

The role of Foreign Direct Investments as generator of employment in the Macedonian manufacturing sector

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Abstract: Macedonia as a less developed post-transition country during the past decade has marked a moderate growing economic performance coupled with high and sustained unemployment. In this context, fostering FDI has been promoted by the Macedonian government as one of the main instruments for tackling unemployment and providing further economic development. On the other hand, attracting the FDI has been criticised as a reason for government's engagement in a race to the bottom deregulation and worsening labour standards. Despite its relevance, the assessment of these policies effectiveness including the FDI effects on employment in Macedonia has received little attention by researchers and policymakers. Having in mind the above considerations, the aim of this paper is to assess the impact of FDI on the labour market outcomes in the manufacturing sector. For this purpose, we will attempt to identify the determinants of employment in the manufacturing sector in Macedonia by paying attention to the role of FDI inflows. The results from the analyses are used for deriving conclusions and formulating policy measures in order to reshape the role of FDI in the manufacturing sector.

Keywords: FDI, employment, manufacturing

JEL codes: J31, F21, C23

1. Introduction

Macedonia as a less developed post-transition country during the past decade has marked a moderate growing economic performance. Following strong economic growth during the period 2002-2008 averaging 4.3%, the average GDP growth has declined to 2.1% per year since 2009. The main drivers of growth since 2009 have been construction, manufacturing and wholesale and retail trade. Although the country has made significant progress in terms of its economic development, efforts are still needed across a range of areas to generate economic growth that will create jobs and improve living standards for all¹. Moreover, the problem of high and sustained unemployment continues to be the most challenging issue which has been translated into substantial erosion of skills and motivation of unemployed workers.

In these circumstances the Macedonian Government has promoted FDI as one of the main instruments for increasing employment and providing further economic development of the country. With this regard, a number of policy measures have been undertaken in order to attract FDI. For instance, the fiscal burden has been gradually alleviated by diminishing the corporate tax rate and social security

contributions. Namely, the corporate tax rate has been reduced from 15% in 2006 to 12% in 2007 and further to 10% in 2008. Similarly, during the period 2008-2012 the contribution for Pension and Disability Insurance Fund has dropped from 21.2% to 15%. During the same period the contribution for Health Insurance Fund has dropped from 9.2% to 6%, while the contribution for Employment fund dropped from 1.6% to 1%².

Moreover, in 2010 the Government has established the Agency for Foreign Investments and Export Promotion of the Republic of Macedonia which *inter alia* is in charge of attracting new foreign investments in the country and supporting the expansion of the foreign companies with already established operations. In this context, the Government has designed and promoted the campaign 'Invest Macedonia' and has engaged a dozens of economic promoters in several developed countries³.

In addition, the Macedonian Government has established several Technological Industrial Development Zones (TIDZ) as industrial free zones, whose primary goal is to assist in providing more efficient business climate in the country by attracting foreign and domestic capital, improving the competitiveness and increasing employment. Besides the tax and customs incentives normally associated

1 <http://www.worldbank.org/en/country/macedonia/overview>

2 Source: Ministry of Finance of the Republic of Macedonia (www.finance.gov.mk)

3Source: Agency for Foreign Investments and Export Promotion of the Republic of Macedonia (www.investmacedonia.com);

with free economic zones, Macedonia offers additional investment incentives related to TIDZs. Moreover, TIDZs are considered as extraterritorial and free of most national customs, trade and financial regulations which ease the processing and handling of goods to and from the TIDZs.

With respect to the administrative procedures, the Government has introduced a 'One-Stop-Shop' System that enables investors to register their businesses within couple of hours after submitting application. In this context, one can register a company by visiting one office, obtaining the information from a single place, and addressing one employee, which significantly reduces administrative barriers and start-up costs.

Regarding the labour legislation, it is worth mentioning that recently enacted Labour Law provides increased flexibility of the labour market by offering and promoting flexible and different employment contracts and working time flexibility. On the other hand, attracting FDI has been criticised as a reason for government's engagement in a race to the bottom deregulation and worsening labour standards. Despite its relevance, the assessment of FDI effects on employment and human capital development in Macedonia has received little attention by researchers and policymakers.

In this context, a dilemma faced by developing countries including Macedonia is whether host authorities should expend public funds to attract manufacturing FDI by offering special support and providing subsidies (Moran, 2007). According to the Balkan Investigative Reporting Network (BIRN), during the period 2007-2015 the Macedonian government has spent about 150 million EUR for attracting FDI. However, the analysis of BIRN's database 'Foreign Investments Uncovered' points out that around one third of the announced investments have not been completed or have failed⁴. In addition, it shows that the number of workers employed as a result of these investments is three times fewer than announced by the government spokespeople.

Although the general perception is that manufacturing sector has low esteem, it is very important for every economy. This is particularly relevant with respect to creation of economic value and supporting additional jobs. In addition, its importance is reflected in the multiplier effect, which justifies why a strong and healthy economy requires a vibrant and growing manufacturing sector. When assessing the size and

importance of the manufacturing sector in developing countries it is vital to recognise its capacity to attract FDI.

Having in mind the above considerations, the aim of this paper is to assess the impact of FDI on employment in the Macedonian manufacturing sector. In particular, we would like to address the following research questions: What is the composition of FDI in the manufacturing sector in Macedonia? How FDI inflows in the manufacturing sector affect employment on the short and long run? What policy recommendations can be formulated in order reshape the role of FDI in direction of improving employment generation in the manufacturing sector? Accordingly, the paper is structured as follows. In section 2 we provide the basic theoretical concepts related to FDI and their determinants with an accent to the FDI in the manufacturing sector. In this context, stylised facts about FDI flows to transition economies will be particularly emphasised. In section 3 we will present the results from the empirical analysis. With this regard separate sub-sections are devoted to description of variables, descriptive analysis and econometric analysis. Finally, in section 4 we present the summary of research and attempt to formulate recommendations for future policy reforms aiming to attract FDI in the manufacturing sector.

2. Theoretical background

The FDI is defined as direct investment of a company in facility to produce or market product in a foreign country. Since, the foreign investments mark continuous global increase, they have gradually became one of the central topics in the academic and policy debates (UNCTAD, 2009). The FDI can be viewed as a greenfield investment which involves establishment of new plant in a foreign country or it can occur by acquiring or merging with existing firm in the foreign country. The FDI potentially brings benefits and costs for both host and home country. The main benefits of inward FDI for a host country arise from resource transfer effects, employment effects, balance of payments effects, and effects on competition and economic growth. On the other hand, the costs of FDI which concern the host country are the following: adverse effect on competition, adverse effect on the balance of payment, and possible loss of national sovereignty and autonomy (Hill, 2013).

The FDI are expected to exert shifts in labour demand in receiving countries manifested by higher

⁴ <http://investicii.prizma.mk/mk>

employment and wages at least in the short-run (Axarloglou and Pournarakis, 2006). However, the net effect of FDI on employment would depend on the type of investments and ultimately on the balance between job-creation and job-displacing forces. Horizontal FDI are generally driven by market seeking motives and in this case there is a shift of production activities due to replacement of exports with host country production. On the other hand, the aim of vertical FDI is to minimise the production costs which improves the competitiveness of the multinational companies and implies their larger market shares (Johnson, 2005; Brincikova and Darmo, 2014).

The beneficial employment effects of FDI for the host countries can be either direct or indirect. The direct effect is considered as a job creation in the multinational affiliates in the receiving countries. Alongside with the direct effect, FDI can exert indirect effect through jobs created in local suppliers as a result of investment or higher level of consumption. For instance, by subcontracting a number of 'value chain' activities to local subcontractors who supply spare parts, components or semi-finished goods to the foreign company is expected a creation of extra jobs, which additionally increase the economic development of a host country (Dunning and Lundan, 2008). However, the theory is not decisive regarding the impact of FDI on the level of employment in the receiving countries. Namely, some authors point out that in the case of acquisitions, the employment might be reduced due to the intentions of multinational companies to restructure operations in the acquired unit and to improve its operating efficiency.

Having in mind the above considerations it becomes obvious the reason why accurately measuring the economic impact of FDI including the effects on employment becomes a challenging task. In order to estimate the impact of FDI on employment it is necessary first, to assess the direct and indirect employment associated with the operation of the foreign affiliates and second, to identify the next best alternative to such investment, and to estimate the employment associated with this alternative. The difference between the two is the employment effect of inward investment.

Apart from quantitative impact measured as net job creation, FDI exert qualitative effects on wages, job security, level of skills and labour productivity in receiving countries. The empirical evidence shows that foreign affiliates generally pay higher wages than domestic firms in same activities; they tend to offer greater job security than domestic firms; they upgrade employee skills by investing in training; and, they

generate technological spillovers for the local firms (Golejewska, 2001; Lipsey, 2004; OECD, 2008). The quality of jobs created by the FDI might be considered from both worker's and country's perspective (Javorcik, 2013). From the worker's perspective relevant characteristics of good jobs are the associated wage, promotion possibilities and job stability. From the country's perspective the quality that brings FDI are the following: technology and knowledge spillovers, increased aggregate productivity and increased competitiveness.

The evidence of both cross-country and over-time heterogeneity of FDI suggests that government policy may play an important role in shaping the size and composition of inward FDI flows. In this context, there is an open debate whether FDI cause a race to the bottom by deregulating employment protection and worsening labour standards in less developed countries striving to attract FDI (Olney, 2013). Moreover, the race to the bottom has been criticised as a reason for increased elasticity of demand for labour, which pushes wages downward toward subsistence levels in the global labour market (Mehmet and Tavakoli, 2003). Hence, the challenging task of the policy reforms that tackle FDI in less developed countries will be reconciliation of two opposed goals i.e. attracting FDI by simultaneously maintaining a satisfactory level of labour standards (Agusti-Panareda and Puig, 2015).

The stylised facts about transition countries show that FDI have been considered as a significant source of development since the outset of transition. However, the transition world has not been homogenous and both the level and growth of FDI differ across countries. For instance, Central and Eastern European countries (CEECs) advanced earlier in the process of transitional reforms and consequently attracted substantial foreign capital. In contrast, South-Eastern European countries also known as 'lagging reformers' in the process of transition lag behind CEECs in attracting FDI. One of the main reasons for low performance of the Balkan countries with respect to FDI inflows is the political instability which had negative economic implications for the whole region (Estrin and Uvalic, 2014). In addition, this group of countries lag behind in the process of EU integration which has been considered as an important precondition for larger FDI inflows (Penev and Rojec, 2014). With respect to the above mentioned race to the bottom hypothesis, in the case of transition countries some evidence shows that FDI flows are significantly higher in countries with relatively low unit labour cost, but statistically significant impact of

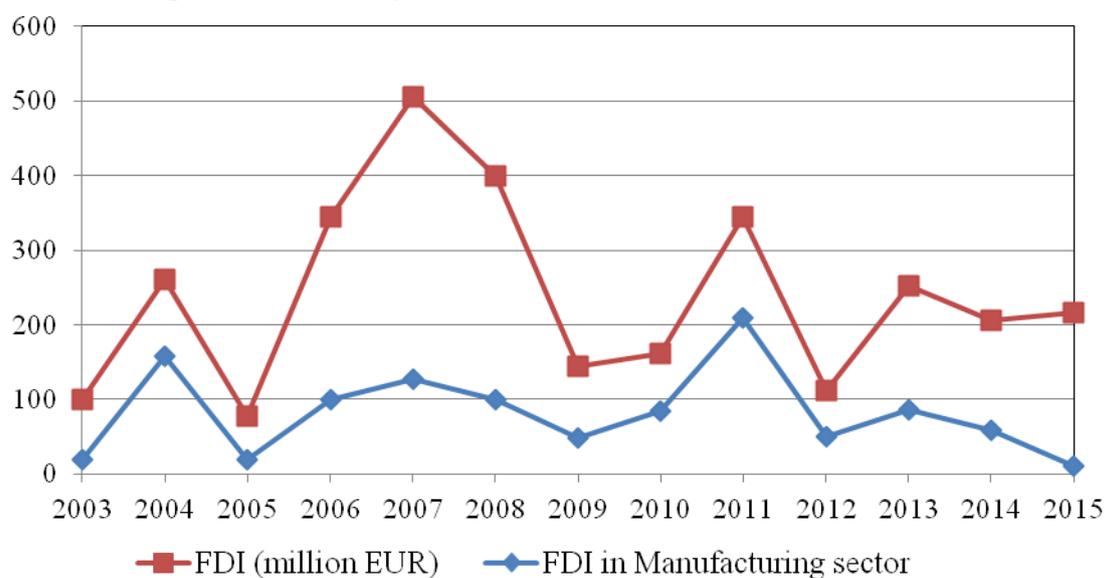
employment protection legislation has not been found (Leibrecht and Scharler, 2009).

3. Empirical analysis

In spite of the heavily advertised campaign and a long list of incentives, Macedonia continues to score less FDI in comparison to other developing post-transition countries. For instance, the average FDI net inflows in Macedonia for the period 2007-2015 was around 4%

of GDP, which is considerably lower compared to more advanced economies. As potential reasons why foreign investors are sensitive to investing in small developing economy such as Macedonia have been identified the following: market size, economic development and general growth prospects, business climate, overall infrastructure, regulatory and administrative issues (Krstevska and Petrovska, 2012). The dynamics of total FDI inflows and FDI in the manufacturing sector in Macedonia during the period 2003-2015 is presented on Figure 1.

Figure 1. FDI net inflows in Macedonia 2003-2015 (million EUR)



Source: National Bank of Macedonia

From Figure 1 we can notice that the trend of FDI varies considerably from year to year with two noticeable declines from 2007 to 2009 and from 2013 to 2015. The former decline can be attributed to the effects of the global economic crisis, while the later might be due to the recent political instability in the country. From the macroeconomic perspective the FDI in Macedonia predominantly occur in the tradable sector which contributes to increasing the export potential of the economy. For instance, 35 percent of total export in 2011 was attributed to the companies with FDI, whereas their participation in total import was around 21 percent. Hence, one can argue that FDI in Macedonia generally have positive impact on the trade balance and increase the coverage of imports by exports.

The dynamics of the FDI in manufacturing sector roughly follows the dynamics of the total FDI net inflows in the country. During the period 2003-2015 its average share in the total FDI inflows was around 38

percent, but in certain years (2004 and 2011) it reached 60 percent. The manufacturing sector comprises any industry that makes products from raw materials by the use of manual labour or machines and is engaged in the mechanical, physical or chemical transformation of materials, substances or components into new products. Although the FDI in Macedonian manufacturing sector are important, tscdsxzahere is an obvious gap in the analysis of their determinants as well as their employment implications. According to Bitzenis et al. (2007), the most important factor for attracting FDI in the manufacturing sector in Macedonia is the low-cost unskilled labour force followed by ownership advantages and geographical proximity.

3.1 Variables under consideration

In our analysis we consider the inward FDI in the manufacturing sector defined as investments of legal and natural persons from abroad in domestic business

entities with whom it is acquired long-term interest and where, the foreign investor owns at least 10% of total business entity's value. The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise, as well as a significant degree of influence on the management of the enterprise. The direct or indirect ownership of 10% or more of the voting power of an enterprise resident in one economy by an investor resident in another economy is evidence of such a relationship. Since 2003, the statistics of FDI stocks and flows in Macedonia have been in charge of the National Bank of the Republic of Macedonia (NBRM) which provides decomposition of the FDI into the following components: Equity, Reinvested earnings and Debt instruments. In addition, the FDI data are in accordance with the Balance of Payments and International Investment Position Manual (IMF, 2009; OECD, 2008).

As a source of data for employment and other control variables we use the structural business statistics in the manufacturing sector provided by the National Statistical Office. These statistics describe the structure, conduct and performance of businesses according to the NACE rev.2 classification. More precisely, the structural business statistics encompass the following variables: Number of employed persons (EMP), Personnel costs (PER), Gross operating surplus (GOS), and Value added at factor cost (VAL). In what follows we briefly describe each of these variables.

Number of persons employed (EMP) is defined as a number of persons with employment contract and paid a salary or other type of compensation by the employer. This variable represents the stock of employment in the given subsector and encompasses both the domestic firms and foreign affiliates. By

3.2 Descriptive analysis

According to NACE rev. 2 classification the manufacturing sector is composed of 24 different subsectors. The manufacturing subsectors are very diverse, combining activities with different levels of labour productivity and average personnel costs. From the point of view of FDI inflows in Macedonia not all subsectors are equally relevant, since in some of them FDI are either negligible or do not occur at all. In

considering the entire number of employed in the manufacturing sector we attempt to assess the direct and the indirect effect of FDI on employment.

Personnel costs (PER) are defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during the reference period. Personnel costs are made up of wages, salaries and employers' social security costs. They include taxes and employees' social security contributions retained by the employer, as well as the employer's compulsory and voluntary contributions.

Gross operating surplus (GOS) can be defined as a balancing item in the generation of income account representing the excess amount of money generated by incorporated enterprises' operating activities after paying labour input costs. In other words, it is the capital available to financial and non-financial corporations which allows them to repay their creditors, to pay taxes and eventually to finance all or part of their investment.

Value added at factor cost (VAL) is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated as the total sum of items to be added or subtracted. The items to be added are the following: turnover, capitalized production, other operating income and increases of stock. In contrast, the items to be subtracted are the following: Purchases of goods and services, other taxes on products which are linked to turnover but not deductible, duties and taxes linked to production and decreases of stocks. The value added can be also obtained as a sum of the Personnel cost and Gross operating surplus.

In addition, the data on FDI net inflows in the manufacturing sector are available only on aggregate level for 13 groups of subsectors. The structure of the groups of subsectors used for this analysis is presented in Table 1.

Therefore, the empirical analysis will be based on a balanced panel of 13 groups of manufacturing subsectors over the period 2009-2015. The summary statistics of the variables under consideration are presented in Table 2.

Table 1. Structure of the groups of manufacturing subsectors

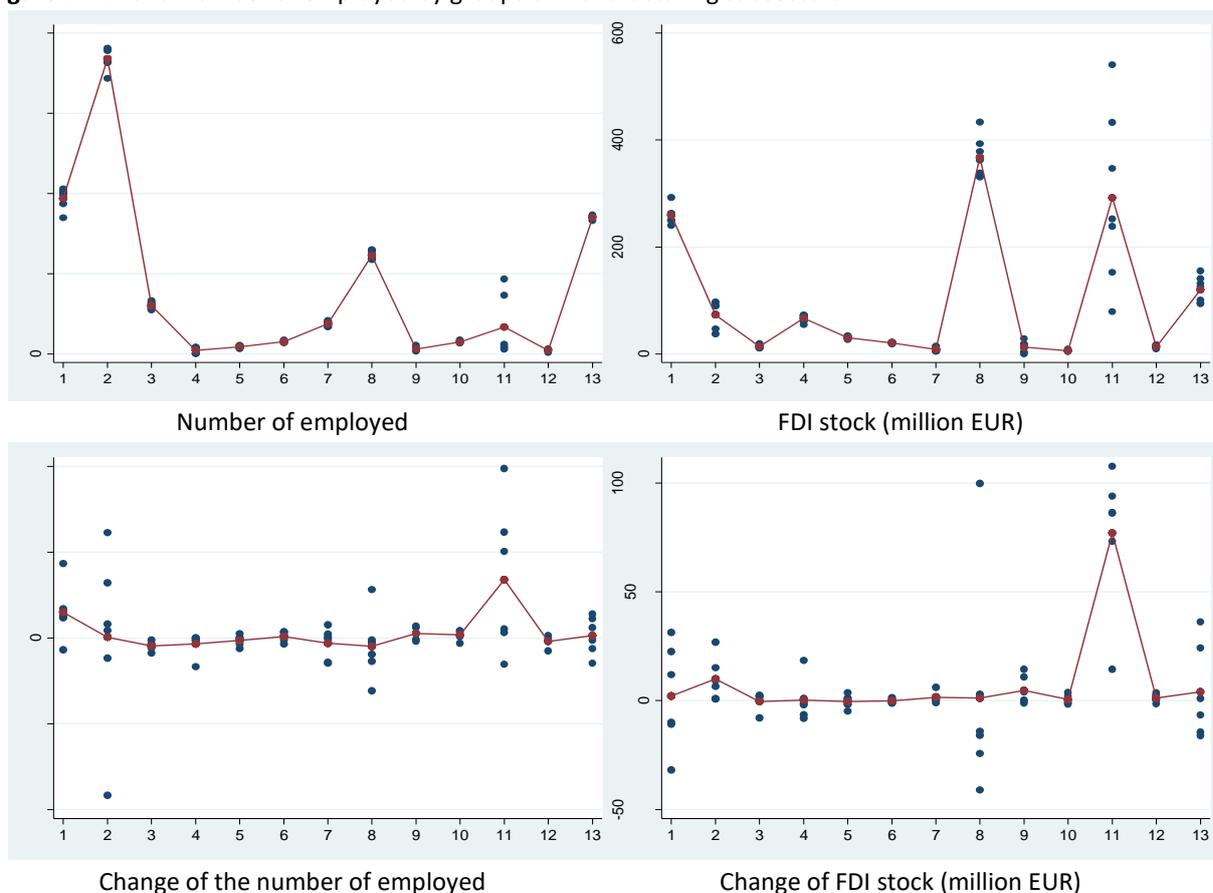
Group of subsectors		NACE rev.2 Divisions	
1.	Food products, beverages and tobacco products	C10	Manufacture of food products
		C11	Manufacture of beverages
		C12	Manufacture of tobacco products
2.	Textiles and wearing apparel	C13	Manufacture of textile
		C14	Manufacture of wearing apparel
3.	Wood, paper, printing and reproduction	C16	Manufacture of wood an products of wood
		C17	Manufacture of paper and paper products
		C18	Printing and reproduction of recorded media
4.	Coke and refined petroleum products	C19	Manufacture of coke and refined petroleum products
5.	Chemicals and chemical products	C20	Manufacture of chemicals and chemical products
6.	Basic pharmaceutical products and pharmaceutical preparations	C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
7.	Rubber and plastic products	C22	Manufacture of rubber and plastic products
8.	Basic metals and fabricated metal products	C24	Manufacture of basic metals
		C25	Manufacture of fabricated metal products
9.	Computer, electronic and optical products	C26	Manufacture of computer, electronic and optical products
10.	Machinery and equipment	C28	Manufacture of machinery and equipment
11.	Motor vehicles, trailers and semitrailers	C29	Manufacture of motor vehicles, trailers and semitrailers
12.	Other transport equipment	C30	Manufacture of other transport equipment
		C15	Manufacture of leather and related products
		C23	Manufacture of other non-metallic mineral products
		C27	Manufacture of electrical equipment
		C31	Manufacture of furniture
13.	Total of other manufacturing	C32	Other manufacturing
		C33	Repair and installation of machinery and equipment

Source: NACE Rev.2 Statistical classification of economic activities in the European Community

Table 2. Summary statistics

Variable		Mean	Std. Dev.	Min	Max	Observ.
EMP	overall	8004.297	10516.18	40	38105	N=91
	between		10829.24	450	36829.57	n=13
	within		1065.68	5216.725	13994.73	T=7
ΔEMP	overall	113.2949	862.7253	-3671	3951	N=78
	between		426.6639	-197.3333	1360.333	n=13
	within		757.6766	-3575.372	2703.962	T=6
FDI stock (million EUR)	overall	98.74835	128.2952	0	540.9	N=91
	between		124.8384	6.228571	367.2571	n=13
	within		43.7493	-114.0802	347.7198	T=7
ΔFDI	overall	7.83077	27.01003	-41.09998	107.6	N=78
	between		20.9667	-.4666665	76.96667	n=13
	within		17.84614	-54.73589	106.4308	T=6
PER (million EUR)	overall	32.92415	36.16954	.1447154	133.4228	N=91
	between		36.65657	3.104065	111.4859	n=13
	within		7.35605	13.92275	66.06724	T=7
GOS (million EUR)	overall	36.57541	42.6561	-21.2374	199.5837	N=91
	between		39.4156	.3261324	129.8623	n=13
	within		19.2231	-27.47755	164.2639	T=7

Figure 2. FDI and Number of employed by groups of manufacturing subsectors



From Table 2, it can be noticed that average annual increase of FDI stock is 7.83 million EUR per group of manufacturing subsectors, while the average annual increase of employment is 113 employed per group of manufacturing subsectors. The average personnel cost is 32.92 million EUR, while the average Gross operating surplus is 36.57 million EUR, the later being characterised with higher heterogeneity, since in some cases it takes negative values. In addition, we graphically present the stocks of FDI and the number of employed, as well as the change in the FDI stock and in the number of employed in each of the 13 groups of manufacturing subsectors for the period 2009-2015.

The analysis of employment by groups of subsectors shows that the largest number of employees absorbs the subsector of Textiles and wearing apparel which represents about 44 percent of the total number of employees in the manufacturing sector, followed by

the subsector of Food products, beverages and tobacco products; and Basic metals and fabricated metal products. Furthermore, from Figure 2 we observe significant FDI stocks in the following groups of manufacturing subsectors: Basic metals and fabricated metal products; Motor vehicles, trailers and semitrailers; Food products, beverages and tobacco products. However, the highest growth of employment as well as increase of FDI stock has been noticed in the automotive industry mainly due to the openings of dozen foreign subsidiaries during the period 2007-2015⁵.

3.3 Econometric analysis

Taking into account the Macedonian moderate resource endowments and modest market size, we assume that FDI in Macedonia mostly occur as a result of efficiency seeking motives *i.e.* a foreign investor

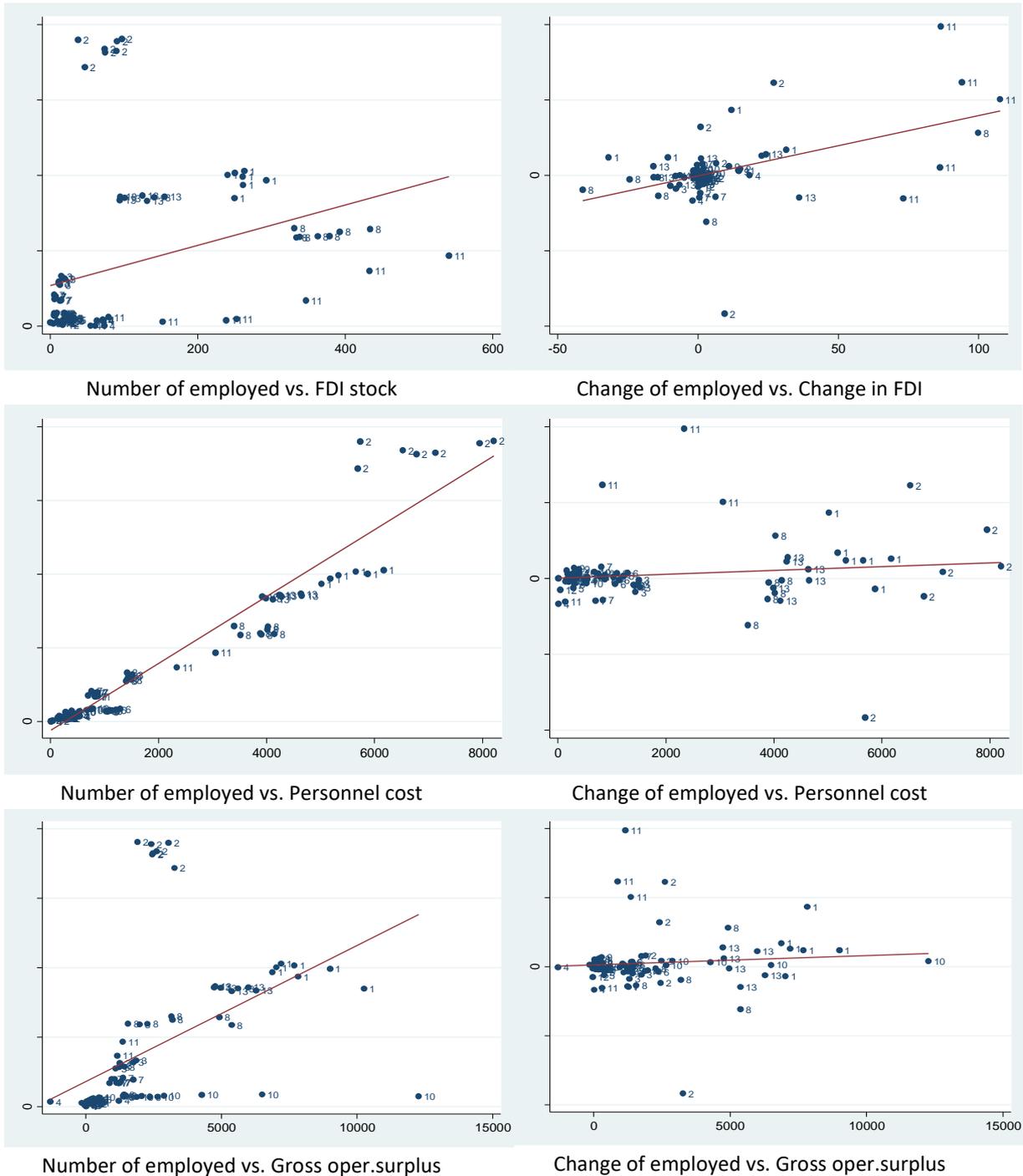
industry. Moreover, during the same period more than two thirds of new job openings in the companies with greenfield FDI are attributed to this manufacturing subsector.

⁵ This finding corroborates with the data gathered from BIRN database 'Foreign Investments Uncovered' according to which about one half of the greenfield FDI in Macedonia during the period 2007-2015 occurred in the automotive

would enter an industry where he anticipates comparative advantages and high returns. In this context, firms will be most likely to invest in industries where labour cost is low relative to producing elsewhere. It is argued that the unit labour cost is a combined influence of wages and productivity what matters for the competitiveness of industries based on high labour intensities. Hence, a positive relationship between FDI and labour cost is expected.

The profit can be considered as a proxy for general competitiveness. In this context, FDI should be attracted by more profitable firms or the presence of FDI can spill over to higher profits. For this purpose we visualise the relationships by using scatter plots of Number of employed and change in the number of employed with respect to the control variables under consideration (Figure 3).

Figure 3. Scatter plots among the variables under consideration



From the scatter diagrams in Figure 3 we can observe that there is no clear positive association between the number of employment and FDI stock in the groups of manufacturing subsectors, while positive relationship is more evident between the net change of the number of employed and change of FDI stock. In this context, the automotive industry appears as main generator of employment growth which might be attributed to the increase of FDI stock. In contrast, the relationship between the stock of employment and the value added components (Personnel cost and Gross operating surplus) is positive, while this cannot be observed when it comes to the relationship between the net change in employment and the value added components.

In order to assess the impact of FDI inflows to employment in the manufacturing sector we further apply a dynamic specification by modelling the net change of the number of employed in subsector i in year t as a dependent variable of the amount of FDI and other control variables in the previous year. In this context, we account for the short-run as well as for the long-run effects of independent variables on the change of employment in the manufacturing sector. For this purpose we apply a single equation error correction model, where dependent variable is differenced once and independent variables are included both in one differenced and one lagged versions. The differenced independent variables pick up the immediate effects of their changes, while the lagged variables represent the long-run effects of independent variables on employment change.

In order to choose between a model with fixed or random effects, we run Hausman test where the null hypothesis states that the preferred specification is a

model with random effects vs. the alternative model with fixed effects. It basically tests whether the unique errors are correlated with regressors and, according to the null hypothesis they are not. Since the p-value of the Chi-square test-statistics is close to zero, we can reject the null hypothesis and conclude that the correct specification is a model with fixed effects. We use subsector fixed effects because there are unobserved peculiarities of each subsector that would distort the comparison between subsectors.

Hence, the specification of the model is as follows:

$$\Delta EMP_{i,t} = \alpha + \rho EMP_{i,t-1} + \beta_1 \Delta X_{i,t} + \beta_2 X_{i,t-1} + \theta_i + u_{i,t} \quad \dots (1)$$

where,

$EMP_{i,t}$ is the number of employees in subsector i in year t

$X_{i,t}$ is a vector of control variables in subsector i in year t

θ_i are subsector fixed effects

$u_{i,t}$ is the error term

Besides the FDI, as independent variables for employment in the manufacturing sector will be considered Personnel costs (PER) and Gross operating surplus (GOS). The β_1 is a vector of coefficients for a short-run effects of changes on independent variables, while β_2 is a vector of coefficients for last year's values of the independent variables. In order to calculate the long-run effect of the independent variables, β_2 is divided by $-\rho$ (De Boef and Keele, 2008). The estimation results are presented in Table 3.

Table 3. OLS estimation (dependent variable Δ EMP)

Variable	1	2	3	4	5	6	7	8
Constant	2651.619*** (0.005)	2621.316** (0.020)	3531.959*** (0.000)	2696.193*** (0.000)	2535.168*** (0.000)	2464.574*** (0.000)	3432.806*** (0.000)	2558.532*** (0.000)
EMP _{t-1}	-.7181924*** (0.000)	-.7442917*** (0.000)	-.7522358*** (0.000)	-.7538353*** (0.000)	-.7107404*** (0.000)	-.7124225*** (0.000)	-.7519195*** (0.000)	-.7268509*** (0.000)
Δ FDI _t	8.853344*** (0.000)	8.587094*** (0.000)	4.484242** (0.043)	9.199084*** (0.000)	7.090634*** (0.002)	6.818921*** (0.002)	2.939784 (0.655)	7.639823*** (0.002)
FDI _{t-1}	8.124826*** (0.000)	8.19364*** (0.000)	1.50279 (0.500)	8.359544*** (0.000)	7.489195*** (0.000)	7.314493*** (0.000)	.9973699 (0.249)	7.622903*** (0.000)
Δ PER _t	126.2785*** (0.000)	124.2036*** (0.000)	102.577*** (0.000)	123.1117*** (0.000)	138.2789*** (0.000)	138.9494*** (0.000)	113.7918*** (0.000)	137.3626*** (0.000)
PER _{t-1}	64.86235*** (0.000)	68.75065*** (0.000)	48.59789*** (0.000)	68.45879*** (0.000)	69.48838*** (0.000)	70.56776*** (0.000)	54.75499*** (0.000)	70.84124*** (0.000)
Δ GOS _t		2.740638 (0.169)		3.045474 (0.148)		2.112002 (0.319)		2.487845 (0.265)
GOS _{t-1}		3.066343 (0.338)		3.665579 (0.304)		.9626744 (0.781)		1.723651 (0.653)
Δ FDI _t \times Δ PER _t			1.051727*** (0.000)				1.052945*** (0.000)	
FDI _{t-1} \times PER _{t-1}			.1055109*** (0.008)				.1037613*** (0.007)	
Δ FDI _t \times Δ GOS _t				.1035554 (0.467)				.113538 (0.436)
FDI _{t-1} \times GOS _{t-1}				-.005433 (0.693)				-.0080124 (0.563)
2011					60.13628 (0.596)	116.6855 (0.326)	37.65171 (0.705)	118.5679 (0.327)
2012					-18.24387 (0.875)	21.14363 (0.862)	-17.31719 (0.864)	29.98258 (0.808)
2013					12.68378 (0.915)	51.86778 (0.681)	-5.459008 (0.958)	35.21588 (0.786)
2014					-231.7025* (0.053)	-202.304 (0.113)	-241.6953** (0.022)	-207.0412 (0.110)
2015					-48.21212 (0.711)	-18.04917 (0.892)	-80.02694 (0.486)	-33.26975 (0.807)
R ² within	0.9024	0.9059	0.9252	0.9069	0.9145	0.9185	0.9371	0.9198
R ² between	0.0265	0.0263	0.0118	0.0258	0.0268	0.0268	0.0117	0.0261
R ² overall	0.0380	0.0372	0.0252	0.0360	0.0410	0.0414	0.0268	0.0396

Note: p-values are in parentheses; */**/** indicate significance at 10/5/1 percent level respectively.

From the estimated baseline specification of the error correction model we can draw several conclusions. As expected, the change in FDI stock has positive and statistically significant impact on the change of number of employed, which is observed on the short-run and the long-run as well. An increase of FDI stock by one million EUR in a given group of manufacturing subsectors would increase the number of employed by almost 9. By dividing β_2 coefficient with $-\rho$ we obtain that the long-run effect of FDI, which is about 30 percent greater than the short-run effect on employment. Furthermore, the personnel cost exerts positive and statistically significant impact on employment in both the short and long-run in all specifications. An increase of the personnel cost by one million EUR is associated with an increase of the number of employed by 126. The long-run effect of personnel cost on employment is around 30 percent lower than the estimated short-run effect. Besides the baseline model specification 1, in order to control for robustness we run several other specifications by introducing additional control variables (specification 2), interaction terms (specifications 3-4) and time dummy variables (specifications 5-8).

From specification 2 of the estimated error correction model we can notice that the gross operating surplus does not appear as statistically significant explanatory variable of the change in the number of employees in the manufacturing sector. In addition, the impact of interaction terms between FDI and personnel cost as estimated in specification 3 is positive and statistically significant. This implies that higher wages are associated with stronger effects of FDI on employment which might reflect greater productivity in the companies with FDI. In contrast, the impact of interaction terms between FDI and gross operating surplus is not statistically significant.

The explanatory power measured by the within coefficient of determination in all specifications is more than 0.9. In contrast, the between coefficient of determination is much smaller, which corroborates with the choice of the model with fixed effects. Due to this difference, the overall coefficient of determination is small and varies between 0.025 and 0.04. Moreover, the calculated F-statistics in all specifications point out to the overall statistical significance of the estimated error correction model.

In order to control for the time dimension, we estimate the model specifications 5-8 by including time dummy variables. The quantitative factors in the one-way fixed effects model retain their sign and significance in the two-way fixed effects model. In addition, the time effects are not jointly significant,

suggesting that they should not be included in a properly specified model. Otherwise, the model specifications with time dummy variables are qualitatively similar to previous specifications with a sizable amount of variation explained by the individual fixed effect.

The criticism regarding our modelling approach, as stressed by Hale and Xu (2016) arises from the fact that greater productivity in the sectors with higher FDI increase might be due to the so called "cherry-picking effect". Namely, foreign investors are expected to invest in those sectors that would be more productive regardless of foreign investment. This creates a positive association between FDI and post-FDI productivity without actually having any casual effect. The problem of cherry-picking further extends to labour market effects of FDI because firms that are more productive also tend to have higher wages and grow faster relative to their peers. Moreover, the cherry-picking effect persists at more aggregate level if industries with faster growing firms are more likely to attract FDI, it would appear that these industries have higher employment and wages than others even if FDI does not have any impact.

4. Summary and conclusions

Having in mind the identified lack of research in the domain of FDI and their impact on the labour market outcomes in Macedonia, with this research we intend to fill this gap. By using the above outlined methodological approach, we come up with a clearer picture about the effects of FDI on the level of employment in the manufacturing sector for the period 2009-2015. According to the analysis, the conclusions can be summarised as follows. First, we have identified a considerable heterogeneity among various groups of manufacturing subsectors with respect to employment generation and FDI attraction. Second, the FDI and personnel costs are statistically significant factors that positively affect employment in the manufacturing sector, which due to their interaction might indicate higher productivity in the companies with FDI. Third, the gross operating surplus and its interaction with the FDI do not appear as statistically significant factor affecting employment in the manufacturing sector.

Although Macedonian government has undertaken significant policy reforms aiming to attract FDI, these policy measures do not seem to significantly affect the FDI inflows in the country. In addition, foreign investors who have invested or tried to do so in Macedonia often complain of the following: Lack of rule of law due to corrupted judiciary system and

political interferences; politicization of the government administration and insecurity with regard to 'fair' treatment; broad-based corruption including also in public tenders; heavy bureaucracy with complex procedures and partly incompetent administration; deficient largely outdated infrastructures including high utility prices for private sector firms; unclear land ownership relations; difficulty in getting working permits for foreigners; difficulty in getting skilled and productive workers due to insufficient education and/or poor language skills; postponed NATO and EU accession process, potentially straining political stability.

Investors also emphasise structural issues like weak institutional framework, rigid corporate sector, segmented and depressed labour market while mainly pinpoint at competitive wages as the main advantage. Other obstacles include: persistent solvency and liquidity problems, restrictive policy framework, dependence on external demand, uncertain and slow recovery of investment – especially in the short and medium run, growth significantly below potential and absence of major external and policy improvements.

Hence, we propose several policy recommendations that would improve the employment effects of the FDI inflows. First, we recommend that government policies aiming to attract FDI and increase employment should be focused on improvement of investment climate, but not on the expense of worsening labour standards. Taking into account that countries with efficient physical infrastructure tend to attract more FDI than countries with weak infrastructure, we recommend further investment in this domain as an essential precondition of country's international competitiveness. Since Macedonia has small market potentials and is not abundantly endowed with resources, the further advancement in the process of EU integration is expected to be the main driver of FDI inflows in the future.

Acknowledgement

I would like to express my appreciation to Mario Holzner from the Vienna Institute for International Economic Studies and other participants on the CERGE-EI workshop held in Prague, August 2016 for their useful comments and suggestions.

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