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THE EFFECTS OF INWARD FDI ON REGIONAL EMPLOYMENT IN EUROPE

Enrico Marelli, Laura Resmini* and Marcello Signorelli

Laura Resmini
University of Milano-Bicocca
Department of Sociology and Social Research
Via Bicocca degli Arcimboldi, 8
20126 Milano, Italy
E-mail: laura.resmini@unimib.it
* Corresponding author

Biographical Notes

Enrico Marelli is Full Professor of Economic Policy at the University of Brescia, Italy. He studied at Bocconi University, at the London School of Economics and at the University of Pennsylvania. He has published several books and articles in a number of research areas, such as international economics, transition economics, labour economics and policy, regional economics, macroeconomics and economic policy.

Laura Resmini is Associate Professor of Economic Policy at the University of Milano-Bicocca. She is also an affiliated researcher at Center for Research on Regional Economics, Transport and Tourism (CERTeT) of Bocconi University, Milano. She holds a Ph.D in Economics (Bocconi University) and a Certificate of International Studies (EHEI, Geneva).Her main research interests concern foreign direct investments, economic integration, economics of transition, and regional growth and development. She is author of several publications in the field of international economics and location theory, especially as far as multinational firms and their potential effects on host locations are concerned

Marcello Signorelli is Associate Professor of Economic Policy at the University of Perugia, Italy. He was President (2010-2012) of the European Association for Comparative Economic Studies (EACES). Signorelli studied at the University of Siena, at the Columbia University and at the University of Warwick. He has published many articles and edited some books in the following research areas: comparative economics and labour policy, transition economics and European economic integration, regional economics and economic policy.

Abstract

This paper explores whether and to what extent inward FDI is able to affect regional employment, a complex issue often discussed in policy debates but still scarcely explored in the scientific literature. The paper addresses the following research questions: *i)* Is regional (sub-national) employment significantly affected by FDI in the EU-27 context? *ii)* Are the results significantly different across different groups of regions (Eastern, Western, Northern and Southern EU regions)? *iii)* Is sectorial employment differently affected in the above groups of regions? We explore these issues empirically by using an unbalanced panel of 270 EU regions, seven manufacturing and services sectors, and three periods of time. Overall, we find that FDI inflows are employment-expanding in all economic sectors, with the exception of the construction industry. Positive effects on employment are detected, on average, in Northern and Western EU regions, but not in Central and Eastern European regions and in Southern ones.

Keywords: Foreign Direct Investment, regional impact of FDI, employment effects of FDI, FDI and EU regions
JEL Classification: F21, R19, J29

1. Introduction

The labour market performance, and in particular the aggregate employment behaviour, of a country or region reflect the complex impact of many economic and institutional factors affecting job creation and job destruction processes (e.g., Davis et al., 1996). In addition, especially in recent decades, a multifaceted phenomenon of globalization and supra-national economic integration has occurred with the following key phenomena: (i) migration of workers in search of better labour conditions, such as higher wages or probabilities of finding a job; (ii) growing international trade in goods and services, and (iii) Foreign Direct Investment (FDI), i.e. the movement or off-shoring of companies in search of wider markets and/or lower costs.[1]

FDI is a key way to attract not only inward flows of capital, but also technology and new knowledge in management techniques and in the organisation of work and distributional networks. Thus it is associated with the importing of capital, work organisation methods and technological advantages into a host economy, thereby potentially improving aggregate productivity, and raising the skill level of the workforce through the provision of high-skill employment opportunities. As a consequence, FDI is perceived as having the potential to improve employment opportunities and to promote regional economic development either directly or indirectly. Direct channels are self-explanatory because every new investment project, regardless of the origin of the investors, requires

[1]Pflüger et al. (2010) provide a review of current theoretical advances which pertain to the relationship between trade, FDI and labour markets and, in addition, an overview of the existing empirical work covering the labour market effects of trade and FDI. On the issues of globalisation, multi-national enterprises (MNE) and off-shoring see also Barba Navaretti and Venables (2004), Crinò (2009), Feenstra (2010).

new labour, thereby positively affecting local employment rates. Indirect channels, instead, go through spillover effects, crowding-out effects and distributional effects. Technology and pecuniary spillover effects may lead first to improved efficiency in indigenous firms' production processes and then to changes in local labour demand.[2] Moreover, labour markets may be affected by a crowding out-effect, which implies that new job opportunities arise at the expense of employment in already-established firms. These processes may also have distributional effects and lead to increased wage differentials between skilled and unskilled workers (Driffield and Taylor, 2000). Finally, territorially concentrated FDI inflows may increase the local labour market's vulnerability and dependence on one source of employment, which may have negative effects on employment rates, especially in the case of industry-specific demand shocks (Dinga and Munich, 2010). These considerations suggest, on the one hand, that the indirect effects can be either positive or negative, making any prediction on net FDI-induced effects on employment difficult; on the other hand, they suggest that the relationship between FDI and employment is influenced by several factors, making its assessment particularly difficult.

Studies focusing on these effects are quite scarce. For this reason, and given the key policy importance of better investigating the factors affecting regional employment, this paper addresses the following research questions:

i. Is regional (sub-national) employment significantly affected by FDI in the EU-27 context?
ii. Are the results significantly different in the main groups of regions (Eastern, Western, Northern and Southern EU regions)?
iii. Is sectorial employment differently affected in the above groups of regions?

The average effect of FDI on local labour markets is estimated using a three dimensional (unbalanced) panel: across regions, time, and industries. Our results shed some light on the role of FDI in creating (or not) additional jobs in the European regions, taking into account possible differences in labour market features and institutional frameworks and in sectorial specialisation. In particular, our findings suggest that FDI has, on average, a statistically significant impact on employment rates; the magnitude of these effects is however affected by sector and territorial specific effects.

The structure of the paper is as follows. After this Introduction, there is a literature review (Section 2); the empirical analysis follows, comprising both data and methodology description

[2]Technology and pecuniary spillovers occur through input-output linkages, pro-competitive effects and demonstration effects. Readers interested in deepening this issue may refer to Crespo and Fontoura (2007); Blomstromand Kokko (1998) and Gorg and Strobl (2001).

(Section 3), and a discussion of the key results (Section 4). The final remarks draw some policy implications (Section 5).

2. Literature Review

In the literature that explicitly considers the labour market impact of FDI, a first distinction is drawn between studies investigating the employment impact in the home country (e.g., Blomström et al. 1997; Brainard, 1997; Temouri and Driffield, 2009) and those that address the effects on host economies.

The labour market impact of FDI has been widely investigated in the literature, especially in the case of the impact on the countries of origin. The "home country effect" of FDI on domestic production and employment has been assessed in empirical estimates. A destructive "export of jobs" has been popularised in many developed countries and associated with FDI, de-localisations and off-shoring. However, even when a partial loss of jobs is apparent, it does not seem predominant if compared with other adjustments, such as technical progress, international trade, migration flows, etc. Some indirect effects, e.g. ones related to the bargaining power of firms and trade unions, have also been investigated (see Rodrik, 1999). Also in this case, studies on regional economies are quite rare.[3] A general result[4] is that FDI flowing into developing and emerging countries, which are generally of a "vertical" and labour-saving type, may cause some "crowding out" of domestic workers in the origin countries; FDI targeted on developed economies, instead, is generally "horizontal" and market-seeking in its aim, and produces positive or null effects on the domestic country. In more recent studies, there has been a shift of attention to qualitative and composition effects.[5]Indeed, an increase in employment in outward FDI countries is sometimes found among skilled or white-collar workers in the most qualified areas: management, supervision and co-ordination, marketing, R&D, etc.

In Europe, an extensive investigation of the effects of FDI on labour markets has been conducted – using mainly micro (firm) and sector-level databases – by a large research group coordinated by Barba Navaretti (e.g., European Commission, 2007). As regards the impact on the home country, the group finds a relationship of complementarity and not of substitution between foreign and domestic activities of MNEs: i.e., employment in the home country is not negatively

[3]An exception is Marelli (2006), who not only analyses the impact of globalisation adjustments on the regional labour markets, but further investigates the joint effects of foreign trade, FDI and de-localisations, and migration flows.

[4]Brainard (1997) showed that substitution between parent and affiliate employment in response to wage cost differentials is more likely when proximity to the final market is important; furthermore, such substitution effects are more likely when initial factor endowments are similar across locations.

[5]See, for example, Slaughter (2000) in the US case and Mariotti et al. (2003) in that of Italy.

affected by FDI decisions (this result is obtained by controlling with similar firms not investing abroad). Moreover, the fragmentation of production and vertical investments are confirmed as being very important, but the study finds little evidence that these investments have detrimental effects on home employment.

As for the impact of inward FDI, this has been examined by numerous studies, although the investigations on the labour market effects are not systematic. Some research has concentrated on specific economies and, to a lesser extent, on groups of countries, with a predominant focus on wage dynamics and inequalities, often related to labour and overall productivity changes, including spillover effects; less frequently, the impact on employment has been analysed. In addition, the latter investigations have often been conducted using either micro-data or national-level data, while regional (sub-national) studies have been extremely rare.

It should first be noted that a positive effect of FDI on the economic growth of host economies has been generally found. It operates especially through better productivity dynamics, which involve spillover effects to domestic firms.[6] Thus, considering the empirical literature on Okun's Law and the prevailing evidence on a medium-long run positive relationship between productivity and employment,[7] a first indirect channel of the FDI impact on aggregate employment passes through the effects on productivity and GDP dynamics.[8] The size of the growth effect has been attributed to several factors, including so-called "absorptive capacity" (e.g., Borensztein et al., 1998; De Mello, 1999).

As to research on the labour market impact, many studies have investigated the effects of FDI on the wage levels in the host country (e.g., Aitken et al., 1996; Budd et al., 2005) and generally found that foreign-owned firms tend to pay, for several reasons, higher wages than do indigenous firms.

Another distinction drawn in the literature is between FDI directed to developing or developed economies. Lipsey (2004) is an example of the former line of inquiry. He investigated – for the case of US firms – how and through which channels FDI inflows affect employment, wages, and labour productivity in developing countries. As for the literature on FDI directed to developed countries, Driffield and Taylor (2000) demonstrated – for the case of UK firms – that one effect of

[6]See e.g. Young et al. (1994), Pavlínek (2004), Mullen and Martin (2005). Only in a few particular cases has a crowding-out effect of domestic activities been determined in the empirical literature; see also Driffield and Hughes (2003).

[7]However, as shown in Marelli and Signorelli (2010a), there may be a short-run trade-off between productivity and employment. Moreover, some studies in the FDI literature find that – in some cases – employment declines after domestic firms have been acquired by foreign ones (in order to increase productivity, efficiency and profit rate).

[8]Higher productivity growth is also a key condition for better wage dynamics.

FDI is an increase in wage inequality and the use of relatively more skilled labour in the domestic firms, without significant positive effects in reducing structural (low skilled) regional unemployment.

In Europe, some interesting results on the impact on the host country have been obtained by the Barba Navaretti group (already mentioned). The main results are the following: (i) overall, foreign-owned firms are more productive than domestic counterparts, however it is not entirely clear if this is due to the fact that multinationals acquire the most productive domestic firms; (ii) foreign firms are shown to adjust rapidly to any shock affecting labour demand, but less rapidly than national firms, possibly because they employ a larger share of skilled workers; (iii) as regards the spillover effects of inward FDI, it is found that FDI plays an important role in strengthening the domestic economy of the European countries analysed (positive spillovers are generally larger in R&D intensive industries and when the technological distance between local and foreign firms is relatively small). Finally, this research group has found that, in an uncertain business climate, multinational enterprises take account of future exit costs when deciding where to locate a branch plant. Both the theoretical analysis and the empirical evidence support the view that flexible labour markets suit MNEs better, while rigid regulations are likely to discourage their investments.

Another large set of studies have investigated the role of FDI in the complex process of transition that occurred in Central and Eastern European countries after the fall of the Berlin Wall.[9] Konings (2004) used company data for the period 1995-2000 to study the employment effects of FDI in home and host countries in Europe, finding that, despite high wage cost differentials between East and West in Europe, relocation of employment did not take place; in other words, labour productivity differences compensated for the wage differences, and the employment relocation mainly took place between subsidiaries within Western Europe rather than from the Western countries to NMS.

Hunya and Geishecker (2005) analysed the development of the number of manufacturing jobs in the framework of economic transformation and industrial restructuring in Central and Eastern Europe (CEE). Their key findings, concerning the first decade of transition, are the following: (i) domestically-owned manufacturing companies reduced the number of employees while foreign-owned enterprises expanded that number; (ii) job losses due to FDI resulted from the restructuring of privatized state-owned companies; (iii) a reduction of employment also resulted from foreign companies cutting domestic supplier linkages after taking over state-owned

[9]As regards the more general studies focusing on transition features and labour market outcomes, see for example Blanchard (1997) and Marelli and Signorelli (2010b).

enterprises; (iv) foreign affiliates recorded higher labour productivity together with better capital endowment, and they used more up-to-date technology than domestic companies: as a result, they tended to improve the performance of the host economy as a whole; (v) ownership-specific differences in productivity were clearly reflected in relative wages: young skilled workers employed in foreign enterprises had higher wages relative to both their unskilled and skilled older colleagues and also relative to their counterparts in domestic firms; (vi) FDI in non-manufacturing sectors tended to be of horizontal type (i.e. seeking to expand product sales), while this was less the case in manufacturing (where vertical FDI, searching for lower wages, was more important).

An original outcome, contrary to the common view, has been reported by Lankes and Venables (1996), who pointed out that the main reason why firms invested in CEE countries was market expansion rather than the availability of cheap labour. Marin (2006) investigated outsourcing and off-shoring to Eastern Europe from the perspective of the new international division of labour. Muendler and Becker (2010) presented a model of multinational labour demand applied to German MNEs investing in Eastern Europe. Some other analyses on the employment impact of FDI in CEE countries[10] have been performed by Braconier and Eckholm (2001), Radosevic et al. (2003) and Mickiewicz et al. (2000). This last found evidence that FDI in the restructuring of the CEE economies contributes to employment generation and serves as an important barrier to negative employment shocks; it can operate, however, only as a complement to domestically generated employment, rather than as a substitute for it. Perugini et al. (2008) analysed the complex relationship among FDI, R&D and human capital in EU-27 countries, but highlighting the peculiarities of CEE economies.

While many studies have been devoted to the regional and spatial analysis of labour markets (e.g. Fischer and Nijkamp, 1987; Huber, 2007), to our knowledge there are no studies focusing on the relationship between FDI and regional employment for the whole EU-27 context. There are few studies that investigate the impact on particular regions or on local labour markets in individual countries. For example, Dinga and Munich (2010) investigated the impact of territorially concentrated FDI on local labour markets in the Czech Republic and found a positive impact of the investment on the local short-run unemployment outflow rate; however, the impact on long-term unemployment proved negligible. Fazekas (2005) analysed the impact on the regional labour markets of Hungary, finding that FDI contributed to exacerbating the core/periphery division that characterized local labour markets in Hungary during the transition phase.

[10]A different issue concerns the determinants of the location of foreign firms within the CEE countries: see for example Pusterla and Resmini (2007). The sectorial dimension has been investigated as well (Resmini, 2000).

In this paper, we try to fill this gap by analysing, in a comprehensive way and on a comparative base, the impact of inward FDI on the employment rates of *all* EU regions.

3. The empirical strategy

3.1 Data and Methodology

Our empirical analysis makes use of a unique database, FDIRegio, which contains data on foreign affiliates established in all NUTS2 European regions during three different periods of time, namely 1997-99, 2001-2003 and 2005-2007.[11] These data are taken from the Amadeus database of Bureau Van Dijk, which consists of the company accounts of 11 million firms in all the European countries. Following the international standards (OECD, 2008), data in the FDIRegio database have been aggregated at regional level when the percentage of assets owned by non-residents is at least 10 percent.

Our measure of FDI is the number of foreign affiliates in each EU region, since the monetary value of regional FDI inflows is not available, at least for all EU countries. Needless to say, this proxy has some disadvantages. Firstly, it does not allow us to distinguish between the sizes of firms; therefore, a big corporation with thousands of employees has the same weight as a small firm with hundreds or even fewer employees. Secondly, we are not able to consider either sequential FDI or cumulated flows of FDI. Hence, we assume that the monetary value of FDI flows increases with the number of foreign affiliates.[12] Despite these disadvantages, which imply that the impact of FDI cannot be precisely estimated, the data that we use in this paper also offer a number of advantages, the most important of which is the possibility of directly observing the distribution of FDI across all EU regions. Therefore, we do not need to estimate regional FDI flows from national data.[13]

Table 1 presents a breakdown of newly-created foreign firms per million of inhabitants by sector and region. The distribution of foreign firms is quite heterogeneous at both sectoral and geographical level. Northern regions received on average about 75 foreign firms per million of inhabitants, while Southern regions collected a much lower number of FDI (about 13). On the other hand, Services top the list of economic sectors in terms of foreign firms per million of inhabitants

[11] We use a 3-year average rather than annual figures between 1997 and 2007 in order to mitigate the short-term fluctuations that usually characterize FDI flows.

[12] Previous studies using the same or similar datasets have demonstrated that this hypothesis holds at country level. See Capello et al. (2011) and Pusterla and Resmini (2007). The lack of disaggregated data on monetary flows of FDI at regional level prevents us from testing the validity of this hypothesis at regional level as well.

[13] Also this strategy would have implied arbitrary assumptions on how to distribute FDI flows over regions belonging to the same country. Regardless of the criterion chosen, the underlying assumption would have been the irrelevance of region-specific effects in attracting FDI, a hypothesis not supported by the theory (Dunning, 2009; Cantwell, 2010).

(with about 105), while agriculture ranks last with only one firm per million of inhabitants. Within the service sectors, financial services and distribution rank highest with respectively 51 and 54 firms per million of inhabitants. Finally, the industry allocation of foreign firms across groups of regions is not homogenous. Although the services sectors dominate almost everywhere, foreign firms in financial intermediation and other services concentrate in Northern regions (with respectively about 119 and 24 firms per million of inhabitants), while distribution activities peak in CEE regions, with an average of 106 foreign firms per million of inhabitants. Generally speaking, the distribution of foreign firms is less dispersed in agriculture, construction, and industry than in the services sectors, and in Western and Southern regions, as indicated by the respective ranges.[14]

The present study evaluates the impact of FDI inflows on employment rates in the respective industries and regions in the sample.[15] The employment data come from Eurostat regional statistics, and they record the number of employees in each sector and region normalized by population.

Table 1. FDI flows by industry and region: descriptive statistics (N. of firms per millionof inhabitants, 1997-2007)

	CEE regions	Northern regions	Western regions	Southern regions	all EU regions
Agriculture					
Mean	4.24	3.68	1.27	1.41	2.64
st.dev	5.51	3.61	1.26	1.72	3.6
Construction					
mean	11.48	10.62	4.79	3.05	7.33
st.dev	37.72	12.45	6.16	4.22	18.69
Industry					
mean	48.46	58.74	27.57	16.75	36.08
st.dev	105.01	64.25	24.12	19.20	60.47
Services					
mean	137.95	195.92	84.55	22.66	104.97
st.dev	584.82	503.09	143.59	38.57	360.4
Distribution					
mean	106.40	61.52	45.04	16.48	54.45
st.dev	448.45	105.21	77.94	27.78	210.5
Financial Services					
mean	36.67	118.77	38.60	7.19	51.57
st.dev	154.70	355.45	69.12	12.15	193.05

[14]We remind the reader that the range is the difference between the maximum and minimum values observed in the data. It is the simplest and most immediate measure of dispersion, though it is affected by the presence of outliers.

[15]The dataset covers 269 NUTS2 regions belonging to 25 EU member states. The Baltic Republics and Luxembourg have been considered at country level, while Malta and Cyprus are not included in the dataset because of the lack of data on foreign firms.

Other Services					
mean	8.60	23.75	4.84	1.73	9.81
st.dev	26.09	57.28	6.11	1.95	32.17
Allsectors					
mean	60.72	75.32	35.52	12.85	45.29
st.dev	322.48	261.29	79.94	24.64	197.1

Source: Own calculation from FDIRegio.

Besides FDI, in the empirical exercise we control for other factors expected to affect local employment rates. In particular, we consider fixed investments, proxied by gross real fixed capital formation, and real value added at regional and sectorial level, which we consider as a proxy for fluctuations in industry demand at local level.[16] Following Axarloglou and Pournarakis (2007), we take the deviation of the regional-industry gross value added from the aggregate gross value added as the control variable. Needless to say, both variables enter the regression with a positive sign. We also include the average wage in each sector and region, proxied by the compensation per employee, as well as a dummy variable that identifies those regions with one or more Metropolitan European Growing Areas (MEGAs) in order to control for specific effects due to differences in regions' structural characteristics.[17] We expect that wage enters negatively in the regression, while we have no prior for the MEGAs dummy since it may depend on whether patterns of growth in those regions are determined by increases in labour productivity or in employment.

We are aware that this specification may not capture some national specificities, like institutions and laws in the labour market. However, our objective is to understand whether and to what extent attracting foreign firms may help regions improve employment conditions, *ceteris paribus*. In order to reduce the bias of the possible omission of institutional variables, we add to the regression equation some dummy variables controlling for groups of countries that share similar labour market features and institutions because of cultural or social similarities. In particular, we consider four groups of regions: (i) Northern regions, which include regions belonging to the Scandinavian countries and Denmark (i.e. the countries most representative of the "flexicurity model"), as well as Ireland and the United Kingdom;[18] (ii) Southern regions, which encompass Italian, Spanish, Portuguese and Greek regions; (iii) Western regions, which include regions

[16]Details on the variables included in the regression analysis and sources of data are reported in the statistical annex.

[17] MEGAS are selected according to several indicators, among which population, accessibility, manufacturing specialization, and headquarters of top European corporations. Regions hosting MEGAS are 66 over 269.

[18]We initially considered Ireland and the United Kingdom as a separate group, in order to take into consideration their peculiarities in terms of structural characteristics of labour markets, which are considered to be much more flexible compared with those of the other countries in this group. However, the insignificance of the estimation results due to a severe loss of degrees of freedom because of a consistent drop in the number of observations, suggested the inclusion of both countries in the group of Northern regions.

belonging to France, Germany, Belgium, Luxembourg, the Netherlands and Austria; and (iv) Central and Eastern European regions, which comprise regions belonging to the 10 new EU member states of Central and Eastern Europe (CEE).

Accordingly, eq. (1) models the determinants of the employment rate in each region *r*, sector *s* and time *t* as a function of the regional value added de-trended by national effects (CYCLE), the level of local investments by sector of activity (INV), the number of foreign affiliates per million of inhabitants (FDI), the compensation per employee (WAGE), regions' settlement structure (MEGAs), as well as a group-country dummies to capture unobserved institutional, social and cultural differences (REGIO) across countries:

$$EMPL_{rst} = \alpha_0 + \beta_1 CYCLE_{rst} + \beta_2 INV_{rst} + \beta_3 FDI_{rst} + \beta_4 WAGE_{rst} + \beta_5 MEGAs_r + \beta_6 REGIO_k + \varepsilon_{rst} \quad (1)$$

whereε is the error term, which shows the usual properties.

The data used are a three-dimensional (unbalanced) panel across regions (*r*), industries (*s*) and time (*t*). Since eq. (1) already includes geographical fixed-effects – the REGIO dummy variable – data are pooled across regions, while industry and time dummy variables are included to account for possible unobserved heterogeneity across industries and unobserved aggregate shocks common to all regions and sectors. All variables are in logs; therefore, the estimated coefficients can be interpreted as elasticities.

3.2 Econometric issues

Eq. (1) is estimated by Least Square Dummy Variable (LSDV) techniques, which allow exploiting the three dimensions of the panel simultaneously, without renouncing to the inclusion of any time-invariant effects at regional and sector level (Wooldridge, 2012).[19]This strategy allows us to capture easily any effects due to potential spatial and sector heterogeneity. Moreover, spatial fixed effects, though aggregated as those included in eq. (1), can help in removing spatial autocorrelation as suggested by several empirical papers (Blonigen et al, 2007; Garretsen and Peeters, 2009).

It may also appear that spatial dependence occurs. This implies that regional employment rates may not be independent one from another. This may reflect commuting, i.e. people living in one place and working in another, or migration if people try to find a job in another region when job prospects in their own regions become less promising. Despite that, it is realistic to assume that in the EU – a part from evident language barriers – there are still administrative barriers to free mobility, such as a less-than-full transferability of qualifications and labour market experience,

[19]Random effect techniques would help on this respect, but their use is not appropriate since we are considering all EU regions (Elhorst, 2003).

which limit cross-country migration within the EU, or that people is not willing to move and work in a region different from that of origin, even if the region is close by.Indeed, a recent OECD study found that in 2011 only 0.2% of Europeans had moved in another state to find a job (Jauer et al., 2014).Therefore, it seems reasonable to us to assume the independence of regional labour markets across Europe.

Needless to say, cross-regional migration or commuting may also occur and be more frequent within country rather than across country. Generally speaking, the size of these flows depends on several factors, such as economic conditions, social and cultural specificities, as well as labour market regulation and institutions. Since the *REGIO* dummy variable already captures these features, the inclusion of specific country-dummies is not advisable since it would create multicollinearity problems.[20]

Finally, spatial dependence among the observations may also arise through exogenous variables. In our case, this may occur through the FDI variable, given that only the local component of both capital accumulation and value added enter the regression equation.

Apart from hiring workers locally, foreign firms may also search for new employees in neighbouring regions. Therefore, regions attracting a large amount FDI may need labour from neighbouring regions, thus exerting negative effects on their labour markets. Moreover, indirect effects may cross administrative borders because of input output linkages among foreign firms or between foreign and indigenous firms located in different regions.

In order to capture the potential FDI-induced effects on employment across regions, we include among the explanatory variables the following one:

$$WFDI_{rst} = \sum_{j \neq r} \frac{FDI_{jst} / POP_{jt}}{d_{rj}} \quad \forall j \neq r \tag{2}$$

Eq. (2) measures the potential impact on region *r*'s labour market of foreign firms located in all other EU regions. Of course, the magnitude of these effects is inversely correlated with the distance between regions: the higher the distance, the lower is the probability that foreign firms may influence local labour markets, both directly and indirectly. Eq. (3) summarises the log-linear approximation of our empirical specification:

$$\begin{aligned} EMPL_{rst} = {} & \alpha_0 + \beta_1 CYCLE_{rst} + \beta_2 INV_{rst} + \beta_3 FDI_{rst} + \beta_4 WAGE_{rst} + \\ & \beta_5 MEGAs_r + \beta_6 WFDI_{rst} + \beta_7 REGIO_k + \varepsilon_{rst} \end{aligned} \tag{3}$$

[20]Moreover, it has been already recognized in the literature than when researching administratively defined regions, as we did in this study, the effects of commuting can be ignored (Elhorst, 2003; Fischer and Nijkamp, 1987).

As before, we also include time and sector fixed effects and let the coefficients of the same and other region FDI variables vary across sectors and groups of countries.

4. The Results

We start evaluation of the FDI impact on the local labour market with an analysis of overall employment. We then explore the existence of heterogeneity among groups of regions, sectors, and groups of regions and sectors. Finally, we address the contribution of foreign firms located in neighbouring regions on employment rates, again exploring possible heterogeneity among regions and sectors.

4.1 The impact of FDI on employment

Table 2 reports the estimated coefficients of eq. (1) for all EU regions. As for FDI inflows – the variable of most interest to us – our findings indicate that when all industries and regions are pooled, the larger the number of foreign firms per million of inhabitants set up in a region, the higher the employment rate, *ceteris paribus*. These positive effects are rather weak, however, although they are constant over different specifications; on average, a one percent increase in the FDI variable is able to generate a 0.07 increase in the employment rate variable.

Table 2. The impact of FDI on local employment

	(1)		(2)		(3)	
	coeff.	sig.	coeff.	sig.	coeff.	sig.
FDI	0.074	***	0.080	***	0.058	***
	(0.011)		(0.011)		(0.010)	
INV	0.306	***	0.303	***	0.269	***
	(0.014)		(0.014)		(0.016)	
CYCLE	0.031	*	0.031	*	0.030	**
	(0.017)		(0.017)		(0.013)	
Wage	-0.071	**	-0.069	**	-0.447	***
	(0.031)		(0.031)		(0.036)	
Megas	-0.382	***	-0.384	***	-0.256	***
	(0.039)		(0.039)		(0.028)	
Regio	$F_{(3,2340)}$=10.41	***	$F_{(3,2338)}$=9.70	***	$F_{(3,2333)}$=36.15	***
yeardummies	-		$F_{(2,2338)}$=3.62	**	$F_{(2,2333)}$=11.96	***
sectordummies	-				$F_{(5,2333)}$=739.50	***
constant	-3.977	***	-3.912	***	-1.611	***
	(0.245)		(0.247)		(0.263)	
n.obs.	2349		2349		2349	
R-squared	0.30		0.67		0.71	

***, **, * indicate significance at 1, 5 and 10 percent, respectively. Robust standard errors in parenthesis.

Not surprisingly, the other explanatory variables are significant at the conventional levels and have the expected signs. Local employment is therefore driven by high investments from local firms, high local demand, and low wages. The settlement structure (MEGAS) variable enters with a negative sign, indicating that, *ceteris paribus*, employment rates in metropolitan European growing areas are lower than the employment rates in other regions. Country-group dummies are statistically significant at the conventional level. This indicates that the level of employment is, as expected, conditioned by national institutions and labour market regulations.[21] These effects are constant across all specifications, and do not seem to be affected by time or sector specific effects.

These findings are averages across different industries and groups of regions where, however, specific employment patterns may emerge, as suggested by previous similar studies (Axarloglou et al. 2006; Axarloglou and Pournarakis, 2007). In order to understand whether and to what extent these specificities may affect the impact of FDI on local employment, we re-estimate eq. (1) by allowing the coefficient of the FDI variable to vary across sectors and groups of countries. The main results are shown in Table 3.

Table 3. The impact of FDI on employment: sector and country specificities

	(1)			(2)		
	coeff.	std. Err.	sig.	coeff.	std. Err.	sig.
FDI	0.005	(0.014)		0.199	(0.067)	***
INV	0.262	(0.016)	***	0.254	(0.015)	***
CYCLE	0.029	(0.013)	**	0.016	(0.012)	
Wage	-0.450	(0.034)	***	-0.419	(0.035)	***
Megas	-0.261	(0.027)	***	-0.214	(0.025)	***
FDI*North	0.071	(0.023)	***	-		
FDI*West	0.145	(0.017)	***	-		
FDI*South	0.018	(0.019)		-		
FDI*construction	-			-0.254	(0.062)	***
FDI*distribution	-			-0.158	(0.060)	***
FDI*financialintermediation	-			-0.020	(0.061)	
FDI*industry	-			-0.092	(0.060)	
FDI*otherservices	-			-0.198	(0.060)	***
FDI*services	-			-0.142	(0.059)	**
REGIO	$F_{(3,2330)}$=28.84		***	$F_{(3,2720)}$=39.52		***
yeardummies	$F_{(2,2330)}$=20.10		***	$F_{(2,2720)}$=15.30		***
sectordummies	$F_{(5,2330)}$=747.50		***	$F_{(5,2720)}$=405.78		***

[21]Alternatively, we included into the regression analysis an index of restrictiveness of the employment protection legislation (EPL) at country level. We obtained quite similar results; therefore, we decided to use group-country dummies since this strategy allows us to consider all EU countries. Data on EPL restrictiveness come from OECD and do not cover all EU countries.

n.obs.	2349	2743
R-squared	0.72	0.81

Benchmark case: EU10 in specification (1) and agriculture and fishing in specification (2).
***, **, * indicate significance at 1, 5 and 10 percent, respectively. Robust standard errors in parenthesis

With respect to the traditional determinants of employment rates, the results are quite similar to those presented in Table 2. In the case of the FDI variable, instead, there are significant differences across both industry and country groups. In particular, at geographical level we found that foreign firms, on average, made a positive contribution to employment in Western and Northern European regions, while they did not seem able to affect employment rates in Eastern and Southern European regions (column 1). From the sectorial perspective, FDI is employment-expanding in all sectors, with the sole exception of the construction industry, where foreign firms tend to reduce employment rates (column 2). The magnitude of the benefits that a local economy receives also varies across regions and sectors. Western regions benefit from the largest effects, while at sectorial level FDI-induced employment effects are more intense in agriculture and fishing – an unskilled labour intensive sector – and relatively small in magnitude in the other services sectors, a composite and residual branch comprising several types of services ranging from public administration to community services and household activities. Generally speaking, negative effects on employment may be explained by the fact that foreign firms are more productive than local ones because they use more advanced technologies, thereby reducing employment, at least in the short run. Moreover, they may indicate that foreign firms crowd out indigenous ones, and that the negative effects on employment of the latter more than offset the potential positive effects generated by foreign firms.

In order to highlight local specificities better, we cross the sector with the geographic dimension. In so doing, we uncover interesting patterns, as Table 4 shows. In particular, we observe a clear divide between CEE and Southern regions, on the one hand, and Northern and Western regions on the other. While employment rates in the former have benefited only marginally from the presence of foreign firms, the impact of FDI in Northern and Western European regions has been more systematic, intense and, most interestingly, almost always employment expanding. Whilst the mixed performance of CEE regions in terms of FDI employment effects may reflect the negative effects on employment of the privatisation programmes which characterised the early phases of the transition process, as well as the net prevalence of short-term effects, the unsuccessful performance of Southern regions may be due to the fact that they received a number of foreign firms insufficient to generate a noticeable impact on local employment.

Some specificity may also be detected at sectorial level. We refer here to the fact that FDI in agriculture proved to be employment-expanding only in Eastern and Southern regions, while FDI in services, and mainly in other services and financial intermediation, is employment-expanding only in Northern and Western regions. FDI in industry is employment-creating in all European regions except Southern ones, while FDI in the construction and distribution sectors exerts positive effects on employment rates in Western regions and negative effects in CEE regions.

Overall these findings suggest that FDI is employment-expanding in unskilled labour intensive sectors in Southern and Eastern European regions and in high value added sectors and skilled labour intensive industries in Northern and Western regions. Thus, foreign firms seem to increase further, rather than reduce, the divide between the EU core and the periphery.

Table 4. The interplay between sector and region specificities

	EU10		North		West		South	
	coeff.	sig.	coeff.	sig.	coeff.	sig.	coeff.	sig.
Agriculture	0.339	***	-0.142		-0.315	***	0.266	**
	(0.077)		(0.090)		(0.103)		(0.129)	
Construction	-0.206	***	-0.012		0.089	***	0.059	
	(0.033)		(0.064)		(0.024)		(0.041)	
Distribution	-0.029	*	0.021		0.090	***	0.027	
	(0.017)		(0.022)		(0.014)		(0.018)	
Financial interm.	0.038		0.207	***	0.233	***	0.079	**
	(0.037)		(0.030)		(0.017)		(0.037)	
Industry	0.085	***	0.055	**	0.147	***	0.020	
	(0.017)		(0.024)		(0.021)		(0.023)	
Otherservices	-0.116	***	0.079	*	0.111	***	-0.172	***
	(0.034)		(0.046)		(0.022)		(0.040)	
Services	-0.018		0.081	***	0.088	***	0.005	
	(0.016)		(0.021)		(0.012)		(0.015)	
n.obs.	2743							
R-squared (adj.)	0.83							

For sake of simplicity this table reports the estimated coefficients of the FDI variable interacted with sector and country group dummy variables only. Results concerning other explanatory variables are the following: INV 0.233 (0.016)***; cycle 0.030 (0.013)**; wage -0.368 (0.034)***; megas -0.225 (0.025)***, year dummies: $F_{(2,2699)}$=24.03***; sector dummies: $F_{(5,2699)}$=391.43***; REGIO: $F_{(3,2699)}$=21.26***.
***, **, * indicate significance at 1, 5 and 10 percent, respectively.
Robust standard errors in parenthesis.

4.2 The indirect impact of FDI on local employment rates

Although the results presented in Table 4 are informative, they may not tell the whole story of the relationship between FDI and local employment since they do not consider potential effects

generated by foreign firms located in other regions. Table 5 reports the estimated coefficients of eq. (3).

Table 5. The impact on employment of FDI located in other regions

	(1)			(2)			(3)		
	coeff.	st.err.	sig.	coeff.	st.err.	sig.	coeff.	st.err.	sig.
FDI	0.063	(0.011)	***	0.049	(0.017)	**	0.150	(0.061)	**
INV	0.269	(0.016)	***	0.254	(0.016)	***	0.254	(0.015)	***
CYCLE	0.029	(0.014)	**	0.038	(0.014)	***	0.016	(0.013)	
Wage	-0.453	(0.036)	***	-0.433	(0.033)	***	-0.424	(0.036)	***
Megas	-0.261	(0.029)	***	-0.258	(0.028)	***	-0.227	(0.027)	***
WFDI	-0.022	(0.022)		-0.082	(0.027)	***	0.022	(0.040)	
FDI*North				0.029	(0.029)		-		
FDI*West				0.057	(0.015)	***	-		
FDI*South				0.055	(0.017)	***	-		
FDI*construction				-			-0.065	(0.024)	***
FDI*distribution				-			0.031	(0.014)	**
FDI*financialint.				-			0.175	(0.022)	***
FDI*industry				-			0.098	(0.020)	***
FDI*otherservices				-			-0.025	(0.018)	
FDI*services				-			0.044	(0.012)	***
WFDI*North				0.025	(0.028)		-		
WFDI*West				0.064	(0.023)	***	-		
WFDI*South				-0.071	(0.025)	***	-		
WFDI*construction				-			-0.037	(0.032)	
WFDI*distribution				-			-0.052	(0.032)	
WFDI*financialint.				-			-0.064	(0.033)	**
WFDI*industry				-			0.064	(0.041)	
WFDI*otherservices				-			-0.003	(0.019)	
WFDI*services				-			-0.047	(0.031)	
REGIO	$F_{(3,2332)}$=36.41		***	$F_{(3,2326)}$=24.84		***	$F_{(3,2713)}$=39.12		***
yeardummies	$F_{(2,2332)}$=12.18		***	$F_{(2,2326)}$=17.11		***	$F_{(2,2713)}$=17.03		***
sectordummies	$F_{(5,2332)}$=741.39		***	$F_{(5,2326)}$=756.42		***	$F_{(5,2713)}$=191.33		***
constant	-1.617	(0.264)	***	-1.537	(0.254)	***	-1.783	(0.259)	***
n.obs.	2349			2349			2743		
R-squared	0.71			0.73			0.71		

Benchmark case: EU10 in specification (2) and agriculture and fishing in specification (3).
***, **, * indicate significance at 1, 5 and 10 percent, respectively. Robust standard errors in parenthesis

Our findings indicate that FDI-induced effects on employment are localised, at least when all industries and regions are pooled (Table 5, column 1). The estimated coefficient of the FDI variable is still positive and significant, while that of the WFDI variable is negative, though not significant at the conventional level. When sector and region specificities are taken into account, the

interplay between direct and indirect effects within regions and across space becomes more apparent. In particular, specification (2) indicates that in Central and Eastern regions and in Southern regions the employment-expanding effects exerted by foreign firms localized in a specific region are more than off-set by the negative effects generated by foreign firms in neighbouring regions, while in Western and Northern regions the potential employment-expanding effect generated by foreign firms is weakened by foreign firms located in neighbouring regions. These effects seem to be driven by foreign firms operating in financial intermediation, as indicated by the sign and the significance of the coefficients reported in column (3).

Overall, our findings indicate that considering cross-regional effects yields a better and more comprehensive understanding of the potential net effects of FDI on local employment rates.

5. Final Remarks

This paper has investigated the impact of FDI inflows on the EU regions receiving them. It appears that FDI inflows have positive but small effects on local employment, and that these effects are conditioned by the sectorial specificities and by the structural characteristics of labour markets, which vary considerably across EU regions. Overall, FDI inflows prove to be employment-expanding – though with different magnitudes – in all economic sectors, with the exception of the construction industry. Positive effects on employment have been detected, on average, in Northern and Western EU regions, but not in CEE and Southern regions. When crossing the geographical and the sectorial dimensions, a more variegated picture emerges, with contrasting results across sectors in different groups of countries. In particular, we found that FDI inflows are employment-expanding in unskilled labour intensive sectors in CEE and Southern regions, and in value added services sectors, such as financial intermediation, in North-Western European regions. Finally, our findings confirm that FDI-induced effects are localised, with few exceptions. Cross-region effects occur in the presence of foreign firms operating in financial intermediation, i.e. in a sector characterised by a labour force more skilled and more mobile than in traditional manufacturing sectors.

These findings may reflect the fact that Southern European regions are the worst performers in Europe in terms of FDI attraction (Capello et al., 2011), thus suggesting the existence of a possible threshold level in the presence of FDI before some positive effects arise.

Such different responses may also depend on the dominance of short-term effects – whereby some crowding out of local activities is possible and the higher productivity of foreign firms (due to more advanced technologies and organisational methods) is likely temporarily to reduce

employment – compared with long-run effects, for which the more dynamic setting and the positive spillovers to domestic firms produce favourable consequences on employment. The different reactions depend also on the institutional frameworks, since more flexible labour markets can adjust more rapidly to labour demand shocks.

Although highly informative, our findings should be treated with caution. Firstly, we are aware that our proxy for FDI has some disadvantages that may affect the magnitude of the results, although it is one of the very few FDI indicators available at the regional level that allows direct observation of the distribution of FDI across EU regions. Secondly, our dependent variable includes data from both domestic and foreign firms. Thus, the lack of effects on local employment in specific sectors or regions may be due to the fact that positive effects from foreign firms may be off-set by negative effects from domestic firms, which arise because of the competition of foreign firms. Finally, still to be determined is whether the benefits arising from a foreign investment project accrue equally to all employees, or whether they areto the advantage of one group only, i.e. skilled vs. unskilled labour force.

It is important to gain understanding of the potential negative effects of FDI on labour markets for future policy analysis. Not only should governments adopt suitable policy measures to attract FDI, but they should also be aware of the different effects across sectors. *Which* firms enter is at least as important as *how many*, as well as the changing impact over time, in order to implement adequate adjustment policies and help the initially damaged workers.

References

Aitken, B., Harrison, A. and Lipsey, R.E. (1996), "Wages and Foreign Ownership: a Comparative Study of Mexico, Venezuela, and the United States", Journal of International Economics, Vol. 40, No. 3, pp. 345-371.

Axarloglou, K., Casey, W. and Han, H. (2006)."Inward Foreign Direct Investments in the US: an Empirical Analysis of Their Impact on State Economies", Eastern Economic Journal, Vol. 37 No. 4, pp. 508-529.

Axarloglou, K. and Pournarakis, M. (2007), "Do All Foreign Direct Investment Inflows Benefit the Local Economy", The World Economy, Vol.30, No. 3, pp. 424-445.

Barba Navaretti, G. and Venables, A.J. (2004), Multinational Firms in the World Economy, Princeton University Press, Princeton.

Blanchard, O. (1997), The Economics of Post-Communist Transition, Clarendon Lectures in Economics, Clarendon Press, Gloucestershire, UK.

Blomström, M., Fors, G. and Lipsey, R.E. (1997), "Foreign Direct Investment and Employment: Home Country Experience in the United States and Sweden", Economic Journal, Vol. 107, No. 445, pp. 1787-1797.

Blonigen, B.A., Davis, R.B., Naughton, H.T. and Waddell, G.R. (2007), "FDI in Space: Spatial Autoregressive Relationships in Foreign Direct Investment", European Economic Review, Vol. 51, No. 5, pp. 1303-1325.

Blomstrom, M. and Kokko, A. (1998), "Multinational Corporations and Spillovers", Journal of Economic Surveys, Vol. 12, No. 2, pp. 247-277.

Borensztein, E., Gregorio, J.D. and Lee, J.W. (1998), "How does foreign direct investment affect economic growth?", Journal of International Economics, Vol. 45, No. 1, pp. 115-135.

Braconier, H. and Eckholm, K. (2001), Foreign Direct Investment in Central and Eastern Europe: Employment Effects in the EU, CEPR Discussion Paper No. 3052.

Brainard, S.L. (1997), "An Empirical Assessment of the Proximity-Concentration Trade-Off between Multinational Sales and Trade", The American Economic Review, Vol. 87, No. 4, pp. 520-544.

Budd, J.W., Konings, J. and Slaughter, M.J. (2005), "Wages and International Rent Sharing in Multinational Firms", The Review of Economics and Statistics, Vol.87, No. 1, pp. 73-84.

Cantwell, J. (2009), "Location and the Multinational Enterprise", Journal of International Business Studies, Vol. 40, No. 1, pp. 35-41.

Capello, R., Fratesi, U. and Resmini, L. (2011), Globalization and Regional growth. Past Trends and Future Scenarios, Springer-Verlag, Heidelberg.

Carr, D.L., Markusen, J.R., and Maskus, K.E. (2001), "Estimating the Knowledge-Capital Model of the Multinational Enterprise", American Economic Review, Vol. 91, No. 3, pp. 693–708.

Crespo, N. and Fontoura, M.P. (2007),"Determinant factors of FDI spillovers—What do we really know?", World Development, Vol. 35, No. 3, pp. 410–425.

Crinò, R. (2009), "Offshoring, Multinationals and Labour Market: A Review of the Empirical Literature", Journal of Economic Surveys, Vol. 23, No. 2, pp. 197–249.

Davis, S., Haltiwanger, C. and Schuh, S. (1996), Job Creation and Destruction, MIT Press, Cambridge MA, USA.

De Mello, L.R. (1999), "Foreign Direct Investment-led Growth: Evidence from Time Series and Panel Data", Oxford Economic Papers, Vol. 51, No. 1, pp. 131-151.

Dinga, M. and Munich, D. (2010), "The Impact of Territorially Concentrated FDI on Local Labor Markets: Evidence from Czech Republic", Labour Economics, Vol.17, No. 2, pp. 354-367.

Driffield, N. and Hughes, D. (2003), "Foreign and Domestic Investment: Regional Development or Crowding Out?", Regional Studies, Vol. 37, No. 3, pp. 277-288.

Driffield, N. and Taylor, K. (2000), "FDI and the Labour Market: A Review of the Evidence and Policy Implications", Oxford Review of Economic Policy, Vol. 16, No. 3, pp. 90-103.

Dunning, J. (2009), "Location and the Multinational Enterprise: A Neglected Factor?", Journal of International Business Studies, Vol. 40, pp. 5-19.

Elhorst, P. (2003), "The Mistery of Regional Unemployment Differentials: Theoretical and Empirical Explanations", Journal of Economic Survey, Vol. 17, No. 5, pp. 709-740.

European Commission (2007), "Labour Market Effects of European Foreign Investments", Final Report, coordinated by G. Barba Navaretti, EU Research on Social Sciences and Humanities, Brussels.

Fazekas, K. (2005), "Effects of FDI Inflow on Regional Labour Market Differences in Hungary", Économie Internationale, Vol. 102, pp. 83-105.

Feenstra, R.C. (2010), Offshoring in the Global Economy, Microeconomic Structure and Macroeconomic Implications, MIT Press, Cambridge.

Fischer, M. and Nijkamp, P. (eds.) (1987), Regional Labour Markets, Elsevier, Amsterdam.

Garretsen, H. and Peeters, J. (2009), "FDI and the Relevance of Spatial Linkages: Do Third-Country Effects matter for Dutch FDI?", Review of World Economy, Vol. 145, pp. 319-338.

Gorg, H. and Strobl, E. (2001), "Multinational Companies and Productivity Spillovers: A Meta-analysis", Economic Journal, Vol. 111, No. 475, pp. 723-39.

Huber, P. (2007), "Regional Labour Market Developments in Transition: A Survey of the Empirical Literature", The European Journal of Comparative Economics, Vol., No. 2, pp. 263-298.

Hunya, G. and Geishecker, I. (2005), "Employment Effects of Foreign Direct Investment in Central and Eastern Europe", WIIW Research Reportsn. 321.

Jauer, J., Liebig, T., Martin, J.P. and Puhani, P. (2014), "Migration as an Adjustment Mechanism in the Crisis? A Comparison of Europe and the United States", OECD Social, Employment and Migration Working Papers N° 155, OECD, Paris.

Konings, J. (2004), "The employment effects of foreign direct investment", EIB Papers, European Investment Bank, Vol. 9, No. 1, pp. 86-108.

Lankes, H.P. and Venables, A.J. (1996), "Foreign Direct Investment in Economic Transition: the Changing Pattern of Investments", Economics of Transition, Vol. 4, No. 2, pp. 331-347.

Lipsey, E.R (2004), The Labour Market Effects of US FDI in Developing Countries, ILO, Geneva.

Marelli, E. (2006), "Globalisation and Local LabourMarkets", Rivista Internazionale di Scienze Economiche e Commerciali, Vol. 53, No. 1, pp. 16-48.

Marelli, E. and Signorelli, M. (2010a), "Employment, Productivity and Models of Growth in the EU", International Journal of Manpower, Vol. 31, No. 7, pp. 732-754.

Marelli, E. and Signorelli, M. (eds.) (2010b), Economic Growth and Structural Features of Transition, Palgrave MacMillan, London and New York.

Marin, D. (2006), "A New International Division of Labor in Europe: Outsourcing and Offshoring to Eastern Europe", Journal of the European Economic Association, Vol. 4, No. 2-3, pp. 612-622.

Mariotti, S., Mutinelli, M. and Piscitello, L. (2003), "Home Country Employment and Foreign Direct Investment: Evidence from the Italian Case", Cambridge Journal of Economics, Vol. 27, No. 3, pp. 419-431.

Mickiewicz, T. and Bell, J. (2000), Unemployment in Transition. Restructuring and Labour Markets in Central Europe, Harwood Academic Publishers, Amsterdam.

Muendler, M.A. and Becker, S.O. (2010), "Margins of Multinational Labor Substitution", American Economic Review, Vol. 100, No. 5, pp. 1999-2030.

Mullen, J.K. and Martin, W. (2005), "Foreign Direct Investment and Regional Economic Performance", Kyklos, Vol. 58, No. 2, pp. 265–282.

Pavlínek, P. (2004), "Regional Development Implications of Foreign Direct Investment in Central Europe", European Urban and Regional Studies, Vol. 11, No. 1, pp. 47-70.

Perugini, C., Pompei, F. and Signorelli, M. (2008), "FDI, R&D and Human Capital in Central and Eastern European Countries", Post-Communist Economies, Vol. 20, No. 3, pp. 317–345.

Pflüger, M., Blien, U., Möller, J, and Moritz, M. (2010), "Labour Market Effects of Trade and FDI: Recent Advances and Research Gaps", IZA Discussion Paper n. 5385.

Pusterla, F. and Resmini, L. (2007), "Where do Foreign Firms Locate in Transition Countries? An Empirical Investigation", Annals of Regional Science, Vol. 41, No. 4, pp. 835-856.

Radosevic, S., Varblane, U. and Mickiewicz, T. (2003), "Foreign Direct Investment and Its Impact on Employment in Central Europe", Transnational Corporations, Vol. 12, No. 1, pp. 53-90.

Resmini, L. (2000). "The Determinants of Foreign Direct Investment in the CEECs: New Evidence from Sectoral Patterns", Economics of Transition, Vol. 8, No. 3, pp. 665-689.

Rodrik, D. (1999), "Globalization and Labour", in R. Baldwin et al. (eds.), Market integration, regionalism and the global economy, Cambridge University Press, Cambridge, pp. 117-50.

Slaughter, M.J. (2000), "Production Transfer within Multinational Enterprises and American Wages", Journal of International Economics, Vol. 50, No. 2, pp. 449-472.

Temouri, Y. and Driffield, N.L. (2009), "Does German Foreign Direct Investment Lead to Job Losses at Home?", Applied Economics Quarterly, Vol. 55, No. 3, pp. 243-263.

Wooldrige, J. (2010), Econometric Analysis of Cross Section and Panel Data, MIT Press, Cambridge MA.

Young, S., Hood, N. and Peters, E. (1994), "Multinational Enterprises and Regional Economic Development", Regional Studies, Vol. 28, No. 7, pp. 657-677.

Appendix

Table A1. Variable description and source of data

Name	Description	Source
EMPL	Employment by economic activity at NUTS level 2 per million inhabitants (Nace Rev. 1.1)	Eurostat
FDI	Number of foreign firms by economic activity at NUTS level 2 per million inhabitants (Nace Rev. 1.1.)	FDIRegio
INV	Gross fixed capital formation by economic activity at NUTS level 2 (millions of euros); it has been deflated by using gross fixed capital formation national price index	Eurostat
CYCLE	Gross value added by economic activity at NUTS level 2 de-trended by gross value added by economic activity at national level (millions of euros); GVA at regional and national level have been deflated by using national GDP deflators	Eurostat
WAGE	Compensation of employees divided by employment by economic activity at NUTS2 level (Nace Rev. 1.1);	Eurostat
MEGAs	Metropolitan European Growth Areas (categorical variable)	Espon