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How different is Eastern Europe? Structure and determinants of location choices by French firms in Eastern and Western Europe

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In this paper, we investigate the determinants of location choices of French multinational firms in Eastern and Western Europe. Our sample includes 1843 location choices in 19 countries from 1980 to 1999. We find important differences between the two regions of Europe regarding these determinants. Agglomeration effects are less strong in Central and Eastern European countries (CEECs) than in European Union (EU) countries. Location decisions are influenced significantly and positively by the institutional quality of the host country. We also investigate whether investors consider Western Europe and Eastern Europe as two distinct groups of potential host countries. We confirm the relevance of an East–West structure in the country location decision and show that this relevance decreases as the transition process advances, in CEE countries. *Journal of Comparative Economics* **32** (2) (2004) 280–296. TEAM, Université de Paris I Panthéon Sorbonne, 106-112 Bd de l'Hôpital, 75647 Paris cedex 13, France; Université de Paris-Sud, CEPII, CERAS and CEPR, France.

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1. Introduction

From the beginning of the 1990s, Central and Eastern European countries (CEECs) have attracted an increasing amount of foreign direct investments (FDI). The prospects for enlargement of the EU to include these countries have increased this phenomenon, triggered fears in the current EU member countries about the whole enlargement process.[1] The impact of the transition process on CEECs has been investigated by analyzing the evolution of trade patterns. Trade flows, both emanating from Eastern Europe countries and going to those countries, were subject to rapid changes in the early years of transition. Baldwin (1994) found that bilateral trade flows between CEE and EU countries were far below their normal levels in 1989. However, Fontagné and Pajot (1999) and Nilsson (2000) show that this trade potential appears to have been exhausted by the mid-1990s, which confirms a rapid shift in trade patterns for these countries.

In this paper, we investigate whether the changes in inward FDI in those countries have followed the same pattern of a rapid return to normal. If this is the case, we expect to find the following results. In the early days of transition and even more so before the beginning of the transition process, the distinction between countries in Eastern Europe and Western Europe should be important to the location choice of foreign investors. However, as the transition process proceeds, investors should evaluate countries independently and not consider whether they belong to the Eastern group. Hence, we investigate whether the determinants of location decisions by foreign investors in Eastern Europe are similar to those explaining location choices in Western Europe. We consider investments by French multinational firms in EU and CEE countries from 1980 to 1999, and analyze the geographic structure of this choice. We compare the determinants of location choice in the two parts of Europe to assess the existence of a possible East West divide in the decisions of foreign investors. Finally, we investigate changes in this division as the transition proceeds and enlargement gets closer. We use a nested logit model of location choices for French firms to assess empirically these issues.

The existing literature on FDI location decisions in CEECs is scarce. Meyer (1995) provides an overview of FDI in CEECs during the first part of the 1990s. This author shows that services sectors have received substantial FDI, although manufacturing has attracted most of the capital inflows. Meyer considers the main factor attracting FDI to the CEECs to be the local market. Interestingly, production cost advantages do not appear to be a dominant motivation for investing. The political, economic and legal environment is also identified as a key factor for foreign investors. Bevans and Estrin (2000) confirm the importance of institutional determinants and suggest that announcement of progress toward EU membership has a positive and significant influence on FDI inflows. Using a survey of senior managers from 117 Western manufacturing firms, Lankes and Venables (1996) study the characteristics of FDI. Determinants of FDI focused on distribution and local markets are shown to be different from export oriented FDI. As expected, proximity to consumers is dominant in the former, whereas factor costs advantages play a crucial role

[1] The topic of East–West FDI location is even more important in the newly enlarged Europe as FDI inflows to CEECs are expected to increase substantially. Based on the experience of previous enlargements, Bertola et al. (2002) report estimates of a temporary doubling of FDI inflows in those countries due to enlargement.

in the latter. Lankes and Venables (1996) also highlight a link between the control mode in the organization and other determinants of FDI. Investors with an export-oriented strategy favor wholly-owned ventures, while investors focusing on the local market are more inclined to find a local partner. Pennings and Altomonte (2003) show that the probability of investing by a foreigner is negatively and significantly influenced by uncertainty in CEECs. Furthermore, the authors demonstrate that the effect of uncertainty works through its effect on expected profitability, rather than through an option value of delay in investment.

The remainder of the paper is structured as follows. The underlying theoretical framework and the related empirical literature are described in Section 2. The econometric models used in the empirical work are presented in Section 3. Section 4 describes the data. The empirical results are presented in Section 5. Conclusions are presented in Section 6.

2. The underlying theory and the related empirical literature

Recent theoretical work, under the rubric of the New Economic Geography (NEG) has contributed to a renewal of the analysis of location choices. Fujita et al. (1999), Neary (2001) and Fujita and Thisse (2002) provide overviews of this literature. Endogenous agglomeration of activities is a central component of this framework, with the observed level of clustering of firms resulting from a trade-off between several centripetal (agglomeration) and centrifugal (dispersion) forces. In the traditional trade literature, agglomeration of industries is a by-product of specialization of countries along the lines of comparative advantages dictated by exogenous differences. In contrast, agglomeration occurs in NEG models because of the interaction between increasing returns to scale and transport costs which cause firms to concentrate production in a single plant and locate this plant close to final demand. In addition, consumers have an incentive to locate near firms because the agglomeration of production bids up factor prices and lowers the price index due to savings on transport costs when living in areas in which the largest number of varieties is produced. These pecuniary externalities trigger a circular process of agglomeration as Krugman (1991) models.[2]

According to this theoretical framework, the location choice of individual firms is determined by market access and production costs. In NEG models, investors avoid areas in which the cost of production is high and locate in central places that guarantee good access to the markets targeted.[3] This market access effect is summarized in the market potential of firms' profits presented by Head and Mayer (2004). For our purpose, imperfect competition is an important element because the attractiveness of a country is a function not

[2] Similar mechanisms of backward and forward linkages occur between firms linked through input–output relationships. The producers of intermediate goods locate close to the buyers of their products and final goods benefit from this large local pool of inputs as Venables (1996) stresses.

[3] In general equilibrium, central places attract many firms, which bids up production costs. Hence, if firms have no incentive to move, wages are a positive function of market access. Fujita et al. (1999) provide a theoretical argument; Redding and Venables (2004) examine this relationship empirically. However, we study the adjustment to equilibrium in which individual firms choose their location. This decision will be associated negatively with production costs and positively with market access.

only of market access but also of the intensity of competition. In countries where perceived demand is high, many producers will be found, which leads to a dispersion effect due to increased competition on the goods market as firms concentrate in the same area. To summarize, the NEG theory predicts that location choice should be influenced positively by the size of perceived demand and negatively by production costs and local competition intensity, for which the usual proxy is the number of firms.

Markusen and Venables (1998) offer similar insights from a model of FDI related to Brainard (1993). The literature on FDI provides similar predictions about specific location choice regarding producing at home and exporting versus producing abroad through FDI. Some types of non-pecuniary externalities are omitted intentionally in NEG theory, although they may be important in the real world. Knowledge spillover is an obvious mechanism that can generate additional agglomeration effects. Individual firms are attracted to areas having numerous other producers because of the positive impact on their productivity through spillovers. As a consequence, the overall impact of competitors on location choice is ambiguous. The existence of spillovers provides incentives for clustering with other firms in the same industry, whereas increased competitive pressures leads firms to look for locations having fewer competitors. Which force dominates is an empirical question.

Individual firm-level empirical studies of location choices by foreign investors support the dominance of agglomeration forces over dispersion ones. At the national level, Devereux and Griffith (1998) and Smarzynska (1999)[4] establish this conclusion. At a sub-national level, Head et al. (1995, 1999), Hansen (1987), Head and Ries (1996), Guimarães et al. (2000), and Crozet et al. (2004) find the same result. Concerning the locational choices of French multinationals in EU regions at the end of 1993, Ferrer (1998) confirms the dominance of agglomeration effects. Finally, Mayer and Mucchielli (1999) observe the same phenomenon for location decisions of Japanese firms in Europe at both a national and regional level.

The implications of these theoretical and empirical results are important. First, if the probability that a location will attract FDI is an increasing function of the presence of multinational firms, the spatial pattern of activity will consist of cumulative clustering of industries ending up in a strong core-periphery pattern. Second, authorities could use promotional policies in order to reduce or to trigger these cumulative agglomeration effects, which has important tax competition implications.[5] Third, the relative strength of agglomeration and dispersion forces depends crucially on the level of transaction costs faced by investing firms when shipping their goods to various markets in the area. From the perspective of the enlargement of the EU, forces of agglomeration and dispersion need to be assessed to estimate the potential change in the economic geography of Europe when the CEECs are given better access to western markets, and vice versa.

[4] Smarzynska (1999) examines the impact of intellectual property rights on investment decisions of multinationals in transition economies using a probit model.

[5] However, the results of several empirical studies suggest that such incentives are weak (Wheeler and Mody, 1992 and Crozet et al., 2004), or even negative (Ferrer, 1998).

3. Econometric models

In this paper, we use information about the locational choices of individual firms from 19 EU and CEE countries. Because each location decision is a discrete choice made among several alternatives, the conditional logit model (CLM) of McFadden (1984) with a qualitative endogenous variable is appropriate. Suppose that $J = (1, \ldots, j, \ldots, n)$ is the set of possible location countries. Each location offers a profit of π_j such that

$$\pi_j = U_j + \varepsilon_j,$$

where U_j is a function of observable characteristics, $U_j = bX_j$, i.e., X_j, of location j, and b, a vector of coefficients to be estimated; ε_j is the unobservable advantage of location j. Location j is chosen by a firm if the profit at this location is higher than profit at any alternative location. Hence, the probability of choosing location j is

$$P_j \equiv \text{Prob}(\pi_j > \pi_k) = \text{Prob}\big(\varepsilon_k < \varepsilon_j + b(X_j - X_k)\big), \quad \forall k \neq j.$$

If the error terms are independently and identically distributed according to a type I extreme-value distribution, the probability of choosing location j becomes

$$P_j = \mathrm{e}^{bX_j} \Big/ \sum_{i=1}^{n} \mathrm{e}^{bX_i}.$$

In this CLM, the coefficients are estimated by maximum likelihood procedures. The functional form of the CLM affords computational feasibility if the number of alternatives is high. In addition, the property of the independence of irrelevant alternatives (IIA), holds. Hence the probability of alternative j being chosen over alternative i, given by P_j/P_i, depends only on the characteristics of the two alternatives and not on any other third choice.

However, IIA implies that the error terms should not be more correlated within a subsample of the choice set than across subsamples. Stated differently, all alternatives should be comparable in terms of substitution patterns. This assumption does not hold in our case, because location choices of investors are likely to have a nested structure. A plausible decision structure has investors choosing first a region within Europe, East or West, and then a country belonging to this region. Schematically, this can be represented as a decision tree in which the higher level of the tree consists of the two European regions and the lower level contains the countries belonging to each region. However, the upper and lower level decisions are not independent. In addition to the attributes of each region, the characteristics of all the countries located in each region are considered by investors. The choice of a country is also conditional on the choice of the region. The nested logit model (NLM)[6] allows such a decision structure of location choice; hence, we use this model to estimate the relevance of the East–West structure in the location choices of French firms in Europe.

Suppose that $I = (1, \ldots, i, \ldots, l)$ is the set of possible location regions and $J = (1, \ldots, j, \ldots, n_i)$ is the set of countries belonging to region i. Being located in country j

[6] Maddala (1993) provides a full description of this model.

belonging to the region i yields a profit

$$\pi_{ij} = V_{ij} + \varepsilon_{ij},$$

where V_{ij} is a function of observable characteristics of location j, $V_{ij} = bX_{ij} + aY_i$. Unlike in the previous model, some of these characteristics vary across both regions and countries, i.e., X_{ij}, but some of them vary across regions only, i.e., Y_i. The probability of choosing region i depends on characteristics of this region and also on characteristics of all the countries belonging to the region. Hence, this probability is

$$P_i = \mathrm{e}^{aY_i+\sigma_i I_i} \Big/ \sum_{m=1}^{l} \mathrm{e}^{aY_m+\sigma_m I_m}.$$

Define I_i to be $\ln(\sum_{k\in i} \mathrm{e}^{bX_{ik}})$, which is the inclusive value representing the maximal utility expected from the choice of region i. This value depends on characteristics of all the countries located in region i. In the second step, the probability of choosing country j conditional on the choice of region i is given by

$$P_{j|i} = \mathrm{e}^{bX_{ij}} \Big/ \sum_{k=1}^{n_i} \mathrm{e}^{bX_{ik}}.$$

The probability of choosing country j is

$$P_{ij} = P_{j|i}\, P_i = \frac{\mathrm{e}^{bX_{ij}}}{\mathrm{e}^{I_i}} \left(\mathrm{e}^{aY_i+\sigma_i I_i} \Big/ \sum_{m=1}^{l} \mathrm{e}^{aY_m+\sigma_m I_m} \right).$$

If the coefficient on the inclusive value, i.e., σ, is estimated to be 1, the NLM collapses to the CLM, in which countries are considered equivalent substitutes by investors. On the contrary, if $\sigma = 0$, the upper nest is the only relevant decision in the location choice, which means that countries inside the region are perfect substitutes. We use the NLM in what follows to test these two possibilities.

4. Data

Our sample consists of 1843 location decisions of French firms in Europe from 1980 to 1999. The data come from the 2000 version of the database constructed by the Direction of Foreign Economic Relations (DREE) of the French Ministry of Economic and Finances. For each investment, the database reports the year of investment and the chosen country. We have 19 potential host countries in the sample; these are 13 EU countries[7] and 6 CEECs, namely Bulgaria,[8] Hungary, Poland, Romania, Slovenia, and ex-Czechoslovakia. The unavailability of separated statistical series for Czech Republic and Slovakia before 1993, which is the year of separation, forces us to aggregate these two countries for the entire

[7] Data are aggregated for Belgium and Luxembourg.

[8] For Bulgaria, the analysis covers the period from 1980 to 1997.

Table 1
Independent variables: data sources and expected sign

Variable	Definition	Source	Expected sign
NF	French firms already located in the country	DREE	?
GDP	GDP	CHELEM	+
GDP/CAP	GDP per capita	CHELEM	+
DIST	Weighted sub-national distance between France and the host country	REGIO (for the regional population)	–
W	Average wage per capita in manufacturing	OECD	–
UNEMPL	Unemployment rate	World Bank	?
EXCHR	Exchange rate volatility	IMF	?
FREE	Free country	Freedom House	+
PNFREE	Partly Free and Not Free country	Freedom House	var.
PR1	Country with political rights rated 1	Freedom House	+
PR2	Country with political rights rated 2	Freedom House	+
PR345	Country with political rights rated 3, 4, or 5	Freedom House	+
PR67	Country with political rights rated 6 or 7	Freedom House	var.
LI	Annual liberalization index	de Melo et al. (1997)	+
CLI	Cumulative liberalization index	de Melo et al. (1997)	+
ASSOC	= 1 if an association agreement is signed		+

period. Of these 1843 observations, 1569 include Western Europe as a location and 274 Eastern Europe.

The data sources and the expected signs of the explanatory variables are summarized in Table 1. Following Head et al. (1995), agglomeration, denoted *NF*, is defined as the sum of one plus the cumulated number of French firms of the same industry located in the country in the year before the location decision of a new firm is made. Hence, we assume that the firm takes its own investment into account in determining the anticipated level of agglomeration or dispersion forces in the country. Due to countervailing tendencies, the expected effect of this variable on the location decision is uncertain. Potential demand is captured by the GDP of the host country. A firm will have more incentive to locate in a country with high local demand if it intends to sell its product in the host country. However, for export-oriented FDI local demand has no impact.

To control for the host country's development level, we use GDP per capita. We expect the probability of location to be positively correlated with this variable. In addition, we control for the distance between France and host country, denoted *DIST*. Distance is a proxy for the transaction costs associated with every investment decision due to information asymmetries, cultural differences, and an unfamiliarity with the legal framework. Distance is the sum of bilateral distances between capital cities of regions weighted by the economic size of the regions, measured by the share of the population living in the region.[9] Bilateral distances are calculated using the great circle formula. We expect distance to have a negative impact on location choice.

[9] The regional disaggregation of EU countries follows the NUTS Classification. For CEECs, we use the statistical regions proposed by Eurostat based on the NUTS Classification.

Regarding the labor market, labor cost is given by the average manufacturing wage per capita, denoted W. Hence, the impact of labor costs on location decision is expected to be negative. In addition, we include a measure of unemployment, denoted *UNEMPL*, to take account of the large differences in the labor market institutions in the countries. A high unemployment rate may be a signal both of the availability of a large pool of workers, which has a positive effect on location choice or of strong rigidities on the labor market, which have a negative effect. However, involuntary unemployment was non-existent in CEECs during the socialist period. Although these countries exhibited a shortage of labor outside the firms, this phenomenon was combined with excess workers within the firms. Unavailability of employable labor force is an obstacle for foreign firms, considering these countries. Hence, the expected effect of unemployment is ambiguous in our analysis.

To provide insights into the potential effects of CEE participation to the European Monetary Union, we include a measure of exchange rate volatility, denoted *EXCHR*, and estimate its effect on location decisions. Rose (2000, 2001) and Persson (2001) investigate the impact of a common currency and of exchange rate volatility on international trade, and find interesting but controversial results. We measure exchange rate volatility in country i at time t as the standard deviation of the first-difference of the monthly natural logarithm of the nominal exchange rate during the year t.[10] Because of the drastic economic changes in the CEECs during our sample period, the choice of the year t only is appropriate. The impact of exchange rate volatility depends on risk aversion and on the strategy of the investors. Since both of these are unknown, the effect of exchange rate volatility cannot be determined ex ante.

We also include several measures reflecting the institutional quality of each of the two parts of Europe. These variables highlight the differences between the two regions and strengthen the relevance of an analysis of location choices based on an East–West structure. Bad institutions are often considered to be implicit taxes on the investor, e.g., corruption and low levels of protection of property rights. Wei (2000) argues that an increase in the corruption level from that of Singapore to that of Mexico would have the same effect on FDI as an increase of the tax rate from 18 to 50%. We use two different measurements to test for the influence of institutional quality on location choices. The first is the degree of freedom existing in a country. By averaging two ratings, one for political rights and the other for civil liberties, Freedom House assigns each country to one of these following categories: Free, Partly Free, or Not Free. In our estimations, we take the first category by itself and denote the dummy variable *FREE*, but we pool the last two categories as a single dummy variable, denoted *PNFREE*. This pooling is validated by the likelihood-ratio test. To confirm and develop the results obtained with this measure, we also use the political rights rating constructed by Freedom House. The annual survey rates political rights on a scale from 1 to 7, with 1 representing the best rating and 7 the worst. This polytomic variable is divided into seven categories; each of the first two categories is designated as a dummy variable, denoted as *PR1* and *PR2*

[10] The default measure for exchange rate volatility used by Rose (2000) is the standard deviation of the first-difference of the monthly natural logarithm of the bilateral nominal exchange rate in the five years preceding year t.

respectively. Categories 3, 4 and 5 are pooled and denoted *PR345*. In addition, categories 6 and 7 are pooled and identified as *PR67*. These poolings are validated by likelihood-ratio tests.

High institutional quality increases the attractiveness of a country to a foreign investor. Econometrically, the estimated coefficients on these institutional variables are interpreted relative to a reference variable. Hence, if *PNFREE* is the reference variable, a significant and positive coefficient on *FREE* suggests that a stronger degree of freedom influences positively the probability of a country being chosen by a foreign investor. We test the sensitivity of our results for the CEECs with respect to the measurement of institutional quality. Two indexes of economic liberalization are substituted for our measure of institutional quality. First, an annual liberalization index, denoted *LI*, is used; then a cumulative liberalization index, denoted *CLI*, is defined as the sum of a country's *LI*s throughout the relevant period (as in de Melo et al., 1997). The index *LI* is measured as a weighted average of internal markets liberalization, external markets liberalization, and private sector entry. Indexes are available from 1989 to 1994; based on EBRD indicators, indexes are computed up to 1999.[11]

Table 2 provides summary statistics for all those variables.[12] They are used in the next section as the determinants of location choices by French multinational firms. We proceed to those estimations in two steps. First, considering all host countries on an equal ground, with the conditional logit model, and then testing the relevance of an East–West structure in the decision of firms, with the nested logit model estimation.

Table 2
Summary statistics

Variable	Minimum	Maximum	Mean	Std. Dev.
GDP (billion USD)	7.63	2458.26	263.50	419.27
GDP/CAP (USD)	863.31	34768.91	11729.41	8674.18
Distance (km)	490.54	2040.11	1196.05	457.10
Wage (USD)	212.52	80185.22	17795.06	14744.29
Unemployment (%)	0	24.17	7.65	5.14
Exchange rate volatility	0	0.61	0.03	0.05
FREE	0	1	0.82	0.38
PNFREE	0	1	0.18	0.38
PR1	0	1	0.71	0.46
PR2	0	1	0.11	0.32
PR345	0	1	0.05	0.21
PR67	0	1	0.13	0.34
Liberalization index	0.36	0.95	0.79	0.13
Cumulative lib. index	0.46	9.32	4.56	2.35
ASSOC	0	1	0.11	0.31

[11] de Melo et al. (1997) provide an explanation of this procedure.

[12] Summary statistics by country and the correlation matrix are available from the authors.

5. Results

Table 3 presents the estimation results concerning the determinants of location choice without taking into account a possible upper-level tree structure, i.e., Eastern versus Western Europe, in the decision process. The coefficients for the entire period from 1980 to 1999 are reported in columns (1) and (2). We divide the sample into two sub-periods, namely 1980 to 1990 and 1991 to 1999, to capture any change in location decisions made before and after the fall of the communist regime. These coefficients are found in columns (3) and (4) and columns (5) and (6), respectively. The overall fit of the estimations is consistent with that found in comparable papers using conditional logit techniques on location choices. In general, the different determinants have the expected signs and their magnitudes match with existing comparable work using logit models of location choice

Table 3
Location choice of French firms in Europe: the conditional logit model

Model	(1)	(2)	(3)	(4)	(5)	(6)
Ln *NF*	0.46***	0.45***	0.46***	0.45***	0.49***	0.46***
	(0.04)	(0.04)	(0.07)	(0.07)	(0.05)	(0.05)
Ln *GDP*	0.35***	0.35***	0.35***	0.35***	0.36***	0.38***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Ln *GDP/CAP*	−0.34**	−0.44**	−0.70***	−0.77***	0.17	−0.08
	(0.15)	(0.18)	(0.22)	(0.24)	(0.26)	(0.29)
Ln *DIST*	−0.88***	−0.89***	−0.84***	−0.83***	−0.74***	−0.78***
	(0.09)	(0.10)	(0.14)	(0.14)	(0.14)	(0.14)
Ln *W*	−0.33***	−0.36***	−0.05	−0.09	−0.71***	−0.62***
	(0.11)	(0.13)	(0.17)	(0.18)	(0.20)	(0.20)
Ln *UNEMPL*	0.37***	0.30***	0.60***	0.56***	−0.01	−0.05
	(0.07)	(0.07)	(0.10)	(0.11)	(0.11)	(0.11)
EXCHR	−2.18**	−2.50**	2.65	−2.03	−2.28**	−2.14*
	(0.98)	(1.08)	(4.12)	(4.67)	(1.10)	(1.11)
FREE	1.83***		2.09***		0.84***	
	(0.24)		(0.44)		(0.28)	
PNFREE	ref. var.		ref. var.		ref. var.	
PR1		4.09***		3.36***		1.16***
		(0.73)		(0.76)		(0.31)
PR2		3.55***		2.81***		0.76***
		(0.73)		(0.75)		(0.28)
PR345		2.61***		1.89**		
		(0.75)		(0.84)		
PR67		var.		var.		
Observations	1843	1843	825	825	1018	1018
Pseudo R^2	0.152	0.156	0.221	0.223	0.108	0.109

Notes. The dependent variable is location choice. Columns (1) and (2) contain the coefficients for the entire sample from 1980 to 1999. Columns (3) and (4) consider the initial time period from 1980 to 1990, while columns (5) and (6) report the results for the later period from 1991 to 1999. Standard errors in parentheses.

* Significant at the 10% level.
** Idem., 5%.
*** Idem., 1%.

(Head et al., 1999 and Guimarães et al., 2000, for instance). All continuous variables are in logs, so that the coefficients are approximations of the elasticity of the probability of choosing a particular country with respect to the explanatory variable for the average investor.[13]

Location choice is influenced positively by local demand. In addition, the greater is the distance between the French investor and the host country, the smaller is the probability of that country being chosen. The results also reveal the presence of agglomeration effects; the location of French competitors imparts a consistently positive and significant impact on the attractiveness of potential host countries. Ferrer (1998) finds a similar result for the overall location patterns of French firms in EU countries at a regional level. Wheeler and Mody (1992) and Devereux and Griffith (1998) observe the same phenomenon for location decisions of American firms, while Head et al. (1995) and Mayer and Mucchielli (1999) reach the same conclusion for Japanese firms. The results support the argument that positive non-pecuniary externalities, e.g., technological or informational spillovers, are sufficiently important to more than offset the adverse competitive effect of spatial clustering on firms' profits. Our estimated coefficient indicates that a country that experiences a 10% rise in the number of local French affiliates in the same industry increases the probability of being chosen in the future from 4.5 to 4.9%.

The labor cost variable has a negative and significant influence on location choice in the entire sample and in the later sub-period, but the effect in the earlier period is not significant. Insignificant or even positive results on wage variables are very frequent (Devereux and Griffith, 1998; Head et al., 1999; Guimarães et al., 2000). This might in particular result from the high skill intensity of foreign affiliates that dominates the labor costs argument in the location choice. As stated above, the expected sign on unemployment rate is ambiguous. A high unemployment rate might be a deterrent to FDI if it signals imperfections in the labor market, but it could also attract investors if it means that a large pool of workers is available locally. The empirical results reflect this ambiguity with a positive influence in the first period and an insignificant though negative influence in the second one. Exchange rate volatility has a negative effect that is significant in the later sub-period. This effect is also substantially higher than the one obtained for trade flows by Rose (2000), although Rose's focus is on the effect of common currency on trade.[14] Using a sample of 42 developing countries receiving FDI from 17 OECD countries from 1984 to 1996, Bénassy-Quéré et al. (2001) show that volatility reduces FDI.[15] In addition, they find this effect to be higher when host and investor countries are close. The authors suggest that, when the distance between the two potential partners is large, the costs associated with distance override those associated with volatility.

Contrary to our expectations, GDP per capita has a negative impact on location choice. However, the institutional variables are highly correlated with income per capita

[13] The coefficient is closer to this elasticity as the number of alternatives, N, in the choice becomes large because the elasticity for the average investor can be shown to equal the coefficient times $(N-1)/N$.

[14] When multilateral resistance effects are included, the results are reduced significantly, although they remain large (Rose and van Wincoop, 2001).

[15] Bénassy-Quéré et al. (2001) measure volatility as the coefficient of variation of the quarterly nominal exchange rate of the host country versus the investing country over the past three years.

and the estimated coefficients on both measures of institutional quality, i.e., degree of freedom and political rights, are significant and positive.[16] Hence, institutional quality is an important determinant of location choice. Over the whole period and for the earlier sub-period, the estimated coefficients are particularly large. As expected, the coefficient on *PR1* is larger than the one on *PR2* and coefficient on *PR2* is larger than the one on *PR345*. Furthermore, the influence of the institutional variables decreases over time, perhaps reflecting a convergence in the levels of institutional quality between potential host countries. Therefore, an improvement in the institutional framework is an important indicator to foreign investors.

These estimations on the entire sample do not discern possible differences in the regional influence of each determinant. To investigate whether the influence of each determinant is similar for the Eastern and Western parts of Europe, two approaches are possible. First, a descriptive view can be obtained from separate estimations of the determinants of location choice for CEE and EU countries. Due to space constraints, we report only the overall results but details of the separate estimations are available from the authors. These estimations highlight divergences in the determinants of location choice of French firms in Eastern and Western Europe; in particular, GDP has a weaker influence for EU countries than for CEECs. These estimations also indicate weaker agglomeration effects in CEECs than in EU countries, which could be explained by stronger competition between firms in these countries, generating dispersion of economic activities. An alternative interpretation is in forward and backward linkages, in that affiliates in CEECs rely heavily on intermediate products from France and other EU countries. From this perspective, input and output linkages with their associated externalities would be smaller in CEECs than in EU countries where a larger proportion of inputs can be purchased locally. Finally, exchange rate volatility has no influence on location decisions within the group of CEECs. Hence, exchange rate volatility is important only if it relates to an East versus West choice rather than to a country choice inside the CEE region.

The second approach involves testing explicitly for an upper-level structure in the choice among nations in Europe. An assessment of the relevance of the East–West divide in the decision tree is provided by the nested logit model.

Table 4 presents the results of these estimations.[17] Unlike in Table 3, the coefficients in columns (1) and (2), correspond to the later period from 1991 to 1999. We also consider the following three sub-periods: 1991 to 1993 in column (3), 1994 to 1995 in column (4), and 1996 to 1999 in column (5). A measure of the institutional quality is included in the first column because most of the countries are in the free category from 1991 to 1999. At the regional, supra-national, level, all the information relevant to a choice between Eastern and Western Europe is contained in the inclusive value. As we emphasized above, the inclusive value for each region consists of all relevant attributes of the countries that belong to that region. We cannot identify any relevant attribute that would vary among regions but would be constant across countries in each region.

[16] No country receives a rating of 6 or 7 during the period from 1991 to 1999. Therefore, *PR345* is the reference category for the estimation in the later period.

[17] Due to the lack of data for Bulgaria after 1997, estimations do not include this country.

Table 4
Location choice of French firms in Europe: the nested logit model

Model	(1)	(2)	(3)	(4)	(5)
Ln *NF*	0.68***	0.71***	0.62***	0.70***	0.83***
	(0.06)	(0.06)	(0.10)	(0.13)	(0.10)
Ln *GDP*	0.30***	0.29***	0.42***	0.24***	0.20***
	(0.04)	(0.04)	(0.07)	(0.09)	(0.08)
Ln *GDP/CAP*	−0.10	−0.13	−0.65	1.05	−0.18
	(0.29)	(0.29)	(0.51)	(0.79)	(0.43)
Ln *DIST*	−0.70***	−0.60***	−0.89***	−0.69**	−0.13
	(0.17)	(0.16)	(0.24)	(0.34)	(0.30)
Ln *W*	−0.68***	−0.51**	−0.57	−0.88	−0.33
	(0.25)	(0.24)	(0.40)	(0.67)	(0.36)
Ln *UNEMPL*	−0.06	−0.06	−0.16	0.35	−0.17
	(0.11)	(0.11)	(0.17)	(0.29)	(0.19)
EXCHR	−1.81	−4.79**	−6.00***	−0.81	−13.68*
	(2.08)	(2.00)	(2.29)	(16.66)	(8.22)
FREE	1.03***				
	(0.32)				
PNFREE	ref. var.				
Inclusive value	0.91***	0.77***	0.47***	0.51***	0.92***
	(0.08)	(0.06)	(0.13)	(0.07)	(0.12)
Observations	1008	1008	430	223	355
Pseudo R^2	0.141	0.139	0.151	0.147	0.137

Notes. The dependent variable is location choice. Columns (1) and (2) contain the coefficients for the years of the sample ranging from 1991 to 1999. Column (3) considers the first time period from 1991 to 1993, column (4) reports the coefficients for the period from 1994 to 1995, while column (5) presents the results for the later period from 1996 to 1999. Standard errors in parentheses.

* Significant at the 10% level.
** Idem., 5%.
*** Idem., 1%.

The NLM coefficients in column (1) of Table 4 are directly comparable to the CLM ones in column (5) of Table 3, only their interpretation differs. Results from the NLM estimation provide information about the influence of variables on the choice of country within each nest (Eastern and Western Europe), while the CLM model does not consider such a distinction. Comparing the results, we note that, during the entire period from 1991 to 1999, the determinants inside each group are very similar. This pattern is confirmed by the estimated coefficient on the inclusive value, which is within the expected 0–1 range, but not significantly different from 1. The only important difference concerns GDP per capita, which exerts a positive influence (although insignificant) on FDI, only when the East–West structure of the choice is neglected, revealing that the attractiveness of high GDP per capita is relevant when choosing a location *between* the two groups of countries, not *within* each group. Column (2) of Table 4 presents results from the same NLM estimation, only omitting the institutional variable *FREE*. Results are largely similar, with the noticeable exception of the inclusive value coefficient now indicating a higher relevance of the East–West structure in the location choice. A natural interpretation is that the East–West divide apparent in the choices of French investor is mostly "institution-based." Controlling for

institutions in the analysis reduces the difference between the two groups. Although this interpretation would need to be verified using the choices of investors from other origin countries and better proxies for institutions, this suggests that the convergence of the institutions in CEECs to Western standards[18] would gradually make this group of countries part of a global group of European countries in the eyes of investors. In the estimations, this would yield a gradual increase of the inclusive value coefficient towards the value of 1. Columns (3) to (5) reveal that this is indeed the case. Over the three periods covered by those columns, the coefficient estimates of the inclusive value are consistently between 0 and 1, which confirms the relevance of an East–West structure in the location choice of French multinational firms in Europe. Hence, competition among countries to attract foreign investors occurs more within either the group of CEECs or the group of EU countries rather than between CEE and EU countries. Taking columns (3)–(5), the inclusive value increases from 1991 to 1999. An increase in this coefficient means that the East–West tree structure is less and less relevant, i.e., that CEECs are becoming closer substitutes to EU countries. In addition, the difference between the estimated coefficient for the first and last sub-periods, i.e., 1991 to 1993 and 1996 to 1999, is significantly different from zero. Our results suggest an increased similarity of countries in Eastern and Western Europe as host countries for FDI. The estimated coefficient on the inclusive value for the years 1996 to 1999 is in fact not significantly different from 1, suggesting that the Eastern European countries are in fact considered on the same ground as the Western European countries for the most recent period.

To summarize, our econometric estimations concerning the location choices of French firms in EU countries and CEECs from 1980 to 1999 indicate that these choices are geographically nested. French firms choose a region, i.e., Eastern or Western Europe, and then they choose a country within that region. Our empirical approach provides a measure of the gap between CEE and EU countries in the opinion of French investors. This gap is shown to decrease over time, indicating a rise in the substitutability of Eastern and Western European countries in the eyes of foreign investors.

6. Conclusion

We analyzed the location choices by French multinational firms in Europe from 1980 to 1999. Our attention was focused on the determinants of location and on a possible East–West divide in those determinants, using information on the countries chosen by individual investors among a set of 13 EU and 6 CEE countries. Our econometric analysis makes use of both conditional and nested logit models. The latter enables to test the empirical relevance of the East–West divide in the choice of investors. Firstly our results confirm that variables traditionally included in empirical work on location choice are relevant for French investors. Market size and agglomeration effects are key determinants of a country's attractiveness. We also investigated the role of institutional variables and found that they are

[18] There is indeed such a convergence in our (admittedly crude) *FREE* variable. All EU countries are considered free in the 1991 to 1999 period, versus 50% of the CEECs in 1990, this ratio increasing to 100% from 1996 onwards.

important in the location choice. Regarding the structure of the location choice, we found evidence of an East–West divide. French investors generally view CEECs as a distinct group of countries. This distinction is however loosing relevance over time, to the point that it has ceased to be relevant by the end of the 1990s.

The results can also be interpreted to explain the cause of the divide between the two parts of Europe for FDI location. Institutions seem crucial in this respect. When the institutional aspects of host countries are controlled for, the determinants of location choice by French multinational firms inside Eastern Europe do not differ significantly from the causes of the choice among EU host countries. The institutions of those countries are undoubtedly progressing towards the current EU members' standards, and the European Commission is urging CEECs to actually accelerate this movement in the prospect of the enlargement. There is therefore an optimistic interpretation to our results in terms of policy implications. As far as FDI is concerned, the main difference between those countries and current EU members would be a difference in (broadly defined) institutions: CEECs started their transition towards the market economy with institutions inherited from the former system and also corresponding to their level of development. This initially made those countries very different from Western European countries in the eyes of investors and probably hindered FDI to a certain extent. Those institutions have changed however, and this change seems to have quickly affected the patterns of foreign investments by French firms. Like trade flows, movements of capital in those countries seem to now follow more "standard" patterns. The past and ongoing insistence on institutional reform in those countries by EU members might therefore have had a positive impact on FDI. Past enlargement experiences like the entry of Spain and Portugal also point to optimism. Those two countries were also initially considered to be very different from the existing members, which triggered fears that have proven to be largely unfounded. A less optimistic view for the future might come from regional policy side of location choices in those countries. If location patterns of FDI in those countries follow a "normal" path, it will certainly result in a highly unequal distribution of affiliates among and even within CEECs. Whether this spatial agglomeration of FDI is a good or a bad thing is still subject to theoretical debates. What is however clear empirically is that, despite important efforts, regional policies have been at best a minor determinant of the location of FDI in the EU, unable to counterbalance agglomeration tendencies. In addition, European funding for lagging regions in the CEECs will be implemented only gradually, which makes the prospects of widening spatial inequality even more likely.

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