The effects of Belgian outward direct investment in European high-wage and low-wage countries on employment in Belgium

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Abstract

Purpose – The paper aims at providing evidence on the impact on employment of outward foreign direct investment, particularly from developed countries into low-wage countries, which is a major concern in many developed countries.

Design/methodology/approach – The effects of foreign production undertaken by Belgian foreign-oriented companies on employment in Belgium are investigated by performing econometric tests for complementarity or substitution between home and affiliate employment. The data are from the Amadeus database and consist of a sample of 254 Belgian parent companies with foreign affiliates in low-wage and other high-wage European countries during the 1999-2007 period.

Findings – The results show that, given the size of parent production in the home country, Belgian multinational enterprises with foreign affiliates in higher-wage European countries tend to employ more labour at home the more they produce in the host country. This probably reflects the needs of foreign affiliates in higher-wage European countries for management and supervisory services from parent companies. Another explanation might be that Belgian outward FDI is largely vertical. In contrast, no evidence is found about employment reallocation between parents and affiliates operating in lower-wage European countries.

Originality/value – The paper provides evidence on overall effects on employment in Belgium of its outward foreign direct investment for the period 1999-2007, i.e. using the most recent data available. In contrast to many other studies, statistical diagnostic tests were carried out to choose the appropriate model to best fit the data.

Keywords Foreign direct investment, Employment, Labour economics, Economic development, Europe, Belgium

Paper type Research paper

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1. Introduction

The impact of rising globalization and the increasing internationalization of production by multinational enterprises (MNEs) has stimulated extensive public debate over the effects of outward foreign direct investment (OFDI) on home FDI country employment. The major concerns shared by policymakers, politicians and labour unions stem from a perception that OFDI negatively affects employment at home as firms from their respective home countries have partially or wholly shifted production processes abroad in order to benefit from lower production costs and relatively more availability of resources in the host country.

OFDI thus often faces opposition in the home FDI country, as it may replace exports and reduce labour demand by local parent companies. The change in demand for labour in the higher-cost home country may affect lower-skilled workers at home because parent companies relocate more labour-intensive production to a low-cost host country and re-import the labour-intensive products from the host. However, OFDI may also come about by the fact that it is necessary for firms to defend their market shares or to produce inputs in the host country for its final output in the home country, which might lead to the creation of employment in the home country.

In this paper, we will investigate the effects of foreign production undertaken by foreign-oriented Belgian companies on employment in Belgium. The paper is structured as follows: section 2 provides a brief overview of the literature on the effects of outward foreign direct investment on home country employment. Section 3 presents the econometric model used, followed by a description of the data and a discussion of the estimation methodology in section 4. Section 5 provides econometric results, and section 6 concludes.

2. Effects of outward direct foreign investment

Foreign direct investment and international trade can be viewed as two alternative ways of servicing a foreign market. This view emanates from Mundell (1957) who points out that commodity movements can be a substitute for factor movements. Dunning (2002) explains the choice between outward FDI and exports by multinational firms, based on firm-specific advantages. Firms with such advantages may find it more profitable to invest abroad and make use of these advantages in conjunction with resources available in a host country, rather than to sell or subcontract to an independent firm.

However, Lipsey (1995) indicates that outbound FDI is induced by the loss of competitiveness in the home country. This may be the case for developed economies where their labour and resource-intensive industries are engaged in cut throat competition with lower-cost developing and transitional countries. Yet, Petelis (1996) refers to the demand-side deficiencies that provide an inducement for outward FDI of the home country.

In modern international trade theory where imperfect competition exists, outbound FDI is considered to form part of intermediate goods, which are exported by a parent company to a lower-cost host country where final output is produced by its foreign subsidiary there (Cuyvers *et al.*, 1999). Such activities are often pursued by vertical FDI, which aims to take advantage of the differences in international factor endowments. This relocation of production will interrupt market equilibrium in the goods market, and by implication also the labour market in the home country.

The effects of outward FDI on employment in the home country are summarized by, e.g. Van Den Bulcke and Halsberghe (1979), Cuyvers *et al.* (1999), Lundan (2007) and Dunning and Lundan (2008). These effects include production or job displacement, export-creating, home employment, and supporting firm employment:

- *Production effects*. These occur when foreign production in the host country replaces exports by the parent company to that country, or imports from the host country displace domestic production in the home country.
- *Export-creating effects*. These arise when foreign affiliates purchase raw materials, equipment, components, etc. from the home country, all of which may help to create new employment opportunities for workers at home.
- *Home employment effects*. Production abroad may also result in an increase in demand for labour in supervision, R&D, marketing and management in the home country.
- *Supporting firm employment effects*. These come about in the home country as home country firms and institutions provide kinds of supporting services, such as accounting, banking, consulting, subcontracting, etc. to multinational enterprises in the home country.

The first immediate effect of OFDI is felt in output and/or employment as OFDI activities may either raise or reduce output and/or employment in the home country. However, home country effects of OFDI may depend on the types of enterprises operating and investing internationally.

As vertical FDI occurs when the stages of production are located in more than one country (Greenaway and Kneller, 2007), it follows that vertical FDI often relocates stages of the production process, which were previously undertaken in the home country, to a low-cost host economy. These production shifts are likely to reduce added-value, employment and other economic activities in the parent company's home country. However, in the longer term these output-reducing effects may be reversed if the investing MNE gains a sufficient market share through its foreign subsidiary (Navaretti and Venables, 2004). Moreover, this vertical type of investing firm may combine home with foreign production to enhance its competitive position internationally. This may increase the home country's factor demand and output as the investing firm may import intermediate goods at lower prices from foreign subsidiaries and produce higher volumes of final output at a lower cost at home (Desai *et al.*, 2005; Herzer, 2008).

Horizontal OFDI which occurs when the same stage of production is located in more than one country, will reduce exports, and by implication output, from the home country's plants to the host country's if products in the home and host country are substitutes. Yet, if foreign production uses the parents' inputs, output in the home country will eventually rise, indicating the trade-creating effects of OFDI.

The issues regarding substitution-complementarity relationships between FDI and international trade are further analyzed in more recent literature (e.g. Head and Ries, 2004; Helpman *et al.*, 2004; Greenaway and Kneller, 2007). Head and Ries (2004) show algebraically that, for single product MNEs, changes in trade costs, market sizes, relative production costs, or importance of scale economies can cause firms to switch from exporting to OFDI or back. However, it may be misleading to suppose that this argument suggests that FDI is negatively related to exports in the actual data. Yet, if one allows for

the previously mentioned parameters to vary across the firms that constitute the data set, a FDI-export coexistence could be observed (Head and Ries, 2004).

Helpman *et al.* (2004) develop a monopolistic competition model with each firm producing a unique variety and consumers having Dixit-Stiglitz preferences. They find that the most productive firms engage in foreign production, the least productive firms do not serve the foreign market and firms with intermediate productivity levels export. Yet, an industry with many firms, or firms producing multiple products, can choose both FDI and exports (Head and Ries, 2004).

The second effect may be related to skill intensity as outward FDI may change the composition of labour inputs employed in the domestic production facilities. In the case of vertical OFDI, it can be predicted that the relative demand for skilled labour is likely to increase because domestic production, which intensively uses unskilled labour, can now be shifted to a low-wage host country that is relatively well endowed with unskilled labour.

For horizontal OFDI, skill intensity can also rise, mainly due to the demand for headquarters' services such as R&D, design, management, etc. The changes towards more skilled labour in the domestic production process at home may also imply changes in income distribution. As can be predicted by the Stolper-Samuelson theorem, wages of unskilled workers will fall while skilled workers' wages will increase due to higher demand for skilled labour at home.

The third OFDI effect might be that of technological upgrading. A certain type of OFDI, which Dunning and Lundan (2008) refer to as strategic asset-seeking FDI, may induce MNEs to invest in a host country in order to strengthen their own competitive position and to learn from those firms located in the same country as its subsidiary. It is argued that foreign firms set up their investment projects in technology-rich sites, e.g. in Silicon Valley, to gain access to local information channels and to acquire location-specific knowledge (Teece, 1992). Teece (1992) reports some evidence of the reasons for recent FDI there.

Fosfuri and Motta (1999) argue that firms invest abroad not to really exploit their specific advantages, but to gain access to technological knowledge in a host economy. They develop a simple, but useful framework to explain the reasons why firms go international and become multinational, and show that laggard firms may benefit from technological spillovers when locating close to market leaders. A similar model and results are also provided by Siotis (1999).

3. Econometric specification

As discussed previously, many in an FDI home country fear that outward FDI may "export" home employment to the host economy as production at home is replaced by that in the host country. For this reason, outward FDI is often opposed by the home government policy makers, as well as labour organizations. However, outward FDI may create employment at home as FDI activities in the host economy may need intermediate inputs and parent services such as supervision, management, marketing, R&D, etc.

To test for the substitution/complementarity effects between home and affiliate employment, model (1) is estimated:

$$lnPE_{it} = \alpha_i + \beta_1 lnPQ_{it} + \beta_2 lnAQ + \beta_3 lnCapital_{it} + \beta_4 RDI_{it} + \varepsilon_{it} \quad (1)$$

where *ln* refers to natural logarithm; *PE* is employment of the parent firm; *PQ* is output of the parent firm; *AQ* denotes output of affiliates in Central and Eastern European countries[1] and other higher-wage European countries[2]; *Capital* is the book value of tangible assets, following Konings and Murphy (2006); *RDI* is R&D intensity, defined as intangible assets as a percentage of total assets in the parent firms, following Konings and Murphy (2006); and ε_{it}, denoting a composite error term, is equal to $\alpha_i + u_{it}$, where α_i is firm-specific, accounting for the unobserved heterogeneity, and u_{it} is a white noise error term. The subscripts i and t refer to each firm and time, respectively. The model choice in equation (1) is in line with the current theoretical and empirical literature on employment substitution/complementarity effects of parent companies and their affiliates (see, e.g. Blomstrom *et al.*, 1997 and Konings and Murphy, 2006).

In equation (1), both the dependent variable and the explanatory variables are in logarithms, except *RDI*. The use of the variables in logarithms has three advantages. First of all, it makes it relatively easy to interpret the slope parameters of the explanatory variables. The coefficients of the logged explanatory variables are the elasticities of the dependent variable with respect to a 1 percent point change in the explanatory variables. Second, the use of logged values can reduce the problem of outliers. Third, log-transformation of both dependent and independent variables can linearize a multiplicative relationship between the variables.

4. Data and estimation methodology

This paper uses Bureau Van Dijck's Amadeus database, which contains information on the annual accounts (such as balance sheets and profit and loss statements) of Belgian companies operating in other European countries. The database has recently been employed to study various economic issues such as employment effects of FDI, labour demand adjustments, liquidity constraints, and international rent sharing in European MNEs, etc.

From Amadeus, matching 254 Belgian parent companies with 548 affiliates in Central and Eastern European countries and in other higher-wage European nations, we obtain unbalanced panel data set over 1999-2007[3], i.e. the data containing the time series of a number of individuals, in the estimations of equation (1). Parent firms are defined as firms located in Belgium owning at least 50 percent of the shares in one or more firms located in European countries[4].

Panel data have several advantages over the usual cross-sectional or time series data (Hsiao, 2003, 2005, 2006; Plasmans, 2006). Plasmans (2006) has shown that panel data are more efficient with respect to random sampling and ease of identification, presents less multicollinearity and is better for aggregation as the aggregation may vary over time. Similarly, Hsiao (2005) has indicated that an important advantage of panel data are that it allows for the control of the impact of omitted variables, and contains information on the inter-temporal dynamics, and also that the individuality of the entities allows the effects of missing or omitted variables to be accounted for. Wei and Liu (2001) have argued that the use of panel data takes into account the diversity and the specificity of unobservable behaviour of different investors, which is not shown in the regression equation.

Panel data sets allow the use of three estimation procedures: pooled OLS, fixed-effects (FE), or random effect (RE) estimations. If the assumption holds that the

unobservable individual country-specific effects are not very different, pooled OLS estimations are the most simple and efficient method. The FE estimator allows for the unobservable country heterogeneity, and is always less efficient than the RE estimator, but the latter may suffer from endogeneity bias (the Hausman test) so that the FE estimator is preferred in that case. Like the FE model, RE estimations take into consideration the unobservable country heterogeneity effects, but incorporate these effects into the error terms, which are assumed not to correlate with the explanatory variables.

To choose the most appropriate model for the panel data set from these three competing models, three tests are available (Plasmans, 2006): the F test, the Hausman specification test (Hausman, 1978), and the Lagrange multiplier test (LM test) (Breusch and Pagan, 1980). The *F*-test is used to carry out a test for the FE model against the pooled OLS. The null hypothesis of the *F*-test is that all individual effects are equal (pooled regression), or algebraically, $H_0 : \alpha_1 = \alpha_2 = ... = \alpha_N = \bar{\alpha}$, with the F-test statistic for the joint significance of the individual effects as follows:

$$F_{N-1,NT-N-K+1} = \frac{(R^2_{FE} - R^2_{pooled})/(N-1)}{(1-R^2_{FE})/(NT-N-K+1)} \tag{2}$$

where N is the number of investing firms, and K is the number of explanatory variables. A large value for the *F*-test will lead to the rejection of the null hypothesis in favour of the FE model. The Hausman test is used to test the appropriateness of the FE model against the RE model. The Hausman test statistic is computed as follows (Verbeek, 2004)[5]:

$$\psi_H = (\hat{\beta}_{FE} - \hat{\beta}_{RE})'[\hat{V}\{\hat{\beta}_{FE}\} - \hat{V}\{\hat{\beta}_{RE}\}]^{-1}(\hat{\beta}_{FE} - \hat{\beta}_{RE}) \tag{3}$$

where $\hat{V}s$ denotes estimates of the true covariance matrices. Under the null hypothesis that the explanatory variables and α_i are not correlated, the Hausman test statistic ψ_H is asymptotically Chi-square distributed with K degrees of freedom, where K is the number of slope coefficients in the RE model. A large value of ψ_H leads to the rejection of the null in favour of fixed effects model.

5. Estimation results

Table I shows the Pearson correlation coefficient matrix for dependent and independent variables. As can be seen from Table I, the correlation coefficients between the independent variables are reasonably low, except between *lnAQCEEC* and *lnAQOEC* as well as *lnPQ* and *lnCapital*. Low coefficients of correlation between explanatory variables suggest the absence of damaging multicollinearity. To confirm this, a collinearity check is carried out, which is based on the variance inflation factor or VIF value. The value for VIF being equal to 3.21 is much lower than 10[6], confirming the previous argument. Therefore, the coefficients to be estimated are expected to be reasonably stable.

Table II reports the estimation results for equation (1). To provide the best possible results, a number of statistical diagnostic tests were carried out to choose the best model. These tests include the *F*-test for the fixed effects model against pooled OLS, the Hausman test for the fixed effects versus random effects models and the test for groupwise heteroskedasticity. *F*-tests were carried out for all models 1-6, and its test

Variables	lnPE	lnPQ	LnAQCEEC	lnAQOEC	lnCapital	RDI
lnPE	1.000					
lnPQ	0.859	1.000				
lnAQCEEC	0.010	0.020	1.000			
lnAQOEC	0.154	0.204	− 0.849	1.000		
lnCapital	0.870	0.816	0.038	0.122	1.000	
RDI	0.141	0.102	0.007	0.025	0.114	1.000

Table I.
Pearson correlation coefficient matrix for dependent and explanatory variables

Notes: *lnPE* is the logarithm of employment in each parent firm; *lnPQ* is the logarithm of output of each parent firm; *lnAQCEEC* is the logarithm of output of the affiliate in Central and Eastern European Countries; *lnAQOEC* is the logarithm of output of the affiliate produced in other high-wage European Countries; *lnCapital* is the logarithm of the book value of tangible assets; RDI is R&D intensity, defined as intangible assets as a percentage of total assets in the parent firms

statistics range from 81 to 106, suggesting that the null is strongly rejected in favour of the fixed effects models. Similarly, as can been seen from Table II the Hausman test statistics for all models are highly significant at less than 1 percent, implying that FE models are statistically better for the estimations of these models.

We also carried out tests for groupwise heteroskedasticity since estimations in the presence of heteroskedasticity invalidate the usual statistical tests (e.g. the *F*-test, the *t*-test, etc.) and the estimated standard errors are potentially biased. Under the null hypothesis of common variances, the Wald test statistic on which the heteroskedasticity test is based is χ^2- distributed with N degrees of freedom (Greene, 2003). Failure to reject the null indicates the absence of groupwise heteroskedasticity. Based on test results from Table II it can be seen that the null is strongly rejected at less than a 1 per cent significance level, suggesting that heteroskedasticity is present across firms in all models 1-6. Consequently, all models are estimated by taking into account this groupwise heteroskedasticity.

To account for the global business cycle, the extent of globalization, oil shocks, etc. a set of year specific fixed effects was included in the estimations of all models, but their estimates, for brevity, are not reported[7]. Since the statistical diagnostic test suggests that FE models best fit the data, all models are estimated using FE methods only.

Model 1 shows the results obtained by regressing parent employment on parent output and affiliate output in both Central and Eastern European countries and other higher-wage European nations, along with a set of yearly dummies. The model fits the data fairly well, as shown by the overall R^2 of about 0.68. The coefficient on $lnAQ$ has a positive sign and is highly statistically significant at the level of 1 percent. This suggests that, given the level of output of parent firms in the home country (Belgium), a higher foreign production level in Belgian MNEs leads to higher employment in parent companies in Belgium. This result seems surprising given the fact that firms becoming multinational tend to substitute foreign for local production, which implies increasing employment abroad at the expense of the home country. However, the significantly positive correlation between parent employment and their foreign production may suggest that firms with more activities abroad need more parent services such as supervisory personnel, management, marketing techniques and R&D personnel to coordinate and support foreign affiliate activities.

Table II.
Home-country employment effects of outward FDI. Dependent variable: employment of parent firms

Variable	Model 1 Mean	Model 1 SD	Model 2 Mean	Model 2 SD	Model 3 Mean	Model 3 SD	Model 4 Mean	Model 4 SD	Model 5 Mean	Model 5 SD	Model 6 Mean	Model 6 SD
Constant	4.178***	0.270	2.545***	0.383	4.185***	0.268	2.542***	0.382	2.758***	0.399	2.540***	0.382
lnPQ	0.128***	0.025	0.106***	0.022	0.128***	0.025	0.106***	0.023	0.106***	0.023	0.106***	0.023
lnAQ	0.034***	0.012	0.031***	0.012	–		–		–		–	
lnAQCEEC	–		–		0.033	0.027	0.013	0.027	0.010	0.027	–	
lnAQOEC	–		–		0.033**	0.014	0.033***	0.013	–		0.033***	0.013)
lnCapital	–		0.202***	0.039	–		0.203***	0.039	0.204***	0.039	0.204***	0.039
RDI	–		0.002	0.003	–		0.001	0.003	0.002	0.003	0.001	0.003
Time dummies	Estimated		Estimated		Estimated		Estimated		Estimated		Estimated	
No. of observations	3,332		3,329		3,332		3,329		3,354		3,332	
Overall R^2	0.6801		0.8109		0.6823		0.8056		0.8139		0.7969	
Wald test statistic for groupwise heteroskedasticity	1.1E + 30***		2.3E + 31***		2.6E + 30***		8.1E + 06***		1.3E + 31***		9.1E + 30***	
F-test statistic	106.30***		81.41***		106.19***		81.25***		81.63***		81.83***	
Hausman test statistic	837.72***		657.10***		837.00***		656.98***		658.72***		657.82***	

Notes: ** and *** denote that the coefficient is statically different from zero at less than the significance levels of 5 percent and 1 per cent, respectively. *lnPQ* is the logarithm of output of each parent firm; lnAQ is the logarithm of affiliate output in all host European countries; *lnAQCEEC* is the logarithm of affiliate output in Central and Eastern European Countries; *lnAQOEC* is the logarithm of affiliate output produced in other high-wage European Countries; *lnCapital* is the logarithm of the book value of tangible assets; RDI is R&D intensity, defined as intangible assets as a percentage of total assets in the parent firms

The estimated coefficient on *lnAQ* of 0.034 suggests that a 10 percent increase in production abroad is associated with an increase of parent employment by about 0.34 percent. Therefore, the fears that outward FDI leads to a reduction of the home country's employment seem to be unfounded. Likewise, the significant estimated coefficient of *lnPQ* of 0.128 suggests that a 10 percent increase in parent output leads to an increase of parent employment by about 1.3 percent.

To check the robustness of the previous results, model 2 incorporates into model 1 the factors that may influence parent employment, in particular capital and R&D intensity. The inclusion of these two variables hardly changes the coefficient of the variable of interest *lnAQ*, which, statistically, is still highly different from zero at a 1 percent level. This confirms the complementary effects of outward FDI and parent employment.

Since model 1 might mask outward FDI effects in different locations, i.e. low-wage versus higher-wage countries, model 3 divides foreign production of Belgian outward FDI into production in Central and Eastern European countries and in other higher-wage European nations. The estimated coefficient on *lnAQCEEC* is positive, which might suggest outward FDI in Central and Eastern European countries is positively associated with parent employment at home. However, it not statistically different from zero at any conventional level, implying that Belgium's FDI in the lower-cost Central and Eastern European countries in the end may not affect parent employment in home country. The estimated coefficient on *lnAQOEC* is positive and is significant at less than 5 percent, suggesting complementarity between outward FDI and parent employment at home.

To carry out another robustness check, Model 3 is re-estimated by incorporating *lnCapital* and *RDI* into the model, the results of which are reported in model 4. The coefficient on *lnAQCEEC* is not statistically different from zero at any conventional level. However, the estimated coefficient on *lnAQOEC* is positive and becomes highly significant at less than 1 percent, again confirming that Belgium's outward FDI in other high-wage European countries has a positive effect on parent employment in Belgium. Thus, there seems to be no evidence that foreign production by Belgium's MNEs leads to a reduction in home-country employment as a result of an employment reshuffle between parent companies and their foreign affiliates. The estimated coefficient on *lnAQOEC* of 0.033 implies that a 10 percent increase in foreign affiliate production in other higher-wage European countries *ceteris paribus* leads to a 0.33 percent increase in parent employment in Belgium.

As shown in Table I, there is a high correlation between *lnAQCEEC* and *lnAQOEC,* two explanatory variables of interest. A high correlation potentially leads to too high an estimated variance and standard error, which in turn makes the estimated coefficient insignificant. To mitigate this effect, we re-estimated model 4 by dropping one of the two variables at a time, the results of which are reported in model 5 and model 6.

The estimated coefficients reported in model 5 and model 6, hardly change. In addition, the coefficient on *lnAQCEEC* is still quite insignificant while the estimated coefficient on *lnAQOEC* retains a high statistical significance. These results once again confirm that Belgian foreign investment in Central and Eastern Europe evidently, overall, does not seem to lead to a reduction in employment at home. However, parent employment at home tends to increase when foreign production in other higher-wage European nations rises.

Our findings are very much in line with those by Blomstrom *et al.* (1997) who carried out a similar study for Sweden over 1970-1994. Masso *et al.* (2008) reports similar findings from their study of the effects of Estonia's outward foreign direct investment on local employment in Estonia. Similarly, Chen and Ku (2003) find that the net effects of Taiwanese outward FDI is, in most cases, positive. Our results are somewhat consistent with Konings and Murphy (2006), who studied the employment effects of EU outward FDI in the EU and CEEC, using a large panel data set of more than 1,000 EU multinational enterprises. They find no evidence of substitution effects between parent employment and foreign affiliate employment located in low cost Southern EU countries and Central and Eastern Europe, but detect substitution effects between parent employment, and affiliate employment in high-wage northern EU countries. Using data from the same source (Amadeus) as Konings and Murphy (2006) do, but opting for the Generalized Leontief cost function on the grounds that it allows a closed form solution of the long-run equilibrium in the presence of quasi-fixity of production factors, Cuyvers *et al.* (2005) find evidence that parent employment is negatively related to affiliate employment in the low-wage Central and Eastern European countries (CEEC).

To sum up, the main results of the current study suggest that there is no evidence regarding employment reallocation between parent companies and affiliates operating in lower-wage European countries. However, a positive home-country employment effect is detected when Belgian MNEs undertake their FDI activities in other high-wage European countries.

6. Concluding remarks

This paper analyses the effects of Belgian outward FDI on the demand for labour by parent MNEs in Belgium. The analysis was carried out using an unbalanced panel dataset, with 254 Belgian MNEs and their 548 affiliates in Central and Eastern European countries and in other higher-wage European nations operating over the 1999-2007 period. To provide the best possible results, statistical diagnostic tests were carried out to choose the appropriate model to best fit the data, and the FE model has proved to be the best, and was thus used for the estimations of all models on which equation (1) is based. All models were estimated by taking into consideration group wise heteroskedasticity.

The results show that, given the size of parent production in the home country, Belgian multinational enterprises with foreign affiliates in higher-wage European countries tend to employ more workers at home. These results are robust after having been verified by a number of robustness checks. Thus it appears that the positive relationship between outward FDI and parent employment probably reflects the needs of foreign affiliates in this location for management and supervisory services from parent companies. These findings are in line with previous studies for other developed economies such as Sweden, as well as for transition and developing countries (Estonia and Taiwan).

Another possible explanation for the positive correlation between outward FDI and home-country employment might be that Belgian outward FDI may be largely of a vertical nature. This type of FDI activity is either upstream or downstream related to the activity of parent firms. This then gives rise to a possible complementarity between home country and foreign operations because an expansion of one of these activities tends to positively affect the other activities and thus domestic employment.

Our finding of a significant positive association between outward FDI and home employment should have important policy implications. Policies encouraging domestic firms to become multinational may be beneficial since foreign-invested firms may have a positive impact on home-country employment. Therefore, there is no ground for fears regarding overall job losses at home due to the internationalization of domestic firms, although the structure of demand for labour might well become different and thus lead to job losses in some areas (e.g. unskilled labour).

The current paper, however, has some data shortcomings. An important limitation of the current paper is that the study on the employment effects of outward FDI is not undertaken with actual investment amounts, but rather by taking locations as given. Studies with the use of actual investment data, also breaking down into skilled and unskilled labour, may provide a better understanding of the home-country employment effects of foreign production undertaken by home-country multinational enterprises.

Notes

1. Central and Eastern European countries include Bulgaria, the Czech Republic, Estonia, Poland, Romania and Slovakia.
2. Other high-wage European countries are Austria, Finland, France, Germany, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden and the UK.
3. The authors are very grateful to an Amadeus representative for assistance with extracting the data from the Amadeus database, covering the period from 1999 to 2007.
4. These European countries include Bulgaria, Czech Republic, Estonia, Poland, Romania Slovakia, Austria, Finland, France, Germany, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden and the UK.
5. The Hausman test statistic is relatively easy to compute as it is included as routine in some econometric packages such as Stata.
6. VIF is the collinearity check, which is based on the variance inflation factor (VIF), and has been shown to be equal to $1/(1 - R_i^2$, where R_i^2 is obtained from the multiple correlation coefficient of an explanatory variable X_j regressed on the remaining explanatory variables. Evidently, a higher VIF_i indicates R_i^2 to be near unity and therefore points to high collinearity, but is not a violation of the assumption of the standard multiple regression-model. The commonly used rule of thumb, however, states that if VIF < 10, there is no evidence of damaging multicollinearity (see, e.g. Baum, 2006).
7. The estimates of yearly fixed effects, along with other explanatory variables can be obtained from the authors on request.

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