

Simulation Analysis of the Effects of Increased Foreign Ownership on Wage Inequality

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Abstract

Transition countries have, in general, experienced an increase in labour market inequality during and after the initial transition period. Theory and empirical studies analysing the causes and mechanisms of increasing inequality in transition economies identify globalisation, skilled-biased technological change, differences in access to schooling, the pattern and level of unemployment and institutions as important factors. Foreign direct investment (FDI) has increased significantly in transition economies during the transition period and has been considered to be an important channel for the diffusion of new technology, managerial skills and new knowledge. As a result of technological and management expertise FDI may raise the level of wages in the host economies, improve working conditions and increase employment, though little previous research has focused on these effects in transition economies. Using the GINI coefficient as the measure of wage inequality a simulation analysis indicates that the net effects of FDI on wage inequality will depend in part on country specific factors, namely how large are the differences in skilled and unskilled wages, the skill-intensity of employment in foreign-owned firms compared to domestic ones and the relative size of the foreign-owned sector.

Keywords: simulation analysis; foreign ownership; wage inequality

Introduction

The rapid growth of FDI, mainly since the 1990s, is one of the reasons why the study of FDI is an important issue and has motivated scholars to develop a number of theories and empirical evidence to explain the causes, patterns and effects of FDI. This sharp increase in FDI flows has raised, among other issues, a debate about its effects on labour market inequality. It has been widely argued, both in the theoretical and empirical literature, that FDI brings host countries net additional capital, technology transfer, new jobs, increased management expertise, improving infrastructure and an improvement in the general business climate (Kinoshita and Campos, 2004; Serbu, 2005; ILO, 2008). The key factors attracting inwards FDI in transition economies have been identified as gravity factors, unit labour costs, agglomeration, trade openness, the level of institutional development, legal framework and political risk (Holland and Pain, 1998; Garibaldi et al., 2001; Bevan and Estrin, 2004; Kinoshita and Campos, 2004).

FDI has been considered an important factor for the reintegration of the economies in transition into the world economy because, unlike trade, it is a long-term transaction and foreign-owned firms account for almost two-thirds of world trade (Kolotay, 2010).

That inwards FDI plays an important role in growth and development is uncontested, however, the impact of FDI on inequality not only remains controversial, but, has not received the same attention, particularly from scholars of transition economies (Kaltani, 2007). Studies investigating the relationship between foreign direct investment and inequality typically attribute part of the increase in income inequality to increased inwards FDI in host countries (Vijaya and Kaltani, 2007). Using evidence from previous studies and descriptive analysis, this paper aims to introduce the discussion of the impact of FDI on labour market inequality.

This paper proceeds as follows. In Section 2 FDI inflows into transition economies are examined and the pattern of these flows by sector and region analysed. In Section 3 we discuss the relationship between FDI and labour market inequality. This section further analyses the impact of FDI on the level and pattern of employment and wages. In addition, this section presents a simulation analysis on the effects of a growth in foreign ownership on wage inequality in host countries, using the Gini coefficient as a measure of wage inequality. The last section presents concluding remarks on the importance of FDI on labour market inequality.

FDI inflows into transition economies

The importance of FDI in transition economies and in the world economy has increased rapidly during recent decades. FDI has become a key element in global economic development and integration and an important element of the national development strategies of most transition countries (UNCTAD, 2003). Inwards FDI has increased significantly in transition economies during the last twenty-five years. As explained in the previous studies, it has been identified as a potentially important factor in explaining increases in labour market inequality. This investment has been mainly in the form of mergers and acquisitions (M&A) and less in new assets ('green field'), with FDI inflows being particularly stimulated by the privatisation of public enterprises in transition countries (UNCTAD, 2006). This section discusses FDI inflows into transition economies and the pattern of these flows by region and sector.

From 1995 to 2012, the inflows of FDI to transition economies maintained an upward trend, with the exceptions of 2009 and 2012 as a result of the financial and economic crisis (Figure 1). Transition countries increased their FDI flows by 25% in 2011 to \$92 billion driven mainly by cross-border M&A (UNCTAD, 2012). Developing and transition countries increased their share of global FDI flows to 45% in 2011, though in 2012, inward FDI flows in transition economies fell to \$87 billion (UNCTAD, 2013).

Global inflows are expected to reach more than \$1.9 trillion in 2014, barring any macroeconomic collapse, and developing and transition economies were expected to remain a favourable destination for FDI (UNCTAD, 2012). In 2012, FDI inflows in the transition economies of South- East Europe almost halved as a result of decreased investment from EU countries who are the main investors in this sub-region. In the CIS countries, FDI inflows declined slightly as foreign investors were attracted by these countries' fast-growing consumer markets and plentiful natural resources (UNCTAD, 2013). The decline of FDI in transition countries in 2012 was, in part, due to a slump in cross-border M&A sales (UNCTAD, 2013).

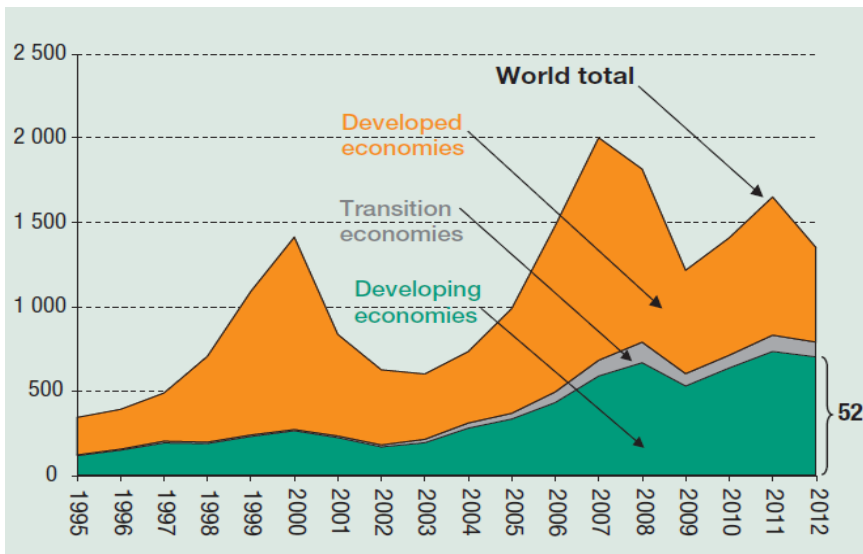


Figure 1 FDI inflows, global and by group of economies, 1995-2012 (Billions of dollars)¹

The uneven distribution of inwards FDI across transition countries has been noted (Kolotay, 2010) and the large differences in cumulative inflows are shown in Table 1. Very large inflows have been attracted by the larger economies, such as Russia and Poland (\$418,982 million and \$ 180,836 million in 1995–2012, respectively). Whereas, tiny inflows, less than \$6 million over the period 1995 to 2012, characterize some low and middle-income economies such as Armenia, Macedonia, Moldova, Kyrgyzstan and Tajikistan. In 2012, FDI inflows were concentrated in a few economies, with the top three countries (Russian Federation, Kazakhstan and Ukraine) accounting for 84% of the sub-region's total inflows (UNCTAD, 2013). Even though FDI inflows to Russia declined by 7% compared to the previous year, they remained high at \$ 51 billion. Foreign investors in this case were motivated by the growing domestic market due to reinvestments in the automotive and financial industries (UNCTAD, 2013).

¹ Source: UNCTAD-WIR (2013), based on its FDI-TNC-GVC Information System, FDI database (www.unctad.org/fdistatistics).

The five largest		The five smallest	
1.Russia	418982	1.Armenia	5791.6
2.Poland	180836	2.Macedonia	4345.4
3.Kazakhstan	105387	3.Moldova	3190.4
4.Czech Republic	97512	4.Kyrgyzstan	3110
5.Hungary	83500.3	5.Tajikistan	1917

Table 1 The five largest and smallest cumulative FDI inflows in economies in transition, 1995–2012 (Millions of dollars)²

Figure 2 presents the FDI stock as a percentage of GDP, where we can observe that from 1995 to 2012 the SEE countries, overall, experienced a rising FDI stock as a percentage of GDP. The stock of inward FDI as a percent of GDP, an indicator of foreign capital penetration in an economy, increased from 2.1% in 1995 to 31% in 2012 in transition economies. The increase in FDI is largely driven by the cross-border M&A deals, although ‘greenfield’ investments were the dominant form of initial entry (UNCTAD, 2012). The data for the countries presented in Figure 2 suggest that the inward FDI stock as percentage of GDP played a more important role in Montenegro, Bulgaria and Serbia, representing on average 68% of their GDP.

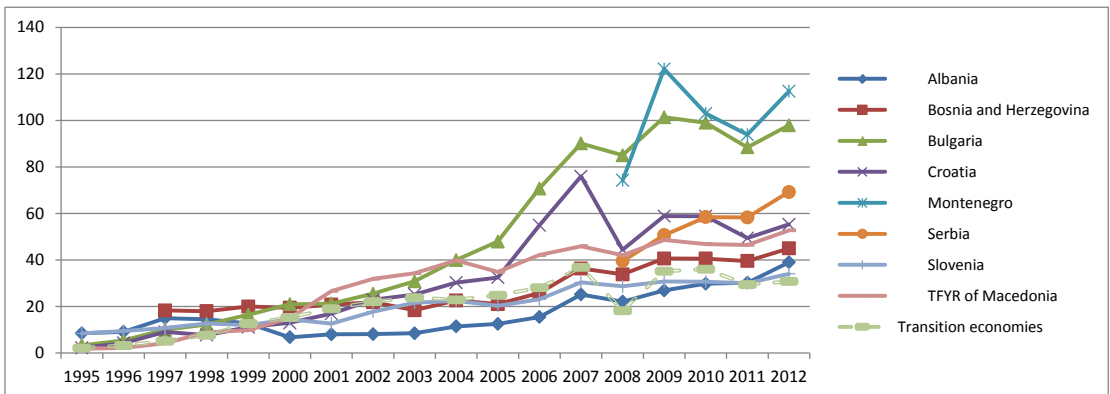


Figure 2 FDI stock as percentage of GDP in selected transition countries, 1995-2012³

The contribution of FDI to financial accumulation has been particularly important for economies in transition given the resource intensity of transformation and the scale of required structural changes (Kolotay, 2010). This role of FDI in financial accumulation is proxied by its ratio to gross fixed capital formation (Figure 3). The ratio of FDI to gross fixed capital formation has tended to be higher in transition economies than the

² Source: Author’s own selection based on UNCTADstat database (2013).

³ Source: Author’s own figure based on UNCTADstat database (2013).

world average and has increased over time (Kolotay, 2010). As illustrated in Figure 3, the transition economies of South-East Europe have relied more on FDI in their capital accumulation (17.8% average of 1995-2012) compared to CIS countries, where this comparable figure is 13.2%.

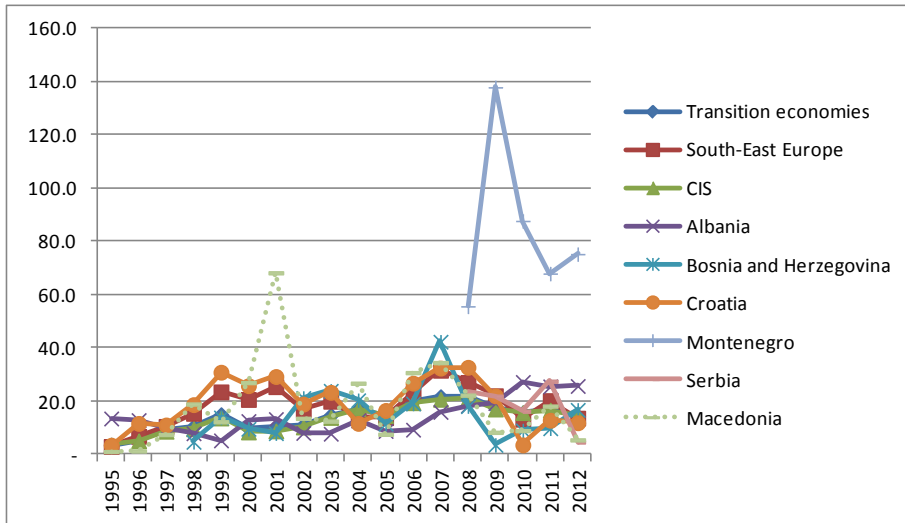


Figure 3 FDI inflows as percentage of gross fixed capital formation in selected transition countries, 1995-2012⁴

Table 2 presents the five highest and lowest ratios of inward FDI to gross fixed capital formation. It can be noted that even though Russia is the number one recipient of FDI inflows in absolute values, the large volume of FDI inflows are small compared to the size of the economy. Montenegro has the highest average ratio of inward FDI to gross fixed capital formation, however data for this country are available only for the period from 2008 to 2012 and much of that investment has been into the property market.

The five highest		The five lowest	
1.Montenegro	84.8	1.Albania	14.1
2.Bulgaria	40.6	2.Russia	10.9
3.Kazakhstan	35.3	3.Belarus	7.2
4.Georgia	30.3	4.Slovenia	6.7
5.Azerbaijan	28.5	5.Uzbekistan	6.2

Table 2 The five highest and lowest ratios of inward FDI to gross fixed capital formation in economies in transition, average of 1995–2012 (Percent)

⁴ Source: Author’s own figure based on UNCTADstat database (2013).

FDI inflows partly depended on the extent, form and timing of the privatization of the public enterprises in transition countries, this investment was mainly in the form of mergers and acquisitions (M&A), and less in the form of new assets (Tables 3 and 4). In the period from 2000 to 2012, M&A sales in Southeast Europe were highest in 2006 (the value of net cross-border M&A sales was \$3942 millions) with Croatia making the largest contribution to this performance with \$2530 millions (Table 3). The end of the main privatisation process in SEE contributed to a decrease in FDI inflows. However, foreign investors are still investing in domestic market-oriented services. The data on M&As confirm the trend toward services (OECD-ILO, 2008). The share of the service sector in cross-border M&A in developing countries rose from 37% in 1987-2000 to 58% in 2002-2006, whereas the share of the primary sector decreased from 11% to 5% in the same period (OECD-ILO, 2008). The value of cross-border M&A decreased by a third in 2008, though the number of cross-border M&A transactions actually increased by 13%, mainly in medium-sized deals⁵(UNCTAD, 2009). In 2012, the decline in cross-border M&A sales caused inward FDI flows to transition economies to fall by 9% (UNCTAD, 2013).

Value of net cross-border M&A sales, by region/economy of seller, 2000-2012 (Millions of dollars)													
Region/economy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Transition economies	629	2 796	2 393	9 759	5 379	-5 279	9 005	30448	20337	7 125	4 499	32815	-1 569
South-East Europe	252	1 031	972	1 286	489	955	3 942	2 192	767	529	266	1 460	84
Albania	16	-	-	2	126	7	41	164	3	146	-	-	-
Bosnia and Herzegovina	46	25	2	0	110	21	79	1 022	2	8	-	-	1
Croatia	153	676	644	612	66	360	2 530	674	204	-	201	92	81
Montenegro	-	-	-	-	-	-	7	0	-	362	-	-	-
Serbia	-	-	-	-	-	-	582	280	501	10	19	1 340	2
The FYR of Macedonia	37	328	5	0	4	0	280	53	57	-	46	27	-
CIS	375	1 765	1 421	8 473	4 890	-6 466	4 949	28203	19466	6 581	4 203	31356	-1 654
Armenia	0	2	40	25	132	4	-	423	204	30	-	26	23
Azerbaijan	36	-	52	1 420	-	-	-	-	2	-	0	-	-
Belarus	-	-	-	2	5	4	-	2 500	16	-	649	10	-
Kazakhstan	-98	13	49	53	428	1 474	-1 751	727	-242	1 322	101	293	-2 350
Kyrgyzstan	-	-	-	-	2	155	-	179	-	-	44	72	-5
Moldova, Republic of	27	-	-	19	16	-	10	24	4	-	-	-9	-
Russian Federation	421	1 584	1 206	6 743	4 268	-14547	6 319	22529	13507	5 079	3 085	29550	245
Tajikistan	-	-	-	-	-	12	-	5	-	-	-	14	-
Turkmenistan	-	-	-	-	-	47	-	-	-	-	-	-	-
Ukraine	-11	164	71	194	35	6 386	261	1 816	5 933	147	322	1 400	434
Uzbekistan	-	2	3	18	4	-	110	-	42	4	1	-	-
Georgia	1	-	-	-	-	232	115	53	104	14	30	-	1

Table 3 Cross-Border M&A by region, 2000-2012⁶

⁵ Medium-sized M&A transactions are deals valued at between \$30 million and \$300 million (PricewaterhouseCoopers, 2008).

⁶ Source: UNCTAD cross-border M&A database (www.unctad.org/fdistatistics).

Note: Cross-border M&A sales are calculated on a net basis as follows: Sales of companies in the host economy to foreign TNCs (-) Sales of foreign affiliates in the host economy. The data cover only those deals that involved an acquisition of an equity stake of more

Table 4 presents the value of 'greenfield' FDI projects from 2003 to 2012 where the value of greenfield projects fell by 32% in 2012 in transition economies compared with 2011, reaching \$40529 million, the lowest level in the past 10 years. The value of greenfield FDI projects in CIS countries in 2012 was 260% higher than in the countries of South-East Europe where Russia contributed mostly to this value.

Destination region/economy	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Transition economies	69 796	52 153	62 005	50 225	80 460	124 606	58 388	55 805	59 546	40 529
South-East Europe	3 856	2 489	5 473	8 662	14 294	21 362	8 178	7 638	9 260	8 708
Albania	300	141	668	2 346	4 454	3 505	124	68	525	288
Bosnia and Herzegovina	971	527	2 243	643	2 623	1 993	1 368	283	1 253	1 287
Croatia	1 136	727	1 080	600	1 795	3 194	1 707	2 397	1 798	1 141
Montenegro	97	-	-	344	1 794	851	120	380	436	355
Serbia	1 055	910	1 181	3 270	3 131	9 197	4 095	4 040	4 292	4 459
The FYR of Macedonia	298	184	302	1 460	497	2 622	763	470	956	1 179
CIS	65 652	49 489	55 367	40 584	64 832	100 429	45 811	47 149	48 306	31 397
Armenia	478	100	452	366	2 134	690	1 003	265	805	434
Azerbaijan	16 559	1 954	1 611	953	1 999	2 921	1 939	711	1 289	1 573
Belarus	892	222	887	923	487	2 477	1 134	1 888	1 268	787
Kazakhstan	10 254	8 768	3 152	4 176	4 251	20 344	1 949	2 536	7 816	1 191
Kyrgyzstan	301	54	179	81	3 362	539	50	-	358	83
Moldova, Republic of	142	611	451	130	162	163	488	301	320	118
Russian Federation	26 601	31 859	38 718	28 194	42 858	60 308	31 268	34 519	22 795	18 537
Tajikistan	617	1 247	1 157	43	327	226	570	3	1 076	669
Turkmenistan	1 407	805	12	11	1 051	3 974	1 433	458	1 926	8
Ukraine	4 137	3 439	7 236	4 972	7 185	7 686	4 561	4 061	3 094	3 192
Uzbekistan	4 265	431	1 513	734	1 016	1 101	1 418	2 408	7 560	4 806
Georgia	288	175	1 165	980	1 334	2 816	4 398	1 017	1 980	424

Table 4 Value of 'greenfield' FDI projects, by destination, 2003-2012 (Millions of dollars)⁷

Until the financial crisis beginning in 2008, South-East European countries made significant progress in attracting FDI (UNCTAD, 2012). The increase of FDI, especially after 2006, was driven largely by economic recovery, a better investment climate, and the start of association (and accession) negotiations with the EU from 2005 (UNCTAD, 2013). However, FDI flows declined in 2009, with Croatia being the most seriously hit country, experiencing a fall of FDI flows from \$6 billion in 2008 to just \$432 million in 2010. During that period, FDI flows also declined in Bosnia and Herzegovina, Montenegro and Macedonia, though they increased in Albania as a result of the privatisation of state-owned enterprises (UNCTAD, 2013).

FDI typically increases exports through its impact on trade structure, both in terms of diversification and destination (UNCTAD, 2012). Trade liberalisation as part of transition process and through commercial agreements, especially with EU, has

⁷ Source: UNCTAD (2013), World Investment Report (WIR).

resulted in a significant increase of trade flows in most transition economies over the last decade (Grimalda and Meschi, 2008). The UNCTAD FDI Contribution Index 2012 ranks economies on the basis of the significance of FDI and foreign affiliates in their economy, in terms of value added, employment, wages, tax receipts, exports, R&D expenditures and capital formation (the share of employment in foreign affiliates in total formal employment in each country, and so forth). According to this index, Hungary and Czech Republic were among transition economies with the largest contribution by FDI (UNCTAD, 2012).

Wage inequality might also be affected by the distribution of FDI according to sectors. FDI can raise wage inequality if it is concentrated in skill-intensive sectors and hence improves the relative position of skilled workers (Feenstra and Hanson, 1997). Analysing the sectoral distribution of FDI in South East Europe, UNCTAD estimations indicate that finance was the largest recipient in 2008, accounting for 32% of the sub-region's inward FDI stock (UNCTAD, 2010). By 2008 the presence of foreign-owned banks had risen significantly in SEE, with the share of banking assets owned by foreign banks increasing to 90%, which was higher than the share of foreign banks in the new EU member countries (UNCTAD, 2010). By 2010, the service sector accounted for about 69.8% of inward FDI stock in all SEE countries, however with substantial variations among countries (Estrin and Uvalic, 2013). In Macedonia, Bosnia and Herzegovina and Romania the service sector accounted for about 60% of total inward FDI stock, whereas in Croatia and Serbia this sector represented over 75% and 81% in Bulgaria (Estrin and Uvalic, 2013). In 2011, services account for the highest share of foreign investment in most transition economies (UNCTAD, 2013). In only three SEE countries did manufacturing account for more than 30% of the total FDI stock: Bosnia and Herzegovina with 35%, Macedonia 31% and Romania 32% (Estrin and Uvalic, 2013).

The Republic of Macedonia is among the group of under-performers with respect to FDI, i.e. countries with both low FDI potential and performance⁸ (UNCTAD, 2006). The level of FDI in Macedonia remains relatively low (FDI share to GDP of just 4.4% during the period 1998 to 2011) compared to other countries in the region (UNCTAD, 2012). Analysing the period from 1995 to 2012 (Figure 4) the first peak of FDI inflows to Macedonia was in 2001 (\$447.1 million FDI inflows) due to the sale of Macedonian telecom to the Hungarian telecom company MATAV. A second peak was observed in 2007, leading to the record of \$693 million of inflows. Between 1998 and 2007, FDI flows increased due to the privatization of state-owned firms and acquisitions of major companies and banks by foreign investors (UNCTAD, 2012). Until 2008, 38% of total FDI (equity capital) was attracted in greenfield projects, however FDI dropped in

⁸ The potential index is based on 12 economic and policy variables: GDP per capita; the rate of growth of GDP; the share of exports in GDP; telecoms infrastructure; commercial energy used per capita; share of R&D expenditure in gross national income; share of tertiary students in the population; country risk; exports of natural resources as a percentage of the world total; imports of parts and components of electronics and automobiles as a percentage of the world total; exports of services as a percentage of the world total; and inward FDI stock as a percentage of the world total.

2008 and 2009 because of the international financial and economic crisis. Macedonia being in the group achieving below \$ 0.5 billion FDI flows experienced a decline of two-thirds in 2012. The ratio of FDI inflows to gross fixed capital formation reached a peak of 68.2% in 2001, but fell under 10% in 2005, exceeding 10% again in 2006-2008 and 2011.

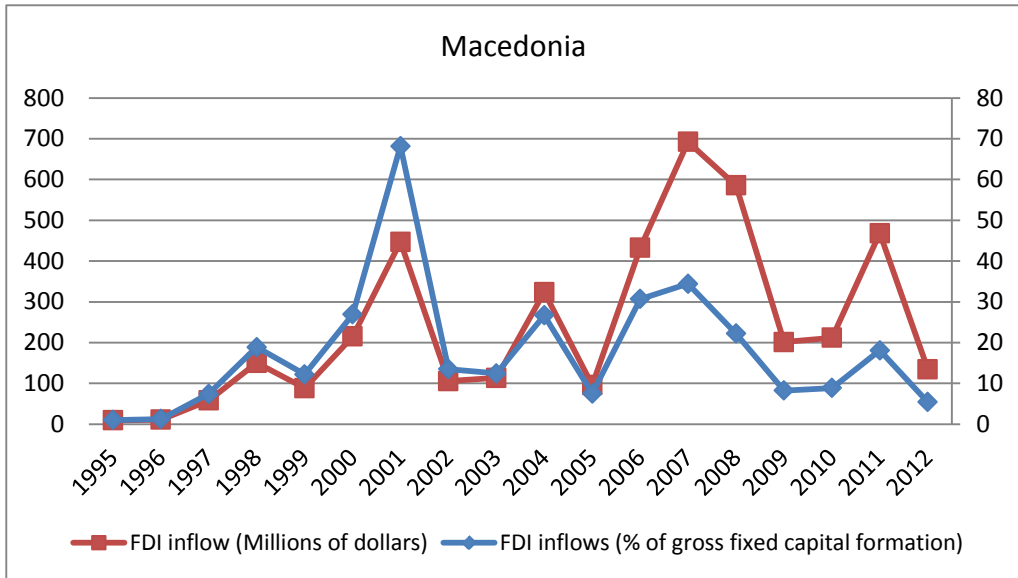


Figure 4 FDI inflows in millions of dollars and FDI inflows as a percentage of gross fixed capital formation in Macedonia, 1995-2012⁹

Countries with the largest foreign direct investments in Republic of Macedonia from 1997 to 2008 are Greece, the Netherlands and Hungary (UNCTAD, 2012). However, these statistics on the origin of FDI need to be treated with caution since in some cases the nationality of the immediate and final investor may differ. For example, the state-owned telecommunication company was acquired by the Hungarian company Magyar Telecom, but this company itself belongs to the German Deutsche Telecom Group (UNCTAD, 2012).

In Macedonia, foreign-owned firms trade more than their domestic counterparts. They export about 60% of their output, whereas domestic-owned firms about 40% (UNCTAD, 2012). Foreign-owned companies in Macedonia have enhanced the provision of services, such as telecommunications and banking, introduced new technologies and machineries, improved export capacities through contract manufacturing and paid higher wages than domestic-owned companies (UNCTAD, 2012).

⁹ Source: Author's own figure based on UNCTADstat database (2013).

To conclude, FDI inflows have been important resources during the transition process, though its degree of importance differs across countries. The share of FDI inflows to gross fixed capital formation was high in countries that based their development strategy on FDI, whereas it was low in countries that neglected inward FDI in their development strategy (Kolotay, 2010).

FDI and labour market inequality

The effects of FDI flows on economic growth and its determinants have been studied in both the theoretical and empirical literature, however the effects of these flows on labour market inequality in transition countries has largely been neglected. This section aims to introduce FDI into the theoretical explanations of wage inequality. Di Mauro (2000) argues that one of the major concerns of countries when discussing FDI is the impact of these flows on their labour market, both in terms of employment and wages. FDI influences domestic employment primarily through the: types of jobs created, regional distribution of new employment, wage levels and differentials, income distribution and skill transfers (Mickiewicz et al., 2000).

FDI is considered one possible channel through which new technology becomes available in the host country and a channel through which a fragmentation of production can take place affecting the demand for skills. Therefore, the impact of FDI on wage inequality can, in part, be analysed by focusing on the effects for skilled versus unskilled labour. Feenstra and Hanson (1996) and Feenstra (2007) argue that firms in developed countries, abundant with skilled labour, are more likely to outsource their least skill-intensive activities, hence increasing the relative demand and relative wages for these workers in the host countries. However, FDI and outsourcing by multinational companies can also increase the relative demand of skilled workers in the host countries, since what is considered less-skilled labour in developed countries may be considered as skilled labour in developing countries (by local standards). Te Velde (2002) analyses the effects of FDI on the market for skills using a demand-supply framework. Workers are divided into two categories, skilled and unskilled according to education or occupation. The wage of skilled workers relative to the wage of unskilled workers is a measure of wage inequality. As illustrated in Figure 5, the demand and supply of skilled and unskilled workers depends on relative wages and technology.

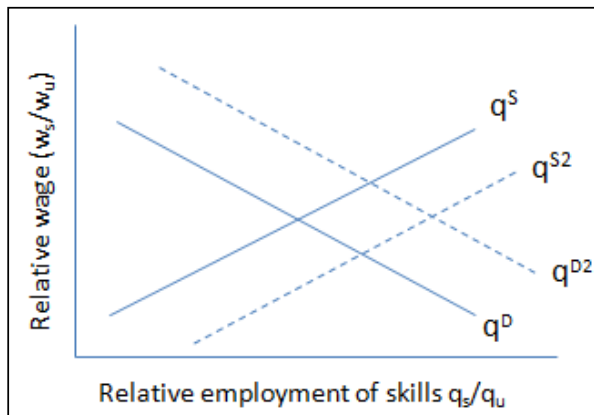


Figure 5 Relative demand and supply of skills¹⁰

The relative demand for skilled workers is presented by q^D and q^S is the relative supply of skills. FDI can shift the demand for skills (q^{D2}) in different ways, firstly whether FDI substitutes or complements local employment. For example, if the overall demand for labour rises and this is biased towards skilled employment then labour market competition increases, particularly for skilled workers, suggesting that they pay them higher relative wages (Driffield et al., 2010). Secondly, FDI may have transferred skill-biased technologies, increasing the productivity of skilled workers, thereby increasing wage inequality between skilled and unskilled workers, holding other factors constant. However, the speed of this adjustment depends “on the amount of absorptive capacity each country is endowed with. On one hand, if a country is endowed with high absorptive capacity it will be able to shift faster from one stage to the other one. On the other hand, if the transition period is shorter inequality may be a problem only at the beginning when the new technology enters the country” (Franco and Gerussi, 2010, p. 10).

An increased demand for skills will raise the skill premium and offer increased employment opportunities to skilled labour, creating incentives for acquiring skills, as discussed in Snower’s model. Foreign-owned firms might also stimulate the supply of skills through creating additional skill vacancies and through investing in training of their workers. Foreign-owned firms can affect the supply of skills (q^{S2} in Figure 5) by offering additional firm-specific and general vocational training, they also typically offer more technical and managerial training for skilled workers (Aitken et al., 1995). Notwithstanding, this also depends on the size of the foreign-owned firm, industry, entry strategy and motivation for the investment (Te Velde, 2002). Colen et al. (2008) provide an overview of training decisions according to the type/motivation of FDI as

¹⁰ Source: Te Velde (2002).

follows. Resource or asset-seeking FDI may require specific training for only a small number of high-skilled workers since this is usually a capital-intensive investment using complex extraction methods. Whereas vertical or efficiency-seeking manufacturing FDI usually employs low-skilled, low-wage labour limiting the training possibilities. Market-seeking FDI typically organises technological or marketing training for local people, however only to a limited extent. Market-seeking investment can be also attracted by privatisation of state-owned firms, common in transition countries, which may require substantial training to improve market-orientation skills (Te Velde, 2002), even though transition countries have a relatively skilled/educated workforce.

The engagement of foreign-owned firms in the training of their employees and general investment in education can create spillover effects on local firms. The movement of trained labour from foreign to domestic firms may contribute to the transfer of knowledge of modern production and management practices to their new employers (OECD-ILO, 2008). As a result of these spillover effects domestic-owned firms may improve their labour productivity by imitating the management practices, organisational structures and technology of foreign-owned firms, thus increasing labour market inequality in long run by raising the amount of skilled workers employed. If foreign-owned firms pay higher wages and expand overall employment levels, then this can force domestic-owned firms to raise their own wages "If, however, FDI affects labour demand in the same way as domestic investment, the role of foreign direct investors in transmitting productive knowledge is limited" (Aitken et al., 1995, p.2).

Lipsey (2002) and Lipsey and Sjöholm (2004) use efficiency wage theory to suggest several reasons why foreign-owned firms might pay a higher price for labour. Since foreign-owned firms invest more in training and have technological advantages, they may fear their employees moving to domestic competitors, transferring technological spillovers. To reduce potential labour turnover they may increase the foreign-employer premium. Other reasons might be that foreign-owned firms lack accurate knowledge of the quality of local labour and/or pay higher wages to attract good workers. In addition, more educated/skilled workers are usually in a stronger bargaining position than less-skilled workers because they possess key skills in relatively scarce supply and may have better negotiation skills in acquiring higher wages (Te Velde, 2003). Thus if foreign-owned firms want to employ 'the best' workers in a given location they will need to pay higher wages. According to OLI framework, MNCs tend to be larger, more capital and skill intensive, introduce more up-to-date technology and pay higher wages accordingly. In addition, institutional factors may provide incentives for foreign-owned firms to pay higher wages, for example, in countries where the rule of law is weak, foreign-owned firms "may be more likely to comply with national labour laws, because of reputational concerns and consumer pressure in their home markets" (OECD-ILO, 2008, p.12).

In terms of gender equity, foreign-owned firms might pay wage premiums and offer more job security to women relative to domestic-owned firms (Braunstein, 2006). In contrast, Vijaya and Kaltani (2007) argue increasing the mobility of capital lowers female bargaining power more than male's, since women's options in the market economy are traditionally more limited. In addition, "the potential greater opportunities for skill advancements presented by FDI are more likely to be offered to men, given the perception of their greater productivity vis-à-vis women", which can lead to a rising wage differential between male and females (Vijaya and Kaltani, 2007, p. 87). If FDI is orientated to sectors with a high share of woman in employment and if these sectors are using low-skilled workers such as in the textile industries, FDI might improve opportunities for women and reducing gender pay gap by increasing the demand and hence wages of the less-skilled women in these sectors. However, the discussion of FDI inflows into transition economies in section 2 indicates that labour intensive sectors capture only a small portion of the total FDI in these countries. In addition, if FDI is benefiting the better educated workers it might also improve gender equity since, as Rutkowski (2006) and Pastore and Verashchagina (2011) argue, in many transition countries on average women tend to be better educated than men, even though they are concentrated in low-paid jobs.

In order to bring together the diverse arguments of the effects of FDI on labour market inequality and to investigate the likely effect of increasing foreign ownership on wage inequality, measured by the GINI coefficient, a simulation analysis of wage inequality is presented in the next section. This simulation analysis indicates that the net effects of FDI on wage inequality will depend in part on country specific factors, namely how large are the relative skill wage differences in foreign-owned firms and domestic owned firms, the relative skill-intensity of employment in foreign-owned firms compared to domestic ones and the relative size of the foreign-owned sector.

Simulation analysis of the effects of increased foreign ownership on wage inequality

The GINI coefficient is a common and broadly used measure of wage inequality that can take a minimum value of zero (perfect equality when all individuals have the same amount of wages) and a maximum value of one (the case when one individual of the population holds all wages). Using the GINI coefficient, this simulation analyses the effect of FDI inflows on wage inequality in two parts. Part A, calculates the GINI coefficient for the domestic-owned firm and analyse how the GINI coefficient changes as foreign-owned firms of different types enter a market. Part B replicates the estimations of the first part adjusting the skill differential and employment differential according to PCA (2009) data¹¹, where about 10% of employees in Macedonia work for

¹¹ Data used from People Centred Analyses (PCA) surveys performed in 2008 and 2009 in Macedonia. These surveys were the result of a partnership between the United Nations Development Programme (UNDP) and the South East European University (SEEU).

foreign-owned firms. Ignoring any supply-side effects, the net effects of FDI inflows on GINI depends on countries specific effects, namely how large are differences of skilled to unskilled wages, how large is the foreign sector in a country and how large is the employment of skilled versus unskilled workers.

Part A

The GINI coefficients are calculated using the data in Table 5, where the wage variable is constructed assuming the same wages for all skilled workers (€450) and same wages for all unskilled workers (€100) in the domestic-owned firm. Here the number of skilled and unskilled workers is assumed the same in the three firms, whereas in the fourth firm an employment differential is introduced. In the first foreign-owned firm both wage of skilled and unskilled workers are increased by 100%. In the FOREIGN2 scenario the proportionate skill differential is higher in the foreign-owned firm and the FOREIGN3 scenario keeps the same wages as DOMESTIC1 and increases the proportion of skilled and unskilled workers. Hence, GINI coefficients are calculated using data on average monthly wage of skilled and unskilled workers (columns 1 and 2) in one domestic-owned firm and three foreign-owned firms, weighted by the number of skilled and unskilled employees (columns 3 and 4) in each firm.

No. of firms	Monthly wage of skilled worker (Euro)	Monthly wage of unskilled worker (Euro)	Number of employees with skilled wage	Number of employees with unskilled wage
	(1)	(2)	(3)	(4)
DOMESTIC 1	450	100	30	30
FOREIGN 1	900	200	30	30
FOREIGN 2	900	150	30	30
FOREIGN 3	450	100	60	40

Table 5 Simulation data on wages and employees on domestic and foreign owned firms

Table 6 reports the GINI coefficients first for the domestic-owned firm and then including foreign-owned firms. The average GINI coefficient for the domestic-owned firm (DOM1) is 0.32, increased by 25% when the first foreign-owned firm is included and being the same when adding FOREIGN2. This increase is due to a larger absolute proportionate wage skill differential in the foreign-owned firm. Comparing DOM1 with FOREIGN3 decreases the GINI coefficient to 0.29 due to the employment differential. These results indicate that the overall GINI coefficient may increase as a result of the increased skilled premium, holding other factors constant.

However, if a foreign-owned firm pays local wages (FOREIGN3) but employs a higher proportion of skilled workers, this actually lowers inequality. So there are two effects

of foreign-owned firms working in opposite directions, hence there is an ambiguous overall effect of foreign-owned firm's entry on wage inequality.

No. of firm	GINI coefficient	Skill differential	Employment differential
DOM1	0.32	350	0
DOM1+FOREIGN1	0.4	700	0
DOM1+FOREIGN1 +FOREIGN2	0.4	-50	0
DOM1+FOREIGN3	0.29	350	20

Table 6 Calculated GINI, skill and employment differentials for domestic and foreign-owned firms

Part B

Adjusting the above simulation according to data from the PCA (2009) survey, we have the following absolute proportionate skill and employment differential presented in Table 7. The foreign-owned firms (FOREIGN1) in Macedonia pay 25% wage premium for skilled and 37% for unskilled workers. So, the base GINI coefficient was calculated using DOMESTIC1 and FOREIGN1 data. Afterwards two changes were simulated: 1) what happens to the GINI when a new foreign-owned firm enters with a larger absolute skill wage differential (FOREIGN2) and 2) what happens when a new foreign-owned firm enters with the same wage premium as the original foreign-owned firm but with a higher proportion of skilled workers (FOREIGN3). Table 8 presents the results that indicate an increase of 27.3% when FOREIGN2 enters the market, however the GINI coefficient falls slightly when FOREIGN3 enters the market. This confirms the above results that there is an ambiguous effect of foreign-owned firm entry on wage inequality. Hence, in a country like Macedonia¹², the likely effect of additional FDI would decrease the overall wage inequality if the ratio of more skilled workers increases.

No. of firms	Monthly wage of skilled worker (Euro)	Monthly wage of unskilled worker (Euro)	Number of employees with skilled wage	Number of employees with unskilled wage
	(1)	(2)	(3)	(4)
DOMESTIC 1	422.11	139.85	175	110
FOREIGN 1	527.88	191.65	19	7
FOREIGN 2	1055.76	383.3	19	7
FOREIGN 3	527.88	191.65	38	7

Table 7 Simulation data on wages and employees on domestic and foreign owned firms according to PCA data

¹² The mean Gini for the period from 1993 to 2008 is 0.28.

No. of firm	GINI coefficient
DOM1+ FOREIGN1	0.22
DOM1+FOREIGN1+FOREIGN2	0.28
DOM1+FOREIGN1 +FOREIGN2+FOREIGN3	0.27

Table 8 Calculated GINI for domestic and foreign-owned firms

To conclude, FDI is not likely to influence wages of all type of workers to the same extent (Te Velde, 2003). According to the skill-bias argument FDI inflows may have positive effects on domestic skilled wages as a result of the increased 'international' competition for such workers and changes in technology which raise the demand for skilled workers. This changing pattern of demand for labour is likely to have a negative effect on unskilled wages (Onaran and Stockhammer, 2007). The simulation analysis indicates that the effect of FDI inflows on labour market inequality is much more complex than previously assumed in the literature. Increased inflows of FDI could increase or reduce the GINI coefficient dependent upon country-specific factors and the type of FDI. In order to investigate these effects further, empirical research is required.

Conclusion

Notwithstanding the increased FDI flows, research into transition countries and especially Western Balkan countries has largely neglected the effects of foreign ownership on labour market inequality. There seems to be a general agreement on the impact of FDI on growth, whereas in relation to labour market inequality further investigation is needed to clarify the situation. As a result of technological and management expertise FDI may improve the level of wages in the host economies as well as working conditions and increase employment. Foreign-owned firms tend to be larger, more capital and skill intensive, introduce more up-to-date technology and pay higher wages accordingly. FDI is not likely to influence wages of all type of workers to the same extent. Using the GINI coefficient as the measure of wage inequality our simulation analysis indicates that the net effects of FDI on wage inequality will depend in part on country specific factors: how large are the differences in skilled and unskilled wages, the skill-intensity of employment in foreign-owned firms compared to domestic ones and the relative size of the foreign-owned sector. This simulation analyses suggest that wage inequality may increase as a result of the increased skill premium, holding other factors constant. However, if a foreign-owned firm pays the same wages as locally-owned firms, but employs a higher proportion of skilled workers, this actually lowers inequality. Hence, there is an ambiguous overall effect of foreign-owned firm's entry on wage inequality.

Analysing the sectoral distribution the services sector accounted for most of inward FDI stock in all SEE countries up to 2012, however with substantial variations among countries. In Macedonia, foreign-owned firms enhanced services, such as in telecommunications and banking, introduced new technologies and machineries, improved export capacities through contract manufacturing and pay higher wages than domestic investors.

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