Foreign Direct Investment in Central and Eastern European Countries: A Dynamic Panel Analysis ⋆

Kai Carstensen [a], Farid Toubal [b]

[a] *Institute for World Economics, 24105 Kiel, Germany*

[b] *Department of Economics, University of Kiel, 24098 Kiel, Germany*

Abstract

This paper uses dynamic panel data methods to examine the determinants of Foreign Direct Investment (FDI) into Central and Eastern European Countries (CEECs). Our empirical model shows that the traditional determinants, such as market potential, low relative unit labor costs, a skilled workforce and relative endowments have significant and plausible effects. In addition, transition-specific factors such as the level and method of privatisation, and the country risk, play an important role in determining the flows of FDI into the CEECs and help explain the different attractiveness for FDI of the individual countries.

Keywords: Transition economies, FDI, Panel estimation.
JEL classification: F21, F23, P33

1 Introduction

This paper examines the determinants of FDI into Central and Eastern European countries (CEECs) during their transition towards a market economy. We pay particular attention to this transition process by supplementing the traditional determinants like market potential and trade costs, which we derive from endowment-based theories of the multinational firm, with transition-specific factors like privatisation level and method. The impacts of these variables

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Email addresses: carstensen@ifw.uni-kiel.de (Kai Carstensen), toubal@bwl.uni-kiel.de (Farid Toubal).

are estimated within a dynamic panel data framework using an appropriate generalized method of moments (GMM) estimation technique.

The last decade has seen a remarkable growth of European but also US outward direct investments in CEECs. This growth is often regarded as being driven by the process of integration of CEECs into the European Union and the associated elimination of the barriers to FDI and acceleration of the transition process of those economies. However, the CEECs are far from homogeneous and both the level and growth of FDI differ across these countries. While the Central European countries (Czech Republic, Hungary, Poland, Slovak Republic, Slovenia) have attracted a good amount of foreign capital, the South Eastern European countries (Bulgaria and Romania) lag far behind. We propose that this discrepancy can not be fully explained by traditional FDI determinants because transition-specific factors certainly play an important role for the investment decision of a multinational as far as they reflect the actual state of the transition process, the overall policy stance or even future prospects.

By using both the traditional and transition-specific sets of variables, we extend the work by Landsbury et al. (1996) and Holland and Pain (1998), who focus on the business environment and the privatisation process as primary determinants of FDI in CEECs. We add also to the existing literature on FDI in Eastern Europe, by employing a dynamic panel data approach which not only allows us to make use of all information available in the cross section and time series dimensions but also to distinguish between the short- and long-term evolution of FDI in CEECs. To the best of our knowledge, no-one has used this approach to analyse FDI in Eastern Europe before. So far, few studies have used panel data at all, and those which did, estimated static models only (Bevan and Estrin, 2000). By stressing the dynamic nature of FDI we hope to get a step closer to reality. [1]

The structure of this paper is as follows. In section 2 below, some relevant stylised facts are presented which guide the subsequent analysis. Then, in section 3 we review the theoretical and empirical literature from which we derive factors with potential impact on FDI in Eastern Europe. The econometric specification and estimation strategy is laid out in sections 4 and 5. In section 6 we present the empirical results while section 7 concludes.

[1] Buch et al. (2002) estimate a dynamic cointegration model to gain insights in the long-run determinants of FDI for a larger set of European countries. However, this approach requires a large time dimension which precludes the use of transition-specific variables we consider important. Moreover, since their estimation results are rather unstable, we decide not to apply panel cointegration techniques.

2 Some Stylised Facts

Table 1 shows the evolution of FDI inflows as a share of GDP into several regions of the world [2] . The opening up and the transition to market economies of Central and Eastern European countries have been accompanied by a surge of FDI inflows in these economies. CEECs were always performing better than the low-income countries, but have only recently surpassed lower-middle-income countries. The Asian crisis may explain the decrease of FDI in these countries after 1997.

— Insert Table 1 about here. —

According to Brenton and Gros (1997), the "commercial integration" of some CEECs into the European Union has been achieved. FDI flows to Eastern Europe may now reflect a deeper phase of integration. However, the CEEC group is not homogeneous and, as noted by Bevan and Estrin (2000), countries with favorable initial conditions have attracted more FDI than their more risky and poorer performing neighboring countries. Table 2 presents a brief overview of the state of the transition in some Eastern Economies and compares them to Portugal which joined the EU only in 1986 and is, in some aspects, not too different from the CEECs. The vast majority of investments goes to Poland, the Czech Republic and Hungary, three of the largest CEECs, but also the earliest member of the Central European Free Trade Area (CEFTA). [3] Consequently, investment in one of these countries guarantees access to all of their markets and to the nearby European Union. Moreover, these countries are characterized by a low country risk and a high level of reform as indicated by the EBRD's transition index. For Hungary and the Czech Republic the private market shares (as % of GDP) are as high as 80%. All this suggests that countries with large markets (high GDP) and a stable, advanced market economy perform well in terms of FDI.

— Insert Table 2 about here. —

On a per capita basis, Slovenia and to a lesser extent the Slovak Republic, two rather small countries, are also attracting a good amount of FDI. This is probably due to the relatively stable environment in Slovenia (with a country risk index of 70) and the relatively high share of private businesses in the Slovak Republic (75% of GDP). Moreover, both countries are well advanced

[2] The classification of countries into regions follows the World Development Indicator (2002).

[3] The CEFTA was created in 1992 by the former Czechoslovakia, Hungary and Poland. On March 1993, the CEFTA goes into effect, eliminating duties on approximately 40% of industrial goods. On January 1997, duties on industrial products were completely removed except for some "sensitive" sectors.

in their transition to a market economy.

For Bulgaria and Romania, the same determinants have developed much less favorably. The slow progress toward a market economy could have impeded FDI inflows, even if these economies show the lowest labour costs. Therefore, in the following, we often make the distinction between the Central European Countries (Czech Republic, Hungary, Poland, Slovak Republic and Slovenia) and the South Eastern European Countries (Bulgaria and Romania).

— Insert Table 3 about here. —

The origins of FDI flows to CEEC are reported in Table 3. They come largely from the EU, with Germany, the Netherlands and Austria being the main investors. The proximity to the European Union has surely stimulated market-seeking investment of EU-based multinationals but also, to a smaller extent, greenfield investments (Alessandrini, 2000). The latter benefit from few large privatisation projects mostly in the late 1990's. The position of the US is also non-negligible, particularly in the Visegrad countries (Poland, Czech Republic, Slovakia and Hungary), which absorb about 90% of US investment in the region.

3 Theoretical Background

In order to compensate for the costs of operating abroad, a firm must incur significant advantages of going multinational. Dunning (1977, 1981) provides a taxonomy of micro- and macro-economic determinants which explain a firm's willingness and ability to undertake FDI. He suggests a framework of ownership, location and internalisation (OLI) advantages as determining factors for FDI. The ownership advantages come in several forms, all based on the concept of knowledge-based or firm-specific assets. They are associated with R&D, scientific and technical workers, human capital and product differentiation, but also with patents, blueprints, and other marketing assets like trademarks, reputations and brand name. Those firm-specific assets, tangible or intangible, confer the firm cost advantages and market power sufficient to cover the costs of producing abroad.

The sources of location advantages differ with the type of multinational involved. Horizontal multinationals produce the same goods and services across countries. They invest abroad to avoid trade costs (in the form of transport costs, tariffs and quotas, etc.) associated with exporting from the home plant to the foreign market. Given the existence of plant-level scale economies, horizontal direct investment is likely to arise when trade costs are high and when the host market is large. These location advantages differ for vertical multi-

nationals which geographically fragment their production process by stages. They invest abroad to reduce the overall cost of production. Vertical direct investment is likely to arise when these stages of production use different factor intensities and when countries have different factor endowments and/or factor-prices. It is also encouraged by low trade barriers. For instance, a vertical multinational may locate R&D and skill-intensive activities in relatively skill abundant countries and carry out unskilled-labour-intensive activities in relatively unskilled-labour abundant countries. Finally, firms may have an incentive to exploit internally their specific assets abroad when they could vanish through licensing and cooperation agreements. [4]

An important task of the theory is to connect these advantages in a consistent way. [5] A new stream of the literature, following Markusen et al. (1996) and Markusen and Venables (1998, 2000), integrates multinationals into general equilibrium models. In this endowment-based approach of FDI, the presence of multinational firms depends on a set of industry characteristics such as factor intensities, increasing returns to scale, product differentiation, country characteristics such as relative endowment differences and trade costs, and indirect factors such as public and private infrastructure or legal systems (Markusen and Zhang, 1999).

Markusen and Venables (1998) propose a model of two countries, two homogeneous goods and two factors. Firms in each country can be of two types, either national or multinational. Assuming Cournot competition and free entry, the model can be solved for different equilibrium combination of firms which depend on industry characteristics. The key variables for determining the presence of multinationals are transport costs, plant and firm-level economies of scale and market size. Asymmetry of countries in terms of relative factor endowments does not lead to vertical multinationals since they are excluded by assumption. Instead, multinationals become more and more important as countries become more similar in size, in relative factor endowments and as the world income grows.

In Markusen et al. (1996), the model is further refined with the formal introduction of both types of multinationals: horizontals and verticals. Vertical multinationals dominate production when the countries differ significantly in relative factor endowment but are somewhat similar in size. Horizontal multinationals dominate when the countries are similar in both size and relative factor endowments, and when trade costs are moderate to high.

[4] See Markusen (1995) for an overview of the OLI framework.
[5] A detailed discussion is provided by Markusen (1995,1998).

4 Empirical Specification

Although the complexity of these recent papers does not allow for analytical results, they are still a valuable guide for empirical research, as they inform the choice of relevant explanatory variables. We split our determinants into two parts. The first part is made up by the "traditional" determinants of FDI derived from the theory. It comprises market size, trade costs, plant and firm specific costs, and relative factor endowments. The second set introduces transition-specific determinants, such as the share of private businesses, the method of privatisation and the risk associated with each host country, which may influence the decision to invest in CEECs. The motivation for the choice of variables is given below while the details of computation and the data sources are given in the Appendix.

Any econometric analysis of the impact of market size on FDI inflows in CEECs should be undertaken with care. FDI inflows coincided initially with a period of recession until 1995, which can be associated with the transition to a market economy. This suggests a perverse but spurious relationship between FDI and market size if this is simply measured as the actual output of the host country. A practical way to overcome this statistical problem is to proxy market size by population size (Meyer, 1996), start the analysis at the point of recovery (Barrell and Holland, 2000) or look at FDI inflows relative to GDP (Holland and Pain, 1998). All of these approaches found FDI to be ceteris paribus significantly and positively influenced by market size. As a more promising approach, we propose to consider the market potential associated with a specific location because this is the variable a multinational most probably is concerned with. This market potential is not only related to the domestic market but also to the markets of all the neighbouring countries. Even inside a country, the domestic market is limited by transportation costs between the subsidiary and the various regional markets. Therefore, we measure the market potential of a country as the average of the output of all countries in the sample weighted by an inverse distance measure which is derived on a region-to-region basis using transportation costs (see Appendix for details).

In empirical applications, distance has often been used to model trade costs. However, since this variable is constant over time it cannot be distinguished from any other time-invariant variable in our panel. In her analysis of US FDI at a sectoral level, Brainard (1997) uses freight cost and tariffs as proxies for trade costs. Unfortunately, freight costs were not available for Eastern European countries. As a consequence, we solely use the host country's tariff revenue as percentage of imports as a proxy for trade costs. This variable has the advantage that it carries much more information than a simple distance measure since it changes over time. Because of the aggregate nature of our

data, we cannot differentiate between horizontal and vertical FDI and, thus, expect tariffs to have either a negative or a positive impact on FDI.

Given the relatively low labour costs in CEECs, firms are expected to have a strong incentive to locate their labour intensive activities in the area. Holland and Pain (1998), for instance, find that wage differences between CEECs have a significant impact on FDI inflows from the EU. However, they do not control for the bilateral wage relation between host and home countries. This in turn does not give the entire impact of the wages on FDI. This is also why we decide to compare bilaterally the costs of each member of our panel. Moreover, low wages do not necessarily reflect low production costs if labour productivity is also low. Taking this into account, the location decision of a multinational rather depends on the relative productivity-adjusted labour cost and the potential access to skilled labour in the host country. [6] We thus expect high unit labour costs of the host country relative to the reporting country to depress FDI while the abundance of a skilled labour force has a positive impact on FDI inflows. In this paper, we measure skill as the fraction of higher-educated workers in the labour force.

The absolute difference in GDP per capita is often taken as a proxy for the difference in relative factor endowments. We use a better measure, namely the relative capital-labour ratio, where we measure capital as gross fixed capital formation [7] and labour as the working population. We expect this variable to have either a positive or a negative sign. To some extent, this will give us information about the type of FDI in Eastern Europe, horizontal or vertical.

The 1996 UNCTAD report on FDI incentives concludes that even if the "traditional" determinants mentioned above are still important in the location decision, firms also look for places to invest that offer specific financial and fiscal advantages such as the existence of favourable investment and tax regimes. The lack of data on incentives given to multinationals does not permit to control for governments' discriminatory policies towards FDI. However, non-discriminatory practices such as low corporate tax rates should enhance FDI as noted by Bénassy-Quéré et al. (2000). We decided to have a closer look at the impact of nominal corporate tax rates corrected for the fiscal regime. This variable is expected to have a negative impact on FDI inflows into CEECs.

There are, of course, other variables with particular importance for transition economies. "Intangible assets" such as the business culture may have a potential impact on FDI inflows. The method and the level of privatisation can catch such an effect because they are closely related to the effectiveness of corporate governance. We follow Holland and Pain (1998) and Bevan and Es-

[6] At this point, we depart from the theoretical literature (Markusen at al., 1996) by considering skill in the host instead of the home country.
[7] Capital stock data are not available for CEECs.

trin (2000) by taking the private sector share of GDP as a proxy for the level of privatisation and expect this variable to influence positively FDI. However, we extend the methodology of Holland and Pain, who measure the method of privatisation by a general index which takes values 1 to 5 indicating different methods ordered from the most impeding to the most attractive method for FDI. Since this index is only an ordinal variable, it may be more appropriate to split it into five dummy variables which capture the impact on FDI of each method of privatisation. Moreover, since the quality of the business environment and the overall political climate is likely to influence FDI, we introduce a country risk variable. Note that this index takes higher values the less risk is associated with a specific country and is, therefore, expected to have a positive impact on FDI inflows.

From the preceding discussion we end up with the following variables with potential influence on FDI inflows to the CEECs. The market potential of the host country j at time t, MK_{jt}, tariffs $TARIFF_{jt}$ as a proxy for trade costs, relative unit labour costs $RULC_{ijt}$ between the host country j and the home country i, the fraction of skilled labour to total labour $SKILL_{jt}$, the relative labour-capital endowment RLK_{ijt} between host and home country, the corporate tax rate TAX_{ijt} which also controls for the different fiscal regimes in the home country, the private market share $PRIV_{jt}$ of host country j and a political risk index $RISK_{jt}$. To measure the method of privatisation we apply the general index, $METH_{jt}$, proposed by Holland and Pain (1998) but, as argued above, also five dummy variables M^1_{jt} to M^5_{jt}. More details of the construction of the variables and the data sources are given in the Appendix. The expected signs of the impact of the explanatory variables on FDI are given in Table 4. [8]

— Insert Table 4 about here. —

The panel comprises ten OECD reporting countries ($N_i = 10$): Austria, Belgium (including Luxembourg), Denmark, France, Italy, Germany, Portugal, Spain, UK and USA, as well as seven Eastern European destination countries ($N_j = 7$): Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic and Slovenia. We consider the period 1993-1999 for which yearly data are available ($T = 7$).

[8] Since the influence of the dummy variables should be increasing from M^1_{jt} to M^5_{jt}, their signs depend on the dummy which we have to drop for the regression in order to avoid perfect collinearity. For instance, if M^3_{jt} is dropped, M^1_{jt} and M^2_{jt} should be negative and M^4_{jt} and M^5_{jt} positive.

5 Econometric Methodology

Our data give rise to a specific panel model with two cross-section dimensions (reporting countries i, $i = 1, \ldots, N_i$, and host countries j, $j = 1, \ldots, N_j$) and one time dimension t, $t = 1, \ldots, T$:

$$y_{ijt} = x'_{ijt}\beta + \varepsilon_{ijt}, \tag{1}$$

$$\varepsilon_{ijt} = \mu_{ij} + \nu_{ijt}, \tag{2}$$

where y_{ijt} is the net annual outward bilateral FDI of the reporting country i into host country j at time t and x_{ijt} denotes a $1 \times k$ vector of exogenous variables which vary in the cross-section (either with the reporting country i, the partner country j, or with both) and in the time dimension t. Depending on the model we estimate, x_{ijt} can comprise the following variables described in the preceding section: MK_{ijt}, $TARIFF_{jt}$, $RULC_{ijt}$, $SKILL_{jt}$, RLK_{ijt}, TAX_{ijt}, $PRIV_{jt}$, $RISK_{jt}$, $METH_{jt}$ and M^k_{jt}, $k = 1, \ldots, 5$. Due to the fact that FDI can take negative values meaning a disinvestment, we choose a semi-log model, i.e., only the exogenous variables are given in logs except for $TARIFF_{jt}$, $RULC_{ijt}$, $PRIV_{jt}$, TAX_{ijt}, which are expressed in percent, the privatisation index $METH_{jt}$ and the dummy variables M^k_{jt}.

The typical error component structure is given in (2) where μ_{ij} models the time-invariant country-pair-specific effects [9] and ν_{ijt} is a stochastic error term which is assumed to be uncorrelated over all i, j and t. Due to the heterogeneity of the country pair specific effects, the F-test rejects the ordinary least squares estimation (test statistic 89.82, p-value 0.000). Turning to the choice between fixed and random effects μ_{ij}, the fixed effects model is preferred because we want to control for structural determinants other than the ones associated with the explanatory variables. In addition, the Hausman χ^2-statistic rejects the random effects model (test statistic 14.36, p-value 0.045).

The residuals of the static FDI model exhibit a considerable degree of autocorrelation indicating the presence of a sluggish adjustment process. The LM test for autocorrelation described by Baltagi (2001, p. 95) clearly rejects the null of no autocorrelation (test statistic 23.67, p-value 0.000). We therefore

[9] We also tried to decompose μ_{ij} into a home country specific effect μ_i and a host country specific effect μ_j with $\mu_{ij} = \mu_i + \mu_j$. By putting more structure on the model, this decomposition considerably reduces the number of (fixed-effects) parameters from $N_i N_j = 70$ to $N_i + N_j = 17$. However, this cannot of course solve the autocorrelation problem reported below. In a dynamic setting the country pair specific effects are simply wiped out by first differencing the model, regardless of the specific (time-invariant) structure. We therefore stick with the traditional one-way error component structure (2).

proceed by specifying a dynamic FDI model. For this purpose, we use one lagged endogenous variable as an additional regressor in the economic model:

$$y_{ijt} = y_{ijt-1}\alpha + x'_{ijt}\beta + \mu_{ij} + \nu_{ijt}, \qquad |\alpha| < 1. \tag{3}$$

The parameter α reflects the persistence in the process of adjustment towards an equilibrium. Note that β now measures the short-run effect of x_{ijt} on y_{ijt} given $y_{ij,t-1}$. The long-run effect is then given as $\beta/(1-\alpha)$.

It is well-known from the work of Nickell (1981) that the least squares dummy variables (LSDV) estimator of the dynamic panel data model (3) is inconsistent because the within transformation of the data which is used to get rid of the individual effects μ_{ij} leads to a correlation between the lagged endogenous variable and the disturbance term. The resulting "Nickell bias" may be severe, in particular for small time dimension T. As a consequence, Anderson and Hsiao (1981) suggest to use the first difference transformation to wipe out the individual effects,

$$\Delta y_{ijt} = \alpha \Delta y_{ijt-1} + \Delta x'_{ijt}\beta + \Delta \nu_{ijt}, \tag{4}$$

and then to use an instrumental variable like y_{ijt-2} which is uncorrelated with the disturbance $\Delta\nu_{ijt}$, to obtain a consistent estimator. However, this estimator is inefficient, because it does not use all available orthogonality restrictions and neglects the differenced structure of the disturbances. In fact, the assumption of uncorrelated level disturbances ν_{ijt} implies a moving average structure for $\Delta\nu_{ijt}$.

The general method of moments (GMM) estimator of Arellano and Bond (1991) tackles these two problems. First, it employs all possible lags of the variables y_{ijt-1} and x_{ijt} to generate orthogonality restrictions. Second, it uses a nonparametric estimator of the covariance matrix as proposed by Hansen (1982). For predetermined variables x_{ijt}, this results in the moment conditions $E[x_{ijt-1}\Delta\nu_{ijs}] = 0$ for $t \leq s$ and $E[y_{ijt-2}\Delta\nu_{ijs}] = 0$ for $t \leq s$. The GMM estimator minimizes the criterion function

$$(\Delta\nu' W) V_N^{-1} (W'\Delta\nu), \tag{5}$$

where $\Delta\nu$ is the vector of differenced disturbances, W denotes the stacked matrix of instruments W_{ij} and V_N^{-1} is the GMM weighting matrix which is optimally given by the inverse of the asymptotic covariance matrix of the orthogonality restrictions. In practice, V_N is estimated as

$$\hat{V}_N = \sum_{i=1}^{N_i} \sum_{j=1}^{N_j} W'_{ij} \Delta\hat{\nu}_{ij} \Delta\hat{\nu}'_{ij} W_{ij}, \tag{6}$$

where $\Delta\hat{\nu}_{ij}$ are obtained from a first step estimation using a covariance matrix implied by the moving average structure of the disturbances. The closed form

solution for the second step Arellano–Bond GMM estimator is then given by

$$\begin{pmatrix} \hat{\alpha}_{AB} \\ \hat{\beta}_{AB} \end{pmatrix} = \left(Z'W\hat{V}_N^{-1}W'Z \right)^{-1} Z'W\hat{V}_N^{-1}W'\Delta y, \tag{7}$$

with $Z = [\Delta y_{-1} \Delta X]$.

While this estimator has been widely used in the literature, various authors have proposed additional moment conditions to further improve its efficiency (Arellano and Bover, 1995; Ahn and Schmidt, 1995). In particular, Blundell and Bond (1998) show both asymptotically and in Monte Carlo simulations that using lagged differenced variables as instruments for the equation (3) in levels offers dramatic efficiency gains, in particular for small T. We implement their system GMM estimator by exploiting the additional conditions $E[\Delta y_{ijt-1}\varepsilon_{ijt}] = 0$ and $E[\Delta x_{ijt-1}\varepsilon_{ijt}] = 0$.

With respect to the explanatory variables x_{ijt} we face the problem that there are more moment restrictions available than country pairs $N = N_i N_j$. Since estimation in panel data models normally means averaging only over the cross section dimension, this implies linear dependencies within the moment restrictions and, thus, non-invertibility of the first part of the GMM estimator (7) and of the covariance matrix $\hat{V}_N$. We therefore follow Arellano and Bond (1991, p. 290) and average the moment conditions of the explanatory variables over N and T. Given a time dimension of $T = 7$ we obtain the instrument matrix

$$W_{ij}^d = \begin{bmatrix} y_{ij1} & 0 & 0 & \cdots & 0 & \cdots & 0 & x'_{ij2} \\ 0 & y_{ij1} & y_{ij2} & \cdots & 0 & \cdots & 0 & x'_{ij3} \\ \vdots & \vdots & \vdots & \cdots & \vdots & \cdots & \vdots & \vdots \\ 0 & 0 & 0 & \cdots & y_{ij1} & \cdots & y_{ij5} & x'_{ij6} \end{bmatrix} \tag{8}$$

for the equation in differences and the instrument matrix

$$W_{ij}^l = \begin{bmatrix} \Delta y_{ij2} & 0 & \cdots & 0 & \Delta x'_{ij2} \\ 0 & \Delta y_{ij3} & \cdots & 0 & \Delta x'_{ij3} \\ \vdots & \vdots & \cdots & \vdots & \vdots \\ 0 & 0 & \cdots & \Delta y_{ij6} & \Delta x'_{ij6} \end{bmatrix} \tag{9}$$

for the equation in levels. Stacking the equations yields the system instrument matrix

$$W_{ij}^s = \begin{bmatrix} W_{ij}^d & 0 \\ 0 & W_{ij}^l \end{bmatrix}. \tag{10}$$

The calculation of the two-step GMM estimator proceeds as outlined for the Arellano–Bond estimator described above.

6 Estimation Results

The estimated coefficients of the dynamic model (3) are presented in Table 5, while the long-run parameters are displayed in Table 6. We report five different, increasingly complex specifications (S1) to (S5). This allows us to study the effects of taking up more and more explanatory variables and to assess the robustness of our model.

The baseline specifications (S1) and (S2) are designed to catch the effects of the "traditional" determinants for FDI inflows, thereby neglecting the determinants specific to the CEE host countries. The only difference between (S1) and (S2) is that we use the skill ratio as endowment variable in the first specification while we replace it with the labour-capital ratio in the second.

For specifications (S3) and (S4) we pay attention to the transition process in the CEECs by controlling for the private market share and the privatisation method. While specification (S3) uses the privatisation index $METH_{jt}$ which takes values between 1 and 5, we replace it by the four dummy variables M^1_{jt} (vouchers), M^2_{jt} (MEBO), M^4_{jt} (SOO and MEBO) and M^5_{jt} (SOO) in (S4).[10] In the last specification (S5) we additionally control for the host country specific risk which is obviously also closely related to the transition path each country pursues.

As a first step to assess the validity of the five specifications we compute for each of them the Sargan test for overidentifying restrictions and the Arellano and Bond (1991) m_2 test for autocorrelation.[11] Except for specification (S4), the overidentifying restrictions cannot be rejected at the 5% level. However, since Arellano and Bond (1991) notice a strong tendency of the Sargan test to overrejection, the p-value of 0.045 in model (S4) is not very troublesome. The m_2 test for absence of second order autocorrelation of the differenced disturbances is particularly important because the consistency of the GMM estimator hinges on this property. For each of the five specifications we cannot reject the null of no autocorrelation at any conventional significance level. We therefore conclude that the GMM method is appropriate for our model and the data at hand.

— Insert Table 5 about here. —

[10] Note that we leave out M^3_{jt} (MBEO and SOO) to avoid perfect collinearity.
[11] In fact, we employ a variant of the m_2 test adjusted for the extended number of moment conditions we use.

— Insert Table 6 about here. —

In all specifications, the significant and positive short-term impact of the lagged FDI indicates that the adjustment process plays a non-negligible, albeit limited role. The maximum estimate of $\hat{\alpha} = 0.375$ in specification (S2) can be interpreted as follows: a permanent change in an exogenous variable has $(1 - \alpha) \times 100\% = 63.5\%$ of its long-run impact in the first period, $(1+\alpha)(1-\alpha) \times 100\% = 85.9\%$ after two periods, $(1+\alpha+\alpha^2)(1-\alpha) \times 100\% = 94.7\%$ after three periods and so on. As a single measure of persistence we can use the mean lag (Hendry, 1995, p. 215) which in our case takes the value $\hat{\alpha}/(1 - \hat{\alpha}) = 0.6$ years. The low coefficient of the lagged FDI variable may be attributed to two factors. First, mergers and acquisitions are the principal vehicles of FDI in the region (Alessandrini, 2000). In this case, the high participation or entry costs are followed by much smaller capital flows (reorganization, training of the work force, etc.). Second, greenfield investments, even if increasing in transition economies, have remained marginal relative to the other forms of FDI (Alessandrini, 2000).

With respect to the exogenous variables the first thing to note is that the signs of their estimated parameters are all in accordance with our theoretical expectations presented in Table 4. Turning now to the first specification (S1) we can assess the impact of "traditional" determinants on FDI. Remember that only the exogenous variables are in logs so that the parameters have to be interpreted as semi-elasticities. Market potential has a substantial positive effect on FDI. If it increases by 1%, the average FDI flows from one home to one host country rise by about 171 million dollars in the first year and 258 million dollars in the long run.

A reduction of the tariffs by one percentage point has also a positive impact on FDI. It increases FDI by almost 20 million dollars in the first year and 30 million dollars in the long run. The fact that FDI inflows rise with decreasing tariffs indicates a complementarity relationship between trade and FDI but is also a feature of vertical multinational activities.

According to the new trade theory, vertical multinationals reduce the overall costs of production by locating their labour-intensive activities in countries with relatively low unit labour costs. This is also the case in our sample, where a decrease of the unit labour costs of one CEE country vis-à-vis a reporting country increases the flows of FDI into this country by roughly 25 million dollars in the first year and 39 million in the long run. The education of the labour force in the host country as measured by our skill ratio has a strong positive impact on FDI inflows. Obviously, a skilled labour force plays a crucial role for the adaptation to the western business culture but also for innovations and for the size and composition of demand as noted by Egger (2001). Not surprisingly, multinationals investing in CEECs are not only

motivated by relatively cheap labour but also discriminate between more or less skilled labour in the host countries.

Relatively high corporate tax rates exert pressure on profits and have an adverse effect on FDI flows to Central and Eastern Europe. However, the estimated parameter value is small and not significant at the 5% level. A decrease of the nominal corporate tax rate in the host countries by 1 percentage point increases bilateral FDI flows by only 2 million dollars in the first year. This small impact may be due to the fact that we do not take into account the special tax regimes designed to attract FDI.

The second specification (S2) replaces the skill variable with a relative endowment variable. This has a particularly strong effect on the coefficients of market potential and relative unit labour costs, both of which remain highly significant. The construction of the these variables may have led to some weak collinearity between them. However, it does not affect the main results which confirm Markusen and Venables (1996). Our empirical evidence shows that FDI increases as countries become more and more different in their relative endowments. This also means that the FDI flows are rising with the specialisation. As mentioned above, the sign of the relative endowment variable is not so clear-cut and obviously depends on its definition. The positive impact indicates activities of vertical multinationals but this result cannot be clearly confirmed due to the aggregated nature of the data.

In the specifications (S3) to (S5), we introduce two transition specific variables: the market share of private businesses and the method of privatisation. As argued above, not only the level but also the method of privatisation are expected to affect the flows of FDI. The estimation results confirm this view. In specification (S3) both the market share of private businesses and the privatisation index are highly significant and positive. Moreover, the introduction of these variables does not change the sign of the baseline variables but considerably lowers their (absolute) impacts in comparison to specification (S1) with the skill ratio being the only notable exception. We interpret this as indication for the importance of the transition specific variables. The relevance of other determinants notwithstanding, the decision to invest in CEECs relies heavily on the level and method of privatisation. This is in accordance with the stylised fact that, despite their large markets and their low relative costs, Bulgaria and Romania were always performing badly in terms of FDI before 1996. It is only recently with the introduction of new privatisation laws, which enable sales to outside owners, that they succeed in attracting FDI.

The estimated coefficient on $PRIV_{jt}$ means that a rise of the market share of private businesses by 1% leads on average to additional 242 million dollars bilateral FDI into this country in the short run (300 million in the long run). At the same time, the method of privatisation as defined by Holland and Pain

(1998) is also particularly important. The estimated coefficient of roughly 75 can be only interpreted with caution because the privatisation index used in specification (S3) is constructed as a metric variable although it is really only an ordinal measure. It implies that changing the privatisation scheme from, say, vouchers ($METH_{jt} = 1$) to managers and employees buys-out (MEBO, $METH_{jt} = 2$) has the same short-run impact of an additional 75 million dollars bilateral FDI inflows as a change from the combination of sales to outside owners (SOO) and MEBO ($METH_{jt} = 4$) to SOO only ($METH_{jt} = 5$). This equidistance assumption may be very unrealistic.

In specification (S4), we therefore replace the method of privatisation variable by five dummies, M^1_{jt} to M^5_{jt}. To avoid perfect collinearity, we arbitrarily omit M^3_{jt}. As a consequence, the impacts of the other dummy variables have to be interpreted as departures from privatisation method 3 (MEBO and SOO). For instance, using method 1 (vouchers) leads to roughly 84 million dollars less bilateral FDI inflows than using method 3. Using the four estimated coefficients, we can thus derive that a change from vouchers to MEBO has a short-run effect of additional $-30 + 84 = 54$ million dollars bilateral FDI inflows while a change from SOO and MEBO to SOO leads to an FDI increase of $362 - 112 = 250$ million dollars in the first year. From this result we infer that the equidistance assumption is clearly untenable and recommend using the dummy variables instead of the privatisation index $METH_{jt}$.

However, this has an adverse effect on the relevance of the private market share as an explanatory variable. The estimated coefficient is much smaller than in specification (S3) and insignificant. On the one hand, this can be explained by the fact that the method and level of privatisation are correlated which leads to collinearity between the dummy variables and the private market share. On the other hand, the Sargan test is significant at the 5% level which might indicate a misspecification although, as argued above, this test tends to overreject the null hypothesis.

In specification (S5) we introduce the additional explanatory variable $RISK_{jt}$, which controls for the overall risk of the host countries. This variable, which takes values between 10 (no risk of non-payment of foreign debt) and 0 (no chance of payment), should be highly relevant for firms making investment decisions. Moreover, it should be expected that this variable is somewhat correlated with the level of privatisation because the countries with the fastest privatisation are also the least risky ones in our panel. In order to separate the two effects, it may be necessary to include both variables at the same time. The estimation results confirm this view. The coefficient of private market share is virtually the same as in specification (S3) and significant at the 10% level. The parameters of the dummy variables have the same overall magnitude as in specification (S4). The fact that they shrink somewhat towards zero indicates that the impact of the method of privatisation is slightly overestimated in

specification (S4).

As expected, the coefficient of the $RISK_{jt}$ variable is highly significant and positive. The higher the country risk index, i.e. the less risky the investment, the more attractive is a country for FDI. Note however, that the introduction of the country risk variable lowers considerably the coefficient and the significance level of the trade cost variable. Since country risk is defined as the risk of non-payment or non-servicing payments for goods or services, loans, trade-related finance and dividends and the non-repatriation of capital, it is also a type of trade cost, which shares some common information with the $TARIFF_{jt}$ variable. Finally, the large coefficient of the skill ratio again indicates the importance of a highly educated workforce in addition to relative unit labour costs.

7 Concluding Remarks and Extensions

This paper analyses the factors that encourage and impede FDI flows from OECD countries into Central and Eastern Europe. Guided by economic theory, we specify a dynamic panel data model where FDI is explained by traditional and transition-specific variables, both of which are found to have significant and plausible effects on FDI.

Among the traditional variables, we find a robust and positive impact of the market potential on FDI. However, market access explains only partly the motivation for multinationals to invest in CEECs. Comparative advantages like low relative unit labour costs and relative endowments also exert a significant influence. From the negative impact of trade costs on FDI we conclude that FDI and trade share a complementarity relationship.

The strong influence of transition-specific determinants on FDI confirms our view that traditional variables cannot fully explain FDI in the CEECs. We find that both the level of privatisation as an indicator for the transition status to a market economy and the method of privatisation as a proxy for the efficiency of the corporate governance have considerable positive impact on the decision to invest in CEECs. Moreover, as shown by the significant effect of the country risk variable, the uncertainty linked to the legal, political and economic environment is an important deterrent of FDI.

These results allow us to distinguish between two broad country groups. The Central European economies are the most successful transition countries in attracting FDI. This is due to their relatively high market potential and their sound legal and economic environment, even though their relatively high unit labour costs (compared to the other host countries of the panel) may have

impeded FDI to some extent. The two Southern and Eastern European countries have certainly benefited from low unit labour cost. However, their slow transition process combined with a risky economic environment was a major obstacle for FDI and explains their poor performance in term of attracting FDI in the early and mid-nineties. This changed only after their change to foreign-oriented privatisation policies in the late nineties.

Two interesting extensions of this paper seem worth pursuing. First, the EU enlargement should have considerable effects on the FDI flows to CEECs, because their market potential is expected to rise considerably in case of their integration due to the likely increase in the GDP of the CEECs and the reduction in the economically relevant distance (i.e. transportation costs) to the EU. The decreasing trade costs in the course of the EU enlargement should also be reflected in a reduction of CEECs tariffs. On the other hand, one should expect the process of integration to reduce the unit labour cost differences between the CEECs and the present member countries of the EU which should reduce FDI in the CEECs. As a result, the catching-up process will have a tendency to increase investments by horizontal multinationals and depress investments by vertical multinationals. This distinction raises the need for firm-level data, which should allow us to determine more precisely the Enlargement's impact on the location of multinationals.

A second starting point for future research is our finding of a complementary relationship between FDI and trade. In our framework, one has to be cautious with this result, because no trade variable was included in the estimated equation. A multiple equation model which simultaneously takes trade and FDI into account should be able to answer this question.

Appendix

A Construction of Variables and Data Sources

The following list describes the construction of the variables used in the empirical analysis. The subscript i refers to the home country while j refers to the host country, t is the period. All the data were converted in US dollars. The data sources are reported in Table A.1.

(1) MK_{jt} denotes the market potential of the host country. This market potential is not only related to the domestic market but also to the market of all the neighbouring countries. We measure MK_{jt} by taking into account the host internal transportation costs proxied by the distance in minutes and the transportation cost between the host and the home country.

In a first step, we compute the weighted arithmetic distance d_{ijt} over all region-to-region distances $\delta_{kk'}$ between country j and i. R_i is defined as the set of all regions in country i and $\widetilde{GDP}_{kt}$ the GDP of region k at time t.

$$d_{ijt} = \sum_{k \in R_j} \sum_{k' \in R_i} \frac{\widetilde{GDP}_{kt}}{GDP_{jt}} \frac{\widetilde{GDP}_{k't}}{GDP_{it}} \delta_{kk'}$$

In a second step, we introduce the transportation costs in the calculation of market potentials for each year

$$MK_{jt} = \sum_i \frac{GDP_{it}}{d_{ijt}}$$

(2) $TARIFF_{jt}$ is the trade cost proxy for country j. We consider the tariff revenues as percentage of imports.

(3) $RULC_{ijt}$ is the relative unit labour cost between the host county j and the home country i:

$$RULC_{ijt} = \frac{ULC_{jt}}{ULC_{it}},$$

where ULC_{jt}, the unit labour cost of Eastern European Countries, are computed as $ULC_{jt} = \dfrac{W_{jt} * E_{jt}}{GDP_{jt}}$ with W_{jt} the average monthly gross wage, E_{jt} the total employment and GDP_{jt} the gross domestic product in millions US$. The unit labour costs of the reporting countries ULC_{it} are calculated as $ULC_{it} = \dfrac{C_{it}E_{it}}{GDP_{it}e_{it}}$ with C_{it} the compensation of employees, E_{it} the total employment, e_{it} the wage and salary earners and GDP_{it} the gross domestic product in millions US$.

(4) RKL_{ijt} measures the relative capital labour ratio between country j and

country i:

$$RKL_{ijt} = \ln \frac{K_i}{L_i} - \ln \frac{K_j}{L_j},$$

where K is gross fixed capital formation and L is employment.

(5) $SKILL_{jt}$ measures the relation of skilled to total labour in CEECs:

$$SKILL_{jt} = \frac{EDU^3_{jt} + EDU^2_{jt}}{EDU^3_{jt} + EDU^2_{jt} + EDU^1_{jt}},$$

with EDU^h_{jt} being the gross education enrollment, $h = 1, 2, 3$, where $h = 3$ denotes tertiary education, $h = 2$ secondary education and $h = 1$ primary education.

(6) TAX_{ijt} is the corporate tax rate which also controls for the different fiscal regimes

$$TAX_{ijt} = TAX_{jt} - TAX_{it}.$$

- If the investing country has adopted an exemption scheme, the above calculation applies.
- If the investing country has adopted a (partial) credit scheme and $TAX_{it} > TAX_{jt}$, then $TAX_{ijt} = 0$.
- If the investing country has adopted a (partial) credit scheme and $TAX_{it} < TAX_{jt}$, then the above calculation applies.

(7) $PRIV_{jt}$ is the market share of private businesses in country j as percent of GDP.

(8) $METH_{jt}$ indicates the method of privatisation that has been used in Eastern Europe. We follow Holland and Pain (1998) and construct the $METH_{jt}$ variable as follows:

Ranking	Primary Method	Secondary Method
5	SOO	-
4	SOO	Voucher or MEBO
3	Voucher or MEBO	SOO
2	Voucher or MEBO	MEBO or Voucher
1	Voucher or MEBO	-

We use the abbreviations SOO and MEBO for Sales to Outside Owners and Managers and Employees Buy-Outs, respectively. Additionally, we split the variable into 5 dummies: M^1_{jt} to M^5_{jt} each corresponding to the method used at time t.

(9) $RISK_{jt}$ is the political risk index taken from various issues of Euromoney. It is defined as the risk of non-payment or non-servicing payments for goods or services, loans, trade-related finance and dividends and the non-repatriation of capital. This variable takes values from 10 (nil risk of

non-payment) to 0 (no chance of payments). Countries were scored in comparison both with each other and with the previous year.

— Insert Table A.1 about here. —

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Table 1
FDI inflows to CEECs (as share of GDP, 1993-1999)

Regions	1993	1994	1995	1996	1997	1998	1999
CEEC*	1.87	1.68	3.23	2.24	3.17	3.78	4.37
Low Income Countries	1.32	1.23	2.05	2.48	3.06	3.39	2.98
Lower Middle Income Countries	3.02	3.32	4.65	6.05	3.13	3.81	3.50
Upper Middle Income Countries	2.29	3.28	3.70	3.90	4.94	5.22	6.10
High Income OECD Countries	1.47	1.62	1.88	1.75	2.16	3.98	5.63

Source: World Development Indicators (2002). Own computations.

* Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, Slovenia.

Table 2
A macroeconomic overview (1999)

Countries	FDI stock	FDI stock per capita	Gross Domestic Product	Monthly Gross Wage	Private Market Share	Country Risk	Transition index
Czech Rep.	21.10	2052.41	133.80	297.78	80	61.96	3.49
Hungary	19.86	1972.88	115.08	320.90	80	65.75	3.69
Poland	36.48	943.63	326.63	418.67	65	62.06	3.48
Slovak Rep.	4.89	906.60	57.15	264.48	75	48.33	3.33
Slovenia	2.90	1460.59	31.72	792.82	55	70.06	3.20
Bulgaria	3.40	414.72	41.62	111.69	70	37.87	2.86
Romania	6.44	286.71	135.68	111.70	60	36.28	2.80
Portugal	*23.52*	*2354.59*	*113.72*	*718.00*	*94*	*82.84*	-

Sources: FDI Stock (in Bill. US$) and Stock per capita (in US$) from UNCTAD (2001), GDP (in Bill. US$) from World Development Indicator (2001), Monthly Gross Wage (in US$) from Countries in Transition (2001) and ILO (2001), Private market share (in % of GDP) from EBRD (2001). The country risk index is taken from Euromoney (1999) and is inversely related to observed risk. The transition index is a simple average of the progress in transition indicators from EBRD (2001).

Table 3
FDI stock by countries (as of December 1999, share in percent)

Countries	Czech Republic	Hungary	Poland	Slovak Republic	Slovenia	Bulgaria	Romania
EU	*82.7*	*76.9*	*63.8*	*74.5*	*81.2*	*60.2*	*56.8*
Austria	11.5	11.7	2.3	16.9	37.5	4.5	5.1
France	4.7	6.1	11.0	4.2	12.8	3.0	7.1
Germany	29.6	28.0	17.3	22.0	12.3	15.3	10.2
Italy	0.9	3.2	9.1	1.6	6.6	1.2	7.6
Netherlands	27.1	15.5	9.2	15.0	3.8	6.0	11.6
UK	4.7	6.4	5.9	9.1	4.8	5.7	5.1
Others	4.2	6.0	9	5.7	3.4	24.5	10.1
USA	*8.2*	*12.2*	*14.7*	*13.0*	*4.4*	*7.1*	*7.7*

Source: UNCTAD (2001).

Table 4
Expected signs of explanatory variables

Variable name	Expected sign
Market potential	+
Trade costs	−/+
Relative unit labour costs	−
Skill ratio	+
Relative labour-capital endowment	+/−
Corporate tax rate	−
Private market share	+
Method of privatisation	+
Country risk index	+

Table 5
The results of the dynamic panel model: short-term parameters

Independent variables	Label	(S1)	(S2)	(S3)	(S4)	(S5)
Lagged FDI	FDI_{t-1}	0.335*** (0.000)	0.375*** (0.000)	0.194*** (0.000)	0.240*** (0.000)	0.194*** (0.008)
Market Potential	MK_{jt}	171.26*** (0.000)	98.058*** (0.000)	57.934** (0.032)	181.884*** (0.000)	102.441** (0.019)
Trade Costs	$TARIFF_{jt}$	-19.639*** (0.000)	-22.980*** (0.000)	-3.512* (0.052)	-10.203*** (0.008)	-6.229* (0.063)
Relative Unit Labor Costs	$RULC_{ijt}$	-25.878*** (0.000)	-14.446*** (0.000)	-19.336*** (0.000)	-24.979*** (0.000)	-21.145** (0.014)
Skill Ratio	$SKILL_{jt}$	121.822** (0.0122)		203.916*** (0.000)	223.915*** (0.002)	328.904*** (0.000)
Corporate Tax Rate	TAX_{ijt}	-1.909* (0.061)	-5.710*** (0.002)	-1.860** (0.031)	-3.946** (0.049)	-5.904*** (0.008)
Relative Endowments	RLK_{ijt}		20.418** (0.0434)			
Private Market Share	$PRIV_{jt}$			242.454*** (0.003)	47.680 (0.373)	233.444* (0.057)
Methods of Privatization	$METH_{jt}$			75.479*** (0.000)		
Vouchers	M_{jt}^1				-83.744** (0.033)	-70.200* (0.072)
MEBO	M_{jt}^2				-30.476*** (0.010)	-53.878*** (0.000)
SOO and MEBO	M_{jt}^4				111.822*** (0.000)	83.010*** (0.000)
SOO	M_{jt}^5				362.372*** (0.004)	347.208*** (0.000)
Country Risk	$RISK_{jt}$					12.781*** (0.000)
Number of Observations		420	420	420	420	420
Sargan Test		23.628 (0.483)	21.092 (0.633)	30.342 (0.254)	43.165** (0.045)	41.58* (0.078)
Second Order Autocorrelation		0.253 (0.800)	0.199 (0.842)	0.305 (0.760)	-0.266 (0.790)	-0.345 (0.729)
Long Run Multiplier		1.504	1.600	1.241	1.316	1.241

Notes: p-values in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

Table 6
The results of the dynamic panel model: long-term parameters

Independent variables	Label	(S1)	(S2)	(S3)	(S4)	(S5)
Market Potential	MK_{jt}	257.623*** (0.000)	156.863*** (0.000)	71.896** (0.023)	239.415*** (0.000)	127.133*** (0.010)
Trade Costs	$TARIFF_{jt}$	-29.543*** (0.000)	-36.762*** (0.000)	-4.359* (0.053)	-13.430*** (0.008)	–7.730* (0.066)
Relative Unit Labor Costs	$RULC_{ijt}$	-38.929*** (0.000)	-23.109*** (0.000)	-23.996*** (0.001)	-32.880*** (0.000)	-26.242** (0.018)
Skill Ratio	$SKILL_{jt}$	183.255*** (0.007)		253.057*** (0.000)	294.742*** (0.002)	408.185*** (0.000)
Corporate Tax Rate	TAX_{ijt}	-2.872* (0.071)	-9.128*** (0.004)	-2.308** (0.034)	-5.194** (0.051)	-7.333*** (0.009)
Relative Endowments	RLK_{ijt}		32.662** (0.044)			
Private Market Share	$PRIV_{jt}$			300.883*** (0.005)	62.761 (0.374)	289.714* (0.062)
Methods of Privatization	$METH_{jt}$			93.667*** (0.000)		
Vouchers	M_{jt}^1				-110.233** (0.031)	-87.121* (0.075)
MEBO	M_{jt}^2				-40.115*** (0.009)	-66.865*** (0.000)
SOO and MEBO	M_{jt}^4				147.192*** (0.000)	103.019*** (0.000)
SOO	M_{jt}^5				476.993*** (0.001)	430.900*** (0.002)
Country Risk	$RISK_{jt}$					15.862*** (0.000)

p-values in parentheses, * significant at 10%, ** significant at 5%, *** significant at 1%

Table A.1
Data Sources

Variable Name	Label	Sources
Foreign Direct Investments	FDI	OECD International Direct Investment Statistic Yearbook, European Union Foreign Direct Investment Yearbook. Several Editions
Market Potential	MK_{jt}	The GDP data were taken from the World Development Indicators, several editions. Regional GDPs and distances were kindly provided by Prof. Johannes Bröcker (see Bröcker et al., 2001)
Trade Costs	$TARIFF_{jt}$	EBRD (2001), Transition Report
Relative Unit Labor Costs	$RULC_{ijt}$	European Economy (2002); the Vienna Institute of International Economic Studies; International Labor Office
Skill Ratio	$SKILL_{jt}$	UNICEF (2001), "A Decade of Transition", The MONEE Project CEE/CIS/Baltic, Regional Monitoring Report, 8. The World Development Indicator, several editions.
Relative Factor Endowments	RKL_{ijt}	The gross fixed capital formation was taken from the Transition Report (2001). The employment variable comes from the World Development Indicators 2001 CD-ROM
Corporate Tax Rate	TAX_{ijt}	PriceWaterhouseCoopers, Corporate Taxes, Worldwide summaries. Several Editions.
Private Market Share	$PRIV_{jt}$	EBRD (2001), Transition Report
Methods of Privatisation	$METH_{jt}$	EBRD (1997), Transition Report; Holland and Pain (1998); Böhm A. Simoneti M., (1993-1995), Privatization in Central and Eastern Europe, CEEPN.
Country Risk	$RISK_{jt}$	Euromoney. Several Editions