  $\beta_i$  remain unobserved and it is only possible to specify a distribution for them<sup>8</sup>. By doing this, parameters  $\theta$  (i.e. mean  $b$  and standard deviation  $s$ ) of the coefficients  $\beta_i$  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:

$$(2) \quad P_{ij} = \int \left( \frac{e^{\beta' x_{ij}}}{\sum_k e^{\beta' x_{ik}}} \right) f(\beta|\theta) d\beta$$

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

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<sup>8</sup> If the researcher knows  $\beta_i$ , this would allow estimating a choice probability similar to CL.

$$(3) \quad SP_{ij} = \frac{1}{R} \sum_{r=1}^R \frac{e^{\beta^r x_{ij}}}{\sum_k e^{\beta^r x_{ik}}}$$

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  $SLL$ :

$$(4) \quad SLL = \sum_{i=1}^I \sum_{j=1}^J y_{ij} \ln SP_{ij}$$

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  $\theta$  that maximizes  $SLL$ .

## 5. Empirical results

All estimations are conducted for EU-15 MNEs investing in European New Member States, Candidate/Accession, ENP countries and the Russian Federation. Additionally, estimations on investment from the EU-27 and the whole world are also run as a benchmark and robustness check in order to increase the size of the sample of foreign investments.<sup>9</sup>

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<sup>9</sup> CL results are qualitatively identical to EU-15 results and are available upon request. The main MXL results are included in the tables.

## 5.1. Baseline results

Table 2 presents the results from CL estimations. Column 1 provides information for the baseline specification. The results suggest that three out of five indicators of the quality of economic institutions exhibit a positive and statistically significant relationship with the location decisions of MNEs: business regulation, government expenditure and legal enforcement of contracts. Conversely, labour market regulation and property rights protection are not significant. This specification includes controls for market demand variables, proxies for trade costs (i.e. geographical distance between origin and destination countries and a dummy for contiguity), as well as dummies for cultural characteristics. All controls show the expected sign. Next, in columns 2 and 3, labour market characteristics such as education level of the population and average wage are included. Both enter the regression with the expected signs, although average wage is only weakly significant. Finally, we take into account agglomeration forces in the last two columns of Table 2. These turn out to be strongly correlated with the location strategies of MNEs. With the gradual inclusion of all our controls, the relevance of economic institutions evidenced in column 1 remains unchanged. MNEs from EU-15 appear to be sensitive to some aspects of the national economic institutional setting of host countries. More favourable business regulation, a stronger presence of the state in the economy and an appropriate contracting environment play a positive role in shaping the strategic behaviour of MNEs.

**Table 2: Conditional Logit estimation of EU15 MNEs location behaviour**

Dep.Var.: Location choice	(1)	(2)	(3)	(4)	(5)
Labour Market Regulation	0.018 (0.043)	0.028 (0.044)	0.044 (0.045)	-0.004 (0.049)	-0.010 (0.049)
Business Regulation	0.401*** (0.057)	0.393*** (0.057)	0.382*** (0.058)	0.371*** (0.058)	0.434*** (0.058)
Government Expenditure	0.059*** (0.014)	0.065*** (0.014)	0.0623*** (0.014)	0.067*** (0.014)	0.045*** (0.015)
Protection of Property Rights	0.0017 (0.039)	0.012 (0.039)	0.026 (0.040)	0.010 (0.040)	0.005 (0.040)
Legal Enforcement of Contracts	0.567*** (0.128)	0.559*** (0.129)	0.560*** (0.127)	0.683*** (0.138)	0.591*** (0.139)
ln Market Size $t_{-1}$	-0.455 (0.781)	0.352 (0.837)	1.189 (0.961)	0.919 (0.974)	2.441** (0.988)
ln Market Potential $t_{-1}$	1.728** (0.860)	2.405*** (0.891)	2.591*** (0.896)	2.044** (0.911)	0.979 (0.917)
Distance	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
ln Education Level		1.291*** (0.470)	0.977** (0.495)	0.487 (0.527)	0.709 (0.530)
ln Average Wage			-1.343* (0.777)	-0.402 (0.854)	-0.963 (0.860)
Urban Agglomeration				0.149** (0.058)	0.151*** (0.058)
National Ownership					0.003*** (0.001)
Observations	148,783	148,783	148,783	148,783	148,783
Cultural dummies	Yes	Yes	Yes	Yes	Yes
Geographical contiguity	Yes	Yes	Yes	Yes	Yes
National dummies	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.193	0.194	0.194	0.194	0.196
log likelihood	-17084	-17080	-17078	-17075	-17037

Moreover, our more extended specification (column 5) suggests that internal market size is positively associated with MNE decisions, whereas market potential becomes non-significant. Similarly, education loses importance, probably indicating that MNEs from EU-15 delocalize in the area of interest some business functions for which more basic skills are needed. Average wage is statistically insignificant. 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, a



pattern of localization that follows national ownership lines emerges. In other words, MNEs from the same country of origin tend to undertake investment projects in the same locations.

Overall, the CL estimations are in line with the existing literature. While it is impossible to find any association between MNEs and the functioning of national labour markets, a less regulated business environment seems to attract foreign investment. Similarly, with respect to the legal aspects of economic institutions, different elements play different roles: the enforcement of contracts is a relevant institutional aspect for MNEs behaviour suggesting that MNEs are sensitive to the respect of formal contracts. On the other hand, property rights protection does not appear to be a driver of location decisions. Finally, the role of the state is considered as a positive determinant in MNE choices, presumably because they can take advantage from public intervention in the economy or because national governments expenditure is also aimed at consumption. These results suggest that a further investigation of the heterogeneity of MNE preferences is appropriate: thus, the following analysis explores the relationship between MNE strategic behaviour and the economic institutional environment of recipient economies by means of MXL. This approach makes it also possible to relax the IIA assumption that treats the substitution of alternative locations rather unrealistically.

## 5.2. Preference heterogeneity

In the MXL estimations heterogeneity is allowed to occur only for coefficients associated with economic institutions (variables of interest), while other regressors are kept fixed. Therefore, MXL estimates coefficient parameters  $\theta$ , namely means  $b$  and standard deviations  $s$ , for variables that are specified to be random. MXL estimation results are presented in Table 3, where the 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. Regulation is a driver of MNEs location choices in the context of national business environments, but not in labour markets, although the mean coefficient for the latter is weakly significant when we consider MNEs from the whole world. A strong role of government expenditure in neighbouring countries is perceived as a positive signal by EU-15 MNEs and world MNEs, while it does not seem to be very relevant for the EU-27 sample (possibly because some of these investors are from NMS, which may be relatively more deterred by a large government role in the host economy). With respect to the national legal framework, a more effective contracting environment represents an important location determinant for foreign investment for all MNEs across specifications; as in previous results, property rights protection exhibits insignificant mean coefficients.

The MXL estimation also provides standard deviations  $s$  for the coefficients of economic institutions, which are specified to vary randomly. Some of the estimated standard deviations of these coefficients are statistically significant, suggesting that parameters do vary across the population of MNEs under

analysis. Therefore, standard deviations can be interpreted as heterogeneity terms and suggest that different MNEs attach different importance to economic institutions, explaining the lack of consensus in the existing literature on the importance of some of their components. Values of  $b$  and  $s$  are employed in columns 2, 4 and 6 in order to gain insights on the extent of the heterogeneous preferences of MNE strategies over economic institutions. For instance, in the case of EU-15 MNEs, the variable for business regulation takes parameters  $b=0.475$  and  $s=0.472$ , such that for 84.4% of the MNE population the parameter is above zero, while for the 15.6% it is below. In other words, the large majority of FDI originating in the EU-15 systematically locates where doing business is characterised by weaker bureaucratic burdens, while the rest prefers to locate where business is more strongly regulated. This figure only varies slightly when EU-27 and world MNEs are considered (80.2% and 76.1%, respectively). More heterogeneous preferences emerge when we look at parameters related to the protection of property rights. In the case of EU-15 and EU-27 MNEs, estimates indicate that the population is indeed split into two halves. This balance between shares of the population with respect to opposite preferences over property rights protection also explains the insignificance of the mean coefficient. Finally, as far as the legal enforcement of contracts is concerned, taste variation over this aspect of economic institutions is far less pronounced, with most MNEs preferring locations where the contracting environment is generally certain. Nevertheless, there is a very small portion of MNEs in the population that decides to locate where contract enforcement is weaker.

**Table 3: Mixed Logit estimation of MNEs location behaviour**

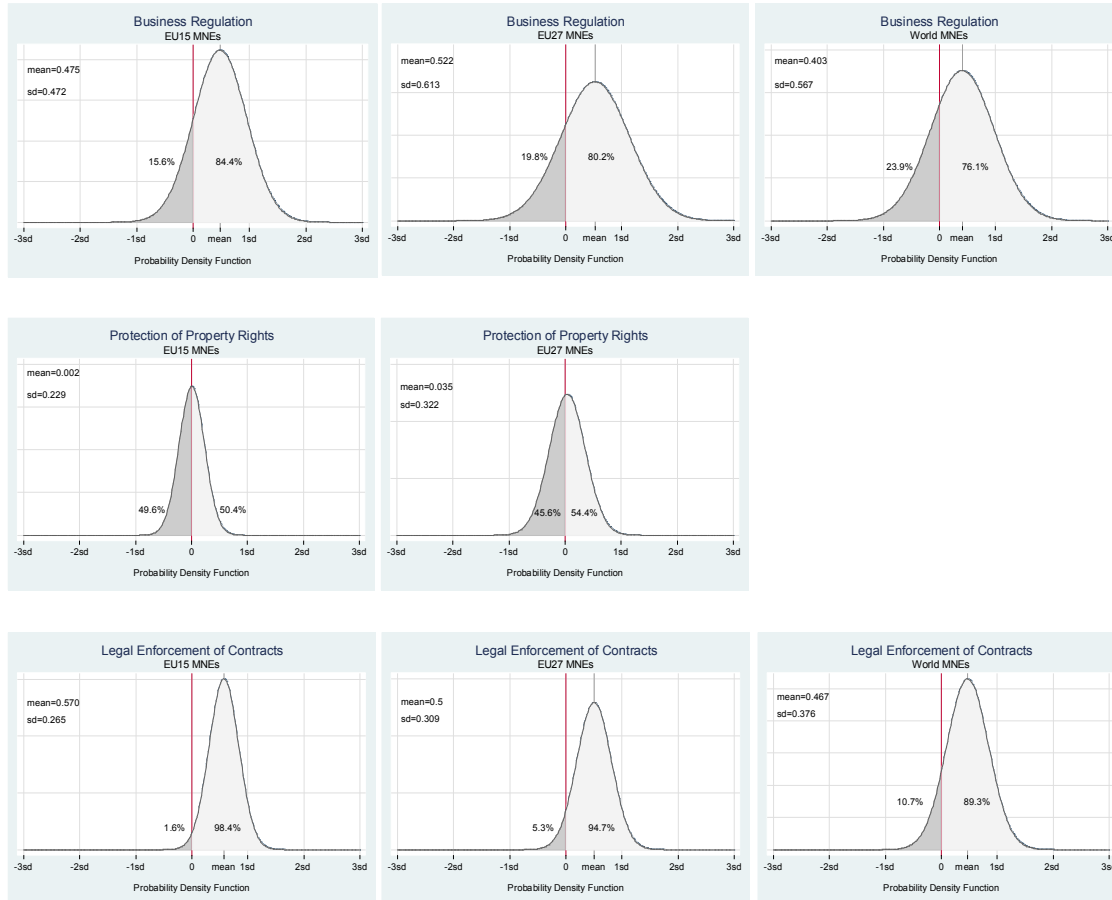
Dep. Var.: Location Choice	$\theta$	(1)	(2)	(3)	(4)	(5)	(6)
		EU15 MNEs		EU27 MNEs		World MNEs	
		Value	% > 0	Value	% > 0	Value	% > 0
Labour Market Regulation	<i>b</i>	0.007 (0.051)		0.024 (0.049)		0.072* (0.039)	
	<i>s</i>	0.015 (0.036)		0.171 (0.192)		0.008 (0.016)	
Business Regulation	<i>b</i>	0.475*** (0.064)	84.4%	0.522*** (0.063)	80.2%	0.403*** (0.047)	76.1%
	<i>s</i>	0.472*** (0.113)		0.613*** (0.100)		0.567*** (0.074)	
Government Expenditure	<i>b</i>	0.035** (0.016)		0.021 (0.015)		0.025** (0.012)	
	<i>s</i>	0.001 (0.001)		0.001 (0.001)		0.001 (0.001)	
Protection of Property Rights	<i>b</i>	0.002 (0.043)	50.4%	0.035 (0.042)	54.4%	0.001 (0.032)	
	<i>s</i>	0.229** (0.097)		0.322*** (0.085)		0.133 (0.103)	
Legal Enforce of Contracts	<i>b</i>	0.570*** (0.148)	98.4%	0.500*** (0.138)	94.7%	0.467*** (0.110)	89.3%
	<i>s</i>	0.265*** (0.097)		0.309*** (0.094)		0.376*** (0.069)	
ln Market Size $t_{-1}$		1.963* (1.018)		2.688*** (0.748)		2.148*** (0.563)	
Distance		- 0.001*** (0.000)		- 0.001*** (0.000)		-0.001*** (0.000)	
ln Market Potential $t_{-1}$		1.247 (0.977)		1.080 (0.885)		-0.588 (0.680)	
ln Education Level		0.536 (0.552)		1.184** (0.478)		0.708* (0.392)	
ln Average Wage		-1.490* (0.887)		1.997*** (0.729)		-1.662*** (0.576)	
Urban Agglomeration		0.146** (0.060)		0.0754* (0.041)		0.098*** (0.031)	
National Ownership		0.004*** (0.001)		0.006*** (0.001)		0.006*** (0.001)	
Observations		148,783		165,724		251,276	
N of Cases		6,888		7,709		11,745	
Geographical contiguity		Yes		Yes		Yes	
Cultural dummies		Yes		Yes		Yes	
National dummies		Yes		Yes		Yes	
log likelihood		-17030		-18974		-29437	

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

## Location Strategies of EU-15 MNEs in the European Neighborhood

Figure 1 depicts probability density functions for economic institutions by employing parameters estimated by MXL: the graphs refer to those aspects of economic institutions that exhibit significant heterogeneity terms.

**Figure 1: Probability Density Functions for economic institutions exhibiting significant standard deviation in Table 3**



The heterogeneity of these relationships, particularly regarding property rights, poses interesting questions on MNEs strategies and their motives for investing abroad. The source of heterogeneous tastes may be associated with unobserved factors operating at the firm-level. Therefore, in order to explore the systematic nature of heterogeneity of preferences over economic institutions, the MXL

models are run by exploiting information for sectors and business activities of the investment projects undertaken by MNEs. Data in *FDi Markets* provides information on these aspects. On this basis, following the NACE (rev.1.1) classification, we group sectors into four categories: High-Medium Technology Manufacturing, Medium-Low Technology Manufacturing, Knowledge-intensive Services (KIS) and Less-knowledge-intensive Services (LKIS). Similarly, following Crescenzi et al. (2014), we generate three alternative groups of business functions: Headquarters and innovative activities (HQ & Inno); Services, sales and logistics (SSL); Production.<sup>10</sup> Tables A.2 and A.3 in Appendix A show the classification of sectors and business functions, respectively.

Table 4 presents the results for MXL estimations of EU-15 location decisions performed for different sectors, whilst Figure 2 plots the heterogeneous relationships that emerge from such estimations.

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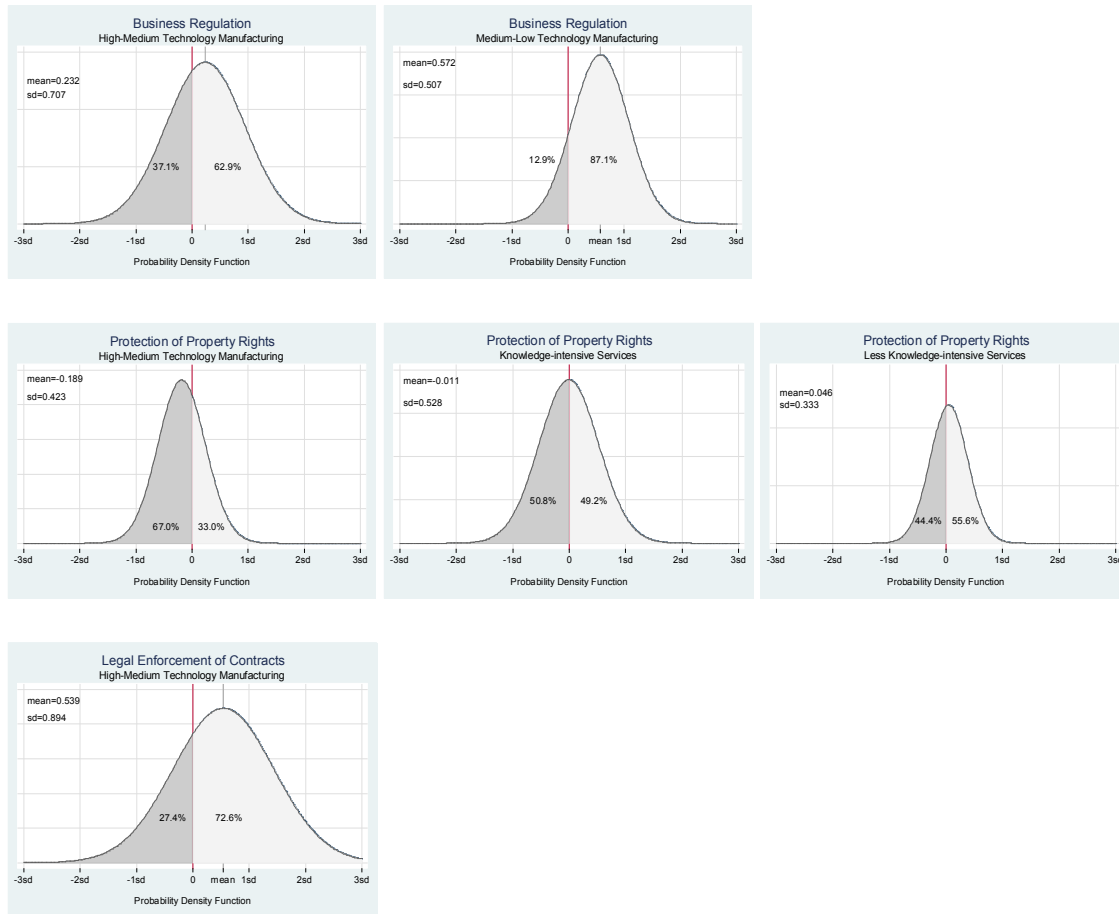
<sup>10</sup> Differently from Crescenzi et al. (2014), we generate three groups of functions instead of five due to the low number of observations in certain MNE activities in the countries here considered. Therefore, we aggregate together certain functions into the same category (e.g. headquarters with innovative activities).

**Table 4: MXL estimation of EU-15 MNEs location behaviour by sector**

Dep. Var.: Location Choice	$\theta$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		<b>Manufacturing</b>				<b>Services</b>			
		High-Medium Tech.		Medium-Low Tech.		Knowledge-intensive		Less-knowledge-int.	
		Value	% > 0	Value	% > 0	Value	% > 0	Value	% > 0
Labour Market Regulation	<i>b</i>	-0.030 (0.128)		0.149* (0.083)		0.002 (0.112)		-0.246** (0.123)	
	<i>s</i>	-0.105 (0.688)		0.005 (0.020)		0.013 (0.026)		0.206 (0.244)	
Business Regulation	<i>b</i>	0.232 (0.160)	62.9%	0.572*** (0.106)	87.1%	0.383** (0.157)		0.406*** (0.152)	
	<i>s</i>	0.707*** (0.265)		0.507*** (0.145)		0.310 (0.405)		-0.014 (0.020)	
Government Expenditure	<i>b</i>	-0.013 (0.040)		0.043 (0.026)	99.9%	0.022 (0.034)		0.086** (0.039)	
	<i>s</i>	-0.016 (0.026)		0.002* (0.001)		0.008 (0.011)		-0.000 (0.001)	
Protection of Prop. Rights	<i>b</i>	-0.189** (0.093)	33.0%	0.086 (0.069)		-0.011 (0.099)	49.2%	0.046 (0.105)	55.6%
	<i>s</i>	0.423* (0.217)		-0.019 (0.019)		0.528*** (0.113)		0.333* (0.178)	
Legal Enforc. of Contracts	<i>b</i>	0.539 (0.381)	72.6%	0.740*** (0.239)		0.725** (0.325)		0.095 (0.318)	
	<i>s</i>	0.894** (0.389)		0.229 (0.221)		0.235 (0.234)		-0.004 (0.025)	
ln Market Size $t_{-1}$		-0.648 (2.518)		4.576*** (1.242)		0.910 (1.742)		0.450 (1.814)	
Distance		-0.001*** (0.000)		-0.001*** (0.000)		-0.001*** (0.000)		-0.001*** (0.000)	
ln Market Potential $t_{-1}$		2.338 (2.752)		0.720 (1.593)		3.135 (1.922)		0.717 (2.377)	
ln Education Level		-1.262 (1.400)		0.286 (0.830)		2.844** (1.286)		0.101 (1.367)	
ln Average Wage		0.593 (2.172)		-3.821*** (1.289)		-0.234 (1.799)		-0.905 (1.764)	
Urban Agglomeration		0.432*** (0.142)		0.105 (0.072)		-0.029 (0.090)		-0.021 (0.107)	
National Ownership		0.003*** (0.001)		0.004*** (0.001)		0.004*** (0.001)		0.003*** (0.001)	
Observations		31,039		56,795		28,065		27,357	
Geographical contiguity		Yes		Yes		Yes		Yes	
Cultural dummies		Yes		Yes		Yes		Yes	
National dummies		Yes		Yes		Yes		Yes	
log likelihood		-3497		-6394		-3230		-3039	

Robust standard errors in parentheses. \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Figure 2: Probability Density Functions for economic institutions exhibiting significant standard deviation in Table 4**



In columns 1 and 2 of Table 4, regressions are run for High-Medium Technology Manufacturing sectors. The MXL reveals that regulation of labour markets does not matter for MNE decisions, while the intervention of the regulator in business has an ambiguous impact: the majority of MNEs in High-Medium Technology Manufacturing sectors prefer locations where administrative and bureaucratic aspects of running a business are less invasive (62.9%), while the rest prefers countries where businesses are subject to more regulation. Government expenditure does not play any role in driving MNEs' behaviour in these sectors. As far as legal aspects are concerned, MNEs in High-Medium Technology



activities do attach importance to property rights protection only in 33% of cases. This result might seem surprising since it implies that a large group of MNEs from EU-15 investing in the area of neighbouring countries is driven by less robust property rights. However, this suggests that MNEs operating in High-Medium Tech sectors might strategically exploit a weaker enforcement of property rights to facilitate domestic firms' upgrading and learning (for example in the area of intellectual property rights, IPRs), while MNEs rely on internal firm-level protection mechanisms (see Wu 2000 for the case of IPRs in China). With respect to the legal enforcement of contracts, almost three quarters of MNEs in High-Medium Technology Manufacturing systematically locate in places where this aspect of economic institutions is more adequately protected.

Columns 3 and 4 report results for Medium-Low Technology Manufacturing. EU-15 MNEs in these activities react more homogeneously to the quality of national economic institutions than those in High-Medium Technology Manufacturing sectors. Indeed, a very large share of MNEs considers strong regulation in business as an obstacle (87.1%). Also the coefficient on labour market regulation turns to be marginally significant and positive, suggesting that MNEs in these activities tend to prefer countries where labour markets are more flexible, although the statistical relevance of this relationship remains weak. This finding is perfectly plausible since we are considering EU-15 MNEs that localise in the EU neighbourhood area operations characterised by a lower level of sophistication. This is also evidenced by the strongly negative coefficient associated to our proxy for average wage, signalling that MNEs in Medium-Low Technology Manufacturing sectors are motivated by the supply of inexpensive workforce that is generally low-skilled. With respect to government expenditure, we find that the mean coefficient  $b$  is not significant and the standard deviation  $s$

is only weakly significant. Although these parameters provide a figure of 99.9% of MNEs driven by more public spending, they should be cautiously interpreted given their very low statistical significance. MNEs in Medium-Low Technology Manufacturing activities do not seem to be sensitive to the degree of protection of property rights, while they uniformly attach a great importance to the possibility to enforce legal contracts.

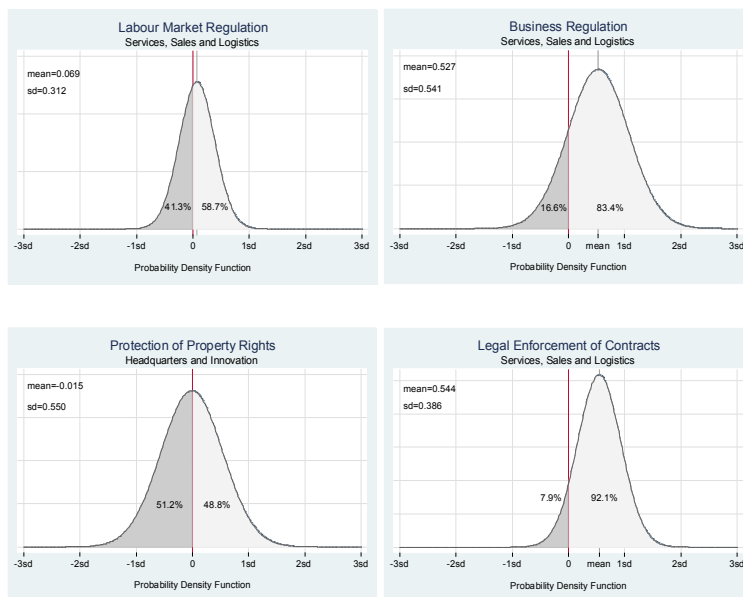
With respect to control variables, MNEs in High-Medium and Medium-Low Manufacturing sectors seem to be motivated by different rationales. Geographical distance and the previous presence of MNEs from the same origin country are the only common trait in MNEs strategies. MNEs in High-Medium Technology Manufacturing activities are substantially attracted by agglomeration forces, suggesting that MNEs tend to concentrate this kind of activities in urban areas where they can access a larger supply of labour and competences. Surprisingly, the education level of the population does not seem to be a relevant location driver, although our proxy for human capital only takes into account secondary education, which is probably inadequate for High-Medium Technology activities. MNEs in Medium-Low Technology Manufacturing activities, instead, seem to be essentially motivated by market-seeking and efficiency-seeking rationales, as suggested by the strongly significant coefficients of market size and average wage. This finding is in line with the great majority of literature on FDI in transition economies, which highlight that foreign investors search for new markets as well as cheap labour in Central and Eastern European countries (Resmini, 2000).

The right-hand part of Table 4 reports results for services: columns 5 and 6 regard KIS, whilst columns 7 and 8 present results for LKIS. MNEs in KIS tend

invariably to take into consideration business regulation and the legal enforcement of contracts. Again, parameters on property rights suggest that this element is an ambiguous factor in determining EU-15 MNE strategies in EU neighbouring countries. As far as LKIS activities are concerned, results only slightly vary. The enforcement of contracts turns out to be unimportant for this kind of services, whilst LKIS seem to positively react to labour markets that are more regulated and to larger government spending. Control variables in these regressions reveal that KIS benefit of a more educated workforce and also that location choices globally follow nationality patterns.

Table 5 presents the results of MXL performed for different groups of business functions, while the corresponding Figure 3 illustrates the variation of preferences across them.

**Figure 3: Probability Density Functions for economic institutions exhibiting significant standard deviation in Table 5**



**Table 5: MXL estimation of EU-15 MNEs location behaviour by business function**

Dep. Var.: Location Choice	$\theta$	(1) HQ & Inno	(2)	(3) SSL	(4)	(5) Production	(6) % > 0
		Value	% > 0	Value	% > 0	Value	0
Labour Market Regulation	<i>b</i>	-0.003 (0.138)		0.069 (0.081)	58.7%	-0.078 (0.077)	
	<i>s</i>	0.011 (0.008)		0.312* (0.185)		0.037 (0.089)	
Business Regulation	<i>b</i>	0.328* (0.190)		0.527*** (0.109)	83.4%	0.443*** (0.088)	
	<i>s</i>	0.512 (0.369)		0.541*** (0.157)		0.265 (0.239)	
Government Expenditure	<i>b</i>	-0.029 (0.041)		0.015 (0.025)		0.083*** (0.024)	
	<i>s</i>	-0.002 (0.003)		0.001 (0.002)		-0.006 (0.005)	
Protection of Prop. Rights	<i>b</i>	-0.015 (0.118)	48.8%	0.071 (0.066)		-0.070 (0.064)	
	<i>s</i>	0.550*** (0.138)		-0.097 (0.249)		0.193 (0.159)	
Legal Enforce of Contracts	<i>b</i>	-0.027 (0.397)		0.544** (0.221)	92.1%	0.764*** (0.207)	
	<i>s</i>	-0.271 (0.231)		0.386** (0.157)		0.203 (0.155)	
ln Market Size $t_{-1}$		0.816 (2.070)		4.108*** (1.234)		2.505** (1.094)	
Distance		-0.001*** (0.000)		-0.001*** (0.000)		-0.001*** (0.000)	
ln Market Potential $t_{-1}$		0.794 (2.199)		1.960 (1.522)		-1.596 (1.433)	
ln Education Level		1.849 (1.559)		1.839** (0.767)		-1.458* (0.880)	
ln Average Wage		0.953 (2.117)		-2.382* (1.219)		-2.790** (1.153)	
Urban Agglomeration		0.037 (0.106)		0.099 (0.069)		0.116* (0.063)	
National Ownership		0.003*** (0.001)		0.004*** (0.001)		0.004*** (0.001)	
Observations		19,994		64,381		64,408	
Geographical contiguity		Yes		Yes		Yes	
Cultural dummies		Yes		Yes		Yes	
National dummies		Yes		Yes		Yes	
log likelihood		-2293		-7372		-7204	

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

Columns 1 and 2 in Table 5 refer to operations of MNEs in HQ and Inno activities. Parameters on economic institutions are only significant with respect to business regulation and property rights protection. The former exhibits a weak and positive mean coefficient  $b$ , while the latter is still affected by a significant heterogeneity term  $s$  that splits the distribution of preferences into two halves. Our proxy for human capital, although positive, is not statistically significant, likely due to the fact that we only consider secondary education. In general, we do not detect strong drivers of location decisions of MNEs as far as HQ & Inno activities are concerned. A different picture emerges instead for SSL activities (columns 3 and 4). A more flexible regulation of business operations is a positive driver of location decisions for the great majority of MNEs (83.4%); whilst for the regulation in the labour market almost 60% of MNEs have a positive perception of flexibility, the rest seem to prefer more regulated frameworks. With respect to legal aspects, nearly all MNEs find that the legal enforcement of contracts is a crucial element (92.1%). In addition, SSL are clearly market-seeking motivated, and MNEs look for a relatively educated and less expensive labour force to employ in these functions. Finally, columns 5 and 6 provide MXL results for production activities, whose picture appears less complex than for other business functions. Economic institutions have a very homogeneous impact and heterogeneity terms are never relevant: more flexible regulation in business, stronger government spending and relative easiness in enforcing legal contracts represent attraction forces for MNE production operations. Moreover, control variables tell that production activities of EU-15 MNEs are attracted by larger national markets and tend to exploit local low-skilled and cheap labour.

## 6. Conclusion

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 MNEs have increased their operations in neighbouring countries through the setting up of new foreign affiliates.

This paper has examined how recipient countries' economic institutions shape the location strategies of EU-15 MNEs in a large set of developing and transition countries that are geographically close to the EU. The empirical analysis starts with a standard CL model, as customary in the literature, and is successively extended to a random-coefficient MXL, rarely adopted in studies on firms' location decisions. Results are robust across specifications with different data samples as well as across methodologies.

Table 6 provides an overall summary of the results on MNE heterogeneous preferences for economic institutions. In line with the existing literature our results confirm that the flexibility of the labour market – one of the top items in 'traditional' institutional reform packages – is not systematically associated with the attraction of foreign investments. On the contrary, favourable business regulation is clearly an important driver of MNE location choices: when looking at the entire sample of MNEs large part of the distribution attaches a positive value to this characteristic. In addition the heterogeneity of preferences seems to

be largely linked to the most sophisticated activities in sectoral (High-Medium tech sectors) and functional (HQs and Inno) terms.

The analysis of the role of the protection of property rights explains why the existing literature has so far failed to reach a clear consensus on its importance: MNEs are indeed strongly divided with reference to this specific dimension, particularly in the case of the most sophisticated sectors and functions. Conversely, for the enforcement of contracts the results highlight clear-cut MNEs' preferences for more 'certain' framework conditions across sectors (with the exception of LKI sectors) and functions. Finally, the relevance of public expenditure seems to be limited to production activities, where the government plays an important role in supporting demand.

**Table 6 - Summary Table of the Results on MNEs heterogeneous preferences for Economic Institutions**

	All MNEs	Sectoral Heterogeneity				Functional Heterogeneity		
		Manufacturing		Services				
		High-Medium tech	Medium-low tech	Knowledge Intensive	Less Knowledge Intensive	HQ & Inno	SSL	Production
Regulatory settings								
Labour Market Regulation	NO	NO	NO	NO	NO	NO	NO	NO
Business Regulation	+*** s*** (84%)	s*** (63%)	+***	+**	+***	NO	+*** s*** (83%)	+***
Legal Framework								
Property Rights	s*** (50%)	-** s* (33%)	NO	s***(49%)	NO	s*** (49%)	NO	NO
Enforcement of Contracts	+*** s***(98%)	s** (73%)	+***	+**	NO	NO	+** s** (92%)	+***
Weight of the Government								
Share of Public Spending	+**	NO	NO	NO	NO	NO	NO	+***

+/- denotes the sign of the estimated  $b$  coefficients in tables 3,4 and 5. Asterisks denote significance as in original tables. Percentages reported in parentheses are %>0 in the preferences distribution. 'NO' stands for 'No significance'



These results should be interpreted with caution. First, it is important to bear in mind that the methodology makes it impossible to draw any causal conclusions. The analysis of location patterns is able to control for a large number of possible confounding factors but reverse causality is still a possibility. Second, the time span covered by the analysis is still limited and the global economic crisis started in 2008, as well as the dramatic political changes in some of the countries covered in the analysis, call for extra care in the interpretation of the findings. Third, even though the innovative use of quantitative methods makes it possible to shed new light on the heterogeneous behaviour of MNEs with reference to economic institutions, more qualitative work is necessary (and is in our agenda for future research) in order to explore the firm-specific determinants of MNEs' diversified preferences.

Having acknowledged these limitations, our results provide policy makers with relevant insights to support institutional reform and institution building initiatives as tools to favour (and complement) internationalisation processes. The empirical results suggest that some MNEs prefer locations where specific dimensions of economic institutions are weaker. This may appear counterintuitive, but indeed there could be situations in which economic actors may prefer loose economic institutions in order to gain selective economic rewards. This institutional subversion phenomenon is particularly documented in the case of transition economies, where political and economic elites replicate a system of flawed institutional environments that provide them with various types of advantage over the rest of the local population (Helmann, 1998; Helmann et al., 2000). Similarly, weak property rights allow wealthier foreign actors to benefit from unproductive activities such as rent-seeking, at the same time maintaining expropriation instruments over the rest (Sonin, 2003). The subversion of economic institutions is also intimately

associated with within-country inequality, and less secure property rights and weaker legal systems favour a country's power establishment, which aims at perpetuating the mechanisms that allow the concentration of power and wealth (Glaeser et al., 2003). In this vein, it is argued that political incumbents support imperfect institutions in order to maintain their benefits (Glaeser and Shleifer, 2002). On the basis of these considerations, often made with respect to transition and developing countries, it can be argued 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 in the management literature: pervasive government corruption can influence the entry modes of MNEs, which can find it beneficial to enter new markets via FDI by engaging in corrupt behaviour (Rodriguez et al., 2005). Again, this may represent one explanation for the heterogeneity of results associated to the protection of property rights in particular. However, validating these results and investigating further the relationship between economic institutions and MNEs remain an open research field and a crucial challenge for policy design in a growing number of countries and regions worldwide.

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## Appendix A

**Table A.1: Variable definitions and sources**

Variable	Description	Source
<b>Dependent</b>		
Location Choice	Dummy indicating location choices among 23 destination countries	FDi Markets
<b>Independent</b>		
<i>Economic Institutions</i>		
Labour Market Regulation	Index (0-10) indicating the flexibility of labour market in location $j$ .	Fraser Institute
Business Regulation	Index (0-10) indicating the administrative and bureaucratic burdens for business in location $j$ .	Fraser Institute
Protection or Property Rights	Index (0-10) indicating the extent to which government protects property rights in location $j$ .	Fraser Institute
Legal Enforcement of Contracts	Index (0-10) indicating the extent to which contracts are enforced by courts in location $j$ .	Fraser Institute
Government expenditure	Percentage of general government final consumption expenditure on GDP in location $j$ .	WDI
<i>Demand</i>		
Ln Market Size <sub><math>t-1</math></sub>	Log of GDP of destination $j$ at time $t-1$ .	WDI
Ln Market Potential <sub><math>t-1</math></sub>	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

**Table A.2: Classification of sectors**

<b>Manufacturing</b>	
<b>High-Medium Technology</b>	<b>Medium-Low Technology</b>
Aerospace	Beverages
Automotive components	Building and Construction
Automotive OEM	Materials
Biotechnology	Consumer Products
Business Machines and Equipment	Food and Tobacco
Ceramic and Glass	Metals
Chemicals	Minerals
Consumer Electronics	Non-Automotive Transport OEM
Electronic Components	Paper, Printing and Packaging
Engines and Turbines	Plastics
Industrial Machinery, Equipment and Tools	Rubber
Medical Devices	Textiles
Pharmaceuticals	Wood Products
Semiconductors	
<b>Services</b>	
<b>Knowledge-Intensive</b>	<b>Less Knowledge-Intensive</b>
Business Services	Hotels and Tourism
Communications	Leisure and Entertainment
Financial Services	Real Estate
Healthcare	Transportation
Software and IT Services	Warehousing and Storage
Space and Defence	

**Table A.3: Classification of business functions**

<b>Headquarters and innovative activities</b>
Business Services
Headquarters
Design, Development and Testing
Education and Training
Research and Development
<b>Services, Sales and Logistics</b>
Customer Contact Centre
Logistic, Distribution and Transportation
Maintenance and Servicing
Recycling
Retail
Sales, Marketing and Support
Shared Services Centre
Technical Support Centre



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**Production**

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Construction

Electricity

Extraction

ICT and Internet Infrastructure

Manufacturing

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