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Sectoral Distribution of FDI and Employment: Evidence from Post-Transitional European Countries

Summary: This paper examines, from the perspective of Post-Keynesian economics, the effects of Foreign Direct Investment (FDI) on the employment rate in 18 post-transitional European countries from 1995 to 2021. Using a two-step system Generalised Method of Moments (GMM) panel data estimator, we test the hypothesis that the employment impact of investment depends on the interaction of FDI and domestic investment in terms of crowding-in and crowding-out relationships, assuming that this relationship is sensitive to the sectoral distribution of FDI stock. Our findings suggest that the reallocation of FDI inflows from the manufacturing sector to the less labour intensive financial and information and communication technology (ICT) sectors tends to reduce the employment effect of FDI both directly and indirectly by reducing the magnitude of the crowding-in effect of FDI on domestic investment. The outcome of our study is of great interest to economic policy makers. If foreign investment displaces domestic investment and reduces employment in high value-added sectors, policies intended to attract foreign capital could be challenged and undermined. Otherwise, if foreign and domestic investment in sectors with high added value are complementary, it justifies policies aimed at attracting foreign investment.

Keywords: FDI, Employment, Economic sectors, Post-transitional European countries, Post-Keynesian economics.

JEL: F16, F21.

This paper is motivated by the ongoing debate about the long-term impact of Foreign Direct Investment (FDI) inflows on changes in economic structure and, accordingly, on labour market outcomes in post-transition European countries. The penetration of foreign capital during the early years of transition to a market economy was accompanied by a significant decrease in the employment rate (for example, see Giulia Faggio and Jozef Konings 2003; Konings, Olga Kupets, and Hartmut Lehmann 2003; Anna Maria Ferragina and Francesco Pastore 2008; Marjan Petreski 2020). Inefficient state-owned enterprises were shut down, while others, possessing the resources and capabilities for integration into the global economy, underwent a process of reconstruction and modernisation.

During this period, the trade-off between economic transformation - driven by the neoliberal view of the transition process that promoted the interests of foreign capital - and the employment rate, diminished and eventually disappeared. This shift turned the relationship between FDI inflow and employment from negative to positive. This reversal is often attributed to the emergence and development of backward and

forward linkages between foreign affiliates and domestic firms (for more, see Anna Golejewska 2002; Beata Smarzynska Javorcik 2004). However, the domestic economy's excessive dependence on foreign capital led to increased exposure and vulnerability to external shocks, with strong effects on the labour market. Examination of sectoral data on FDI stocks and employment reveals compelling evidence that some recent negative changes in the labour market, increasingly noticeable in post-communist European countries, are linked to shifts in the sectoral distribution of foreign and, correspondingly, domestic investment. The relevance and complexity of the relationship between foreign and domestic investment justify our effort to explore these issues from the perspective of heterodox economics, which is the focus of our paper.

Beyond this introduction, the paper is divided into five sections. Section 1 offers a concise review of the literature on FDI and labour market outcomes in post-communist Central and Eastern European countries. Section 2 starts with a Post-Keynesian perspective on the interaction between FDI and labour market outcomes, followed by a discussion on the "stylised facts" characterising this relationship in post-communist countries. Section 3 presents the data and estimation methodology. The estimation results are explored in Section 4, while Section 5 provides the conclusion of the article.

1. Related Literature

The relationship between employment and FDI has long been a topic of concern in economic research, with studies conducted across different countries and times (Robert E. Lipsey, Eric Ramstetter, and Magnus Blomström 2000; Joshua Aizenman 2003; Christoph Ernst 2005; Ziva Rozen-Bakher 2017; Pedro Oliveira and Rosa Forte 2018; Shu Rong et al. 2020). What distinguishes post-communist countries in this context is the fact that, prior to the fall of communism, FDI and the labour market virtually did not exist (Matthew C. Mahutga and Nina Bandelj 2008). During the communist era, these economies operated in a system largely closed off from non-socialist countries, isolating them from the global economy, FDI inflows, and, as a result, many technological advancements (Saul Estrin 2017). According to Marxist ideology, abolishing the labour market was as essential as the nationalisation of production means for establishing a socialist society. Consequently, the labour market was under government control, ensuring job security but leading to overemployment (Simon Commander, Fabrizio Coricelli, and Karsten Staehr 1991; Milan Vodopivec 1991).

One of the major long-term economic challenges that post-communist countries faced after the collapse of socialism was the recapitalisation of the national industrial base (Stephen P. Ferris, G. Rodney Thompson, and Calin Valsan 1994). Given the scarcity of domestic savings, and advanced knowledge and technology, FDI has played a central role in enterprise restructuring and, in a broader sense, integration into the global economy (Estrin et al. 2009; Michael J. Bradshaw 2017).

Although the clear majority of studies indicate an overall positive impact of FDI on post-communist economies (Simeon Djankov and Peter Murrell 2002; Ichiro Iwasaki 2007; Jan Hanousek, Evžen Kočenda, and Mathilde Maurel 2011; Iwasaki and Masahiro Tokunaga 2016; Estrin 2017), this does not imply that there are no controversies related to the penetration of foreign capital, both in terms of actual and potential effects on the development of the host country. One of the most debated issues

regarding FDI side effects is whether foreign investment encourages or discourages domestic investment. The term "crowding-in" describes the situation where inward FDI promotes domestic investment, while "crowding-out" occurs when FDI decreases the volume of domestic investment in the host country (Miao Wang 2009).

Numerous theoretical explanations exist in the literature regarding why crowding-in or crowding-out effects occur (James R. Markusen and Anthony J. Venables 1999; Manuel R. Agosin and Roberto Machado 2005; Salvador Barrios, Holger Görg, and Eric Strobl 2005). These theories have been subjected to empirical verification in various institutional and cultural contexts (Brian J. Aitken and Ann E. Harrison 1999; Luiz R. de Mello Jr. 1999; Wang 2009; Mi Lin and Yum K. Kwan 2015; Cristina Jude 2019; Herick Fernando Moralles and Rosina Moreno 2020; Kosta Josifidis, Novica Supić, and Slađana Bodor 2021). Generally, crowding-in is associated with complementary relationships between foreign and domestic capital. Conversely, crowding-out is expected when foreign capital can substitute domestic capital (Agosin and Machado 2005; de Mello Jr. 1999). Within this framework, a distinction can be made between the competition effect and the linkage effect that are associated with the penetration of FDI (Aitken and Harrison 1999; Markusen and Venables 1999).

The competition effect emerges when multinationals substitute domestic producers and gain a dominant position in the industry, which is considered detrimental to the welfare and development of the FDI host countries. Foreign firms entering the local market can attract demand away from domestic firms, leading the local firms to reduce production. In transition economies, this typically occurs when multinationals use imported inputs or enter sectors that were previously dominated by state-owned enterprises (Elitza Mileva 2008). Furthermore, increased competition, particularly when multinationals have a lower marginal cost advantage, can compel local producers to abandon future investment projects (Aitken and Harrison 1999; Jude 2019).

The linkage effect implies that multinationals collaborate with domestic producers, contributing to the development of the local industry. The degree of complementarity between multinationals and domestic firms is generally higher in advanced economies compared to developing host economies. Supporting this notion, a study by de Mello Jr. (1999) found that the success of technology or knowledge transfer - which signifies the host country's absorptive capacity - relies on the institutional characteristics of the receiving economy.

Taking into account the interplay of competition and linkage effects, Markusen and Venables (1999) posited that FDI might serve as a catalyst for the development of local industries, to the extent that these industries become robust enough to diminish both the relative and absolute positions of multinational corporations within the industry. Furthermore, in the case when multinationals force domestic firms to cancel previous investment projects, these funds can be directed to activities where local firms have a comparative advantage, so that the final result does not necessarily have to be negative (Jude 2019). The same author contends, grounded on an empirical examination of 10 post-communist Central and Eastern European countries, that FDI might lead to a creative destruction phenomenon. In the short-term, foreign investment displaces domestic investment, which is succeeded by a long-term crowding-in effect. Similarly, Barrios, Görg, and Strobl (2005) demonstrate that the initial crowding-out

effect might gradually lessen over time as foreign-owned businesses are integrated into the host economy (Jan Mišun and Vladimr Tomšk 2002; Wang 2009).

It is important to note that the effect of FDI inflow on the host economy is not linear. This effect may vary between industries. By reviewing the extensive literature on the spillover effects of FDI in developing countries, Stephan Gerschewski (2013) shows that there tends to be crowding out of domestic enterprises by multinationals in the same industry but a crowding-in effect in different industry sectors. Alessia Amighini, Margaret McMillan, and Marco Sanfilippo (2017), investigating whether FDI can stimulate investment in developing countries using industry-level data, found a positive effect only if multinationals engage in productive activities, but not in trade-related activities. They also found that the crowding out of domestic investment seems to be larger in the case of FDI that entails no productive activities in the host economy.

As we can see in the above brief overview, there is considerable literature linking the penetration of foreign capital with labor market outcomes in post-communist countries in the context of the complex relationships between foreign and domestic investments, characterized by both crowding-in and crowding-out effects. In order to provide a comprehensive contribution to the literature, we aim to enrich the quantitative findings derived from new data by considering the econometric outcomes within a heterodox conceptual framework, primarily influenced by Post Keynesian theories of transition and international capital flow.

2. Conceptual Framework and Stylised Facts

From a Post-Keynesian perspective, the ultimate aim of transitioning from a centrally planned to a market economy should have been the establishment of a "civilized market capitalist society", a term used to describe the combination of individualism with the pursuit of the common good and full employment (John Marangos 2004). More precisely, Post-Keynesians argue in favour of a transition model that incorporates government intervention and a gradual movement toward a capitalist economy, with the objective of achieving economic and social goals such as full employment, economic growth, low inequality, and a high standard of living.

For a large number of transition countries, the Post-Keynesian viewpoints sharply contrasted with the applied model of transition, highlighting a clear-cut difference between the achieved and desired results. The common denominator for all countries was a radical economic transformation based on the orthodox transition model, with the only variation being the speed of reform, whether through shock therapy or a gradualist approach. The transition process was overseen by international financial organizations and advisors, primarily the World Bank and the International Monetary Fund (IMF), as a prerequisite for receiving financial assistance.

The process of privatization, as a key element of economic transformation, is dominated by foreign capital. In some ways, this should come as no surprise, considering the fact that the transition economies did not have enough domestic savings to finance large-scale privatisation, or that the domestic savings were associated with people who earned money illegally. However, what is problematic is the role that foreign capital has played in institutional reforms.

Foreign capital, together with the World Bank and the International Monetary Fund, was actively involved in advising and developing transitional strategies. This involvement included passing laws and initiating policies in a wide range of areas, such as labour markets, taxes, infrastructure and construction, bankruptcy, and foreign exchange operations. The result was the creation of foreign investment-friendly environments and policies that allowed foreign capital to gain a dominant position in leading industries in the early phase of transition (Jan Drahokoupil 2008).
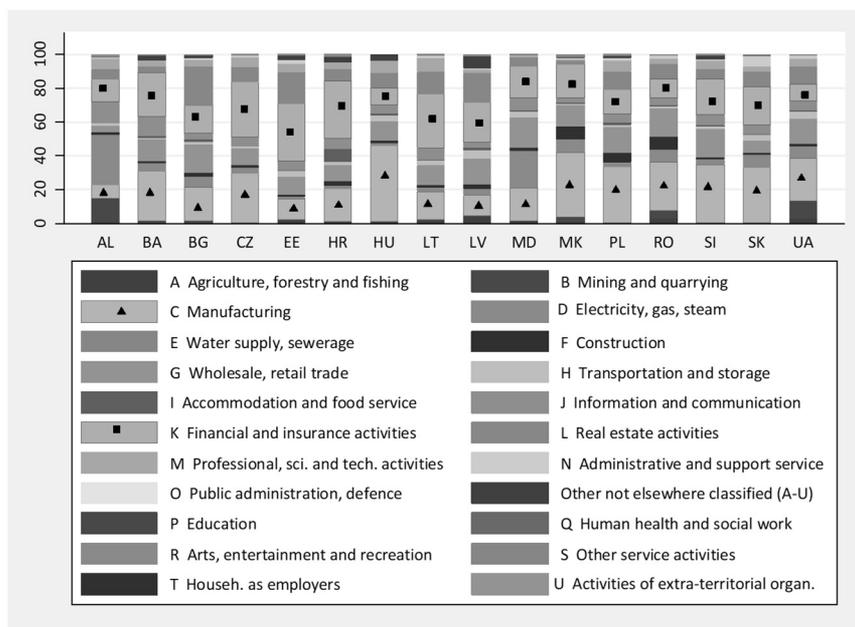
Figure 1 FDI inflow stock by economic sectors, 18 post-communist countries of Central and Eastern Europe, 2019

During the first years of the transition, FDI inflows were primarily concentrated in the labour-intensive manufacturing sector, with the dominant entry mode being the acquisition of state-owned enterprises. Foreign capital was attracted by the proximity to Western European markets and a relatively highly educated workforce available at relatively low wages.

Once the privatisation process was completed, there was a shift in the FDI entry mode. Instead of acquisitions, the dominant entry mode became greenfield FDI, which involves setting up new operations or facilities. Moreover, there was a change in motivation and a significant shift in the sectoral composition of FDI inflows.

In addition to seeking efficiency and resource gains, FDI became increasingly oriented towards market-seeking purposes. This means that foreign investors aimed to exploit the advantages offered by the growing market. Consequently, there was a notable accumulation of FDI inflows in service sectors, particularly in the financial sector

and the information and communication technology (ICT) sector. Conversely, the manufacturing sector experienced a corresponding decrease in FDI inflows, as illustrated in Figure 1.

The shift of FDI inflows from the manufacturing sector to the service sector has had a significant impact on the labor market during the post-transition period. Figure 2 provides insights into this trend, showing that, with a few exceptions, the manufacturing sector remains the largest employer in all post-communist countries. It is followed by sectors such as agriculture, wholesale and retail trade, and construction.

For instance, in 2019, the manufacturing sector accounted for an average of 18% of total employment across the countries in our sample. Among the 18 countries analyzed, 11 had a manufacturing share above this group average. Notably, countries like the Czech Republic, Slovakia, and Slovenia had particularly high manufacturing employment, with close to one-third of the working-age population employed in this sector in 2019. Conversely, countries such as Montenegro and Albania recorded the smallest number of workers employed in the manufacturing industry, representing less than 10% of the working-age population in 2019.
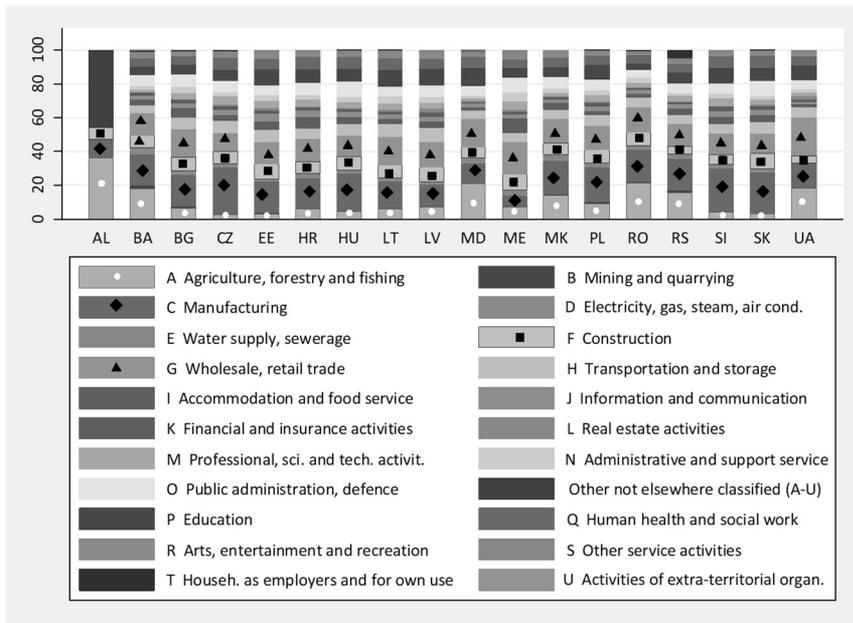
Source: Vienna Institute for International Economic Studies, FDI Database, 2022.

Figure 2 Employment by economic sectors, 18 post-communist countries of Central and Eastern Europe, 2019

In stark contrast to the transition period, the post-transition period has witnessed the fastest growth in FDI inflows in sectors that have a relatively small share of total employment, particularly in the ICT sector. For instance, in 2019, the combined share of the financial sector and the ICT sector in total FDI inflow stock reached around

27%, despite their employment share being less than 5%. To provide a comparison, in the same year, the share of the manufacturing sector in the FDI inflow stock was slightly lower than that of the financial and ICT sector (25% *versus* 27%). However, the employment share of the manufacturing sector was more than three times larger (18% *versus* 5%). This indicates that the manufacturing sector, despite having a larger share in employment, attracted a relatively smaller portion of FDI inflows compared to the financial and ICT sectors. The consequence of higher FDI inflows into services compared to the manufacturing sector may be attributed to the slower growth in total employment resulting from foreign investment. This is because the decline in industrial employment has not been compensated by the upward trend in service sector employment.

At first glance, it appears that the shift towards a service-dominated economy in post-communist countries aligns with the deindustrialization trend observed in many Western countries over the past few decades. This trend can be observed in Figures A1-A4 (see Appendix), where industrial output in post-communist countries has decreased in relative terms but has still experienced absolute growth, while industrial employment has been on a downtrend even in absolute terms. Similar patterns of deindustrialization are also evident in Western countries (Olivier Debande 2006). However, the underlying factors and timeframes driving this process differ. Deindustrialisation in post-communist countries has the character of premature deindustrialisation, a term describing de-industrialization occurred at a much lower level of economic development than what was witnessed in advanced economies (Albert G. Schweinberger and Jens Suedekuma 2015), and the process was primarily driven by the interests of foreign capital.

The leading role of foreign capital in the post-communist world requires an explanation that extends beyond the conventional reference to the interaction between the lack of domestic capital and the institutional vacuum, which was followed by the collapse of socialism. From a Post-Keynesian perspective, investment decisions made by corporate capital serve as a primary driver of macroeconomic outcomes in a capitalist economy. Consequently, in an income-expenditure model, investment should be regarded as an independent variable that determines aggregate employment, output, and income, while consumption and, thereby saving, as the difference between income and expenditure, are dependent variables, increasing and decreasing with changes in income (John Edward King 2015).

If domestic savings are scarce, investment cannot fulfill its assumed role in economic development, resulting in low output, employment, and income. To address this, there have been expectations that FDI could compensate for the lack of domestic savings by bringing in capital, advanced technology, managerial experience, labour skills, and business practices. As a result, transition countries have made significant efforts to attract foreign capital. However, what is often overlooked in this calculation is that the role of foreign capital in the development process ultimately depends on national control over this process.

From a Post Keynesian perspective, it is argued that the government's role is not merely to deregulate and liberalize the economy, as neoclassical economics and neoliberal ideology assume. Instead, it should focus on creating a regulatory framework,

initiating institutional changes, upgrading skills, and adopting positive development strategies (Philip Arestis and Eleni Paliginis 2001; Tae-Hee Jo, Lynne Chester, and Carlo D'Ippoliti 2017). The implications of neoliberal policy recommendations toward foreign capital are the process of deindustrialisation of the domestic economy and increasing dependence on multinationals, since domestic production, associated with low technology and productivity, could not survive in such a liberal and unregulated environment (Arestis and Paliginis 2001).

3. Data and Estimation Strategy

In accordance with the motivation of our study, as indicated in the Introduction and further explained through the presented conceptual framework and stylised facts, we define the research hypothesis that the employment impact of investment in post-communist European countries depends on the interaction between foreign and domestic investment in terms of crowding in and crowding out relationships, assuming that this relationship is sensitive to sectoral distribution of FDI stock.

Due to the absence of available data, our analysis utilizes an unbalanced panel dataset consisting of 18 post-transitional European countries observed between 1995 and 2021. The years of transition before 1995 are not included in the analysis because of the irregular dynamics in macroeconomic variables that followed the fall of communism in Europe[1].

The choice of countries is limited to the new EU member states from Central and Eastern Europe (Bulgaria, the Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) and the post-communist countries that are negotiating their EU membership (Albania, Bosnia and Herzegovina, Moldova, North Macedonia, Montenegro, Serbia, and Ukraine).

We have limited our analysis to these specific countries because the process of European integration plays a significant role in determining the inflow of foreign direct investment in each of them. Furthermore, one of the key benefits of European Union is the resulting increase in attractiveness for foreign direct investment (Alena Dorakh 2020). This is confirmed not only for new member states but also for old ones (Paul Welfens and Fabian Baier 2018), but also for the third countries associated with the European Union through free trade agreements (Carlos Alberto Abreo Villamizar, Ricardo Bustillo Mesanza, and Carlos Rodríguez González 2022).

In addition to European integration, the common denominator for all of these countries is a similar institutional and cultural pattern, as well as significant FDI inflows received during and after the transition period. The dataset was constructed using data from different sources, mainly from the World Bank's World Development Indicators and the Vienna Institute for International Economic Studies. Table A1 in the Appendix lists all variables with short descriptions, as well as their corresponding data sources, and summarizes the main descriptive statistics.

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[1] We chose 2001 as the starting point for Serbia, Bosnia and Herzegovina, and Montenegro due to the unique circumstances that prevailed in these countries between 1995 and 2000. This period was marked by war, economic and political isolation, and social upheaval, all of which had a significant impact on the economic situation in these countries, resulting in notably low FDI inflows.

The baseline model that we explore takes the following form:

$$EMP_{it} = \beta_1 EMP_{it-1} + \beta_2 GFCF_{it-1} + \beta_3 FDI_{it-1} + \beta_4 GFCF_{it-1}*FDI_{it-1} + \beta_5 EDU_{t-4} + \\ \beta_6 WA_{it} + \beta_7 GR_{it} + \beta_8 MI_{it} + \beta_9 GLB_{it} + \beta_{10} EU_{it} + e_{it}, \tag{1}$$

where the subindex i stands for the country and t for the year, and e_{it} is the error term.

The dependent variable EMP is the employment to population ratio calculated by dividing the number of people employed by the total working-age population, that is, the proportion of people of working age who are employed. It includes workers engaged in any activity to produce goods or provide services. The independent variables are classified into two groups: the variables of interest used to test the research hypothesis; and the control variables that are commonly used in the literature as determinants of employment in the post-communist countries of Central and Eastern Europe. Variables of interest include gross fixed capital formation (GFCF) and net FDI inflow, both expressed as percentages of GDP.

The control variables are: EDU - tertiary school enrolment as a percentage of the gross enrolment ratio[2]; WA - the annual growth rate of average monthly gross wage; GR - the real GDP growth rate; MI is net migration as a percent of the total population; GLB - the KOF index of economic globalisation, reported on 1 to 100 scale where higher numbers refer to greater integration in global trade and financial flows; EU - a dummy variable with a value of 1 if the country is a member of the European Union. Since the current year's employment is the result of the previous year's investment decisions, the investment variables GFCF and FDI are lagged by one year. The variable representing tertiary school enrolment is lagged by four years to account for the time gap between college enrolment and graduation.

Since the research question is to what extent FDI contributes to the employment impact of total investment, the primary variable of interest is the interaction term GFCF*FDI. The variable is created by multiplying the investment variables: gross fixed capital formation and net FDI inflow.

GFCF is an aggregate from the national accounts that includes both domestic and foreign investment and measures net additions to fixed assets expressed as a percentage of GDP. In other words, the GFCF serves as a proxy for the total investment. Although GFCF is widely used as a measure of investment, it is important to note that it has some limitations as a proxy for overall investment activity. GFCF does not include certain types of investments (purchase of shares, bonds, or other financial instruments), such as financial investments or investments in intangible assets (research and development, patents, or copyright) which are increasingly important in the modern economy. Despite these limitations, GFCF is still an important indicator for assessing the level of investment in an economy, especially in terms of the formation of physical capital.

FDI is the net inflow of funds used to acquire a long-term management stake (10% or more of the voting stock) in an enterprise located in a country different from the investor's country of origin. Given that FDI inflows are calculated by subtracting

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[2] The gross enrolment ratio represents the number of children enrolled in a schooling level, regardless of age, divided by the population of the age group that officially corresponds to that level of education.

disinvestment from the investment, FDI inflows can take a negative sign, implying that the disinvestment exceeds investment in the observed year.

Essentially, the interaction term means that the relationship between the dependent variable and the independent variable of interest depends on the value of the other variable (for more, see Thomas Brambor, William Roberts Clark, and Matt Golder 2006). In our model, the interaction term can be interpreted in the sense that the effect of the total investment on the employment rate depends on the foreign investment share in the total investment. When considered separately, investments, regardless of whether they are domestic or foreign, have a positive impact on employment, which is widely supported by theoretical and empirical literature (for example, see Jaan Masso, Urmas Varblane, and Priit Vahter 2007). However, this does not mean that the employment impact of domestic and foreign investment is mutually independent.

There are compelling reasons to believe that complex crowding-in and crowding-out relationships exist between foreign and domestic investment. In the presence of a crowding-in effect of FDI on domestic investment, the employment impact of investment would exceed the simple sum of new jobs generated solely in foreign-owned enterprises. This is because the influx of foreign capital stimulates domestic investment through backward linkages between foreign affiliates and domestic suppliers, resulting in the creation of new jobs in both foreign and domestic companies. On the other hand, in the case of a crowding-out effect, local investors may respond to FDI inflows by delaying planned investment projects or even scaling back existing production due to heightened competition. Consequently, FDI entry does not lead to subsequent investment and employment growth in domestic enterprises.

In the context of our model, crowding-in or crowding-out effects can be assessed by looking at whether the coefficient associated with the interaction term GFCF*FDI is positive or negative. The negative sign indicates the crowding-out relationship between FDI and domestic investment, i.e., foreign and domestic investments interact negatively with each other, thus reducing the overall positive impact of investment on employment. Conversely, the positive sign corresponds to the crowding-in relationship between FDI and domestic investment, suggesting that foreign and domestic investments act in a positive way with each other and, therefore, may amplify the positive impact of investment on employment. It is important to emphasise that the crowding out effect does not mean that total investment may have a negative impact on employment. This effect is always positive, but can be reduced if foreign-owned enterprises compete with domestic-owned enterprises.

Concerning the model specification, one may worry about the possible problem of multicollinearity in this regression because the interaction term, by its construction principle, is highly correlated with its constitutive variables[3] (see Table A2). However, such concerns are largely unfounded. Omitting the constitutive variable is the same as assuming that the coefficient estimate for the variable in question can be zero, which is an unrealistic assumption in most cases. Moreover, the high correlation between the interaction term and its constitutive variables does not automatically lead to the

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[3] The term constitutive variable, in this context, describes the elements of which the interaction term is composed.

problem of multicollinearity. Namely, multicollinearity describes the problem of high correlation between independent variables, not between interaction terms and their constitutive elements. Finally, multicollinearity actually diminishes rather than increases the likelihood of obtaining statistically significant coefficient estimates, as was in our case (for more, see: Brambor, Clark, and Golder 2006; Christopher Kollmeyer 2015). Therefore, the baseline model specification as well as all other equations include both the interaction term (GFCF*FDI) and its constitutive variables (GFCF and FDI).

The next specification issue that requires justification is the presence of a lagged dependent variable in the model. There are at least three reasons to hypothesise that past values of the employment rate can affect its current value in our model: (1) Inertia or persistence: The employment rate can be a slow-moving process. It does not typically change dramatically from one period to the next, implying a degree of autocorrelation. Including lagged variables can help capture this inertia or persistence. (2) Temporal dependency: The employment rate at a given time point could be influenced by its previous values due to temporal dependencies. For example, if there was a sudden drop in the employment rate a year ago, it could take time to recover and affect the current rate. (3) Policy response: A past drop in the employment rate could trigger policies to stimulate job growth, and the effects of these policies might take time to manifest in the employment data. Including lagged employment rates can account for these delayed policy impacts. Consequently, we employ the dynamic specification that incorporates the lagged dependent variable on the right-hand side of the equation.

An additional econometric concern that may arise when estimating this model is the potential endogeneity of certain regressors, particularly in terms of reverse causality. For instance, the employment rate may be influenced by migration, but employment itself can also cause changes in migration flows. Similarly, endogeneity issues may arise for variables related to education and wages, while the remaining variables are assumed to be exogenous.

The assumption of exogeneity especially holds for the investment variable, reflecting the Post-Keynesian view that causation runs from investment, as an independent variable, to aggregate employment, as a dependent variable, not *vice versa* (King 2015). Similarly, in line with the lagged dependent variable, the investment variables are also included in the model with a one-year lag. This reflects the understanding that investments made today have effects in the following year, suggesting that current employment is influenced by investments made in the previous year. Although based on different theoretical arguments, the use of lagged data for investment variables ensures that there is no reverse causality between the dependent variable and investments in the econometric sense. To control all of these issues mentioned above, the model is estimated using a Generalized Method of Moments (GMM) methodology. More precisely, we perform a robust version of the two-step system GMM estimator (Manuel Arellano and Olympia Bover 1995; Richard Blundell and Stephen Bond 1998).

There are different ways to handle dynamic panel models with endogenous regressors through the GMM methodology. We prefer the system-GMM over the difference-GMM estimator, since the system estimator behaves better in the presence of a highly persistent dependent variable over time, an unbalanced dataset, and when the sample periods are short (Blundell and Bond 1998; Blundell, Bond, and Frank

Windmeijer 2000), which is the case in our model. Depending on whether the weight matrix is homoscedastic or heteroscedastic, the system GMM estimator can be performed through two alternatives: one-step and two-step GMM estimators. As preliminary tests revealed the problems of serial correlation (see the *p*-value of the Wooldridge test for serial correlation in Table 1) and heteroskedasticity (see the *p*-value of the modified Wald test for groupwise heteroskedasticity in Table 1), we chose the two-step over the one-step system estimator. This choice is supported by the literature claiming that the two-step GMM estimator is robust to autocorrelation and heteroscedasticity and more efficient compared with its corresponding one-step counterpart (Blundell and Bond 1998; Bond, Anke Hoeffler, and Jonathan Temple 2001; Windmeijer 2005). Additionally, the distinction between two-step and one-step estimators is key for determining the over-identification in a panel dynamic model (Romilio Labra Lillo and Celia Torrecillas 2018), an issue that will be considered later in our analysis.

The validity of the two-step system GMM has been confirmed by the usual diagnostic tests: the Hansen test, the Arellano and Bond autocorrelation AR (1), and AR (2) tests. The Hansen test is conducted to verify the validity of the instruments, with the null hypothesis assuming that the instrumental variables are valid. The Arellano and Bond AR (1) and AR (2) tests are conducted to test whether the differenced error term is first-order (the AR (1) test) or second-order (the AR (2) test) correlated. The null hypothesis of no autocorrelation in the case of the AR (1) test and accept it in the case of the AR (2) test. The insignificance of the Hansen test and the AR (2) tests indicates that the overidentification restrictions of the model are satisfactory and that the residuals are not serially correlated in all GMM regressions. The result of the AR (1) test suggests that there is a first-order serial correlation, which is expected since the lagged dependent variable is used as an explanatory variable.

4. Results and Discussion

The estimation results are presented in Table 1. We will discuss the results one by one by studying the sign and statistical significance of the coefficient estimates in the context of the styled facts and conceptual framework presented in Section 2. The results are generally consistent with the theoretical expectations as well as with the correlation analysis in the Table A2 in Appendix. Although some of the coefficient estimates fall short of being statistically significant, all of them have signs consistent with theoretical expectations, as discussed in the previous sections.

The primary coefficients of interest are those that describe the relationship between investment and employment. The coefficient estimates of GFCF, FDI and the interaction term GFCF*FDI are relatively stable, highly statistically significant, and have the expected signs in all specifications. In general, these results appear to confirm the research hypothesis. Focussing on GFCF and FDI separately, we first see a positive contribution of total investment (GFCF) and foreign investment (FDI) to employment. More precisely, the obtained coefficients of GFCF and FDI show that the employment rate increases with total investment and foreign investment. Such a result is consistent with the prevailing theoretical understanding of the relationship between investment and employment, as well as numerous empirical studies on this relationship in different countries (among others, see: J. Bradford DeLong and Lawrence Summers 1992;

Wolfgang Keller and Stephen R. Yeaple 2009; Steve Bond, Asli Leblebicioğlu, and Fabio Schiantarelli 2010; Lucia Ramirez and Gabriela Mordecki 2014; Daniel Francois Meyer and Kaseem Abimbola Sanusi 2019). In contrast, the interaction term GFCF*FDI tends to have just the opposite effect on the investment - employment nexus. Following the methodological approach described in Section 3, this finding corresponds to a crowding-out effect of FDI on creating new jobs in domestic-owned sectors of the economy.

Table 1   Employment and FDI: The System-GMM Estimates, 18 Post-Transition European Countries, 1995-2021

Dependent variable EMPL	(1)	(2)	(3)
EMPL (t -1)	0.967***	0.752***	0.964***
	(0.0382)	(0.0813)	(0.0407)
GFCF(t -1)	0.138***	0.290***	0.148***
	(0.0474)	(0.104)	(0.0451)
FDI inflow (t -1)	0.558**		0.582**
	(0.225)		(0.251)
GFCF* FDI inflow	-0.0219**		-0.0226**
	(0.00903)		(0.00981)
GROWTH	0.186***		0.237***
	(0.0247)		(0.0532)
EDUCATION (t -4)	0.0571***	-0.00874	0.0628***
	(0.0154)	(0.0262)	(0.0160)
WAGE	1.221	8.892	
	(1.329)	(6.453)	
MIGRATION	1.086***	1.799**	1.068***
	(0.275)	(0.794)	(0.248)
GLOBALISATION	-0.0691*	0.0877*	-0.0741*
	(0.0414)	(0.0531)	(0.0414)
EU	0.143	1.419	
	(0.434)	(0.900)	
FDI stock (t -1)		0.688*	
		(0.426)	
GFCF* FDI stock		-0.0341**	
		(0.0172)	
BOOM		0.288	
		(0.335)	
Observations	289	239	291
No. instruments	16	11	17
AR(1) (p-value)	0.005	0.016	0.004
AR(2) (p-value)	0.533	0.135	0.469
Hansen test (p-value)	0.726	0.597	0.516
Wald (chi-sq)	784.71		
Wooldridge (p-value)	0.001		

Notes: Robust one-step standard errors are in parentheses. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. To avoid the problem of instrument proliferation, the matrix of instruments is collapsed and the maximum number of lags is fixed at 2.

Source: Authors' calculation using STATA 15 software.

We need to be careful when interpreting the estimate of the interaction term GFCF*FDI. The negative sign in this case does not mean that investment, regardless of whether they are domestic or foreign investments, has a negative impact on employment. Given that employment growth is preceded by an increase in investment, the relationship between investment and employment will always be positive when considering aggregate macroeconomic variables. This is confirmed by the positive and statistically significant coefficient estimates of GFCF and FDI. However, the degree to which the investment will be transformed into employment depends on the sectoral composition of the investment. For example, the concentration of investments in labour-intensive sectors generates more employment than investment in sectors that are not large employers in the economy.

The two economic sectors most exposed to the influence of foreign capital in post-communist countries are manufacturing and the financial sector. This exposure is evident in the high concentration of foreign capital in these industries, which over time, has evolved into nearly monopolistic control. Despite this commonality, there are significant differences between these two sectors in terms of labour market participation. As illustrated in Section 2, in 2019, foreign capital accumulation, measured as the share of total FDI stock, was quite balanced in both sectors, with a group average of 25% in manufacturing and 21% in the financial sector. Despite these similar figures, less than two percent of the working population is employed in the financial sector, compared to an 18% group average in the manufacturing sector. Therefore, it is plausible to argue that the ongoing trend of reallocating FDI inflows from labour-intensive manufacturing to less labour-intensive sectors tends to reduce the overall positive impact of FDI inflow on employment.

Another interesting aspect that deserves our attention in terms of interpreting the obtained estimates for the investment-employment relationship is how the influx of foreign capital might impact domestic enterprise investments. This is particularly notable in terms of the previously defined crowding-in and crowding-out effects of FDI on job creation within domestic enterprises. The shift in the sectoral distribution of FDI from manufacturing to the finance industry is likely to significantly impact the magnitude of the crowding-in effect, and thereby, the net employment effect of FDI.

If there are more backward or forward linkages in the industry, the probability that foreign investment will influence domestic investment increases, and *vice versa*. The presence of this effect is well-documented in the literature, including in the seminal paper by Agosin and Machado (2005). Since our data set does not contain firm-level data, we cannot directly investigate complex interdependencies between foreign-owned and domestic enterprises within and across economic sectors. However, given the well-known fact that linkages between foreign affiliates and local suppliers are more common in manufacturing than in the financial industry, we can reasonably expect that the positive spillover effect of FDI on employment, through the crowding-in effect, will diminish as a result of sectoral reallocation of FDI inflows from manufacturing towards the financial industry.

The coefficient estimate of the lagged dependent variable is positive and statistically significant. The value of this estimated coefficient, being close to one, suggests a relatively high persistence of the employment rate in post-communist countries. This

finding is not surprising. Upon reviewing the literature, strong theoretical and empirical arguments can be found in favour of a persistent pattern of employment in the post-communist world (for example, John B. Hall and Udo Ludwig 2007; Dennis J. Snower and Christian Merkl 2006; Robert C. M. Beyer and Frank Smets 2014).
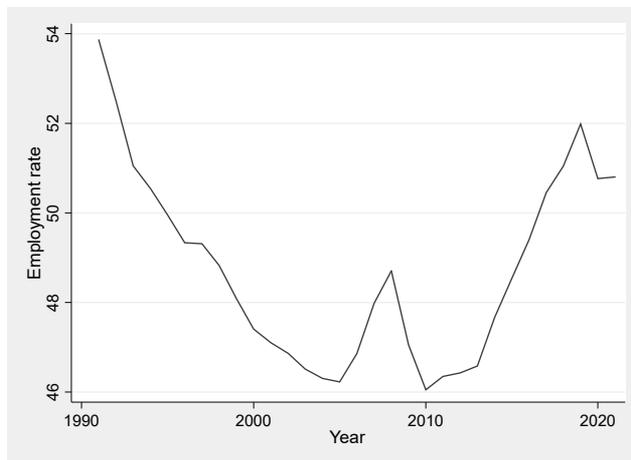
Figure 3 Employment to Population Ratio (in % of Working Population), 18 Post-Communist Countries of Central and Eastern Europe, 1991-2021

The high and persistent employment rate was a distinctive institutional feature of the communist system, one that largely disappeared in the early years of the transition. A sharp fall in GDP, referred to as a "transformational recession" (János Kornai 1994), inevitably led to a decrease in employment, especially among low-skilled workers. However, this drop was a temporary phenomenon, mostly driven by what has been dubbed "transition cyclical unemployment" (Jan Winiecki 2008). Once the process of economic transformation and restructuring was complete, the employment rate steadily increased, approaching pre-transition levels as detailed in Figure 3. More importantly, employment trends have been dictated more by structural than cyclical factors, with persistence becoming the defining characteristic of the employment trend.

The coefficient estimate for tertiary education is positive and highly significant. Given that the employment rate for workers with a college degree is generally higher than for those with lower levels of education (see recent papers on this relationship in the post-communist world: Dalia Bernatonyte et al. 2019; Nazim Habibov, Alena Auchynnikova, and Rong Luo 2019; Emília Krajňáková, Vaida Pilinkienė, and Patrik Bulko 2020), a positive correlation between the rate of college enrolment and the employment rate is expected. However, despite being statistically significant, the absolute impact of this effect appears to be small. One possible explanation is that our analysis only accounted for individuals who enrolled in college, not those who completed their degrees. Thus, our category also includes those who attended but did not graduate, which could dilute the overall positive impact of education on employment in our final

analysis. It is worth noting the progress made through reforms launched to meet EU higher education standards in post-communist countries. The results are evident not only in significantly higher tertiary enrolment rates than before but also in a more robust labour market (Josifidis, Supić, and Nikolina Doroškov 2020; Linda Glawe and Carlos Mendez 2022), particularly from the perspective of the knowledge and skills sought by foreign investors.

Economic growth is also found to have a positive and statistically significant effect on the employment rate. At first glance, the pro-employment effect of economic growth is the least controversial relationship in our model. Across economic theory, irrespective of its specific approach, it is widely accepted that higher production results in higher employment (for more, see Robert M. Solow and Peter A. Diamond 1990). Consequently, GDP growth can be calculated as the sum of employment growth and labour productivity growth. However, this finding warrants careful interpretation when applied to post-communist economies.

One of the defining characteristics of the labour market during the socialist period was over-employment. To address the problem of unemployment, which was fundamentally incompatible with communist ideology, communist governments compelled state-owned enterprises to disregard economic criteria when hiring and firing workers. The result was labour hoarding, leading to excessive employment, i.e., an artificially high employment rate, which negatively impacted productivity and economic efficiency. For instance, a conservative estimate put the level of excessive employment in post-communist countries at 20-30 percent at the beginning of the transition process (for more, see: Winiecki 2008). Alongside labour hoarding, there was also capital hoarding, evident in excessive fixed capital investment, which further complicated the inefficiency problem.

In the initial years of economic transformation, post-communist economies experienced a sharp fall in both output and employment. However, the subsequent economic recovery was characterised by economic growth with a delayed impact on employment growth. Furthermore, in some countries, such as Serbia, the privatisation of state-owned enterprises was accompanied by a concurrent rise in GDP and unemployment. Therefore, the positive relationship between economic growth and the employment rate should be interpreted as evidence of the reestablishment of the labour market.

We found a strong positive association between positive net migration and the employment rate. For instance, controlling for other variables, a one-percent increase in the net migration-to-population ratio leads to a one percent increase in the employment rate. This result aligns with theoretical expectations and findings in the literature on the relationship between migration and employment (for example, see Martin Kahanec and Mariola Pytliková 2017). Although labour market dynamics are complex, an increase in the working population results in a rise in labour supply and, consequently, the employment rate.

It may be worth noting that some of the new EU member states (especially Slovakia, Poland, and the Baltic states) have experienced a significant slowdown in post-enlargement immigration and return migration (Anzelika Zaiceva and Klaus F. Zimmermann 2013). This has occurred after witnessing a large outflow of workers to Western Europe following their entry into the EU. Return migration is driven by

various factors, ranging from improved economic conditions in the country of origin to feelings of homesickness and readaptation experiences (Elina Apsite-Berina, Mădălina Elena Manea, and Maris Berzins 2020).

The last variable that we will consider is related to globalisation. The estimated coefficient of globalisation indicates a negative correlation between globalization and the employment rate. Although it is possible to find theoretical and empirical arguments in the literature supporting the finding that globalisation has a negative impact on employment (for example, see: Joseph Stiglitz 2002; Jorge Heine and Ramesh Chandra Thakur 2011; Niklas Potrafke 2013), it is important to consider certain limitations when interpreting this relationship. Firstly, the relationship between globalisation and employment in post-communist countries is complex and multifaceted, with positive and negative aspects (for example, see: Petreski 2020; Nita Rudra 2022). On the one hand, globalisation can result in job losses due to increased competition or offshoring. However, it also has the potential to boost employment rates by facilitating FDI and providing access to global markets. Furthermore, the impact of globalisation on employment can change over time due to various factors such as changes in national policies, global economic conditions, or technological progress. Second, the effects of globalization are often indirect, as they are transmitted by other variables. For example, the impact of globalisation on employment rates can be mediated by FDI, technological advances, access to global markets, or reforms of the labour market.

Finally, the remaining two estimates for the coefficients, derived from the baseline equation (representing wage growth and EU membership), exhibit the expected signs. However, they lack statistical significance.

Table 2 Employment Rate and FDI: Lagged Dependent Variable (FE, GMM and OLS)

VARIABLES	(1) FE	(2) GMM	(3) OLS
EMP_{it-1}	0.911***	0.967***	0.971***
	(0.02)	(0.0382)	(.0098)
Countries	18	18	18

Source: Authors' calculation using STATA 15 software.

Notes: Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

To assess the robustness of our results, we performed several sensitivity analyses. First, we re-estimated the baseline specification by using alternative measures for some of the key model variables. Thus, we replace the FDI inflow with the FDI stock and the GDP growth rate with a dummy variable representing the economic cycles (Table 1, column 2). Second, we estimate the parsimonious model, that is, the model that does not contain insignificant variables from the baseline specification. In this way, we try to ensure that our estimates are not driven by variables that have expected signs but are not statistically significant (Table 1, column 3). Third, we re-estimate the model by removing one country/year after another from the baseline specification to check whether the estimates significantly differ depending on the specific

country or year[4]. Finally, in accordance with the econometric literature on GMM methodology (Bond 2002), we make a comparison between the coefficients of the lagged dependent variable estimated by using the system GMM estimator, on the one hand, and the simpler estimators OLS (Ordinary Least Squares) and FE (within groups), on the other hand. It is expected that OLS gives an upward-biased and FE downward-biased estimate of the coefficient of the lagged dependent variable (Table 2).

5. Conclusion

The main conclusion drawn from our paper is that the positive impact of FDI on employment is not guaranteed, contrary to the general assumption in mainstream economic theory, which is consequently framed within a neoliberal agenda for developing and post-transition economies. Focusing on post-communist European countries, we have provided empirical evidence suggesting that the employment effect of FDI appears to be conditioned by the interaction between foreign and domestic investments and the sectoral distribution of FDI stocks. To shed more light on the observed nexus between investment and employment, empirical findings have been discussed within the Post-Keynesian conceptual framework of transition and international capital flow.

More precisely, the econometric analysis of 18 post-transitional European countries over the last 25 years has shown that investment, whether domestic or foreign, tends to have a pro-employment effect. However, the extent to which an increase in total investment translates into higher employment depends on the sectoral composition of the investment. This is particularly apparent when contrasting investments in labour-intensive sectors with those in capital and knowledge-intensive sectors. Therefore, we argue that the ongoing trend of reallocating FDI inflows from labour-intensive manufacturing sectors to less labour-intensive sectors, such as the financial and ICT industry, has the potential to diminish the overall positive impact of FDI on employment. Given that linkages between foreign affiliates and local suppliers are more prevalent in manufacturing than in the financial and ICT industry, it is quite probable that this sectoral shift has reduced the "crowding-in" effect of FDI on domestic investment, thereby impacting the net employment effect of FDI negatively.

From the standpoint of Post-Keynesian economics, these findings can be used to challenge the neoliberal approach to the transition process, which heavily relies on FDI as the primary source of investment and a tool for enterprise restructuring. Overdependence on foreign capital can lead to the deindustrialisation of post-transitional countries, distorted development based on the interests of multinational corporations, and, consequently, the obvious vulnerability of these countries to shocks in the global economy. Therefore, policies towards FDI should not be viewed in isolation, but as part of a broader national development strategy, tailored in accordance with the dynamic changes in each industry.

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[4] For space reasons, the result of this robustness test is not shown in the paper, but it is available upon request.

References

Abreo Villamizar, Carlos Alberto, Ricardo Bustillo Mesanza, and Carlos Rodríguez González. 2022. "Trade Agreement and Trade Specialization between Colombia and the EU." *Investigación Económica*, 81(321): 89-119. http://dx.doi.org/10.22201/fe.01851667p.2022.321.79688

Agosin, Manuel R., and Roberto Machado. 2005a. "Foreign Investment in Developing Countries: Does It Crowd in Domestic Investment?" *Oxford Development Studies*, 33(2): 149-162. http://dx.doi.org/10.1080/13600810500137749

Aitken, Brian J., and Ann E. Harrison. 1999. "Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela." *American Economic Review*, 89(3): 605-618. http://dx.doi.org/10.1257/aer.89.3.605

Aizenman, Joshua. 2003. "Volatility, Employment and the Patterns of FDI in Emerging Markets." *Journal of Development Economics*, 72(2): 585-601. http://dx.doi.org/10.1016/S0304-3878(03)00123-8

Amighini, Alessia, Margaret McMillan, and Marco Sanfilippo. 2017. "FDI and Capital Formation in Developing Economies: New Evidence from Industry-Level Data." National Bureau of Economic Research Working Paper 23049.

Apsite-Berina, Elina, Mădălina Elena Manea, and Maris Berzins. 2020. "The Ambiguity of Return Migration: Prolonged Crisis and Uncertainty in the Life Strategies of Young Romanian and Latvian Returnees." *International Migration*, 58(1): 61-75. http://dx.doi.org/10.1111/imig.12580

Arellano, Manuel, and Olympia Bover. 1995. "Another Look at the Instrumental Variable Estimation of Error-Components Models." *Journal of Econometrics*, 68(1): 29-51. http://dx.doi.org/10.1016/0304-4076(94)01642-D

Arestis, Philip, and Eleni Paliginis. 2001. "Foundations of International Economics: Post-Keynesian Perspectives." In *Globalisation of Production and Industrialisation in the Periphery - The Case of the EU and NAFTA*, ed. Johan Deprez and John T. Harvey. London: Routledge.

Barrios, Salvador, Holger Görg, and Eric Strobl. 2005. "Foreign Direct Investment, Competition and Industrial Development in the Host Country." *European Economic Review*, 49(7): 1761-1784. http://dx.doi.org/10.1016/j.euroecorev.2004.05.005

Bernatonyte, Dalia, Jadvyga Ciburiene, Zaneta Simanaviciene, and Grazina Startiene. 2019. "The Impact of Higher Education on Employment in the Labour Market: Lithuanian Case." *Contemporary Educational Researches Journal*, 9(1): 56-64. http://dx.doi.org/10.18844/cerj.v9i1.3821

Beyer, Robert C. M., and Frank Smets. 2014. "Has Mobility Decreased? Reassessing Regional Labour Market Adjustments in Europe and the US." Paper presented at the 60th (European) Labour Markets and the Economic Crisis Conference, Eltville am Rhein.

Blundell, Richard, and Stephen Bond. 1998. "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models." *Journal of Econometrics*, 87(1): 115-143. http://dx.doi.org/10.1016/S0304-4076(98)00009-8

Blundell, Richard, Stephen Bond, and Frank Windmeijer. 2000. "Estimation in Dynamic Panel Data Models: Improving on the Performance of the Standard GMM Estimator." *Advances in Econometrics*, 15: 53-91. http://dx.doi.org/10.1016/S0731-9053(00)15003-0

Bond, Stephen, Anke Hoeffler, and Jonathan Temple. 2001. "GMM Estimation of Empirical Growth Models." Economics Group, Nuffield College, University of Oxford Economics Paper W21.

Bond, Stephen. 2002. "Dynamic Panel Data Models: A Guide to Micro Data Methods and Practice." *Portuguese Economic Journal*, 1(2): 141-162. http://dx.doi.org/10.1007/s10258-002-0009-9

Bond, Steve, Asli Leblebicioğlu, and Fabio Schiantarelli. 2010. "Capital Accumulation and Growth: A New Look at the Empirical Evidence." *Journal of Applied Econometrics*, 25(7): 1073-1099. http://dx.doi.org/10.1002/jae.1163

Bradshaw, Michael J. 2017. "Foreign Direct Investment and Economic Transformation in Central and Eastern Europe." In *Foreign Direct Investment and Regional Development in East Central Europe and the Former Soviet Union: A Collection of Essays in Memory of Professor Francis 'Frank' Carter*, ed. David Turnock. London: Routledge. http://dx.doi.org/10.4324/9781351158121-1

Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis*, 14(1): 63-82. http://dx.doi.org/10.1093/pan/mpi014

Commander, Simon, Fabrizio Coricelli, and Karsten Staehr. 1991. "Wages and Employment in the Transition to a Market Economy." World Bank Working Paper WPS 736.

De Mello Jr., Luiz R. 1999. "Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data." *Oxford Economic Papers*, 51(1): 133-151.

Debande, Olivier. 2006. "De-Industrialisation." European Investment Bank Working Paper 3.

DeLong, J. Bradford, and Lawrence Summers. 1992. "Equipment Investment and Economic Growth: How Strong Is the Nexus?" *Brookings Papers on Economic Activity*, 23(2): 157-212.

Djankov, Simeon, and Peter Murrell. 2002. "Enterprise Restructuring in Transition: A Quantitative Survey." *Journal of Economic Literature*, 40(3): 739-792. http://dx.doi.org/10.1257/jel.40.3.739

Dorakh, Alena. 2020. "A Gravity Model Analysis of FDI across EU Member States." *Journal of Economic Integration*, 35(3): 426-456. http://dx.doi.org/10.11130/jei.2020.35.3.426

Drahokoupil, Jan. 2008. *Globalization and the State in Central and Eastern Europe: The Politics of Foreign Direct Investment*. London: Routledge.

Ernst, Christoph. 2005. "The FDI-Employment Link in a Globalizing World: The Case of Argentina, Brazil and Mexico." *Employment Strategy Papers*, 17: 1-45.

Estrin, Saul, Jan Hanousek, Evžen Kočenda, and Jan Svejnar. 2009. "The Effects of Privatization and Ownership in Transition Economies." *Journal of Economic Literature*, 47(3): 699-728. http://dx.doi.org/10.1257/jel.47.3.699

Estrin, Saul. 2017. "Foreign Direct Investment and Employment in Transition Economies." IZA World of Labor Working Paper. http://dx.doi.org/10.15185/izawol.330

Faggio, Giulia, and Jozef Konings. 2003. "Job Creation, Job Destruction and Employment Growth in Transition Countries in the 90s." *Economic Systems*, 27(2): 129-154. http://dx.doi.org/10.1016/S0939-3625(03)00036-0

Ferragina, Anna Maria, and Francesco Pastore. 2008. "Mind the Gap: Unemployment in the New EU Regions." *Journal of Economic Surveys*, 22(1): 73-113. http://dx.doi.org/10.1111/j.1467-6419.2007.00534.x

Ferris, Stephen P., G. Rodney Thompson, and Calin Valsan. 1994. "Foreign Direct Investment in an Emerging Market Economy." *Eastern European Economics*, 32(4): 81-95. http://dx.doi.org/10.1080/00128775.1994.11648538

Gerschewski, Stephan. 2013. "Do Local Firms Benefit from Foreign Direct Investment? An Analysis of Spillover Effects in Developing Countries." *Asian Social Science*, 9(4): 67-76.

Glawe, Linda, and Carlos Mendez. 2022. "Schooling Ain't Learning in Europe: A Club Convergence Perspective." *Comparative Economic Studies*. http://dx.doi.org/10.1057/S41294-022-00194-3

Golejewska, Anna. 2002. "Foreign Direct Investment and Its Employment Effects in Polish Manufacturing During Transition." Economics of European Integration Division Working Paper 0204.

Habibov, Nazim, Alena Auchynnikova, and Rong Luo. 2019. "The Effect of Different Types of Education on the Likelihood of Employment in 29 Post-Communist Countries of Eastern Europe and the Former Soviet Union." *Higher Education, Skills and Work-Based Learning*, 9(4): 723-738. http://dx.doi.org/10.1108/HESWBL-09-2018-0092

Hall, John B., and Udo Ludwig. 2007. "Explaining Persistent Unemployment in Eastern Germany." *Journal of Post Keynesian Economics*, 29(4): 601-619. http://dx.doi.org/10.2753/PKE0160-3477290404

Hanousek, Jan, Evžen Kočenda, and Mathilde Maurel. 2011. "Direct and Indirect Effects of FDI in Emerging European Markets: A Survey and Meta-Analysis." *Economic Systems*, 35(3): 301-322. http://dx.doi.org/10.1016/j.ecosys.2010.11.006

Heine, Jorge, and Ramesh Chandra Thakur. 2011. *The Dark Side of Globalization*. New York: United Nations University Press.

Iwasaki, Ichiro. 2007. "Enterprise Reform and Corporate Governance in Russia: A Quantitative Survey." *Journal of Economic Surveys*, 21(5): 849-902. http://dx.doi.org/10.1111/j.1467-6419.2007.00520.x

Iwasaki, Ichiro, and Masahiro Tokunaga. 2016. "Technology Transfer and Spillovers from FDI in Transition Economies: A Meta-Analysis." *Journal of Comparative Economics*, 44(4): 1086-1114. http://dx.doi.org/10.1016/j.jce.2016.10.005

Javorcik, Beata Smarzynska. 2004. "Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages." *American Economic Review*, 94(3): 605-627. http://dx.doi.org/10.1257/0002828041464605

Jo, Tae-Hee, Lynne Chester, and Carlo D'Ippoliti. 2017. *The Routledge Handbook of Heterodox Economics: Theorizing, Analyzing, and Transforming Capitalism*. London: Routledge.

Josifidis, Kosta, Novica Supić, and Nikolina Doroškov. 2020. "Foreign Direct Investment and Income Distribution: Evidence from Post-Communist New EU Member States." *Eastern European Economics*, 58(6): 497-516. http://dx.doi.org/10.1080/00128775.2020.1762496

Josifidis, Kosta, Novica Supić, and Slađana Bodor. 2021. "Distributional Effects of Foreign versus Domestic Investment: Evidence from Post-Communist EU Member States." *Panoeconomicus*, 68(2): 187-211. http://dx.doi.org/10.2298/PAN2102187J

Jude, Cristina. 2019. "Does FDI Crowd out Domestic Investment in Transition Countries?" *Economics of Transition*, 27(1): 163-200. http://dx.doi.org/10.1111/ecot.12184

Kahanec, Martin, and Mariola Pytliková. 2017. "The Economic Impact of East-West Migration on the European Union." *Empirica*, 44(3): 407-434. http://dx.doi.org/10.1007/s10663-017-9370-x

Keller, Wolfgang, and Stephen R. Yeaple. 2009. "Multinational Enterprises, International Trade, and Productivity Growth: Firm-Level Evidence from the United States." *The Review of Economics and Statistics*, 91(4): 821-831. http://dx.doi.org/10.1162/rest.91.4.821

King, John Edward. 2015. *Advanced Introduction to Post Keynesian Economics*. Cheltenham: Edward Elgar Publishing.

Kollmeyer, Christopher. 2015. "Globalization and Income Inequality: How Public Sector Spending Moderates This Relationship in Affluent Countries." *International Journal of Comparative Sociology*, 56(1): 3-28. http://dx.doi.org/10.1177/0020715215577869

Konings, Jozef, Olga Kupets, and Hartmut Lehmann. 2003. "Gross Job Flows in Ukraine: Size, Ownership and Trade Effects." *The Economics of Transition*, 11(2): 321-356. http://dx.doi.org/10.1111/1468-0351.00149

Kornai, János. 1994. "Transformational Recession: The Main Causes." *Journal of Comparative Economics*, 19(1): 39-63.

Krajňáková, Emília, Vaida Pilinkienė, and Patrik Bulko. 2020. "Determinants of Economic Development and Employability of Higher Education Institutions Graduates." *Engineering Economics*, 31(2): 211-220. http://dx.doi.org/10.5755/j01.ee.31.2.24751

Labra Lillo, Romilio, and Celia Torrecillas. 2018. "Estimating Dynamic Panel Data: A Practical Approach to Perform Long Panels." *Revista Colombiana de Estadistica*, 41(1): 31-52. http://dx.doi.org/10.15446/rce.v41n1.61885

Lin, Mi, and Yum K. Kwan. 2015. "FDI Technology Spillovers, Geography, and Spatial Diffusion." *SSRN Electronic Journal*. http://dx.doi.org/10.2139/ssrn.2637811

Lipsey, Robert E., Eric Ramstetter, and Magnus Blomström. 2000. "Outward FDI and Parent Exports and Employment: Japan, the United States, and Sweden." *Global Economy Quarterly*, 1(4): 285-303.

Mahutga, Matthew C., and Nina Bandelj. 2008. "Foreign Investment and Income Inequality: The Natural Experiment of Central and Eastern Europe." *International Journal of Comparative Sociology*, 49(6): 429-454. http://dx.doi.org/10.1177/0020715208097788

Marangos, John. 2004. "A Post-Keynesian Approach to the Transition Process." *Eastern Economic Journal*, 30(3): 441-465.

Markusen, James R., and Anthony J. Venables. 1999. "Foreign Direct Investment as a Catalyst for Economic Development." *European Economic Review*, 43(2): 335-356. http://dx.doi.org/10.3846/bm.2010.145

Masso, Jaan, Urmas Varblane, and Priit Vahter. 2007. "The Impact of Outward FDI on Home-Country Employment in a Low-Cost Transition Economy." *SSRN Electronic Journal*. http://dx.doi.org/10.2139/ssrn.988896

Meyer, Daniel Francois, and Kaseem Abimbola Sanusi. 2019. "A Causality Analysis of the Relationships between Gross Fixed Capital Formation, Economic Growth and Employment in South Africa." *Studia Universitatis Babes-Bolyai Oeconomica*, 64(1): 33-44. http://dx.doi.org/10.2478/subboec-2019-0003

Mileva, Elitza. 2008. "The Impact of Capital Flows on Domestic Investment in Transition Economies." European Central Bank Working Paper 871.

Mišun, Jan, and Vladimr Tomšk. 2002. "Does Foreign Direct Investment Crowd in or Crowd out Domestic Investment?" *Eastern European Economics*, 40(2): 38-56. http://dx.doi.org/10.1080/00128775.2002.11041015

Moralles, Herick Fernando, and Rosina Moreno. 2020. "FDI Productivity Spillovers and Absorptive Capacity in Brazilian Firms: A Threshold Regression Analysis." *International Review of Economics and Finance*, 70(C): 257-272. http://dx.doi.org/10.1016/j.iref.2020.07.005

Oliveira, Pedro, and Rosa Forte. 2018. "Labour Market Flexibility and FDI Attraction: A Macroeconomic Analysis." *Panoeconomicus*, 68(3): 267-291. http://dx.doi.org/10.2298/pan180116030o

Petreski, Marjan. 2020. "Winners or Losers? Workers in Transition Economies under Globalisation." *Post-Communist Economies*, 32(4): 468-494. http://dx.doi.org/10.1080/14631377.2019.1678096

Potrafke, Niklas. 2013. "Globalization and Labor Market Institutions: International Empirical Evidence." *Journal of Comparative Economics*, 41(3): 829-842. http://dx.doi.org/10.1016/j.jce.2013.02.002

Ramirez, Lucia, and Gabriela Mordecki. 2014. "Investment, Growth and Employment: VECM for Uruguay." Instituto de Economia Working Paper 07-14.

Rong, Shu, Kai Liu, Si Huang, and Qi Zhang. 2020. "FDI, Labor Market Flexibility and Employment in China." China Economic Review 61. http://dx.doi.org/10.1016/j.chieco.2020.101449

Rozen-Bakher, Ziva. 2017. "Impact of Inward and Outward FDI on Employment: The Role of Strategicasset-Seeking FDI." *Transnational Corporations Review*, 9(1): 16-30. http://dx.doi.org/10.1080/19186444.2017.1290919

Rudra, Nita. 2022. "Are Workers in the Developing World Winners or Losers in the Current Era of Globalization?" In *Global Labour in Distress, Volume I: Globalization, Technology and Labour Resilience*, ed. Pedro Goulart, Raul Ramos, and Gianluca Ferrittu, 229-274. Cham: Springer International Publishing. http://dx.doi.org/10.1007/978-3-030-89258-6_13

Schweinberger, Albert G., and Jens Suedekuma. 2015. "De-Industrialization and Entrepreneurship under Monopolistic Competition." *Oxford Economic Papers*, 67(4): 1174-1185. http://dx.doi.org/10.1093/oep/gpv028

Snower, Dennis J., and Christian Merkl. 2006. "The Caring Hand That Cripples: The East German Labor Market after Reunification." *American Economic Review*, 96(2): 375-382. http://dx.doi.org/10.1257/000282806777212314

Solow, Robert M., and Peter A. Diamond. 1990. *Growth, Productivity, Unemployment: Essays to Celebrate Bob Solow's Birthday*. Cambridge, M. A.: MIT Press.

Stiglitz, Joseph. 2017. *Globalization and Its Discontents Revisited*. London: Penguin Books.

Vodopivec, Milan. 1991. "The Persistence of Job Security in Reforming Socialist Economies." *Soviet Studies*, 43(6): 1011-1025. http://dx.doi.org/10.1080/09668139108411980

Wang, Miao. 2009. "Foreign Direct Investment and Domestic Investment in the Host Country: Evidence from Panel Study." *Applied Economics*, 41(16): 3711-3721. http://dx.doi.org/10.1080/00036840802314580

Welfens, Paul, and Fabian Baier. 2018. "BREXIT and Foreign Direct Investment: Key Issues and New Empirical Findings." *International Journal of Financial Studies*, 6(2): 46-67. http://dx.doi.org/10.3390/ijfs6020046

Windmeijer, Frank. 2005. "A Finite Sample Correction for the Variance of Linear Efficient Two-Step GMM Estimators." *Journal of Econometrics*, 126(1): 25-51. http://dx.doi.org/10.1016/j.jeconom.2004.02.005

Winiecki, Jan. 2008. "Employment and Unemployment in Transition: The Legacy of the Communist Past." *Post-Communist Economies*, 20(3): 377-390. http://dx.doi.org/10.1080/14631370802281480

Zaiceva, Anzelika, and Klaus F. Zimmermann. 2013. "Returning Home at Times of Trouble? Return Migration of EU Enlargement Migrants during the Crisis." University of Modena Department of Economics Working Paper 0008.
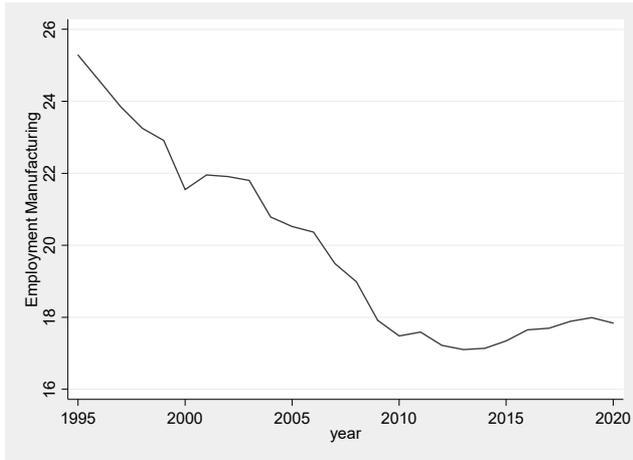
Appendix
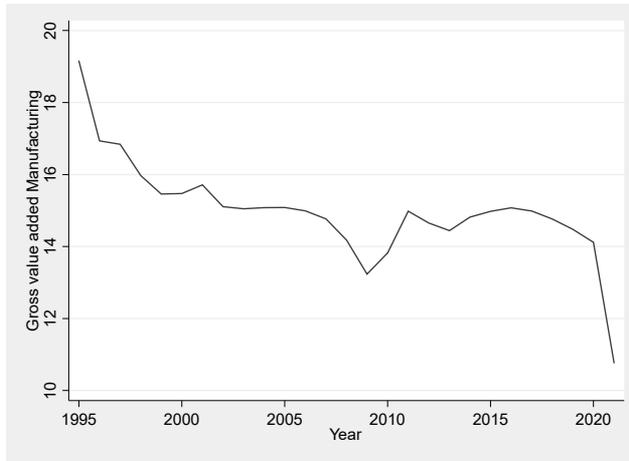
Figure A1 Industrial Gross Value Added (in % of GDP), 18 Post-Communist Countries of Central and Eastern Europe, 1995-2020
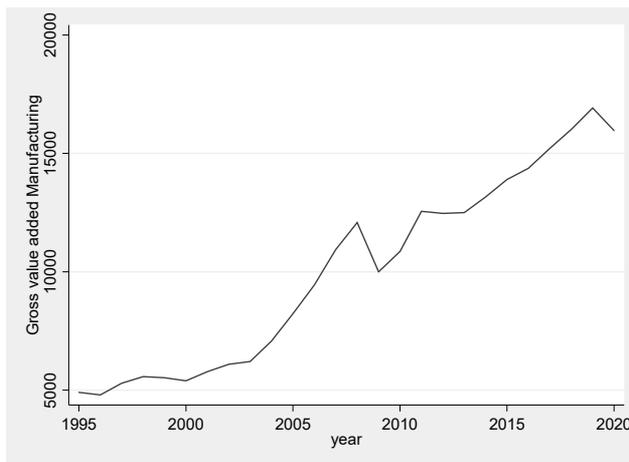
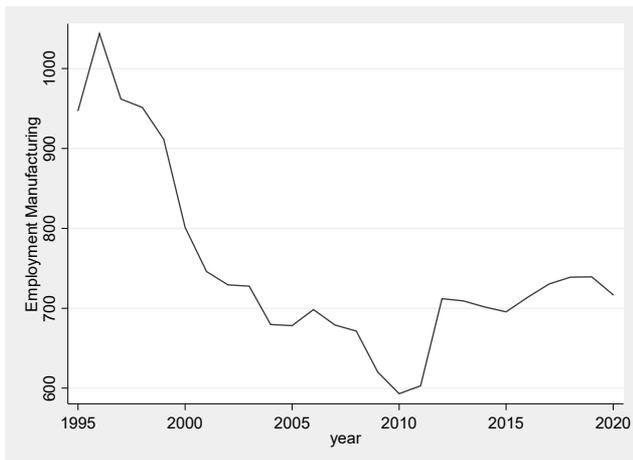**Figure A2** Industrial Gross Value Added (in Millions of Euros), 18 Post-Communist Countries of Central and Eastern Europe, 1995-2020

Figure A3 Employment in Manufacturing Industry (in % of Total Employment), 18 Post-Communist Countries of Central and Eastern Europe, 1995-2020

Figure A4 Employment in Manufacturing Industry (in Thousands of People), 18 Post-Communist Countries of Central and Eastern Europe, 1995-2021

Table A1 Description, Data Sources and Summary Statistics

Name	Description	Source	Obs.	Mean	Std. dev.	Min	Max
EMPL	Employment to population ratio, 15+, total (%) (modeled ILO estimate)	World Bank - World Development Indicators, 2022.	486	48.24	7.09	29.39	62.37
GFCF	Gross fixed capital formation (% of GDP)	World Bank - World Development Indicators, 2022.	463	23.08	5.21	4.45	39.21
FDI inflow	Foreign direct investment, net inflows (% of GDP)	World Bank - World Development Indicators, 2022.	423	5.11	6.79	-40.32	56.36
GROWTH	GDP growth (annual %)	World Bank - World Development Indicators, 2022.	458	3.23	6.25	-15.31	88.96
EDUCATION	School enrollment, tertiary (% gross)	World Bank - World Development Indicators, 2022.	397	51.96	18.96	10.21	94.86
WAGE	Average monthly gross wages total growth (% annual)	Vienna Institute for International Economic Studies, Labour market - Annual Database, 2022	464	0.01	0.41	-4.16	0.41
MIGRATION	Net imigration to population (%)	Eurostat, 2002	427	-0.25	1.27	-22.94	3.29
GLOBALISATION	Index of economic globalization (scale of 1 to 100)	KOF Swiss Economic Institute, 2021	410	66.87	11.81	29.27	85.89
EU	A dummy variable that takes the value 1 if the country is an EU member and 0 if it is not	Authors	486	0.37	0.48	0	1
FDI stock	FDI inward stock (% of GDP)	Vienna Institute for International Economic Studies, FDI Database, 2022	339	11.08	5.34	0.94	27.01
BOOM	A dummy variable that takes the value 1 if the output gap is positive and 0 if it is negative. The output gap is calculated by applying a Hodrick Prescott filter to the annual GDP	Authors using World Bank - World Development Indicators Database 2022	486	0.45	0.49	0	1

Source: Authors' calculations.

Table A2 Correlation Matrix of Main Variables

	EMPL	EMPL (t-1)	GFCF	FDI	GFCF* FDI	GROWTH	EDUC	WAGE	MIGRAT	GLOBAL	EU
EMPL	1										
EMPL (t-1)	0.97	1.00									
GFCF	0.19	0.17	1.00								
FDI	0.13	0.15	0.20	1.00							
GFCF* FDI	-0.10	-0.13	0.37	0.97	1.00						
GROWTH	0.08	-0.01	0.31	0.06	0.11	1.00					
EDUC	0.40	0.35	-0.39	-0.16	-0.20	-0.19	1.00				
WAGE	-0.04	-0.07	0.23	0.12	0.15	0.44	-0.22	1.00			
MIGRAT	0.05	0.02	-0.15	0.02	-0.01	-0.11	0.11	-0.16	1.00		
GLOBAL	0.35	0.29	-0.02	0.11	0.12	-0.07	0.52	-0.19	0.29	1.00	
EU	0.48	0.44	-0.04	-0.09	-0.08	-0.07	0.63	-0.16	0.06	0.65	1.00

Source: Authors' calculation using STATA 15 software.

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