The University of Nottingham

research paper series

Globalisation and Labour Markets

Research Paper 2009/21

Does the impact of employment protection legislation on FDI differ by skill-intensity of sectors? An empirical investigation

By

Markus Leibrecht and Christian Bellak

The Centre acknowledges financial support from The Leverhulme Trust under Programme Grant F/00 114/AM

GEP Leverhulme Centre for Research on Globalisation and Economic Policy

The Authors
Markus Leibrecht is Senior Economist at the Research Institute for International Taxation at the Vienna University of Economics and Business. Christian Bellak is Associate Professor at the Vienna University of Economics and Business.

Acknowledgements
Financial support from the Austrian Science Fund (FWF SFB grant no F2012 and F2013) is gratefully acknowledged.

Does the impact of employment protection legislation on FDI differ by skill-intensity of sectors? An empirical investigation

by

Markus Leibrecht and Christian Bellak

Abstract

In line with previous literature this paper finds that strict employment protection legislation has a negative impact on the volume of inward Foreign Direct Investment. Rigid labor markets result in high adjustment and exit costs which deter foreign investments. We also find that the deterrent effect of inflexible labor markets is larger for industries with relatively high shares of low-skilled workers employed. Our findings are consistent with the view that governments can support structural change by tightening labor market regulations which especially deters inflows of FDI into low-skill industries. To avoid a drop in high-skill FDI host countries should simultaneously improve other location factors especially relevant for the latter.

JEL classification: J41, J8, F23

Keywords: Foreign Direct Investment; Labour Market; OECD; Panel Econometrics

Outline

1. *Introduction*
2. *Review of related empirical literature*
3. *Empirical model and methodology, variables and data issues*
4. *Results*
5. *Conclusions*

Non-Technical Summary

A flexible labor market with low levels of employment protection is commonly perceived to provide an environment conducive to investment, employment and structural change. Many countries have therefore increased the flexibility of their labour markets during the past decades. An important element in the flexibilization of the labor markets is the degree of employment protection legislation. Employment protection encompasses regulations, either legislated or written in labor contracts that limit the employer's ability to hire or fire workers without delay or cost

Frequently, a positive relationship between labor market flexibility, a low degree of employment protection legislation, and Foreign Direct Investment (FDI) attraction has been proposed. This positive relationship is based on the view that strict employment protection legislation imposes exit costs for firms which - ceteris paribus - hamper inward FDI due to a reduction of an investment's profitability.
It is conceivable that higher exit costs due to strict employment protection legislation might be of particular relevance for FDI in industries which are highly mobile and less committed to a particular host location. Such industries, often termed "footloose industries", are especially sensitive to changing comparative advantage or changes in production cost. High exit costs prevent these industries from adjusting to such changes. These industries continuously seek for low labor cost locations and employ a rather large share of low skilled workers. Thus, it is likely that the negative impact of strict employment protection regulations on FDI inter alia depends on an industry's skill intensity.
The current study investigates the relationship between employment protection legislation and FDI in a panel of major host countries for inward FDI at the industry level. We add to the existing literature by testing the conditional hypothesis that the impact of strict employment protection legislation on FDI differs across industries due to differences in the skill composition of the workforce. Our prior expectation is that tight employment protection legislation will affect FDI more negatively in mobile industries with a higher share of low-skilled employment due to the greater importance of exit costs.

The sample used in this panel econometric study includes ten manufacturing sectors in 11 host countries for FDI for the period 1995-2005 and controls for a large number of determinants of FDI. In line with previous literature this paper finds that employment protection legislation, especially regulations towards regular employment, has a negative impact on the volume of inward Foreign Direct Investment. Yet, we also find that the deterrent effect of inflexible labor markets is predominately given for industries with relatively high shares of low skilled workers employed. This result is consistent with the view that high exit costs due to strict employment protection legislation matters particularly for mobile industries like the textile, food and wood industries which continuously seek for low labor cost locations.

I. INTRODUCTION

Jurisdictions try to attract Foreign Direct Investment (FDI) by offering favorable location factors distinguishing them from competitor countries. A vast empirical literature exploring the determinants of FDI has emerged (e.g. Fontagné and Mayer 2005 for an overview). The results generally imply that both, market- and cost-factors matter for FDI attraction. Within the group of cost-factors labor-related costs are important. Costs of this type not only comprise directly measureable factors like wage costs (i.e. compensation to employees and social security contributions) but also more indirect costs stemming from the inflexibility of labor markets. Inflexibility of the labor markets creates costs for Multinational Enterprises (MNEs), since it might prevent profit maximizing adjustment of the labor force in the short-run.

Yet, although most FDI studies take wage costs into account, empirical studies exploring the relationship between labor market inflexibility and FDI have emerged only recently (see section 2 for an overview). This empirical literature is in favor of a negative effect of inflexible labor markets on FDI decisions of MNEs. Put differently, a positive relationship between labor market flexibility and FDI attraction is frequently proposed. This positive relationship is based on the view that rigid labor markets impose adjustment and exit cost which - *ceteris paribus* - hamper inward FDI due to a reduction in an investment's profitability (see Haaland et al. 2003; Nicoletti et al. 2003).[1]

The mechanisms in which exit costs in form of labor market rigidities affect the location and scale of FDI have been formally modeled by Haaland et al. (2003) based on the assumption of an uncertain environment. Moreover, the studies of Görg (2005) and Dewitt et al. (2009) explore the presence of amplifying effects of a country's riskiness and investment costs on the FDI impact of rigid labor markets.

However, it is conceivable that the negative impact of high adjustment and exit costs due to rigid labor markets on FDI is amplified by a host location's low-skill intensity: High adjustment and exit costs in form of rigid labor markets prevent firms from reacting to changes in comparative advantage and location factors. As the supply of low-skilled labor is

[1] It has to be stressed that another argument -theoretically established and empirically tested by Dewitt et al. (2009) - relates to domestic anchorage, i.e. the decision whether to engage in FDI. According to this argument, a high domestic level of employment protection tends to discourage outward FDI (anchoring effect of employment protection legislation). This is, however, not the argument here. We are rather concerned with "pull effects" of lax employment protection legislation due to low adjustment and exit costs.

abundant compared to that of high-skilled labor[2] it is likely that FDI into low-skill intensive industries is more sensitive to such changes in comparative advantage or location factors. Therefore high adjustment and exit costs might be of greater relevance for MNEs undertaking FDI in low-skill industries leading to a larger negative impact of rigid labor markets on FDI into low-skill intensive industries.[3] On the contrary, high-skilled labor is relatively scarce and thus higher search costs imply a lower sensitivity of FDI into high-skill industries to alterations in the locational quality.

Although the inflexibility of the labor market can arise from various labor market institutions we focus in this paper on a country's employment protection legislation which is the central part of the legal stipulations towards the labor market.[4] Employment protection encompasses regulations, either legislated or written in labor contracts that limit the employer's ability to hire or fire workers without delay or cost (Pissarides 2001; OECD 2004).

Labor standards and employment protection legislation in particular are largely in the realm of nation states. Thus, employment protection legislation is an instrument which allows jurisdictions to compete for FDI. Moreover, countries typically differ in their preferences for labor standards. Table 1a shows the level of employment protection legislation in selected OECD / EU countries[5], based on the overall summary index (version 1) developed by the OECD (see OECD 1999 and 2004). This index captures regulations towards both, regular and temporary employment. The index ranges from zero (very low labor market protection) to 6 (very high labor market protection).

[2] Low skilled (untrained) labor is frequently described as a type of a location's "natural asset" – in contrast to more scarce "created assets" like skilled (trained) labor (see e.g. Dunning and Narula 1995).

[3] While in principle, low-skilled labor is employed within certain segments of every industry, it is also possible to differentiate between industries (see Peneder 2007 for a widely used industry classification) and rank them by their skill intensity. Typical examples of low-skill intensive industries are the food, textiles and the wood industries.

[4] Besides employment protection legislation the trade union density and coverage, the level of wage bargaining and the taxation of labor income are frequently used to characterize the flexibility of labor markets.

[5] The choice of countries and years is dictated by data quality and quantity (see section 3 for additional details).

Table 1a: Stringency of overall employment protection legislation in selected countries

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AUT	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	1.93	1.93	1.93
CZE	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
FIN	2.17	2.09	2.09	2.09	2.09	2.09	2.02	2.02	2.02	2.02	2.02
FRA	2.98	2.98	2.98	2.98	2.98	2.98	3.05	3.05	3.05	3.05	3.05
GER	3.09	3.09	2.46	2.46	2.46	2.46	2.46	2.35	2.35	2.21	2.21
HUN	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.52	1.52	1.52
NLD	2.73	2.73	2.73	2.73	2.12	2.12	2.12	2.12	2.12	2.12	2.12
SVK	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.34	1.34	1.34
SVN	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.50	2.50	2.50
GBR	0.60	0.60	0.60	0.60	0.60	0.68	0.68	0.75	0.75	0.75	0.75
USA	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21

The USA and GBR have the lowest labor market standards in force throughout the sample period. The strictest regulations are stipulated in FRA, GER and SVN. Table 1a shows that 6 countries (AUT, FIN, GER, NLD, SVK, SVN) have substantially eased their employment protection legislation over time. Three countries (FRA, HUN and GBR) have increased and in two countries (CZE and USA) the index stays constant. Among the latter two groups are those countries which already had comparable lax employment protection legislation in force in 1995 (i.e. HUN, GBR, USA).

Table 1b: Stringency of employment protection legislation for regular employment

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AUT	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.37	2.37	2.37
CZE	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31	3.31
FIN	2.47	2.31	2.31	2.31	2.31	2.31	2.17	2.17	2.17	2.17	2.17
FRA	2.34	2.34	2.34	2.34	2.34	2.34	2.47	2.47	2.47	2.47	2.47
GER	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
HUN	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92	1.92
NLD	3.08	3.08	3.08	3.08	3.05	3.05	3.05	3.05	3.05	3.05	3.05
SVK	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.31	2.31	2.31
SVN	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	2.70	2.70	2.70
GBR	0.95	0.95	0.95	0.95	0.95	1.12	1.12	1.12	1.12	1.12	1.12
USA	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17

Tables 1b and 1c depict the developments of the sub-indices capturing regulations towards regular and temporary employment. Three countries (NLD, SVK and SVN) have eased legislation for both types of employment. Interestingly, NLD and SVK have especially eased regulations towards temporary employment and SVN those towards regular employment. Two countries have tightened their regulation towards temporary employment over time (HUN and GBR) and the index for regular employment has soared in FRA and GBR. Furthermore, the tables show that GER has eased regulations towards temporary employment with unchanged regulations for regular employment and vice versa for AUT and FIN.

Table 1c: Stringency of employment protection legislation for temporary employment

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AUT	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
CZE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
FIN	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88
FRA	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
GER	3.50	3.50	2.25	2.25	2.25	2.25	2.25	2.03	2.03	1.75	1.75
HUN	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	1.13	1.13	1.13
NLD	2.38	2.38	2.38	2.38	1.19	1.19	1.19	1.19	1.19	1.19	1.19
SVK	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	0.38	0.38	0.38
SVN	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.30	2.30	2.30
GBR	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.38	0.38	0.38	0.38
USA	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

Taken together, Tables 1a-c signal that a wide variety of levels of employment protection from which potential foreign investors may choose exists. Moreover heterogeneous developments over time are given.

Against this background the current study investigates the relationship between rigid labor markets in form of strict employment protection legislation and FDI in a panel of major host countries for inward FDI-stock at the industry level. We add to the existing literature by testing the conditional hypothesis that the negative impact of strict employment protection legislation on FDI differs across industries due to differences in the skill composition of the workforce. Our prior expectation is that the adverse effect of rigid labor markets on FDI is larger in industries with a higher share of low-skilled employment due to the greater importance of adjustment and exit costs.

In line with previous literature we find that employment protection legislation, especially stipulations towards regular employment, has a negative impact on FDI. However, we also find evidence that the deterrent effect of inflexible labor markets is larger for industries with relatively high shares of low-skilled workers employed.

The paper is structured as follows: Related empirical literature is summarized in section II. Section III. describes the empirical methodology applied and the data used. Section IV. presents the results and section V. concludes.

II. REVIEW OF RELATED EMPIRICAL LITERATURE

This section briefly summarizes main features of related studies. Haaland et al. (2003) use firm level data on subsidiaries of Western MNEs located in the manufacturing sector in three Central and East European countries (CEECs) for the period 1994 to 1997 to test the validity of their theoretical exit cost model. They find that labor market flexibility, measured by the excess job reallocation rate has a significant negative impact on the FDI decisions of MNEs.

Javorcik and Spatareanu (2005) study the importance of labor market characteristics using firm level data covering the period 1998 to 2001. Their sample includes firms from Western and Eastern European host countries of FDI. As proxies for labor market flexibility they use data from the Global Competitiveness Report as well as data compiled by Djankov et al. (2001). Overall, Javorcik and Spatareanu (2005) find that the higher the flexibility of the labor market in the host country the more MNEs invest in the country.

Görg (2005) studies to what extent labor market regulations matter for the location of US outward FDI-stocks in manufacturing in 33 host countries over the period 1986 to 1996. The analysis is based on data from the Global Competitiveness Report to proxy labor market flexibility. Görg (2005) concludes that tight labor market regulation has a negative impact on FDI location decisions. Moreover, Görg (2005) explores whether the riskiness of a country amplifies the negative effect of tight labor market regulations as argued by Haaland et al. (2003). Yet, he does not find any amplifying effect.

Benassy-Quéré et al (2007a) apply a gravity model framework to analyze the impact of institutions in a broad sense on FDI. They relate bilateral FDI-stocks to various institutional variables for a broad range of countries, mainly developing countries. Among the variables analyzed, three measures for the degree of labor market regulation are included. These proxies are taken from the Fraser Institute database and the Institutional Profile database of the French Ministry of Finance. For two of these three variables Benassy-Quéré et al (2007a) find a significant negative impact on FDI. However, the coefficient of the third variable, which proxies the regulation of the labor market, enters insignificantly in their empirical model. Overall, however, they conclude that labor market rigidity has an adverse effect on FDI.

Benassy-Quéré et al (2007b) analyze sector-level data on US outward FDI-stocks for the period 1994 to 2002 in 18 Western and Eastern European countries. They also use data from the Fraser Institute as proxies for labor market flexibility and find only weak evidence for a

significant impact of labor market flexibility on FDI. Their proxy for labor market flexibility is significant only in a few cases and in these cases it enters with a positive coefficient.

Radulescu and Robson (2008) explain FDI-flows and also find support for the hypothesis that the strictness of employment protection legislation has a negative effect on FDI. They base their analysis on a sample of 19 OECD countries for the period 1975-1997. Their proxy for stringency of employment protection legislation is based on the Blanchard and Wolfers (2000) index.

Gross and Ryan (2008) find that employment protection matters in the foreign location choice of Japanese investors. There is a clear negative impact from strict legislation of regular employment on FDI-related employment size while the impact of the legislation on temporary employment is much weaker. They use the OECD index in their analysis.

Another study also applying the OECD index is Leibrecht and Scharler (2009). These authors use a panel of bilateral FDI-flows to seven CEECs over the period 1995-2004 and find that tight employment protection legislation does not exert a statistically significant impact on FDI once a proxy for unit labor costs is included in their empirical model. They conclude that the labor markets in the CEECs are not rigid enough to impose sizable exit costs. They argue that the low level of employment protection is also due to the still weak enforcement of labor laws in CEECs.

Finally, Dewitt et al. (2009) provide estimates for the impact of differences in employment protection legislation between home and host countries of FDI. Based on an analysis of bilateral outward FDI-stocks of OECD countries for the period from 1986 to 1995 they find a negative impact of an increasing employment protection legislation differential between home and host country. They apply the same measure for labor market flexibility as Görg (2005) as well as the OECD index for employment protection stringency. Dewitt et al. (2009) also explore whether the negative impact of an increasing employment protection legislation differential is amplified by an increase in the level of investment costs (cost of capital index). However, they do not find such an amplifying effect.

III. EMPIRICAL MODEL AND METHODOLOGY, VARIABLES AND DATA ISSUES

1. Empirical Model and Methodology

The current study is based on inward FDI-stocks in industrial sectors. The empirical model relates the logarithm of the inward FDI-stock of country i and industry j in year t to a set of location factors:

$$\ln FDI_{ijt} = b_1 + b_2 X_{it} + b_3 Z_{ijt} + b_4 I_{ijt} + c_t + a_{ij} + e_{ijt} \quad (1)$$

The matrix X_{it} contains FDI-relevant location factors which vary over countries and over time and Z_{ijt} includes variables varying over time and over country-industry pairs. The former reflect the economic environment which is the same across all industries, while the latter group of variables reflects specific industry conditions. The former matrix includes different proxies for a host country's level of employment protection legislation (henceforth EPL_{it}). The latter matrix contains a variable (henceforth HLS_{ijt}) signaling the low-skill intensity of a particular industrial sector-country pair. Note, the variables contained in matrices X_{it} and Z_{ijt} are specified in logs (to reduce the impact of outliers) and enter in a one-year lagged form (to consider that contemporary FDI reacts to certain information on location factors with a time lag (see Bevan and Estrin 2004) and to account to some degree for endogeneity (see Wooldridge 2002)[6]).

c_t denotes a matrix of (T - 1) time dummies and a_{ij} are (n - 1) country-industry-pair-specific fixed effects capturing the impact of time-invariant country, industry and country-industry factors. e_{ijt} is the remainder error term.

To test the hypothesis that the effect of strict employment protection legislation on FDI differs across industries due to differences in the skill composition of the workforce we include an interaction term between EPL_{it} and HLS_{ijt} in the empirical model. The vector I_{ijt} captures this interaction effect.

The use of interaction terms is justified whenever conditional hypotheses are tested (e.g. Brambor et al. 2006). Including an interaction effect in our empirical model allows us to

[6] Note, to explore the importance of the endogeneity issue we also apply an Arellano-Bond-type-GMM estimator as a robustness check (cf. Table 6).

directly explore the impact of EPL_{it} on FDI_{ijt} at various levels of HLS_{ijt}.[7] In particular, based on Equation 1 the effect of EPL_{it} on FDI_{ijt} is derived as follows:

$$\delta \ln FDI_{ijt} / \delta \ln Epl_{it} = b_2 + b_4 \ln HLS_{ijt} \quad (2)$$

Equation 2 contains several important aspects for the interpretation of interaction models. First, it is evident that coefficients in interaction models (here b_2 and b_3) no longer show the marginal effect of the variables entering the interaction effects. Specifically, coefficient b_2 captures the effect of a change in EPL_{it} if $\ln HLS_{ijt} = 0$. That is, this coefficient shows the impact of EPL_{it} if only higher skilled workers are engaged in the production process. Thereby, one should bear in mind that $\ln HLS_{ijt} = 0$ if $HLS_{ijt} = 1\%$. Yet, the minimum value of HLS_{ijt} in our sample is about 4.3% and the mean value is about 22%. Thus, the value of coefficient b_2 is per se not meaningful. Rather, one needs to evaluate the marginal effect of EPL_{it} on FDI at different values of HLS_{ijt} multiplied by coefficient b_4. Coefficient b_4 signals how the marginal impact of EPL_{it} on FDI_{ijt} changes if more low-skilled workers are employed.

A second aspect concerns the statistical significance of coefficients in interaction models. Specifically, it is likely that EPL_{it} has a statistically significant impact on FDI at meaningful levels of HLS_{ijt} even if b_2, b_4 or both coefficients are not statistically different from zero (see Brambor et al. 2006 for details). To cope with this possibility we also present graphs showing not only the marginal effect of EPL_{it} on FDI at various levels of HLS_{ijt} but also its statistical significance (also see Wooldridge 2003, p. 194f on this issue).

To reduce the possibility of an omitted variable bias and to explore the robustness of our results to inclusion and exclusion of variables we apply a "general-to-specific-approach" starting with the most general model (including all location factors considered), the full model, and testing down until only statistically significant variables remain. Note, that we generally conduct one-sided tests with the alternative hypothesis based on the expected sign of the coefficient (cf. Table 2). The significance of coefficients with an *a priori* ambiguous sign is based on two-sided tests. Standard errors are calculated using a non-parametric

[7] To model conditional hypotheses via interaction effects receives increasing attention in the empirical literature. For instance, Dewitt et al. (2009) and Görg (2005) also use interactions effect in their analysis.

bootstrap approach over clusters (country-industry-pairs) and are thus fully robust with respect to heteroscedasticity and serial correlation.

2. Variables and Data issues

i. Dependent variable: $\ln FDI_{ijt}$

We use the inward FDI-stocks of 10 manufacturing sectors in millions of current Euro as dependent variable. The data is taken from Eurostat's New Cronos database and the wiiw Database on Foreign Direct Investment (for CEECs).

ii. Variables of main interest

a. Interaction between $\ln EPL_{it}$ and $\ln HLS_{ijt}$: I_{ijt}

The interaction term is defined as the product of $\ln EPL_{it}$ times $\ln HLS_{ijt}$. Given our prior expectations that tight employment protection legislation will affect FDI more negatively in low-skill intensive industries the coefficient of I_{ijt} should be negatively signed.

b. Employment protection legislation: EPL_{it}

We proxy the stringency of EPL_{it} with the indices developed and discussed in OECD (1999 and 2004). For Slovenia the data are obtained from Leibrecht and Scharler (2009; Table 2). Three different EPL_{it} indices are used: an overall summary index (henceforth $Eplov_{it}$), a sub-index for protection of regular workers ($Eplreg_{it}$) and a sub-index for regulations towards temporary employment ($Epltemp_{it}$).

The methodology for calculating the three EPL_{it} indicators is detailed in OECD (2004) so we do not elaborate on this issue here. Yet, it is important to stress that we use version 1 of the EPL_{it} index. The OECD has also developed a version 2 index which captures regulations towards collective dismissals. However, due to lack of data we do not use the version 2 index in our analysis. Specifically, annual time series data for the version 1 index is available from 1985-2008 whereas version 2 indices are available for most countries from 1998 onwards

only. The version 1 index for $Eplov_{it}$ is calculated as unweighted average of the two sub-indices, which are themselves based on a weighted average of different variables.[8]

Advantages of the OECD index over other proxies for the stringency of employment protection legislation are that it is available in panel data form; that it is derived on an internationally comparable basis and that sub-indices, isolating the importance of different dimensions of labor market rigidity, are available.

Given that a higher level of EPL_{it} (that is tighter employment protection regulations) implies higher adjustment and exit costs it should be negatively related with FDI independently of an industry's skill intensity (i.e a negative direct effect of EPL_{it} is expected).

c. Share of low-skilled workers employed: HLS_{ijt}

The share of low-skilled hours in total hours worked, HLS_{ijt}, is used as a proxy for the low-skill intensity of an industry. Skill variables are frequently used independently of any EPL_{it} to disentangle the underlying motive for FDI; i.e. whether it is vertically or horizontally motivated (e.g. Markusen and Maskus 2002; Davies 2008). In the first case the coefficient of $\ln HLS_{ijt}$ should be positive. In this case MNEs exploit differences in factor endowments. In the second case, the sign should be negative, as firms duplicate plants (e.g. Barba Navaretti and Venables 2004, Chap. 2). Thus, in principle the sign of the $\ln HLS_{ijt}$ coefficient is indeterminate *a priori*. However, the majority of empirical studies finds that FDI is more horizontally than vertically motivated, especially in case of OECD countries (e.g. Davies 2008; Bloningen et al. 2003). Thus, we expect the coefficient of $\ln HLS_{ijt}$ to carry a negative sign. Data is taken from the EUKLEMS database.

iii. Control variables

The choice of control variables included in matrices X_{it} and Z_{ijt} is done with a focus on FDI theories (see Faeth 2009 for an overview). However, FDI theories provide only a rough guide for the choice of control variables. Therefore we base our selection of these variables mainly on related empirical studies (e.g. Markusen and Maskus 2002; Görg 2005; Benassy- Quéré et al. 2007a, b).

[8] Note that for Slovenia the available $Eplov_{it}$ follows the version 2 index. However, as the version 1 index is the simple unweighted average of $Eplreg_{it}$ and $Epltemp_{it}$ an unweighted average of these two variables is used as $Eplov_{it}$ in case of Slovenia.

Specifically, we include a proxy for market size (Pot_{it}), GDP per capita ($GDPcap_{it}$), the average effective tax rate on corporate profits ($EATR_{it}$), public R&D expenditures as percent of GDP ($Govgerd_{it}$), the political risk level ($Risk_{it}$), the macroeconomic risk level (Cpi_{it}), the information and communication (ICT) infrastructure endowment (Ict_{it}), and the level of legal barriers to FDI ($Freefdi_{it}$) in the matrix X_{it}. Control variables entering Z_{ijt} are labor costs ($Labcost_{ijt}$) and labor productivity ($Labprod_{ijt}$).

Variable Pot_{it} captures market size, and is expected to be positively correlated with FDI. The sign of the coefficient of $GDPcap_{it}$ might be considered as ambiguous *a priori* (e.g. Benassy-Quéré et al. 2007a), pointing towards its role as a ‘‘catch-all’’ variable: On the one hand it might represent effects of labor costs on production costs (e.g. Mutti and Grubert 2004), implying a negatively signed coefficient. On the other hand, it captures positive effects on an FDI's profit level via a favorable infrastructure endowment (e.g. Mutti 2004), a country's purchasing power and labor productivity (e.g. Mutti and Grubert 2004), as well as better institutions and less economic and political risk (e.g. Benassy-Quéré et al. 2007a).

As we include most of these underlying variables in our model $GDPcap_{it}$ is intended to capture FDI effects of an increasing purchasing power in our application (also see Görg 2005). Thus, a positively signed coefficient is expected.

Labor costs partly reflect to what extent FDI location decisions are driven by efficiency considerations. An increase in $Labcost_{ijt}$, *ceteris paribus*, increases production costs. We therefore expect a negatively signed coefficient. In addition, an increase in $Labprod_{ijt}$ should impact positively on FDI, not least via its favorable impact on unit production costs.

The change in the consumer price index, Cpi_{it}, is used as a proxy for macroeconomic risk as a high inflation rate indicates macroeconomic uncertainty which deters FDI. Yet, as our endogenous variable is measured in nominal terms higher inflation rates might also have a positive impact on the volume of FDI (Buch and Lipponer 2007). Thus the sign of this variable's coefficient is ambiguous *a priori*.

Similarly to Cpi_{it} a higher level of political risk, $Risk_{it}$, should impact negatively on FDI. Yet, due to the particular definition of the measure of $Risk_{it}$ used we expect a positively signed coefficient. The variable $Freefdi_{it}$ is intended to capture legal barriers to inward FDI. Legal barriers to FDI are lower the higher the score of $Freefdi_{it}$. Thus, we expect a positive sign for this variable.

The variable $EATR_{it}$ is a summary measure for the taxation of FDI proceeds capturing both, the tax burden on a very profitable as well as on a marginal investment. More specifically, the after-tax profit from FDI is directly determined by the average tax rate (see Devereux and Griffith 1998a). A higher $EATR_{it}$ implies lower after-tax profits and thus lower incentives to invest in a particular location. Thus, a negatively signed coefficient is expected.

As an increasing part of FDI constitutes R&D related activities (see e.g. Guimón 2009) a high level of public expenditures on R&D should be relevant for an MNE's location decision. Specifically, a country's R&D level can be considered as a type of public good with positive spill-over effects on firms. These in turn increase productivity without causing additional costs and lead to a higher profitability of an investment. Thus, an increase in the public R&D expenditures in GDP ($Govgerd_{it}$) should have a positive impact on FDI.

A country's endowment with material infrastructure is generally considered to have a positive impact on FDI. Thereby a favorable endowment with ICT-infrastructure has been frequently shown to be particularly relevant for FDI attraction (e.g. Bellak et al. 2009; Mollick et al. 2006). Therefore we include a variable, Ict_{it}, capturing a country's endowment with ICT-infrastructure in the empirical model. However, it should be stressed, that other FDI relevant infrastructure components, like the transport or the power generation infrastructure, are captured to some extent by $GDPcap_{it}$. Moreover, as these infrastructure components are only slowly evolving over time, they also might be captured by the country-industry-specific fixed effects, a_{ij}, included in our empirical model.

iv. Data Issues

Our sample includes the countries listed in Tables 1a-c for the period 1995-2005 and in 10 industrial sectors DA, DB, DD/DE, DG, DH, DJ – DM (Nace Revision 1 classification).[9] Focusing on inward FDI-stock to the manufacturing sector implies that substantial shares of employment and of gross fixed capital formation in the host countries are covered by our analysis: The minimum share in domestic employment (in manufacturing sector national total[10]) is 6% in GER in 1998 and the maximum share is 44% in SVK in 2005; the minimum

[9] Industries DA, DB, DD/DE are typical examples of industries employing rather high shares of low-skilled workers. The mean values of Hls_{ijt} (1995-2005) are 25%, 25% and 41%. In the other industries the corresponding values are lower ranging from 16% (DK-DM) to 20% (DJ and DH).

[10] See: http://stats.oecd.org/OECDStat_Metadata/ShowMetadata.ashx?Dataset=AFA_CALC_IN3&ShowOnWeb=true&Lang=en.

share in domestic gross fixed capital formation is 6.5% in FIN and the maximum share is 70% in HUN and NLD in 2005.

The choice of years and countries is predominantly driven by data issues. FDI and EUKLEMS data was available until 2005 and data from the EUKLEMS database is only available from 1995 onwards for a couple of countries. FDI data at the industrial level have many missing values for a range of countries (e.g. Greece, Japan, Portugal and Switzerland). Moreover data on several exogenous variables are lacking for some countries. Especially data on EATR_{it} was available at an internationally comparable basis only for the countries included plus Italy, Poland, Romania, Bulgaria and Croatia. However, these countries are excluded for the following reasons: Data on HLS_{ijt} for Italy is questionable as rather low percentages of low-skilled workers employed are shown in the EUKLEMS database for this country; Poland is an "outlier" in the type of FDI received -most FDI is going into the primary and the tertiary sector; EUKLEMS data are not available for Romania, Bulgaria and Croatia.

Table 2 summarizes the above discussions with respect to the variables used also including the rationale behind these variables. It provides the expected sign of the estimated coefficients, the data sources used and a detailed description of the measurement and definition of the variables. Note, that only for one variable the expected sign is ambiguous *a priori* (Cpi_{it}). Table 3 includes some descriptive statistics for the variables used in the analysis and Table 4 shows their pairwise correlations. Some correlations are rather pronounced, especially those with GDPcap_{it} which is consistent with the "catch all" character of this variable. We check the sensitivity of the results to this correlation in our estimations by excluding GDPcap_{it} in one specification (see Table 6, M2).

Table 2: Variable rationale, variable description and summary statistics

Variable	Rationale	Exp. Sign	Definition	Source
FDI_{ijt}	Endogenous variable.		Inward FDI-stock of 10 manufacturing sectors in mn of current Euro	Eurostat's New Cronos database and wiiw Database on FDI (for CEECs)
Pot_{it}	Larger markets should experience more inward FDI. Opportunities to generate profits are higher.	+	Own market potential; calculated as follows: POT = (GDP / internal distance) GDP in mn of current Euro	Eurostat's New Cronos database; CEPII internal distance measures: http://www.cepii.org/anglaisgraph/bdd/distances.html
$GDPcap_{it}$	Captures positive effects of higher purchasing power on FDI.	+	GDP per capita in Euro15-PPP	Eurostat's New Cronos database
$EATR_{it}$	A higher effective tax rate should decrease inward FDI, since it directly impacts negatively on the after-tax profit level of an FDI.	–	Effective average tax rate (in percent)	Own calculations based on Devereux and Griffith 1998b; assumptions follow Devereux and Griffith as well as the IFS data available under http://www.ifs.org.uk/publications.php?publication_id=3210; raw tax data are taken from the European Tax Handbook and KPMG's Corporate Tax Rate Surveys
$Govgerd_{it}$	Higher R&D expenditures in GDP should encourage inward FDI due to knowledge spill-over effects.	+	Government-financed expenditures on R&D in percent of GDP	OECD's Main Science and Technology Indicators database
$Freefdi_{it}$	Higher legal barriers towards FDI directly imply less inward FDI.	+	index ranges from 0 – 100 higher value means less restrictions	The Heritage Foundation http://www.heritage.org/index/faq.aspx
HLS_{ijt}	Depending on the motive of FDI, this	–	Share of low-skilled employees in total	EUKLEMS database

Variable	Rationale	Exp. Sign	Definition	Source
	variable signals either higher incentives to fragment production (vertical FDI) or lower possibilities to duplicate plants (horizontal FDI). Yet, empirically horizontal FDI is dominating.		employment	
$Labcost_{ijt}$	Higher labor costs imply higher production costs and thus lower FDI.	–	Compensation of employees (in millions of Euro) / Total hours worked by employees (millions)	EUKLEMS database
$Labprod_{ijt}$	Higher labor productivity attracts FDI via its favorable effect on production costs.	+	Gross value added in Euro15-PPP/ Total hours worked	EUKLEMS database
Ict_{it}	Larger ICT-infrastructure endowment lowers production costs and thus increases FDI.	+	Sum of telephone mainlines, mobile phone subscribers, internet connections and personal computers per 1000 inhabitants	World Banks's World Development Indicators database
Epl_{it} *	Tighter employment protection legislation increases adjustment and exit costs.	–	Indicators of the strictness of employment protection legislation (version 1) Scale: 0-6 with higher scores representing stricter regulation	OECD's Labor market statistics database; www.oecd.org/employment/protection; for SVN source is Leibrecht and Scharler (2009) Table 2
I_{ijt}**	Stricter employment protection legislation matters particularly for industries with a large share of low-skilled workers employed.	–	Interaction effect between HLS_{ijt} and the different types of Epl_{it}*	See sources for HLS_{ijt} and Epl_{it}

Variable	Rationale	Exp. Sign	Definition	Source
$Risk_{it}$	Politically riskier countries should receive less inward FDI due to higher uncertainty and larger possibilities of expropriation.	+***	Political risk (0 = high; 25 = low)	Euromoney
Cpi_{it}	Riskier countries should receive less inward FDI due higher uncertainty; Yet one has to bear in mind that the endogenous variable is denominated in nominal terms.	?	Change in consumer price index	Eurostat's New Cronos database

Notes: * Epl_{it} captures all three proxies for employment protection legislation used in the analysis; ** interaction term of $lnHLS_{ijt}$ with each of the three indices contained in Epl_{it}; *** positive sign due to measurement

Table 3: Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max
LnFDI	Overall	7.19	1.93	0.62	11.89
	Between		1.83	3.25	11.43
	Within		0.61	3.68	10.22
lnPot	Overall	7.52	1.33	5.20	9.19
	Between		1.32	5.57	9.11
	Within		0.18	7.04	7.96
lnGdpcap	Overall	9.86	0.37	8.91	10.48
	Between		0.35	9.21	10.33
	Within		0.14	9.57	10.13
lnIct	Overall	7.16	0.55	5.55	7.90
	Between		0.32	6.50	7.75
	Within		0.45	6.20	8.12
lnEatr	Overall	3.29	0.24	2.75	3.64
	Between		0.22	2.83	3.58
	Within		0.10	2.72	3.54
lnGovgerd	Overall	-0.50	0.33	-1.38	-0.04
	Between		0.32	-1.18	-0.13
	Within		0.10	-0.82	-0.21
lnLabcost	Overall	2.53	0.93	0.32	4.30
	Between		0.93	0.65	4.02
	Within		0.19	1.90	3.24
lnLabprod	Overall	3.26	0.66	1.46	5.58
	Between		0.65	1.57	4.86
	Within		0.19	2.22	4.21
lnHls	Overall	2.95	0.56	1.46	4.23
	Between		0.55	1.84	4.11
	Within		0.12	2.45	3.22
lnEplov	Overall	0.44	0.77	-1.57	1.13
	Between		0.76	-1.57	1.10
	Within		0.08	0.21	0.64
lnEplreg	Overall	0.63	0.84	-1.79	1.22
	Between		0.84	-1.79	1.20
	Within		0.05	0.44	0.72
lnEpltemp	Overall	0.07	0.89	-1.39	1.29
	Between		0.86	-1.39	1.29

	Within		0.21	-0.81	0.51
lnRisk	Overall	3.05	0.21	2.51	3.22
	Between		0.20	2.65	3.21
	Within		0.06	2.72	3.27
lnFreefdi	Overall	4.19	0.19	3.40	4.50
	Between		0.16	3.81	4.35
	Within		0.10	3.78	4.49
lnCpi	Overall	0.97	0.87	-1.97	2.91
	Between		0.75	-0.01	2.26
	Within		0.46	-1.20	1.95
N = 1016	n = 108	T-bar = 9.4			

Note: For convenience time, country and industry identifier not included.

Table 4: Correlation Matrix

	lnPot	lnGdpcap	lnIct	lnEatr	lnGovgerd	lnLabcost	lnLabprod	lnHLS	lnEplov	lnEplreg	lnEpltemp	lnRisk	lnFreefdi	lnCpi
lnPot	1.00													
lnGdpcap	0.82	1.00												
lnIct	0.52	0.80	1.00											
lnEatr	0.50	0.32	-0.07	1.00										
lnGovgerd	0.66	0.78	0.47	0.30	1.00									
lnLabcost	0.82	0.89	0.64	0.31	0.80	1.00								
lnLabprod	0.55	0.63	0.48	0.27	0.51	0.80	1.00							
lnHLS	0.14	0.17	0.04	-0.15	0.44	0.23	0.00	1.00						
lnEplov	-0.31	-0.28	-0.19	-0.12	-0.01	-0.13	-0.15	0.29	1.00					
lnEplreg	-0.41	-0.40	-0.24	-0.19	-0.21	-0.28	-0.25	0.18	0.95	1.00				
lnEpltemp	-0.08	-0.02	-0.06	0.00	0.32	0.16	0.05	0.44	0.85	0.67	1.00			
lnRisk	0.85	0.91	0.64	0.30	0.82	0.90	0.60	0.28	-0.20	-0.31	0.04	1.00		
lnFreefdi	0.35	0.33	0.35	0.25	0.09	0.27	0.25	-0.21	-0.26	-0.15	-0.36	0.39	1.00	
lnCpi	-0.65	-0.70	-0.49	-0.41	-0.69	-0.74	-0.47	-0.25	0.00	0.10	-0.16	-0.77	-0.29	1.00

Note: For convenience time, country and industry identifier not included.

IV. RESULTS

We start by commenting briefly on the control variables. The remainder of the results section is organized by the three types of Epl_{it}.

1. Control variables

Table 6 (M1 and M4) shows that we control for many different cost- and market-related determinants of FDI. In particular, Table 6 implies that the countries in our sample are host countries of FDI where (i) political and macroeconomic risk does not play a role; where (ii) relevant restrictions on FDI hardly exist anymore and where (iii) FDI are not productivity driven, but primarily labor cost driven. FDI directed to these countries reacts significantly positive to an increase in market size and purchasing power, as well as to an improvement of ICT-infrastructure and significantly negative to an increase in labor costs and taxes. These results are not implausible when compared to related empirical literature on the determinants of FDI (e.g. Bevan and Estrin, 2004). Moreover, the coefficients, which all represent elasticities, are of an economically meaningful size. Note, that Model (M1) includes the variable $GDPcap_{it}$, which due to its nature described above, may partly reflect other location factors included, e.g. infrastructure endowment or the risk level. Therefore, we re-estimate (M1) by excluding $GDPcap_{it}$. (M2) shows that dropping $GDPcap_{it}$ changes only little.

2. Variables of main interest

Starting with $Eplov_{it}$ Table 6 suggests that strict employment protection has a direct, not interacted, negative effect on inward FDI-stock (see M1-M3).[11] The size of the coefficient on $Eplov_{it}$ (M1 -0.48 and similar sizes of coefficients in M2 and M3) implies that a 1% increase in the index of employment protection would lead to an almost 0.5% reduction in inward FDI-stocks. These results are consistent with the findings of prior empirical literature (see section 2). [12]

Before we turn to the interaction effect, a few words on the second variable which constitutes the interaction effect, i.e. HLS_{ijt}, are in order. Referring to Table 6 (M1-M5) $lnHLS_{ijt}$

[11] Note that model (M1) contains the full set of controls variables whereas stepwise exclusion of statistically insignificant variables leads to our preferred specifications (M3 and M5).

[12] For model (M3) the results of a bootstrapped Hausman-test (HT) is reported which shows that the H0 (i.e. Random Effects assumptions are valid) is rejected.

consistently carries a negative sign with an elasticity of 0.4-0.5. The negative sign points to the prevalence of horizontal FDI where firms duplicate their domestic activities abroad. This finding is plausible as the host countries included in our sample receive most of inward FDI from countries of similar level of development.[13]

The interaction effect, I_{ijt}, shows a negatively signed coefficient which is also statistically significant. Moreover, the F-test reported in Table 6 (M4 and M5) signals that the coefficients for $\ln Eplov_{it}$ and $I_{ij,t}$ are jointly statistically significant different from zero at the 5% significance level, which underpins the effects derived. These results are consistent with the view that the impact of strict employment protection indeed increases with the share of low-skilled workers employed.

Note, that the coefficient on $Eplov_{it}$ carries an unexpected positive sign in models (M4) and (M5). However, this coefficient shows the effect of a change in $Eplov_{it}$ if HLS_{ijt} = 1%. As already noted this value of HLS_{ijt} is not included in our sample. Moreover, as stressed by Kennedy (2005; example 8) it is not unusual that one of the interacting variables carries the "wrong" sign, with the model nevertheless showing the expected marginal effects over a meaningful range of sample values (cf. Figure 1).

As already stressed the marginal effect of $\ln Eplov_{it}$ cannot be taken directly from the values given in Table 6 but needs to be calculated according to Equation 2 with changing values of $\ln HLS_{ijt}$. For instance, evaluated at the mean value of $\ln HLS_{ijt}$ of about 2.95 the coefficients given in model (M5) imply that a 1% increase in $Eplov_{it}$ would lead to a decrease in FDI by about 0.5%.[14] More generally, Figure 1 displays size and significance of the marginal effect of $\ln Eplov_{it}$ across the range of sample values of $\ln Hls_{ijt}$. The effect is significantly negative in a statistical sense when $\ln Hls_{ijt}$ is about 2.75 or above. In other words, about two-thirds of observations are in the region of significance. Moreover, the effect never turns positively significant.

Finally, as a robustness check, models (M3_GMM) and (M5_GMM) show results for $\ln Eplov_{it}$, $\ln Hls_{ijt}$ and I_{ijt} entering contemporaneously into matrices X_{it} and Z_{ijt}, respectively. Endogeneity is mitigated by using two-years and higher lagged values of these variables as instruments within an Arellano-Bond-type First Difference estimator. Moreover, the appendix to the paper contains a Figure A1 which is similar to Figure 1 but based on model

[13] Even the CEECs included in our sample are among the highest developed transition countries.
[14] Calculated according to Equation 2 as 1.22-0.58*2.95.

(M5_GMM). Models (M3_GMM) and (M5_GMM) as well as Figure A1 imply that our results remain qualitatively unchanged. [15] Thus, taken together our results suggest that a high value of $Eplov_{it}$ deters FDI in general and in industries with high shares of low-skilled workers employed in particular.

Table 6: Results for $Eplov_{it}$

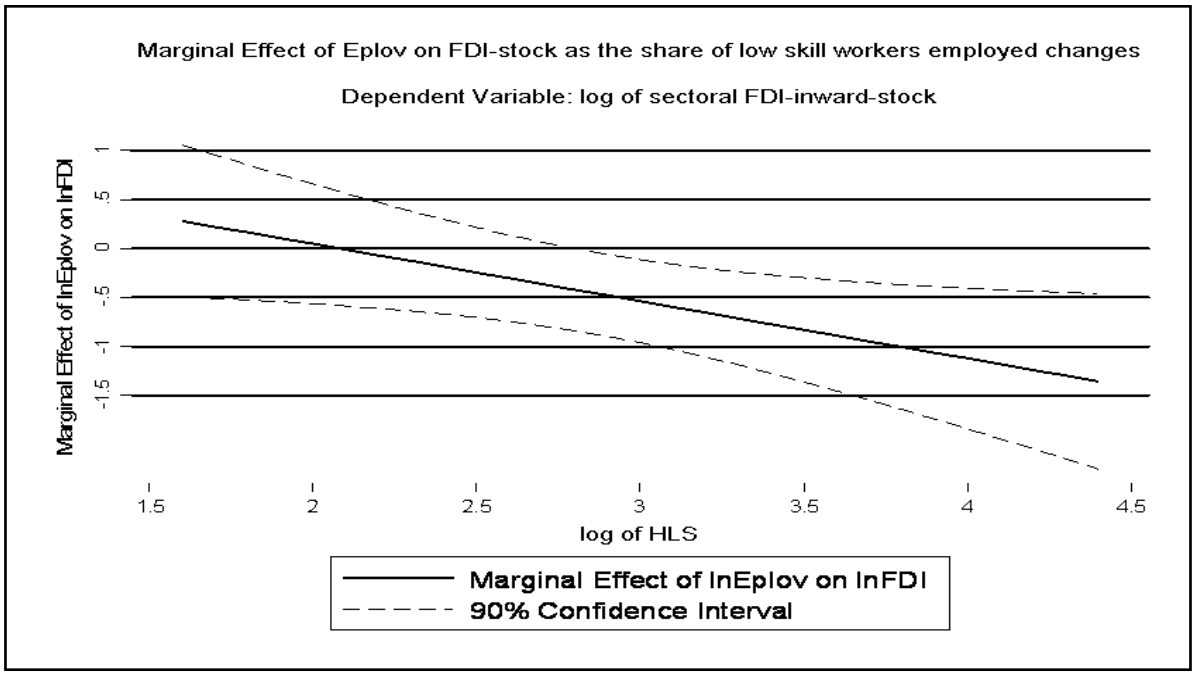
	M1	M2	M3	M4	M5	M3_GMM	M5_GMM
lnPot	1.21*	1.77***	1.15*	1.49**	1.49**	0.60*	0.97***
	(1.44)	(2.16)	(1.38)	(1.67)	(1.71)	(1.59)	(2.47)
lnGdpcap	1.74**	not included	1.82***	1.79**	1.79***	1.52**	1.82***
	(1.88)		(2.11)	(1.95)	(2.08)	(1.84)	(2.09)
lnIct	0.71**	0.96***	0.76**	0.63**	0.66*	0.63***	0.54***
	(1.80)	(2.65)	(1.88)	(1.72)	(1.61)	(2.50)	(2.34)
lnEatr	-1.15***	-0.89***	-1.14***	-1.25***	-1.25***	-0.67**	-0.92***
	(-2.90)	(-2.47)	(-3.10)	(-3.17)	(-3.20)	(-2.37)	(-3.48)
lnLabcost	-1.31*	-1.55**	-1.21*	-1.27*	-1.22*	-0.41*	-0.57**
	(-1.55)	(-1.78)	(-1.45)	(-1.48)	(-1.45)	(-1.56)	(-1.93)
lnGovgerd	0.48***	0.35*	0.49**	0.48***	0.47***	0.26*	0.28*
	(2.04)	(1.49)	(1.95)	(2.01)	(2.06)	(1.49)	(1.52)
lnHLS	-0.48*	-0.50*	-0.47*	-0.26	-0.24	-0.80*	-0.31
	(-1.50)	(-1.54)	(-1.55)	(-0.75)	(-0.74)	(-1.55)	(-0.64)
lnEplov	-0.48**	-0.41*	-0.49**	1.12	1.22	-1.32***	-0.37
	(-1.71)	(-1.49)	(-1.79)	(1.20)	(1.44)	(-3.42)	(0.32)
lnRisk	0.13	0.62	ns	0.03	ns	ns	ns
	(0.23)	(1.04)		(0.05)			
lnFreefdi	0.15	0.10	ns	0.15	ns	ns	ns
	(0.69)	(0.46)		(0.74)			
lnLabprod	0.002	0.05	ns	-0.01	ns	ns	ns
	(0.01)	(0.25)		(-0.06)			
lnCpi	-0.044	-0.03	ns	-0.03	ns	ns	ns
	(-1.03)	(-0.81)		(-0.71)			
I (interaction term)	not included	not included	not included	-0.55**	-0.58***	not included	-0.25
				(-1.78)	(-2.03)		(-0.66)
Obs	1006	1006	1016	1006	1016	898	898

[15] Estimations are carried out using Stata 10.1. GMM estimation is based on Rodman's (2009) xtabond2 command.

Cluster	108	108	108	108	108	108	108
R^2 overall	0.62	0.61	0.63	0.62	0.62		
TD (p-value)	0.004	0.021	0.001	0.002	0.001	0.001	0.003
F-test (p-value)				0.048	0.033		0.001
HT (p-value)			0.000				
OV (p-value)						0.113	0.549
Number of IV						67	116
AR(2) (p-value)						0.141	0.116
AR(1) (p-value)						0.010	0.006

Notes: For convenience time, country and industry identifier not included; t-values based on bootstrapped standard errors in parenthesis except in case of GMM models; in these cases z-statistics are based on robust one-step GMM standard errors; ns = not significant and therefore excluded; TD = Test on joint significance of time dummies; F-test is test on joint significance of $lnEplov_{it}$ and I_{ijt} (interaction term); in case of model (M3) HT is for the bootstrapped Hausman-test for Random vs. Fixed Effects (see Cameron and Trivedi 2009, p. 429f); OV = Hansen-J-test on validity of instruments; AR() = Arellano-Bond-test for serial correlation; *** / ** / * = significant (one-sided test) at the 1% / 5% / 10% significance level.

Figure 1: Impact of $Eplov_{it}$ on FDI as HLS_{ijt}changes



Source: Based on Stata code made available by Thomas Brambor: http://homepages.nyu.edu/~mrg217/interaction.html#code

As $Eplov_{it}$ is a summary index it might hide structural differences, which are revealed by the underlying sub-indices, $Eplreg_{it}$ and $Epltemp_{it}$. Table 7 includes the results.

Again starting with the model excluding the interaction effect (M6 as the preferred model), the coefficient on $Eplreg_{it}$ is statistically significant and also carries a negative sign like

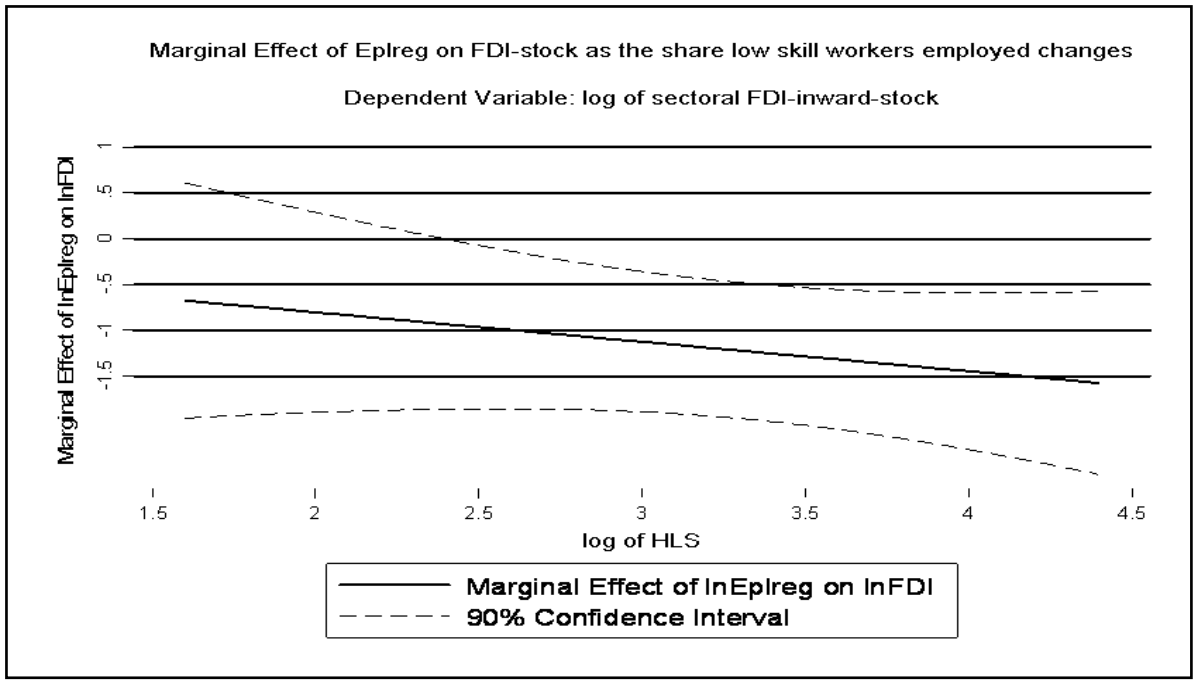
$Eplov_{it}$, but implying a substantially higher elasticity. Thus, strict regulations towards regular employment have a significant direct effect on inward FDI.

Model (M7) in Table 7 shows the preferred specification with the interaction term included. Although none of the three coefficients of main interest is statistically significant this does not imply that no economically and statistically significant effect exists (cf. Figure 2) as outlined above and detailed in Brambor et al. (2006). Moreover, $lnEplreg_{it}$ and I_{ijt} are jointly statistically different from zero.

The marginal effect of $lnEplreg_{it}$ evaluated at the mean value of $lnHLS_{ijt}$ is -1.11.[16] Thus, evaluated at the mean value of $lnHLS_{ijt}$ the effect of $Eplreg_{it}$ is larger than that of $Eplov_{it}$.

Turning to size and significance of the marginal effect of $lnEplreg_{it}$ over different values of $lnHLS_{ijt}$, Figure 2 clearly shows that – similar to $Eplov_{it}$– the marginal effect of $lnEplreg_{it}$ is significant and negative for the majority of the sample values of $lnHLS_{ijt}$. Only 16% of observations are outside the region of significance and the elasticity never turns significantly positive.

Figure 2: Impact of $Eplreg_{it}$ as HLS_{ijt} changes



[16] Calculated according to Equation 2 as -0.16 + (-0.32*2.95).

The third indicator of Epl_{it} used in the analysis is $Epltemp_{it}$. In marked contrast to the previous results, the coefficient on $lnEpltemp_{it}$ is statistically not significant and has a substantially lower elasticity close to zero. Thus, regulations towards temporary employment seem not to have any impact on FDI. This result is in line with Gross and Ryan (2008) who conclude that although the protection of regular employment exerts a harmful effect on FDI, regulation with respect to temporary employment has a much weaker impact. More importantly, this result is not unexpected as the share of temporary employment in total employment remains below 15% in the countries in our sample (ILO 2008). Thus, the majority of labor contracts are on a regular basis.[17] This is consistent with the finding of a larger effect of $Eplreg_{it}$ than $Eplov_{it}$ on FDI.

Table 7: Results for $Eplreg_{it}$ and $Epltemp_{it}$

	M6	M7	M8
	$Eplreg_{it}$	$Eplreg_{it}$	$Epltemp_{it}$
lnPot	1.22*	1.33**	1.07*
	(1.45)	(1.56)	(1.28)
lnGdpcap	1.75***	1.64**	1.82***
	(2.06)	(1.92)	(2.05)
lnIct	0.68**	0.62*	0.79**
	(1.67)	(1.52)	(1.92)
lnEatr	-1.37***	-1.37***	-1.18***
	(-3.48)	(-3.48)	(-3.20)
lnLabcost	-1.33*	-1.31*	-1.21*
	(-1.60)	(-1.55)	(-1.43)
lnGovgerd	0.48***	0.47***	0.42**
	(2.08)	(2.03)	(1.84)
lnHls	-0.48*	-0.25	-0.42*
	(-1.56)	(-0.70)	(-1.35)
lnEplreg / lnEpltemp	-1.24***	-0.16	-0.07
	(-2.86)	(-0.14)	(-0.63)
I (interaction term)	not included	-0.32	not included
		(-0.97)	
Obs	1016	1016	1016
Cluster	108	108	108

[17] According to ILO (2008) the incidence of temporary employment has tended to increase since the 1990ies, yet only marginally so in CEECs.

R^2 overall	0.59	0.61	0.60
TD (p-value)	0.001	0.001	0.001
F-test (p-value)		0.015	
HT (p-value)	0.000		0.000

Notes: For convenience time, country and industry identifier not included; t-values based on bootstrapped standard errors in parenthesis; TD = Test on joint significance of time dummies; F-test is test on joint significance of $Eplreg_{it}$ and I_{ijt} (interaction term); HT = bootstrapped Hausman-test for Random vs. Fixed Effects; *** / ** / * = significant (one-sided test) at the 1% / 5% / 10% significance level.

V. CONCLUSIONS

Summarizing, for a country's overall regulations towards employment protection and for regulations towards regular employment the results confirm our expectations: the rigidity of labor markets matters for inward FDI-stock and the deterrent effect is larger in industries with high shares of low-skilled workers employed. Yet, for regulations towards temporary employment no impact on FDI is established. This is, however, not implausible given the arguments in the related empirical literature discussed above and the descriptive evidence presented.

Our findings suggest that governments can support structural change by tightening of labor market regulations. Such policies may lead to a change in the composition of manufacturing activities by deterring FDI into low-skill intensive sectors. Host country governments should simultaneously improve those location factors which are especially relevant for high-skill FDI (e.g. the economy's R&D intensity which is shown to have a positive impact on FDI). This has the potential to compensate investors into high-skill industries for higher labor-related costs and thus to stabilize the level of FDI into these sectors. Indeed, such policies have been used by several Asian countries (e.g. China, Taiwan, Singapore, Malaysia, South Korea) in order to climb up the ladder of production and product technologies (see e.g. Asian Development Bank 2004).

Finally, let us point out two aspects: First, one should bear in mind that the proxies for the degree of employment protection legislation used in this and earlier studies are often based on legal constraints that apply in host countries of FDI. Thus, they may not fully capture the degree of enforcement of employment protection across countries and over time. This is especially relevant in samples of heterogeneous countries as strict enforcement of labor laws needs well functioning labor tribunals. For example, in the CEECs the enforcement of

employment protection legislation is weak due to the limited capacities of the courts and labor inspectorates (see Leibrecht and Scharler, 2009).

Secondly, as most industries have segments of low- and high-skill activities, the sector view may be too broad (see Snower et al. 2009, p. 142) for analyzing the current issue. Yet, it is hoped that once more detailed micro-data become available, future research will be able to address this problem more thoroughly.

REFERENCES

Asian Development Bank (2004). Asian Development Outlook 2004. http://www.adb.org/documents/books/ado/2004/part030200.asp

Barba Navaretti, Giorgio and Anthony J. Venables (2004). Multinational firms in the world economy. Princeton: Princeton University Press.

Bellak, Christian, Damijan, Joze, P. and Markus Leibrecht (2009). Infrastructure endowment and corporate income taxes as determinants of foreign direct investment in Central- and Eastern European Countries, *World Economy*. 32: 267–290.

Benassy-Quéré, Agnes, Coupet, Maylis and Thierry Mayer (2007a). Institutional determinants of foreign direct investment, *World Economy*. 30: 764–782

Benassy-Quéré, Agnes, Gobalraja, Nicolas and Alain Trannoy (2007b). Tax and public input competition, *Economic Policy*. 22: 385–430.

Bevan, Alan A. and Saul Estrin (2004). The determinants of foreign direct investment into European transition economies, *Journal of Comparative Economics*. 32: 775–87.

Blanchard, Oliver and Justin Wolfers (2000). The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence, Economic Journal. 110: C1–C33.

Blonigen, Bruce A, Davies, Ronald B. and Keith Head (2003). Estimating the Knowledge-Capital Model of the Multinational Enterprise: Comment, *American Economic Review*. 93: 980-994.

Brambor, Thomas., Clark, William and Matt Golder (2006). Understanding Interaction Models: Improving Empirical Analysis, *Political Analysis*. 14: 63–82.

Buch, Claudia M. and Alexander Lipponer (2007). FDI versus exports: evidence from German banks, *Journal of Banking and Finance*. 31: 805–826.

Cameron, Colin A. and Pravin K. Trivedi (2009). Microeconometrics Using Stata. Stata Press.

Davies, Ronald B. (2008). Hunting High and Low for Vertical FDI, *Review of International Economics*. 16: 250–267.

Devereux, Michael P. and Rachel Griffith (1998a). Taxes and the location of production: evidence from a panel of US multinationals, *Journal of Public Economics*. 68:335–367

Devereux, Michael P. and Rachel Griffith (1998b). The taxation of discrete investment choices, IFS Working paper Series No. W98/16.

Dewitt, Gerda, Görg, Holger and Catia Montagna (2009). Should I stay or should I go? Foreign direct Investment, employment protection and domestic anchorage, *Review of World Economics*. 145: 93-110.

Djankov, Simeon, La Porta, Rafael, López-de-Silanes, Florencio and Andrei Shleifer (2001). The Regulation of Entry, CEPR Discussion Papers No. 2953.

Dunning, John H. and Rajneesh Narula (1995). The R&D Activities of Foreign Firms in the United States, *International Studies of Management & Organization*. 25: 39-73.

Faeth, Isabel (2009) Determinants Of Foreign Direct Investment – A Tale Of Nine Theoretical Models, *Journal of Economic Surveys*. 23: 165–196.

Fontagné, Lionel and Thierry Mayer (2005). Determinants of Location Choices by Multinational Firms: A Review of the Current State of Knowledge, *Applied Economics Quarterly*. Supplement to issue 56: 9–34.

Görg, Holger (2005). Fancy a Stay at the 'Hotel California'? The Role of Easy Entry and Exit for FDI, *Kyklos*. 58: 519-535.

Gross, Dominique, M. and Michael J. Ryan (2008). FDI location and size: Does employment protection legislation matter? *Regional Science and Urban Economics*. 38: 590-605.

Guimón, Jose (2009). Government strategies to attract R&D-intensive FDI, *Journal of Technology Transfer*. 34: 364–79.

Haaland, Jan I., Wooton, Ian and Giulia Faggio (2003). Multinational Firms: Easy Come, Easy Go? *Finanzarchiv*. 59: 3-26.

International Labour Organization (2008). World of Work. ILO, Geneva.

Javorcik, Beata S. and Mariana Spatareanu (2005). Do Foreign Investors Care about Labor Market Regulations? *Review of World Economics*. 141: 375-403.

Kennedy, Peter (2005), Oh No! I Got the Wrong Sign! What Should I Do? *Journal of Economic Education*. 36: 77–92.

Leibrecht, Markus and Johann Scharler (2009). How important is employment protection legislation for Foreign Direct Investment flows in Central and Eastern European countries? *Economics of Transition*. 17: 275-295.

Markusen James R and Keith E. Maskus (2002). Discriminating among alternative theories of the multinational enterprise, *Review of International Economics*. 10: 694–707.

Mollick, Andre, Ramos-Duran, Rene and Esteban Silva-Ochoa (2006) Infrastructure and FDI into Mexico: a panel data approach, *Global Economy Journal*. 6: 1–25.

Mutti John H. (2004). Foreign direct investment and tax competition. Institute for International Economics, Washington.

Mutti John H. and arry Grubert (2004). Empirical asymmetries in foreign direct investment and taxation, *Journal of International Economics*. 62: 337–358.

Nicoletti, Giuseppe, Hajkova, Dana, Mirza, Daniel and Yoo Kwang-Yeol (2003). Policies and International Integration: Influences on Trade and Foreign Direct Investment, OECD Economics Department Working Papers No. 359.

OECD (1999). Employment Outlook. Paris.

OECD (2004). Employment Outlook. Paris.

Peneder, Michael (2007). A sectoral taxonomy of educational intensity, *Empirica*. 34:189–212.

Pissarides, Christopher A. (2001). Employment protection, *Labor Economics*. 8: 131-159.

Radulescu, Roxana and Martin Robson (2008). Trade Unions, Wage Bargaining Coordination, and Foreign Direct Investment, *Labor*. 22: 661–678.

Roodman, David (2009). How to do xtabond2: An introduction to difference and system GMM in Stata, *Stata Journal.* 9: 86-136.

Snower, Dennis J., Brown, Alessio J.G. and Christian Merkl (2009). Globalization and the Welfare State: A Review of Hans-Werner Sinn's Can Germany Be Saved? *Journal of Economic Literature*, 47: 136-158.

Wooldridge, Jeffrey M. (2002). Econometric analysis of cross section and panel data. Cambridge: MIT-Press.

Wooldridge, Jeffrey M. (2003). Introductory Econometrics: A Modern Approach, 2nd edition. Mason: South-Western Cengage Learning.

Appendix

Figure A1: Impact of $Eplov_{it}$ on FDI as HLS_{ijt}changes based on model M5_GMM