

Foreign direct investment and the development of the automotive industry in central and eastern Europe

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1. Introduction

In an increasingly globalized economy, foreign direct investment (FDI) by transnational corporations (TNCs) is considered a major force in the economic development of less developed economies, including the economies of central and eastern Europe (CEE) (e.g. Jindra et al. 2009).¹ In the early 1990s, it was argued that a successful ‘transition’ to capitalism in CEE would depend on large FDI inflows for triggering the necessary industrial restructuring, modernization and successful economic development (e.g. Fischer and Gelb 1991; Dunning 1993; EBRD 1993). Consequently, CEE countries were urged to open up their economies to global capital (Gowan 1995). The automotive industry was at the forefront of this FDI-driven development strategy in which foreign TNCs took over the CEE automotive industry through heavy capital investment, restructuring it and incorporating it into European and global production networks in the 1990s and 2000s (Pavlínek 2002a; Pavlínek 2002c; Pavlínek et al. 2009). The goal of this chapter is to analyze FDI in the CEE automotive industry, examining trends and patterns since the 1990s with a focus on the 2000s and especially the period after the 2008-2009 economic crisis.

The automotive industry has experienced major reorganization on a global scale since the early 1990s and now represents one of the most globalized industries (Dicken 2011). This reorganization involved the rapid expansion of core-based vehicle assembly firms and their principal suppliers into less developed countries, made possible by the liberalization of trade and FDI policies (Sturgeon et al. 2008; Sturgeon and Lester 2004; Humphrey and Memedovic 2003; Humphrey 2000). This expansion was driven by the

1. In this paper, central and eastern Europe (CEE) denotes the region composed of former state socialist countries located in Europe outside the former Soviet Union, which have automobile assembly plants (Czechia, Hungary, Poland, Romania, Serbia, Slovakia and Slovenia).

efforts of automotive lead firms to increase sales and production in rapidly growing, less developed countries. It took several distinct forms (Humphrey et al. 2000). Brazil, China, India and, more recently, Russia are examples of countries that have attracted major inflows of FDI in the automotive industry mainly because of their large market potential. India, China, and Russia are examples of 'protected autonomous markets' in which governments eased restrictions on FDI while continuing to protect the national market and domestic producers. Brazil and Thailand are examples of 'emerging regional markets' typified by the combination of trade liberalization and regional integration (Humphrey and Oeter 2000). These countries tend to see automotive FDI as a way of developing (e.g. China and India) or modernizing (e.g. Russia) their domestic automotive industry. In addition to market penetration, TNCs expanded their production in less developed economies in order to increase their competitiveness in more developed markets by shifting production to peripheral areas located close to the affluent markets of North America and Western Europe. Mexico, Spain and CEE are the best examples of such 'integrated peripheral markets' that have been integrated through FDI into the traditional core areas of automotive manufacturing in North America and Western Europe (Humphrey and Oeter 2000; Layan 2000).

This chapter focuses on CEE as an example of an integrated peripheral market. It argues that the 2008-2009 global economic crisis coincided with the end of the period of rapid expansion of the CEE automotive industry related to the opening up of CEE to foreign trade and FDI in the 1990s and the European Union (EU) membership in the 2000s. Although the FDI-driven development of the CEE automotive industry is continuing in the aftermath of the economic crisis, it is no longer predominantly based on building new greenfield factories but increasingly on consolidating the existing spatial structure of the automotive industry in the form of expanding profitable investments through reinvestment. This consolidation phase is typified by continuing process and product upgrading and by the much more selective and uneven functional upgrading of the CEE automotive industry (Pavlínek et al. 2009; Pavlínek and Ženka 2011). Although this upgrading is crucial for maintaining the competitiveness of the CEE automotive industry, it is unlikely to alter its peripheral position in the European automotive industry division of labor, which will continue to be largely based on low labor costs compared to the Western European automotive industry core. The pressure to control rising wages in the CEE automotive industry is likely to intensify through inter-plant competition, the intensification of

the work process in the form of process upgrading and also through the selective devaluation of national currencies. This chapter also argues that large inflows of FDI led to the restructuring and rapid development of the automotive industry in CEE countries at the expense of excessive foreign domination and control and possibly limiting the industry's potential for future economic development and for closing the gap between CEE and Western European economies.

I start with a discussion of the position of CEE in the global and European division of labor in the automotive industry. This is followed by an overview of FDI trends in the CEE automotive industry, including an evaluation of automotive FDI trends in individual CEE countries. Next, I consider the future prospects of automotive FDI and its long-term developmental effects in CEE. Finally, I summarize the main points in the conclusion.

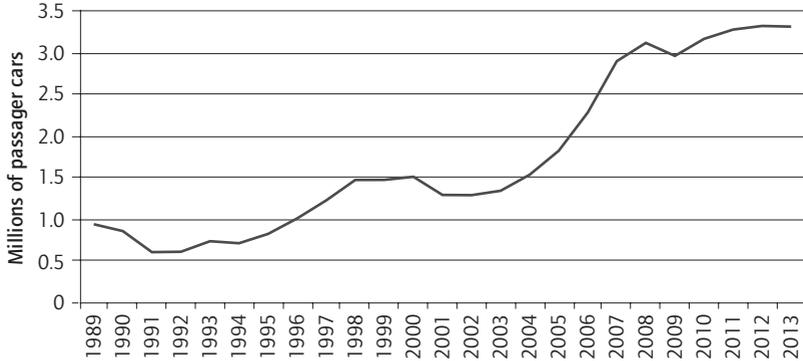
2. The global and European context of developments in the CEE automotive industry

The much delayed acquisition and rescue of Serbia's struggling automaker Zastava by the Italian Fiat company in January 2010 marked the final step in the takeover of the CEE passenger car (henceforth car) industry by core-based automotive TNCs and its integration into the European automotive production system. The CEE automotive industry has been profoundly transformed since the end of state socialism (e.g. Pavlínek 2002a; Pavlínek 2002c; Havas 2000; Pavlínek et al. 2009). In the late 1980s, the inefficient and obsolete CEE automobile producers were struggling to meet their domestic demand and produce competitive vehicles that would sell in the lowest and cheapest market segments in Western Europe (e.g. Nestorovic 1991). Twenty-five years later, the foreign-controlled export-oriented automotive industry of the CEE countries is playing an increasingly important role in their domestic economies when measured in terms of employment, production and value added. It also plays a growing role in the European automotive industry as a whole. Overall production of cars more than tripled in CEE between 1989 and 2013, from 945,000 to 3.3 million units (Figure 1). By 2013, CEE countries accounted for 19.1% of total European car output, compared with just 5.0% in 1990 and 3.9% in 1991 (OICA 2014).² The

2. Together with Russia and Ukraine, CEE accounted for 30.4% of the total 2013 European production of cars (OICA 2014, national statistical offices of the respective CEE countries).

automotive supplier industry grew even faster than vehicle assembly because, in addition to supplying new assembly plants in CEE, many supplier branch plants were established in CEE to supply West European assembly operations (e.g. Pavlínek 2003).

Figure 1 Car production in central and eastern Europe, 1989-2013



Source: Based on the data from national statistical offices (1989-2006), OICA (2014)

The post-1990 CEE automotive industry transformation needs to be understood in the broader context of developments in the global automotive industry in the past three decades. The global automotive industry, one of the most globalized industries (Dicken 2011), has undergone major changes in the organization of production and, consequently, in the geography of production (Sturgeon et al. 2008; Sturgeon and Van Biesebroeck 2009; Lung 2004; Bailey et al. 2010). In particular, the concentration and consolidation of the automotive industry went hand in hand with its internationalization and a change in the methods of producing automobiles. Automakers vigorously pursued the so-called platform strategy to maintain large economies of scale, the traditional source of price competitiveness, while achieving economies of scope through the production of greater numbers of different models built on the same platform (e.g. Lung 2004). Automotive lead firms also consolidated their supplier base by introducing modular production and reducing the number of direct suppliers (e.g. Humphrey and Salerno 2000; Sturgeon et al. 2008). The most important module suppliers were forced to establish production facilities wherever the automakers they supply assemble automobiles (the so-called follow supply or global supply) (Humphrey 2000; Humphrey and Memedovic 2003). To achieve this increased international presence, large suppliers engaged in a wave

of mergers and acquisitions leading to the emergence of an elite group of 'global suppliers'. These were not only required to follow the automakers to foreign countries, but also had to increase their research and development (R&D) capabilities in order to participate in the development of modules, components and production technologies (co-design) with lead firms (Sturgeon and Lester 2004; Humphrey 2000; Humphrey and Memedovic 2003).

For the most part of the 20th century, automotive production networks were organized predominantly at national scale (Dicken 2011). In the last three decades, however, automotive lead firms have increasingly organized their production networks on a macro-regional scale, encompassing for instance the whole EU or NAFTA (North American Free Trade Agreement) area (Bordenave and Lung 1996; Freyssenet and Lung 2000; Lung 2004; Sturgeon et al. 2008; Sturgeon and Van Biesebroeck 2009; Hudson and Schamp 1995). Cut-throat competition in the automotive industry is forcing lead firms to continuously design new strategies to keep their car production costs as low as possible. Various production and organizational strategies have been employed to achieve this goal, such as the use of lean production (Womack et al. 1990), a platform strategy (Lung 2004), modular production (Frigant and Talbot 2005; Frigant and Layan 2009) and the development of export-oriented production in low-cost countries to supply the markets of developed countries (Humphrey and Oeter 2000).

Export-oriented low-cost production plants have been established in peripheral areas located close to developed countries' markets such as Mexico (Humphrey and Oeter 2000; Sturgeon et al. 2010), Spain (Layan 2000) and CEE (Pavlínek 2002c). Additionally, compared to the saturated markets of developed countries with their predominantly replacement demand, demand from first-time buyers has been growing rapidly in such 'emerging' economies as China, India and Brazil (Liu and Yeung 2008; Liu and Dicken 2006; Humphrey 2003). This new demand, projected to continue growing strongly in the near future, reflects rapid economic growth and rising per capita incomes in these countries, combined with a rapidly growing population (with the exception of China).³ The enormous market potential combined with political pressure

3. The population of less developed countries increased from 4.7 billion in 1997 to almost 6.0 billion in 2014. During the same period, the population of more developed countries grew from 1.1 billion to 1.25 billion (PRB 2014; PRB 1997).

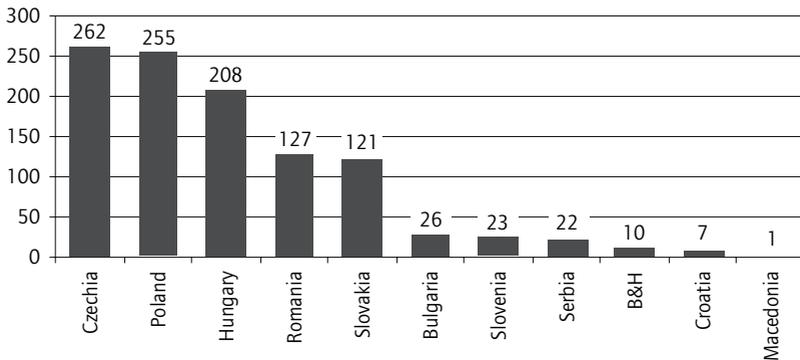
to produce automobiles locally prompted large, mostly core-based, lead firms to establish assembly operations in these countries, in turn, contributing to extremely rapid production increases in these ‘peripheral markets’, especially in China, since the mid-1990s.

Along with Mexico, CEE is a prime example of an ‘integrated peripheral market’ (Humphrey and Oeter 2000) that has become a favorite manufacturing location for core-based automotive TNCs since the early 1990s following the period of swift liberalization of CEE economies in association with the ‘shock therapy’. The existing inefficient and obsolete state-owned domestic automakers were unable to compete in the new market-based economic environment and became easy targets for takeovers by Western TNCs strongly encouraged by CEE governments (e.g. Pavlínek 2002c; Pavlínek 2006). For core-based automotive TNCs, CEE became an attractive low-cost production region located close to the Western European market. Central Europe has attracted the largest inflows of automotive FDI in the entire CEE since 1990, with the vast majority going into car assembly and the production of related components, fuelled by the region’s proximity to the Western European market, low production costs, the prospect of early EU membership, its market potential, a skilled labor force, government investment incentives, liberal labor legislation and a relatively well developed infrastructure (Pavlínek et al. 2009). Romania followed Central Europe in the 2000s, and Serbia, whose integration was stalled by the war and economic sanctions in the 1990s, in the 2010s.

The foreign takeover of the CEE automotive industry took on several forms and came in several waves of FDI. First were acquisitions of existing vehicle plants, most of which took place in the 1990s. Examples include VW’s 1991 acquisition of the Czech Škoda and the Slovak BAZ, Fiat’s 1992 takeover of the Polish FSM, Daewoo’s 1995 acquisition of the Polish FSO and Renault’s 1999 purchase of the Romanian Dacia (e.g. Pavlínek 2002c). Second, new greenfield assembly factories were established by core-based lead firms, starting with Suzuki in Hungary in 1990 and GM in Poland in 1995, with the majority being built in the 2000s, including TPCA (the joint venture of Toyota, Peugeot and Citroën) and Hyundai in Czechia; Kia and PSA Peugeot Citroën in Slovakia; and Mercedes in Hungary (e.g. Pavlínek 2015). Third, key foreign suppliers followed foreign lead firms to CEE, setting up their manufacturing operations in countries where lead firms had established vehicle assembly operations in order to supply the most important components. Spatial

proximity plays an important role in modular production and the just-in-time delivery of pre-assembled modules and crucial components (Frigant and Lung 2002; Larsson 2002; Pavlínek and Janák 2007). Fourth, foreign component suppliers were attracted by low-cost production in CEE and invested heavily in both takeovers of domestic companies and in greenfield production sites (e.g. Pavlínek 2002b). Between 1997 and 2009, foreign suppliers built 1,062 new plants in CEE (EY 2010) (Figure 2). In addition to the possibility of supplying foreign-owned assembly plants in CEE, many foreign suppliers were attracted by low labor costs and set up plants in CEE to supply assembly plants in Western Europe. Overall, based on data from the national banks of individual countries, foreign companies invested more than €30 billion in the CEE automotive industry between 1990 and 2012.

Figure 2 The number of newly built foreign automotive supplier plants by country in CEE, 1997-2009



Source: EY (2010)

As a result of large FDI inflows, the CEE automotive industry periphery has been very dynamic (e.g. Pavlínek et al. 2009; Pavlínek and Ženka 2011; Bernaciak and Šćepanović 2010; Domański et al. 2013; Sass and Szalavetz 2013). The CEE automotive industry has been restructured, modernized and expanded (e.g. Pavlínek et al. 2009; Bernaciak and Šćepanović 2010), local capabilities have been enhanced (Domański and Gwosdz 2009) and a significant, although very uneven, upgrading has taken place (Pavlínek and Ženka 2011). This rapid development of the industry has been organized and directed from abroad and core-based automotive TNCs now fully control the CEE automotive industry through direct ownership of the vast majority of both assembly plants and key

automotive suppliers. This almost total dependence on foreign capital is a sign of the weak and continuing peripheral position of CEE in the European automotive industry system despite its restructuring, modernization and upgrading. The position of CEE in the European automotive industry is in many respects similar to that of Mexico in the context of North America (Sturgeon et al. 2010).

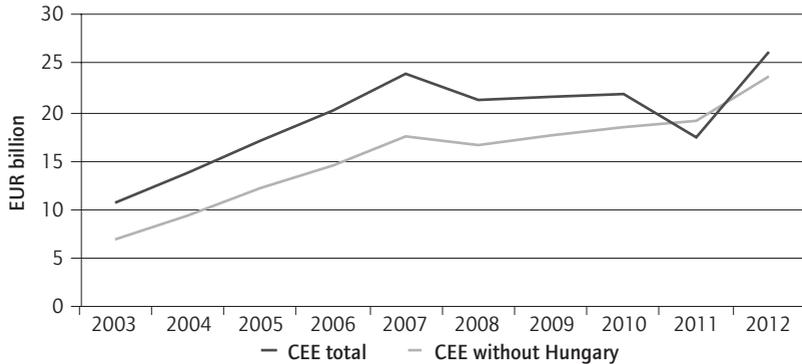
CEE has two basic roles in the European automotive industry production system (Havas 2000; Pavlínek 2002c; Pavlínek et al. 2009): first and foremost is the high-volume production of standard car models; second is the low-volume assembly of luxury models and other niche market vehicles. Additionally, the CEE automotive industry has served as a testing ground for new production methods which, if successful, are consequently introduced in core areas of the automotive industry such as Western Europe.

3. FDI trends in the CEE automotive industry

Based on data from the National Banks of CEE countries, the FDI stock in the narrowly defined automotive industry (NACE 29) stood at €26.2 billion in CEE as of 2012, compared to €10.7 billion in 2003 (Figure 3). Including Fiat's investment in Serbia, the total FDI stock exceeded €27 billion. The highest stocks were in Czechia (€10.1 billion) and Poland (€8.0 billion), followed by Romania, Hungary and Slovakia at less than €3 billion each. Slovenia's stock was only €266 million (Figure 4). However, Hungary's stock decreased from €6.4 billion in 2007 to negative €1.7 billion in 2011 partially because a large Audi investment in Hungary was transferred from manufacturing to other services for statistical and accounting purposes (Antalóczy and Sass 2014). The real 2012 automotive FDI stock of Hungary was therefore at a similar level to that of Czechia and Poland. Consequently, the real FDI stock in the CEE automotive industry exceeded €30 billion in 2012 and was close to €35 billion if we include FDI in the closely related supplier industries, such as the production of tires, which are not classified within the narrowly defined automotive industry (NACE 29). Together, Czechia and Poland attracted more than twice the amount of automotive FDI as the rest of CEE according to official national statistical data. The automotive FDI stock steadily increased between 2003 and 2007. It decreased during the economic crisis, with the lowest point achieved in 2011, only to recover in 2012, suggesting that the negative effects of the economic crisis on FDI

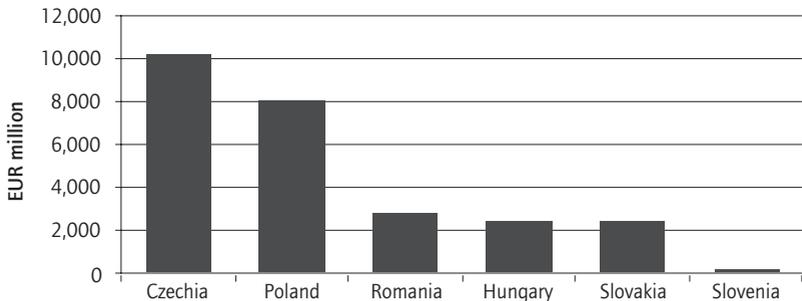
were only temporary. However, the FDI data for the entire CEE were affected by large fluctuations in the automotive FDI stock of Hungary. Without Hungary, the rest of the CEE automotive industry recorded only a slight decrease in total FDI stock in 2008, only for it to be recovered in 2009. Overall, however, FDI stock increased more slowly during the 2008-2012 period than between 2003 and 2007 (Figure 3).

Figure 3 Total automotive (NACE 29) FDI stock in CEE (Czechia, Hungary, Poland, Romania, Slovakia, Slovenia) and in CEE excluding Hungary, 2003-2012



Source: Based on data from the national banks of individual countries (2004-2014) and Eurostat (2014)

Figure 4 FDI stock in automotive industry (NACE 29), 2012

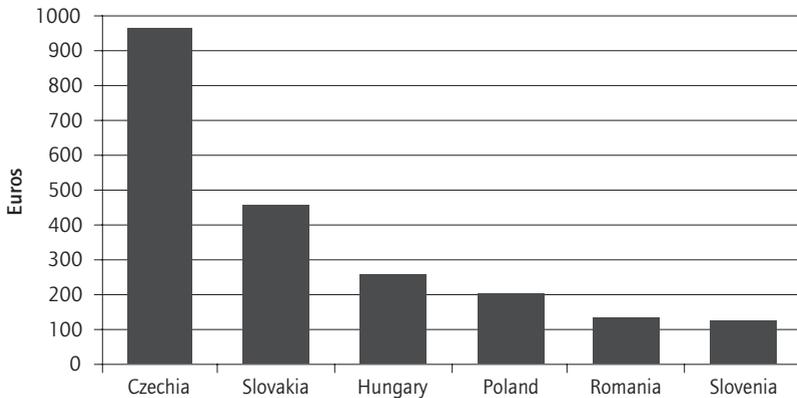


Source: Based on data from the national banks of individual countries (2013-2014) and Eurostat (2014)

Since the early 1990s, CEE countries were generally open to automotive FDI despite differences in national FDI policies (Drahokoupil 2009; Bartlett and Seleny 1998). However, since the late 1990s, CEE countries engaged in competitive bidding for flagship investments (Drahokoupil,

2008; Kolesár, 2006). Therefore, rather than attributing the leading positions of Czechia, Poland, Hungary and Slovakia to differences in their institutional environment compared to the rest of the region, it can be attributed to their relative geographical location with respect to the European automotive industry core and especially that of Germany. As of 2012, Czechia also had the highest automotive FDI stock per capita (€963), followed by Slovakia (€457) and Hungary (€254), further underlining the importance of geographic location close to the Western European automotive market for the spatial distribution of large automotive FDI in CEE (Figure 5).

Figure 5 Automotive FDI stock per capita (NACE 29) in CEE in 2012

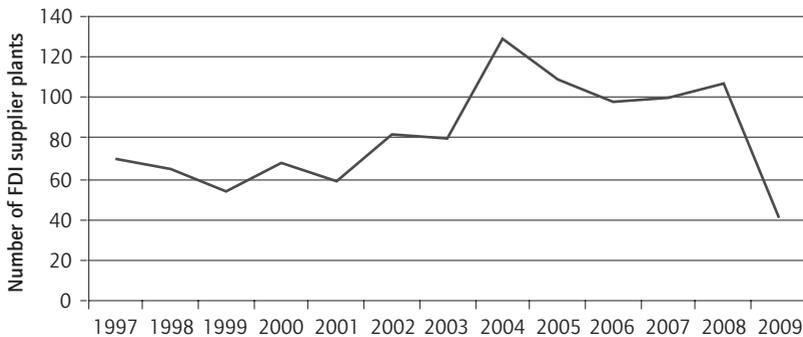


Source: Based on data from the national banks of individual countries (2013-2014) and Eurostat (2014)

FDI trends in the CEE automotive industry have largely been driven by the investment and location decisions of lead assembly firms (assemblers). These decisions triggered investment waves of their principal suppliers who followed them into CEE to meet the co-location requirements of modular production through follow sourcing (Sturgeon and Lester 2004; Frigant and Lung 2002; Pavlínek and Janák 2007). The construction of greenfield assembly plants began in the early 1990s in CEE but peaked in the 2000s before and shortly after EU accession. The establishment of new foreign-owned supplier factories peaked in 2004, though has since substantially declined, especially during the 2008-2009 economic crisis (Figure 6). After 2009, automotive investment in CEE continued at a much lower level than in the first half of the 2000s, with especially Western European investment declining well into 2013 as the number of investment projects in the automotive industry of CEE, Russia,

Ukraine and Belarus decreased by 8% compared to 2012 (EY 2014). Ernst & Young (2014: 50) talk about ‘the end of the Central and Eastern European “miracle”’. It is reasonable to assume that, at least for the time being, the period of rapid expansion of the automotive industry in CEE is over. We should not expect any new waves of greenfield assembly plant construction in CEE on the scale of the 2000s and associated investment waves in the automotive components industry in the foreseeable future. Instead, we should expect the consolidation of existing investments and, in some cases, their gradual expansion. Investment in the components industry is likely to continue at significantly lower levels than in the early 2000s and the period prior to the 2008-2009 economic crisis since automotive supplier networks are now already established in CEE.

Figure 6 The number of newly built FDI-based supplier factories in CEE, 1997-2009



Source: Based on data from EY (2010)

To illustrate these trends in a national context, I will briefly analyze FDI trends in the CEE automotive industry, looking at the total FDI stock in the automotive industry of individual CEE countries. Based on automotive FDI, we can classify CEE countries into three categories. Czechia, Poland and Hungary form the first group, typified by the highest FDI stock in the automotive industry (Figure 4). These three countries have benefited from their geographic proximity to Western Europe and especially Germany, low wages, FDI-friendly policies and industrial tradition. The second group includes Slovakia and Romania with lower automotive FDI stock than the first group, although Slovakia has the second highest FDI stock per capita in the entire CEE (Figure 5). Compared to the first group, Slovakia and Romania are latecomers that were not very successful in attracting large FDI inflows in their automo-

tive industries in the 1990s but experienced rapid FDI growth in the 2000s because of their EU membership, FDI-friendly policies and lower wages than the first group (Pavlínek 2014). Finally, Slovenia and Serbia form the third group, typified by low levels of automotive FDI compared to the first two groups. Relatively high wages compared to the rest of CEE and the country's small size explain the relatively low FDI stock and low FDI per capita in the Slovenian automotive industry. In the case of Serbia, the main reason for low levels of automotive FDI is related to its delayed economic liberalization and opening to FDI compared to the rest of CEE because of the war and economic sanctions in the 1990s. Throughout the 2000s, all CEE countries fiercely competed for new automotive FDI projects, offering large incentives, low taxes and other FDI-friendly policies (Pavlínek 2014; Drahokoupil 2009). National automotive FDI accounts illustrate that CEE continues to be attractive for automotive FDI after the 2008-2009 economic crisis, which is now mainly directed at expanding existing FDI projects. At the same time, parts of CEE, especially in Central Europe, have become less competitive in the most labor-intensive low-skill automotive assembly, such as the assembly of cable harnesses, because of rising wages, leading to the relocation of these manufacturing activities to cheaper locations such as Romania or North Africa (Pavlínek 2015). This underscores the importance of low wages for the future competitiveness of automotive manufacturing in CEE. The national level analysis also underscores the uneven nature of FDI inflows, contributing to the uneven development of the automotive industry and the uneven effects of the 2008-2009 economic crisis.

It is important to note that the following analysis has been negatively affected by the uneven quality and availability of statistical data provided by the national banks of individual CEE countries and by Eurostat, making the compilation of longer-term trends and reliable international comparisons difficult, if not impossible. The quality of FDI data from CEE national banks was cross-checked against the Eurostat FDI database and found to be compatible. In the case of Czechia, Hungary, Slovakia and Slovenia, the definition of FDI is in line with IMF recommendations (BPM5). The Polish and Romanian methodologies also observe the 10% ownership criterion for defining FDI and record FDI flows on a directional basis. Poland also observes reverse capital investments. However, as of 2007, the fully consolidated system was not applied in Poland, while Romania was waiting for its companies to apply the international financial reporting standards in order to apply the current operation performance concepts (ECB 2007).

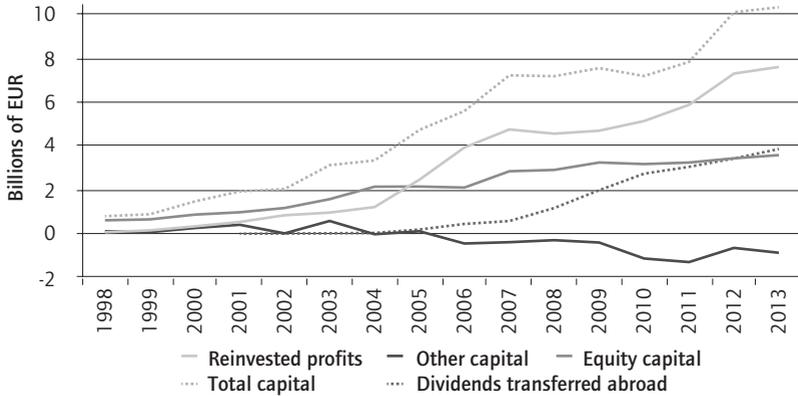
3.1 Czechia

At €10.2 billion, Czechia had the CEE's highest FDI stock in the narrowly defined automotive industry (NACE 29) as of 2012. The period between 1991 and 1998 was dominated by the Volkswagen (VW) investment in Škoda Auto and the related foreign takeovers of Czech automotive suppliers and new FDI greenfield projects by foreign suppliers of Škoda Auto (Pavlínek 2008; Pavlínek and Janák 2007). Automotive FDI stock increased steadily between 1998 and 2012 from €0.8 billion after the Czech government introduced a system of investment incentives in April 1998 (Pavlínek 2002b; Drahokoupil 2009) (Figure 7). The fastest increase took place between 2003 and 2007, with TPCA and Hyundai investing in new greenfield assembly plants and their principal Japanese and South Korean suppliers following suit. FDI inflows stagnated during the economic crisis. Reinvested profits have been the most important source of new FDI. At the same time, however, the outflow of profits in the form of dividends transferred abroad has been steadily increasing since 2000, peaking in the economic crisis at €813 million in 2008. Between 2000 and 2012, EUR 3.9bn were transformed abroad from the Czech automotive industry in the form of dividends paid to foreign parent companies (Figure 7) (CNB 2014). These general trends are also supported by data on new investments in the supplier sector. The post-1997 steady increase in the number of new supplier factories peaked in 2003, collapsed during the 2008-2009 economic crisis and began to recover after 2010 (Figure 8). A 2009 survey of 263 companies in the broadly defined Czech automotive industry conducted by the author suggested that more than half of the surveyed companies (149 companies or 56.7%) stopped or postponed their investment plans because of the economic crisis. Among the 98 foreign companies that answered the question, the share of companies postponing their investments because of the economic crisis was 55.1%.

The effects of the economic crisis in the Czech automotive industry were significant, with the broadly defined automotive industry shedding 10% of its workers (Pavlínek and Ženka 2010; Pavlínek 2015). These job losses affected the whole industry, hitting both foreign and domestic companies regardless of their position in the automotive value chain. Of the 15 bankruptcies, plant closures and relocations during and immediately after the economic crisis, nine involved foreign-owned component suppliers (Pavlínek, 2015). 9,187 jobs were lost, 8,037 (87.5%) of which were in these nine companies. Given a more than 90% share of foreign

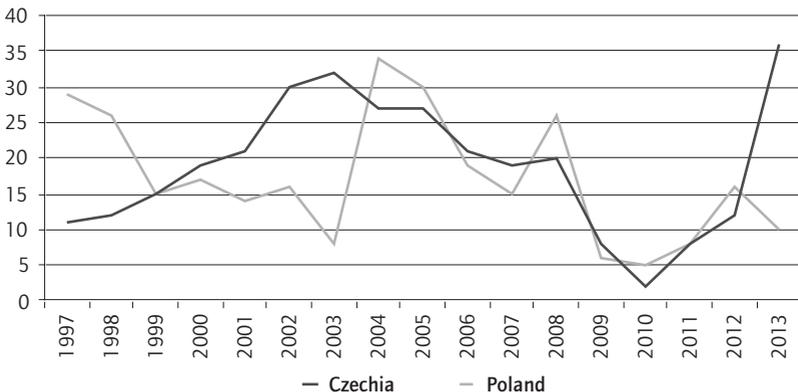
companies in Czech automotive turnover and value added (Pavlínek and Žižalová 2014), foreign companies were not affected more by job losses than domestic companies.

Figure 7 FDI stock (1998-2012) and the stock of dividends transferred abroad (2000-2012) in the Czech automotive industry (NACE 29)



Source: Based on data from CNB (2001-2014)

Figure 8 The number of newly built FDI-based supplier factories in Czechia and Poland, 1997-2013



Note: The 2010-2013 Czech data also refer to the expansions of existing investments and include domestic suppliers.

Source: Based on data from EY (2010) (1997-2009), CzechInvest (2014) (2010-2013 Czech data) and PIFIA (2013) (for 2010-2013 Polish data)

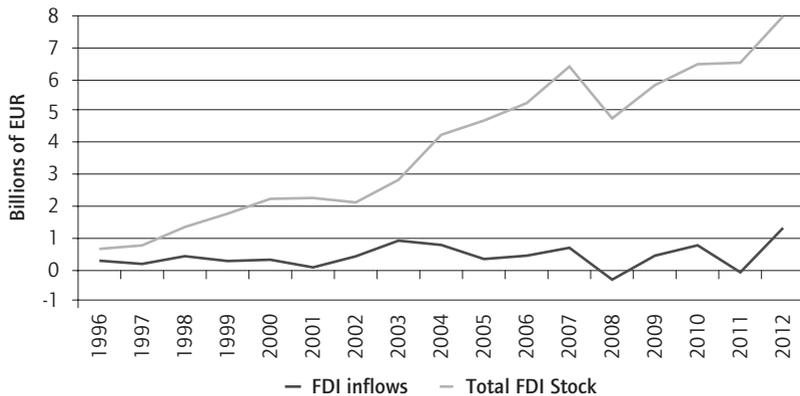
The three largest job losses were in U.S.-owned companies. The largest was caused by Delphi Packard, a manufacturer of cable harnesses, relocating from Česká Lípa to the Romanian town of Sânnicolau Mare. Delphi Packard employed 3,400 workers in Česká Lípa before the crisis in 2007 but began shedding workers in 2008. Then, in August 2010, it was decided the factory would close in May 2011. The remaining 1,400 jobs were lost. Delphi Packard now supplies cable harnesses to Škoda Auto from Romania (interview on June 13, 2011). The company attributed its decision to close the plant and relocate production to high production costs, intense competition and terminated contracts with Audi and BMW. The second largest job loss was related to the relocation of AEEES Czech Platinum Equity (previously Alcoa Fujikura), also a manufacturer of cable harnesses, to Romania due to lower labor costs in 2009. The plant, which employed 2,200 workers in 2007, began to dismiss workers in 2008 because of lower demand for its cable harnesses from Škoda Auto. The factory was closed in 2009, shedding its remaining 733 workers (Eurofound 2014). The third largest job loss of 980 jobs involved the 2008 closure of a subsidiary of the US automotive sealing systems producer Henniges Automotive located in Ostrava (Pavlínek 2015).

Czechia continues to benefit from its geographic proximity to Germany, significantly lower labor costs than in Western Europe, a well-developed supplier base and increasing agglomeration economies. These factors are expected to contribute to the expansion of existing factories in the form of reinvested profits and attract additional FDI in the supplier sector in the foreseeable future. The latest major expansion was announced in March 2014 when VW, following a VW-wide competition, decided that a new large Škoda SUV (the Snowman) will be produced in Czechia. Škoda Auto will invest €450 million in expanding its Kvasiny assembly plant in eastern Bohemia, creating 1,500 jobs and attracting new component suppliers. The June 2014 decision by Nexen, a South Korean tire producer, to build its €829 million tire factory in Czechia (near the town of Žatec) represents the largest greenfield investment in the Czech automotive industry after the economic crisis and the third largest foreign investment in the country since 1993. Nexen's location decision suggests that Czechia continues to be attractive for new large FDI projects by global automotive suppliers.

3.2 Poland

As of 2012, Poland's total FDI stock in the automotive industry stood at €8.0 billion. Similarly to Czechia, Poland has benefitted from its geographic proximity to Germany and substantially lower labor costs (Pavlínek 2006). Between 1996 and 2012, annual inflows of FDI in the automotive industry were volatile and strongly affected by business cycles and large investment projects (Figure 9). The greatest decrease in FDI inflows and FDI stock was recorded during the 2008-2009 economic crisis, with the FDI stock decreasing by more than €1.6 billion in 2008. The country recorded negative FDI inflows (minus €325 million), negative reinvested earnings (minus €213 million), a decrease in equity capital (by €68 million) and the outflow of profits (€44 million).

Figure 9 FDI inflows and FDI stock in the Polish automotive industry (NACE 29), 1996-2012



Source: Based on data from NBP (2014) and Eurostat (2014)

Given the size of its automotive sector, the number of bankruptcies, closures, and relocations was low in Poland during the economic crisis. The most important examples of bankruptcies and closures included Toora Poland, which went bankrupt in 2008 (260 jobs lost); the International Automotive Components Group (IAC), which closed down its factory in Teresin and laid off 240 workers in 2009; and Leoni, which closed its Ostrzeszów factory and dismissed 500 workers in 2010. Only two important relocations took place during the economic crisis. Takata Petri closed down its Wałbrzych factory and relocated its production to Romania in 2009 (500 jobs lost) and Remy International relocated

production from its Świdnica factory to Hungary and to its other facilities in Poland (200 jobs lost) in 2009 (Eurofound 2014).

After negative FDI inflows in 2011, the Polish automotive industry received record inflows of €1.3 billion in 2012. The number of newly built foreign components plants also is similarly volatile (Figure 8), peaking in 2004 at 34 and again in 2008 at 26. The lowest point was reached in 2009 and 2010 with six and five respectively (PIFIA 2013; EY 2010).

Total vehicle output decreased in Poland by 39% between 2008 and 2013 (from 951 thousand units to 583 thousand units), mainly due to a 43.6% decrease in the output of cars (from 842 thousand to 475 thousand units) (OICA 2014) affecting all manufacturers in Poland (Fiat, GM Opel and FSO). However, Poland has a more diversified automotive industry than its Central European neighbors. For example, compared to Czechia, Hungary, Slovakia and Romania, Poland is a major producer of commercial vehicles (108 thousand units in 2013, compared to 4,458 in Czechia, 2,400 in Hungary, zero in Slovakia and 38 in Romania). The output of commercial vehicles decreased by only 2.3% (2,582 units) between 2008 and 2012. Compared to other CEE countries, Poland also relies more on the supplier sector than on vehicle assembly. This sector accounted for 60% of its automotive industry output and 43% of its exports in 2012, and 16 of the 40 engine factories of CEE, Russia, Ukraine and Belarus are located in Poland (PIFIA 2013).

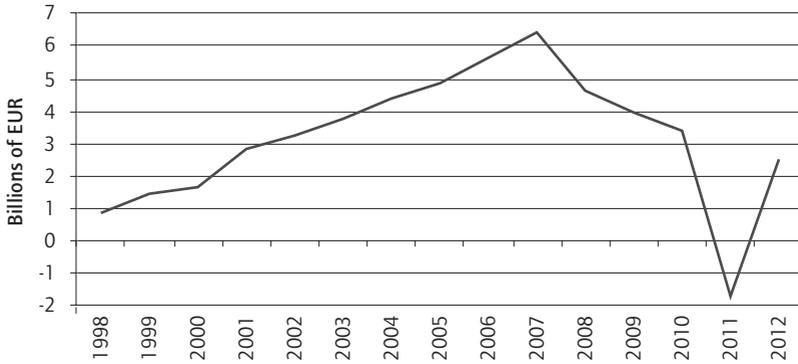
In 2014, VW chose the Polish town of Września near Poznań for its new commercial vehicle factory, which will further strengthen Poland's specialization in the assembly of commercial vehicles and attract additional component suppliers to Poland. The VW investment is worth more than €800 million. Production will start in 2016 and the planned annual production capacity of 100 thousand vehicles should be reached in 2019. KPMG (2013) has projected a 10.4% increase in the total FDI stock in the Polish automotive industry for 2014 and a 10% increase for 2015. Similarly, it has projected an annual increase in the investment flows in the automotive industry of 8.3% in 2014 and 9.6% in 2015. There are thus strong indications that the Polish automotive industry has overcome the economic crisis and is set to grow strongly in the near future based on the rebound in FDI inflows that will be attracted by the continuing competitive advantages of Poland: its geographic location next to Germany, low labor costs, skilled labor and a large domestic market.

3.3 Hungary

Hungary was the first CEE country to attract a foreign greenfield car assembly plant in 1990 (Suzuki) and also the last one so far (Mercedes-Benz in 2008). The country has become a favorite location for foreign automotive companies because of the presence of factors similar to those in the rest of CEE. In particular, the combination of its geographic proximity to Western Europe and low labor costs together with other factors such as investment incentives and flexible labor laws have attracted large automotive FDI. Automotive FDI stock increased rapidly before the 2008-2009 economic crisis from €866 million in 1998 to €6.4 billion in 2007. After 2007, however, FDI stock declined to minus €1.7 billion in 2011 before recovering to €2.5 billion in 2012 (Figure 10). According to data from the Central Bank of Hungary (CBH 2014), the automotive industry experienced a negative inflow of €7.8 billion in 2011 followed by an inflow of €4 billion in 2012. These unusual swings in the statistically reported automotive FDI stock and FDI inflows are difficult to interpret but they obviously have little in common with the actual situation because Hungary did not experience any such dramatic disinvestment in its automotive industry. On the contrary, over €4 billion were invested in the Hungarian automotive industry by foreign companies between 2009 and 2013 (CTCS 2014). This would suggest that the actual FDI stock in the Hungarian automotive industry is around €10 billion, i.e. at the same level as Czechia and higher than in Poland. As noted previously, about half of the dramatic decline in the FDI stock is attributable to the transfer of Audi's large FDI stock in Hungary from manufacturing to other services in the form of a Hungary-based foreign-owned holding company established by Audi in 2011 (Antalóczy and Sass 2014).

The greatest job losses attributable to the 2008-2009 economic crisis took place in 2010 (Boros 2013) as automotive industry sales decreased on average by 30-40% (Antalóczy and Sass 2011) and the output of cars fell by 39% between 2008 and 2010 (from 342,359 units in 2008 to 205,571 in 2010 (OICA 2014). For example, Dräxlamaier laid off 450 workers in Mór, Denso cut 800 jobs in Székesfehérvár and Tyco Electronics 330 jobs in Esztergom. As in other CEE countries, Hungary has been increasingly threatened by the relocation of labor-intensive parts of the automotive value chain abroad. In 2012, for example, Remy Automotive Hungary relocated its production from Mezőkövesd to China, South Korea and Mexico (200 jobs were lost) and Car-Inside closed two

Figure 10 FDI stock in the Hungarian automotive industry (NACE 29), 1998-2012

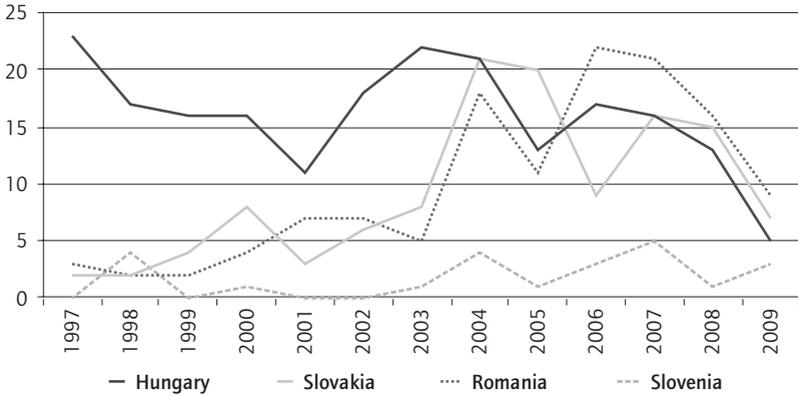


Source: Based on data from CBH (2014) and Eurostat (2014)

factories in Jánosháza and Lenti and relocated their production to Bosnia-Herzegovina, resulting in 300 layoffs (Eurofound 2014). However, the number of relocations from Hungary has so far been low in the automotive industry. Sass and Hunya (2014) identified only four relocations between 2003 and 2011, significantly less than in the case of Czechia and Slovakia (Pavlínek 2015). At the same time, there have been over 60 relocations to Hungary from abroad in the automotive industry (Sass and Hunya 2014), although the 2007-2009 economic crisis saw a sharp decline in the number of newly built supplier factories by foreign companies (Figure 11). The Michelin plant in Budapest will close in 2015 (Eurofound 2014).

Several large projects account for a high share of the large automotive FDI inflows after the 2008-2009 economic crisis. Mercedes-Benz's investment in its new assembly plant at Kecskemét (€800 million) was completed in 2012 and attracted 30-40 foreign suppliers to set up new factories supplying its production from Hungary. Examples include Johnson Controls, Brose, Knorr-Bremse, Siemens, Magna, Dürr and Kuka. Ten of these suppliers are located within the Mercedes-Benz production complex at Kecskemét. In addition to Mercedes-Benz and its suppliers, Hungary attracted additional large automotive FDI after the economic crisis, including major expansion projects by Opel, Audi and Hankook Tire. Opel invested €500 million in expanding its engine factory in Szentgotthard, completed at the end of 2012. Opel also announced an additional €130 million expansion of its plant in 2013. In 2013, Audi

Figure 11 The number of newly built FDI-based supplier factories in Hungary, Romania, Slovakia and Slovenia, 1997-2009



Source: Based on data from EY (2010)

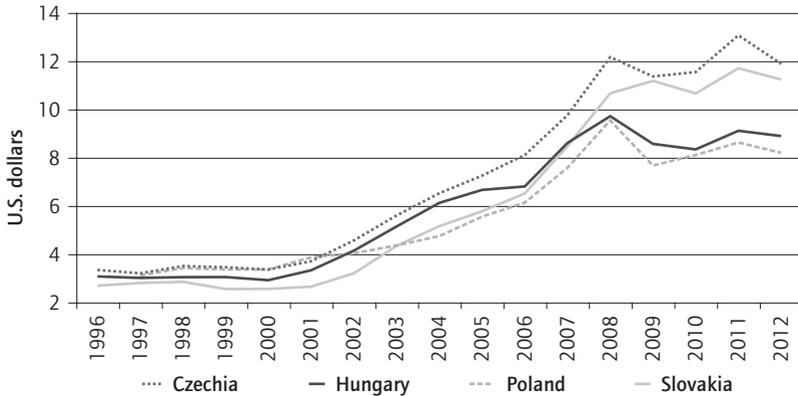
completed a €900 million expansion of its vehicle assembly plant in Győr, while Hankook Tire announced a €306 million expansion of its factory in Rácalmás in 2014.

These automotive investments suggest that Hungary has been more successful than all other CEE countries in attracting large volumes of automotive FDI after the 2008-2009 economic crisis. It is very likely that this success is related to the growing wage gap between Hungary and its major competitors, Poland, Czechia and Slovakia since 2008 (Figure 12). The Hungarian Forint was significantly devalued during the economic crisis, lowering Hungarian wages and making Hungary more attractive in the eyes of foreign investors. Compared to Poland, Hungary has a less militant labor force and better infrastructure. As with other CEE countries, Hungary has also vigorously competed for new FDI, offering attractive investment incentives. All these factors mean that Hungary will continue to be a very attractive location for automotive FDI in the foreseeable future as well.

3.4 Slovakia

Compared to the 1990s, Slovakia experienced a rapid increase in automotive FDI in the 2000s by attracting PSA Peugeot Citroën and Kia greenfield car assembly plants to Trnava and Žilina. Both assemblers

Figure 12 Hourly compensation costs in manufacturing (in U.S. dollars) in Czechia, Hungary, Poland and Slovakia, 1996-2012

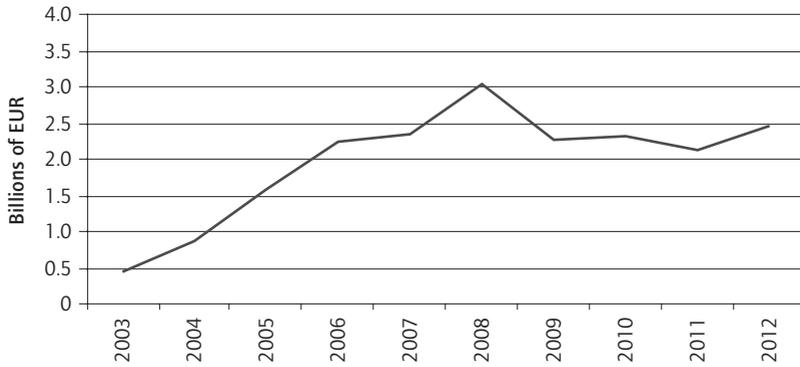


Source: Based on data from USBSL (2013)

attracted large FDI by their principal component suppliers. Additionally, VW substantially expanded its production in Slovakia after 2000, attracting a number of its most important suppliers as well (Pavlínek 2014; 2015). The number of new FDI projects in the supplier industry sharply increased in the early 2000s, peaking in 2004 and 2005 (Figure 11). Automotive FDI stock increased from €448 million in 2003 to €3 billion in 2008 before declining to €2.5 billion in 2012 (Figure 13). This rapid increase in FDI inflows in the automotive industry was the outcome of policy changes in the late 1990s and early 2000s which significantly increased the country's attractiveness in the eyes of foreign TNCs. For example, the Slovak government introduced a new system of generous investment incentives and lowered corporate taxes from 43% to 29%. It introduced a flat 19% income, corporate and value-added tax and a flexible labor code in 2003 (Fisher et al. 2007; Bohle and Greskovits 2006; Duman and Kureková 2012; Pavlínek 2014). As a result of large FDI inflows, car production increased from 3,453 units in 1990 to 180,706 units in 2000, 556,941 units in 2010 and 975,000 in 2013 (OICA 2014; ZAP 2000). Consequently, Slovakia now has the largest per capita vehicle production in the entire world and is the second largest producer of cars in CEE after Czechia.

The 2008-2009 economic crisis led to a 19.2% decrease in the output of cars and decreasing output in the entire supplier industry. FDI inflows slowed and the FDI stock declined. There were 13 bankruptcies, plant

Figure 13 FDI stock in the Slovak automotive industry (NACE 29), 2003–2012



Source: Based on data from NBS (2013) and Eurostat (2014)

closures and relocations abroad in the Slovak automotive industry during and immediately after the economic crisis. Nine of these involved the labor-intensive assembly of cable harnesses, an area especially sensitive to labor costs. For example, Delphi eliminated 1,900 jobs in Senica between 2006 and 2010 and relocated the assembly of cable harnesses to Romania, Tunisia and Turkey between 2007 and 2011 (interview on June 13, 2011, Pavlínek 2015). In the wake of the economic crisis, Delphi created only 250 new jobs in Senica between 2012 and 2014 (Eurofound 2014). The second largest job loss in Slovakia was associated with the closure of Yazaki Slovakia in Prievidza in western Slovakia in 2010. At the time of its closure, the Japanese assembler of cable harnesses employed 1,211 workers. Molex Slovakia closed its factory and eliminated 1,000 jobs at Kechnec in eastern Slovakia in 2010, transferring cable harness production to its Chinese subsidiary. Similarly, the bankruptcy of Jas Elmont, a Slovak producer of cable harnesses located in Snina in eastern Slovakia, resulted in 1,000 layoffs.

By 2011 the total output of the automotive industry had recovered to pre-crisis levels, with large production increases being recorded in 2012 and 2013 due to a major expansion of production at VW Slovakia and due to PSA and Kia each reaching full production capacity of 300,000 vehicles per year. In 2009, VW Slovakia won the VW concern-wide competition to assemble the smallest VW car (the VW Up!, Škoda Citigo and Seat Mii), launched in 2011. VW invested €308m to increase the production capacity of VW Slovakia to 400,000 units, adding 1,500 jobs and doubling its output (419,888 cars in 2012 compared to 210,441 in 2011

and 104,300 in 2009) (VW, 2013). A new €600m welding plant was built in 2013 and VW Slovakia announced an additional €500m investment in its Bratislava plant in January 2015 aimed at expanding the welding plant to produce bodies for the Bentley Bentayga SUV. This will increase VW's total 1991-2016 investment in Slovakia to €2.5bn. However, based on the analysis of business announcements of new investments and the expansion of production in the Slovak automotive industry, FDI in the supplier industry did not pick up significantly until 2013, with the lowest point reached in 2012.⁴ In 2014, three new greenfield factories were announced by component suppliers while there were only two between 2010 and 2013 (Eurofound 2014). The vast majority of new FDI is now flowing into the expansion of production, rather than the greenfield factories characteristic of the early- and mid-2000s.

As with other CEE countries, Slovakia will continue to benefit from its geographic proximity to Germany and the rest of the Western European automotive industry core, backed by its low wages and the aggressive investment promotion policy of the Slovak government. Compared to Czechia, Hungary and Poland, Slovakia has a distinct advantage in using the Euro, thereby eliminating currency exchange risks, something highly valued by foreign investors (2011-2013 interviews). However, as the Czech, Hungarian and Polish currencies devalued during and after the economic crisis, relative labor costs increased in Slovakia since it did not benefit from devaluation. While Slovakia had the lowest labor costs in Central Europe in the late 1990s and early 2000s, by 2012 its wages surpassed those of Hungary and Poland and were only slightly lower than those of Czechia. Following the devaluation of the Czech crown at the end of 2013, Slovak wages may have become the highest in Central Europe. It remains to be seen what effect this change will have on future inflows of FDI, though it is safe to conclude that Slovakia will be less competitive in attracting labor-intensive automotive production based on low labor costs than it was in the 2000s.

4. There were seven announcements in 2008, eight in 2009, six in 2010, six in 2011, four in 2012, 12 in 2013 and eight by September 2014 (ERM 2014).

3.5 Romania

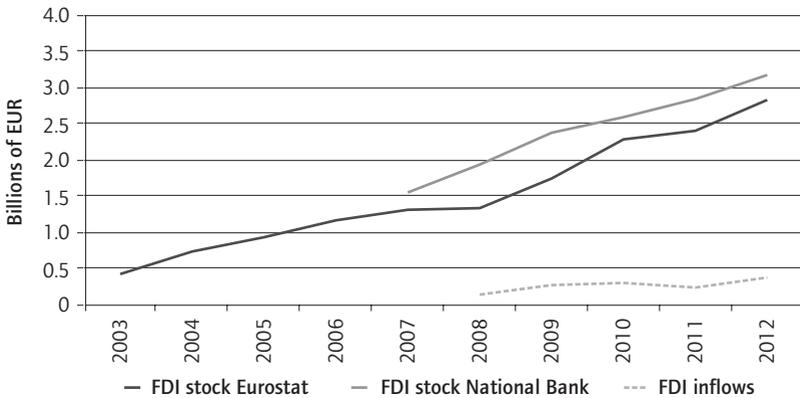
Romania's automotive FDI remained limited until the late 1990s despite selling 51% of the shares of Automobile Craiova to Daewoo (South Korea) in 1994. The purchase of Dacia by Renault in September 1999 and the subsequent development of Dacia as Renault's global low-cost brand in the 2000s transformed the Romanian automotive industry. This purchase was followed by a wave of investments by Renault's principal suppliers, peaking in 2006 and 2007 before the economic crisis (Figure 11). Examples include Auto Chassis International, Valeo, Euro APS, Johnson Controls, Autoliv, Inergy, Euralcom, Michelin and Continental. By 2014, Renault alone had invested €2.2 billion in Dacia (Gillet 2014).

As opposed to Renault, Daewoo never achieved its ambitious plans in Craiova and declared bankruptcy in 1998, leaving the Craiova factory in limbo until 2006 when it was repurchased by the Romanian government. One year later, the government sold its 72.4% stake to Ford for €57 million. Ford promised to invest €675 million (Egresi 2007) with the aim of producing 300,000 cars and 300,000 engines in the Craiova factory annually. In January 2013, Ford became the sole owner of the Craiova plant and assumed full management control. It encouraged 40 of its most important European suppliers to set up operations in Romania and about 20 of them signed contracts with Ford. However, the economic crisis slowed down Ford's progress in Craiova. Instead of mid-2009, assembly did not start until 2012 when only 30,591 B-Max minivans were produced (OICA 2014). The expansion of the product portfolio to include a small car planned for 2010 did not materialize. In 2013, Ford produced 68,000 cars and 250,000 engines in Romania. Examples of foreign suppliers which have already set up manufacturing operations in the proximity of the Craiova plant include Johnson Controls, Bamesa, Kirchoff Automotive, Leoni Wiring Systems and Gestamp Automocion.

According to Eurostat data, the automotive FDI stock in Romania increased from €416 million in 2003 to €2.8 billion in 2012 (NACE 29) (Eurostat 2014). The National Bank of Romania reports FDI data for 'transport means', which is a broader category than NACE 29, listing an increase in automotive FDI stock from €860 million in 2004 to €3.2 billion in 2012 (NBR 2013). Annual inflows ranged from €131 million in 2008 to €368 million in 2012 (Figure 14). Between 1997 and 2009, 127 new supplier plants were built in Romania. The greatest increase took place before the economic crisis in 2006 and 2007. As in other CEE

countries, there was a sharp decrease in the number of newly built supplier plants in 2008 and 2009 (Figure 11). However, Romania continues to be attractive for relocations from other countries, including Central Europe. It benefits from EU membership and low wages. The 2012 average hourly manufacturing wages were €36.98 in Germany compared to €3.78 in Romania, €9.30 in Czechia, €6.96 in Hungary, €6.42 in Poland and €8.79 in Slovakia (USBLS 2013). Between January and September 2014, 11 new automotive investments by foreign companies were announced, including five new factories and six expansions to existing plants. These new investments will create 10,500 jobs (Eurofound 2014). In 2013, ten new automotive projects were announced that would create 4,254 jobs, including eight expansions, one new factory and one administrative center. The most important is a €300 million expansion of the transmission plant in Sebes by Daimler where production is scheduled to start in 2016. In 2012, foreign investors announced 12 automotive industry projects in Romania, expected to create 8,550 new jobs (Eurofound 2014).

Figure 14 FDI stock and FDI inflows in the Romanian automotive industry (2003-2012)



Note: the Eurostat data refer to FDI in NACE 29, the data from the National Bank of Romania refer to FDI in 'transport means'.

Source: Based on data from NBR (2013) and Eurostat (2014)

Ford has been using its Craiova plant to extract concessions from workers in its other European plants by threatening to move production there. In 2014, for example, workers in Ford's Cologne plant agreed to a more flexible shift system and working hours after the company threatened to

move production of its Fiesta model to Romania (Henning 2014). Workers' concessions in Cologne amount to USD 400 million in savings over the period 2017-2021 (ANE 2014). Despite low wages, Romania itself has not been spared of relocation threats by automotive lead firms. For example, because of rapidly rising wages at Dacia following the 2008 strike, Renault has repeatedly threatened to move production to Morocco where it started assembly of Dacia cars in a new factory in 2012. The average monthly salary at the Dacia Mioveni factory in Romania was about €900 in 2014 (€950 including bonuses) compared to €285 in early 2008 before the strike. This 216% increase between 2008 and 2014 compares with a 30% increase in inflation over the same period (Rosemain and Timu 2014).

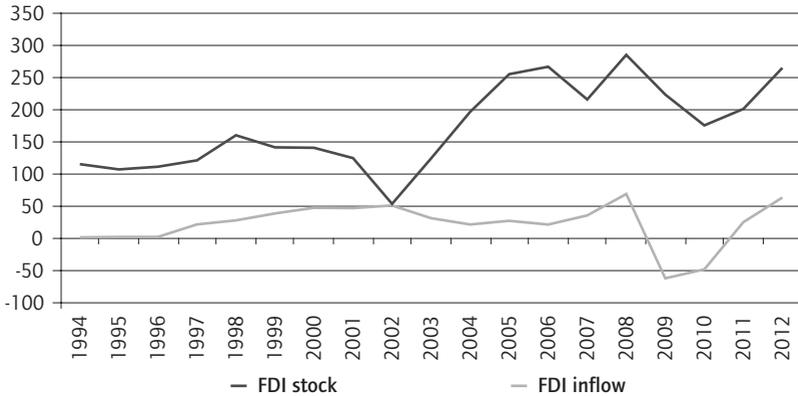
Despite production cuts and layoffs, Romania did not experience any relocations abroad, bankruptcies or closures in its automotive industry during and after the 2008-2009 economic crisis (Eurofound 2014). Instead, it benefited from relocations from other countries during this period. The prospects for further FDI in the Romanian automotive industry are very good because Romanian manufacturing wages continue to be 90% lower than in Germany and are also significantly lower than those in Central Europe. Romania will also continue to benefit from its EU membership.

3.6 Slovenia

At €266 million as of 2012, Slovenia had the lowest automotive FDI stock of CEE countries with car assembly plants (excluding Serbia) (Figure 15). FDI stock in the automotive industry increased rapidly in the early 2000s before the 2007-2008 economic crisis, peaking in 2008 before declining by 38% in 2009 and 2010. Recovery began in 2011 though the 2012 stock was still lower than in 2008.

Slovenia has only one car assembly plant (Revoz), located in Novo Mesto. Renault has been the majority shareholder of Revoz since 1991 and its sole owner since 2004. The assembly plant has an annual capacity of 220,000 units but has not been working at full capacity for many years. In 2013, it assembled 93,700 vehicles and was projected to produce 120,000 vehicles in 2014. Its production peaked in the aftermath of the economic crisis in 2009 (202,570 units) and 2010 (201,039 units) as sales of small cars were boosted by government scrappage schemes introduced

Figure 15 FDI stock and FDI inflows in the Slovenian automotive industry (1994-2012)



Source: Based on data from BS (2013) and Eurostat (2014)

in France and other Western European countries in 2009 (OICA 2014; Stanford 2010; Pavlínek 2015).

As in other CEE countries, Slovenia's automotive industry was hit by the 2008-2009 economic crisis, resulting in significant job losses. During and after the economic crisis, five automotive supplier plants, two of them Slovenian-owned, were closed between 2007 and 2014 with a total job loss of 1,343. Two suppliers produced car seat covers and one made leather products for the automotive industry, suggesting a vulnerability of labor-intensive production in Slovenia to closure and relocation (Eurofound 2014). For example, Siemens closed its Transportation Systems factory in Maribor in 2009, laying off all 322 workers.

As of 2014, Renault invested €450 million in the Revoz assembly plant to assemble small Renault cars, such as the Clio and most recently the third generation Twingo (STA 2014b). Renault invested €150 million in 2013 and 2014 alone to launch production of the new Twingo and the four-seat Smart (Smart Forfour), a new city car co-produced by Renault-Nissan and Daimler. Production was upgraded and expanded by about 25% from slightly over 600 cars a day to around 800 in December 2014. This production increase created about 450 new jobs in 2014 in addition to the 270 jobs created between March and June 2013 (STA 2014a). However, in 2011 and 2012, 850 jobs were eliminated at Revoz (Eurofound 2014). Only about 30% of the components for the new

Twingo are made in Slovenia, a percentage lower than that of large-volume assembly plants across CEE. This suggests that because of its low-volume production, the Revoz assembly plant has attracted fewer foreign component suppliers to Slovenia than other car assembly plants across CEE. Between 1997 and 2009 there were 23 investments in new automotive suppliers plants, less than 10% of the number of investments attracted by Czechia and Poland and also substantially less than the numbers of suppliers attracted to Slovakia and Hungary (Figure 11).

Compared to other CEE countries, no new supplier factories have been built in Slovenia after the economic crisis (2010-2014). Slovenia is less attractive as a destination for automotive FDI than other CEE countries for two basic reasons. First, the low-volume production at Revoz makes it more difficult to convince foreign suppliers to co-locate their factories in the proximity of the Revoz plant. Second, relatively high Slovenian wages compared to other CEE countries make Slovenia less attractive as a destination for FDI seeking low labor-cost locations.

3.7 Serbia

Established based on a license purchased from Italy's Fiat company, Kragujevac-based Zastava was Serbia's only car assembly company since the 1950s (Pavlínek 2002a). In 2010, Fiat took over the Kragujevac Zastava plant on establishing the Fiat Automobili Srbija (FAS) joint venture between Fiat (67%) and the Serbian government (33%). Since then, Fiat has reportedly invested €1.0-1.2 billion in the construction of a new assembly plant, heavily subsidized by the Serbian government's investment incentives and tax breaks. Despite the new assembly plant, vehicle assembly has remained at a low level. In 2013, FAS, which makes the small Fiat 500L model, assembled 10,905 cars. This was even less than in 2012 (11,032 units) and FAS failed to meet its plans to assemble between 110,000 and 140,000 vehicles in 2013. There was no significant production increase in 2014, with only 4,180 vehicles being assembled there during the first six months (OICA 2014). The new assembly factory has an annual capacity of 186,000 vehicles so it is reasonable to assume that it will gradually increase its output. Low labor costs are FAS's greatest asset, being 80% lower than in Italy and starting at about 30,000 dinars (\$360) a month. The average monthly wage of assembly workers is 34,000 dinars (\$400), a third of what Fiat pays its workers in Poland. Fiat has already attracted several foreign suppliers to the vicinity of the

FAS plant, including Johnson Controls, and it claims that the local content is 67%. Other foreign investors have established subsidiaries in Serbia in 2013, including Germany's Bosch to produce windscreen wipers and Finland's PKC to assemble wire harnesses (MacDowall 2013; Economist 2013). FAS hopes to assemble 100,000 vehicles in 2015 due to the anticipated cancellation of a 30% duty on vehicles imported by Russia from Serbia, which could significantly increase the country's exports to Russia (Vorotnikov 2014).

4. Future prospects of automotive FDI in central and eastern Europe and its long-term developmental effects

Let us step back from the empirical details and address the more general questions regarding the development of the FDI-driven automotive industry in CEE. First, I will consider why CEE is set to remain attractive for automotive FDI. Second, I will address the long-term effects of FDI-driven development of the automotive industry for CEE countries and their position in the international division of labor.

4.1 The continuing attractiveness of CEE for automotive FDI

Although the pre-2008-2009 economic crisis investment boom in the automotive industry is unlikely to be repeated, CEE will continue to be attractive for automotive FDI in the future due to a combination of favorable factors. The most important ones are the persisting wage gap between Western Europe and CEE, its geographic proximity to the affluent Western European markets and EU membership. In addition to the advantages of transnational economic integration, EU membership contributes to the CEE's economic and political stability.

Automakers need to make cars where they sell them on account of logistical reasons, political pressure and local content requirements (Sturgeon et al. 2008). This is what makes the relative geographic location of CEE so important to the European automotive industry. The political and economic instability east of the EU borders, increasing distance from the Western European markets and non-membership of the EU make a major shift of production capacity further east unlikely in the foreseeable future despite lower wages in countries such as Ukraine.

Additionally, CEE countries have willingly engaged in the ‘race to the bottom’ by offering generous investment incentives and favorable conditions to foreign TNCs (e.g. Dražokoupil 2009; Pavlínek 2014).

Western European automakers have used threats to shift production from Western Europe to CEE to discipline and extract various concessions from their workers in Western Europe. Therefore, the continuing wage gap between the Western European and CEE automotive industry is of vital importance for automotive lead firms and for continuing investment in the CEE automotive industry. Although, some automotive industry ‘experts’ argue that wages are no longer an important location factor in the automotive industry (Bella 2013), the actual behavior of both assembly firms and component suppliers suggests otherwise. This is reflected in their location choices and also in the continuing pressure to maintain wages as low as possible even in the cheapest CEE locations through threats of relocations abroad. In Western Europe, automakers and component suppliers threaten workers with relocations to CEE; in Central Europe, workers are threatened with relocations to Romania, Turkey or North Africa; while in Romania, workers are threatened with relocations to North Africa (Henning 2014; Rosemain and Timu 2014).

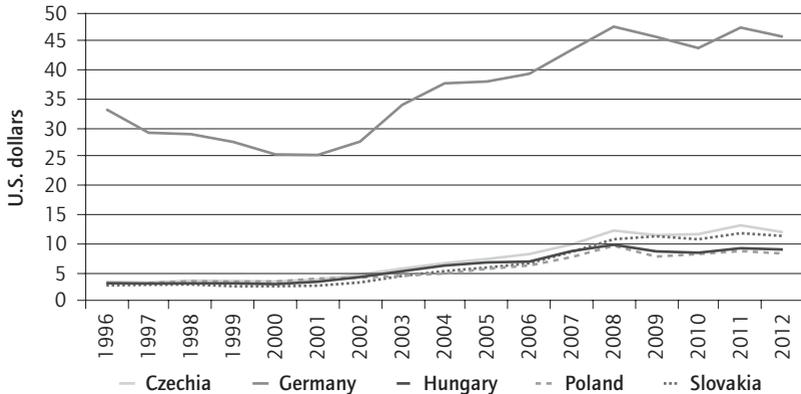
There have been a large number of relocations from Western Europe to CEE. To name just one example, Audi relocated its entire production of gasoline engines from Ingolstadt, Germany to Győr, Hungary, in the 1990s and 2000s after its German workers did not make sufficient concessions to satisfy demands for greater flexibility and lower wages. As a consequence, with its annual production of almost two million engines, Audi’s Győr engine factory has become the world’s largest engine plant. In the case of Central Europe, relocations took place during and after the economic crisis, especially in the most labor-intensive segments of the automotive industry value chain, such as the assembly of cable harnesses (Pavlínek 2015).

The overall impact of the CEE automotive industry growth and relocations from Western Europe to CEE on West European automotive employment has been significant, with the number of persons employed (NACE 29) decreasing by 13.9% (from 1.97m to 1.69m) between 2005 and 2013. At the same time, CEE employment increased by 21.4% despite the economic crisis. Among the major CEE producers (Czechia, Hungary, Poland, Romania, Slovakia and Slovenia) employment grew from

490,000 in 2005 to 591,000 in 2013. The fastest growth was recorded in Slovakia (up 49% from 41,479 to 61,857) while the slowest was in Czechia (up 0.4%). As of 2013, the highest employment in the CEE automotive industry was in Poland (163,000), Czechia (143,000) and Romania (138,000) (Eurostat 2015). Additionally, employment tripled among minor CEE producers (Bulgaria and the Baltic states), going up from 6,569 to 21,088 between 2005 and 2013. However, the fastest growth in CEE automotive employment took place prior to the 2008-2009 economic crisis. Between 1999 and 2008, the number of persons employed in the manufacture of motor vehicles, trailers and semi-trailers (NACE 34) increased by 50%, against a 5% decrease in Western Europe (Eurostat 2015). Although it is difficult to attribute exactly how much of the employment decline in Western Europe was directly related to growth in CEE, the inter-relationship is strong as automotive production was partially shifted to CEE from Western Europe.

The 1996-2012 development of hourly compensation costs in manufacturing suggests that the wage gap in the manufacturing industry between Western Europe and CEE is slowly narrowing (Figure 16). In Czechia, Hungary, Poland and Slovakia, average hourly compensation costs in manufacturing as a percentage of German costs increased from 10.5% in 1997 to 22.1% in 2012. In the automotive industry (NACE 29), the gap between Central Europe and Germany is slightly wider than in the manufacturing industry as a whole. In 2012, Poland's hourly compensa-

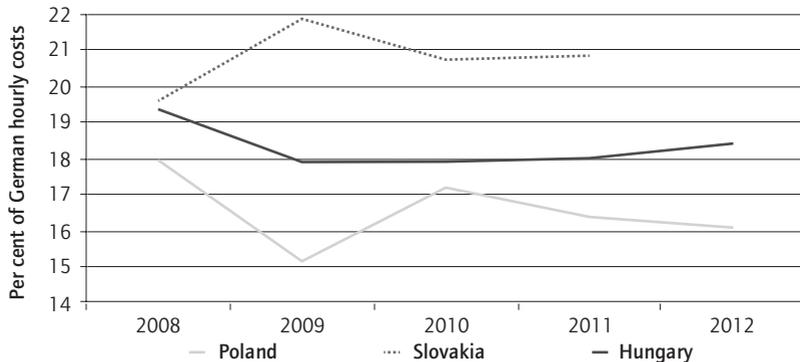
Figure 16 Hourly compensation costs in manufacturing, in U.S. dollars, 1996-2012



Source: Based on data from USBLS (2013)

tion costs were 16.1% of the German level, while Hungary's were 18.4%. In 2011, Slovakia's automotive industry wages were 20.9% of the German level. Between 2008 and 2012, Hungarian and Polish compensation costs as a percentage of German levels decreased. Slovakia's levels increased between 2008 and 2011 but decreased between 2009 and 2011 (USBLS 2013) (Figure 17). These decreases suggest that the graduate closure of the wage gap in the automotive industry between Central Europe and Germany is not necessarily an automatic and one-way process.

Figure 17 Hourly compensation costs in the automotive industry (NACE 29) as a percentage of German costs in Hungary, Poland and Slovakia, 2008-2012



Source: Based on data from USBLS (2013)

Relative to German levels, compensation costs in manufacturing increased most rapidly in Slovakia (from 8.2% to 24.7% between 1996 and 2012), compared to a slightly lower increase in Czechia (from 10.2% to 26.1%) and lower increases in Hungary (from 9.4% to 19.5%) and Poland (10.8% to 18.0%) (USBLS 2013) (Figure 16). Since the Czech National Bank's 10% devaluation of the Czech crown at the end of 2013, Slovak manufacturing wages most likely became the highest among these four Central European countries in 2014.⁵ Compared to its neighbors, Slovakia, a Eurozone member, cannot use currency devaluations to maintain its wage competitiveness. The rise in Slovak industrial wages from the lowest to second highest in Central Europe within one decade has undermined its wage competitiveness, one of its most important

5. The average 2013 wage in constant prices in USD: Czechia \$15,266, Slovakia \$15,239, Poland \$13,690, Hungary \$13,214 (OECD 2014).

competitive advantages in the 2000s, and it might negatively influence future FDI inflows in the Slovak automotive industry (Pavlínek, 2014). Automotive lead firms have attempted to slow down relative wage increases in Slovakia, trying to keep them at a minimum. In 2014, for example, VW Slovakia proposed a 4% cut in workers' salaries despite a low average monthly wage (€1,400 in 2013) and €170m profits earned by VW Slovakia in 2013 (SME 2014).

4.2 Long-term effects of FDI-driven automotive industry development in CEE

Since the early 1990s, the automotive industry has become a dominant industrial sector across CEE, significantly increasing its share of total exports, industrial production and job creation. In Slovakia, the industry directly accounted for 12% of total production and indirectly for 17%, 4% of total value added, 26% of exports and 20% of imports in 2012. It employed 60,828 workers directly and an additional 140,000 indirectly (ZAP 2013; Luptáčík et al. 2013). In 2013, it accounted for 41% of total manufacturing industry revenues (MIT, 2014). In Czechia, the narrowly defined automotive industry (NACE 29) accounted for 23.1% of manufacturing industry revenues and 13.2% of manufacturing industry employment in 2013, employing 137,906 workers (compared to 153,896 in 2008) and accounting for 22.2% of total Czech exports (MIT 2014). In Poland, the narrowly defined automotive industry accounted for 8.6% of the total gross value added and employed 156,000 workers in 2012. The broadly defined automotive industry employed 362,200 workers. There were 2,819 automotive industry companies in 2012 (KPMG 2013). In Hungary, the automotive industry accounted for almost 20% of total industrial output, 10% of GDP and 18% of total exports in 2013, while the broadly defined automotive industry employed 115,717 workers (CTCS 2014).

These data for individual CEE countries confirm the increased importance of the FDI-based automotive industry for economic growth in CEE in the 1990s and especially in the 2000s, contributing to capital formation, driving exports and creating tens of thousands of new jobs. At the same time, however, the dependence of CEE economies on the externally owned and controlled automotive industry has increased and this dependence is likely to grow further in the future since FDI inflows in the automotive industry are set to continue, although they are likely to be smaller than in the 2000s.

To evaluate the potential long-term effects of the externally owned and controlled automotive industry on CEE economies, we can turn to economic geography, students of which have analyzed the effects of FDI on regional economies in the peripheral regions of Western Europe and in Canada since the 1970s (Firn 1975; Dicken 1976; Britton 1980; Hayter 1982; Schackmann-Fallis 1989; Amin et al. 1994; Phelps 1993). These studies point out the long-term structural costs of external ownership and control of economic activities for peripheral regions in the form of 'truncated development'. Externally owned manufacturing branch plants usually play a distinct role in a corporate hierarchy, being concentrated on routine manufacturing activities while lacking strategic and high value-added functions, such as decision-making powers about strategic planning, investment, product portfolio, market research and research and development (R&D) competencies. These functions remain concentrated in corporate headquarters or specialized R&D facilities in prosperous core regions (e.g. Britton 1980; Hayter 1982; Hayter and Watts 1983; Schackmann-Fallis 1989). In the case of foreign investment, these high value-added functions tend to remain concentrated in the home countries of principal investors while routine manufacturing functions are developed in host economies. For example, the truncation argument was summarized by Hayter and Watts (1983:171) as follows:

...[I]n the long run branch plants are counter productive to regional development goals... because branch plants bring primarily unskilled jobs, limit local autonomy over investment decision making, arrest export potential in high technology goods, and, by relying on corporate rather than local linkages, increase import dependency on goods, services and technology.

Ultimately, truncated development contributes to value transfer from peripheral to core regions, making it more difficult for the affected regional economies to close the development gap with more developed core regions because of its negative effects on their indigenous growth potential (e.g. Schackmann-Fallis 1989). In the 1990s, the truncation and branch plant economy literature conclusions were challenged by arguments that branch plants were transformed into 'performance/networked branch plants' with greater autonomy and more functions and competencies than traditional branch plants (Phelps 1993; Amin et al. 1994). This has especially been the case in the automotive industry due to the changes in the organization of production and supplier relations experienced in the 1980s and 1990s (Womack et al. 1990). However, these changes have been limited and are

insufficient to significantly alter the position of performance/networked branch plants in the corporate hierarchy and its spatial division of labor (Pike 1998; Dawley 2011). Furthermore, the positive changes affected the minority of branch plants (Dicken et al. 1994). As such, the problems associated with truncation and the branch plant economy persisted (Pike 1998).

Are the findings of the truncation literature relevant for the current situation in CEE? Truncation and truncated development were already observed in CEE after the first wave of FDI in the early 1990s (e.g. Grabher 1994; 1997; Hardy 1998). More evidence of economic and regional development risks related to large FDI inflows and their potential long-term structural costs was provided in the 2000s. For example, in the context of the CEE automotive industry it was argued that FDI potentially had both positive and negative effects on host economies (Pavlínek 2004). While FDI often leads to increased production, exports and job creation, wage increases, improvements in labor productivity and competitiveness, growth in real income and tax base, and spillovers to domestic companies, it can also lead to the downsizing of production, labor shedding and transfer of R&D abroad at the enterprise level in addition to a number of potential negative local and regional developmental effects. These include, for example, a dependency on foreign capital, external control, the poaching of skilled workers from domestic companies, the crowding out of domestic companies, deskilling and the development of a dual economy.

At the national level, questions have been raised about the long-term economic effects of large automotive FDI inflows on domestic economies. For example, in the mid-1990s Ellingstad (1997) warned of the development of what he calls the 'maquiladora syndrome' in CEE, a reference to the problems related to the rapid growth of a foreign capital-dominated manufacturing industry and pointing to a number of FDI effects described by the truncation literature. State-based competition over large FDI projects in the automotive industry (regulatory arbitrage) has led to major state expenditure on investment incentives to attract strategic investors. These incentives are a form of state subsidy paid to foreign companies often at the expense of spending on education, domestic R&D, indigenous companies and other sectors of the domestic economy, and which contribute to the 'race to the bottom' in CEE (e.g. Bohle 2006; UNCTAD 1998).

It has also been argued that large foreign investors gained a disproportionate influence over state economic and education policies in CEE in the form of ‘corporate capture’ (Pavlínek 2014; Phelps 2000; Phelps 2008). Nölke and Vliegthart (2009) have further developed this line of thought, arguing that a new distinct basic variety of capitalism, what they call a dependent market economy, has emerged in CEE. Such an economy differs from liberal market economies and coordinated market economies, the two dominant varieties of capitalism, through its greater dependence on foreign capital. This external dependence is its most important feature (see also Vliegthart 2010). However, Nölke and Vliegthart (2009) do not address the potential long-term consequences of this external dependency for CEE economies, with the exception of the threat of potential relocation ‘further east’. As I have already noted, the relocation threat in the CEE automotive industry is greatest in the most labor-intensive and low-skilled manual operations, such as the assembly of cable harnesses (Pavlínek 2015; Pavlínek et al. 2009), while the potential for large-scale relocations of vehicle assembly operations from CEE is low in the foreseeable future. This is because of local content requirements, political pressure to produce within the EU, logistic reasons, transportation costs and large sunk costs in new investments.

There are already signs that the long-term effects of the industry’s dependency on foreign capital will be very similar to those described by the truncation literature: concentration on routine assembly operations, the weak development of R&D functions (Pavlínek 2012) and other strategic functions in foreign subsidiaries (Pavlínek 2014), limited spillovers from foreign to domestic companies (Pavlínek and Žížalová 2014), the weak development of domestic companies, their limited upgrading and subordinate and dependent position in automotive GPNs (Pavlínek and Ženka 2011; Pavlínek and Žížalová 2014). All these factors will strongly influence the long-term prospects of the CEE automotive industry for catching-up with the more developed Western European automotive industry core.

It is important to realize that both foreign and domestic companies are important for successful economic development in the contemporary globalizing economy since both contribute to value creation and capture in different ways. Therefore, CEE governments should focus more on the long-term and sustainable development of the domestic automotive industry through targeted strategic industrial policies mitigating the overwhelming dependence on foreign capital. Greater investment in

human capital in the form of high quality technical education and job training should attract more FDI in high value-added activities and contribute to the gradual upgrading of the CEE's position in the automotive industry's division of labor.

5. Conclusion

The CEE automotive industry has been integrated into the European and global automotive industry since 1990 mainly through the investment and trade activities of foreign TNCs. Foreign capital financed the restructuring of the existing CEE automotive industry and the build-up of new production capacity. Consequently, vehicle output more than tripled between 1990 and 2013, while the supplier industry grew even faster (e.g. Pavlínek 2003). In the contemporary global automotive industry, CEE represents a prime example of an 'integrated peripheral market' made up of attractive production locations geographically close to large and affluent markets in developed economies and with significantly lower production costs, mainly because of lower wages. The high degree of integration of the CEE's automotive industry into the European production system and its overwhelming dependence on exports increased its vulnerability in the 2008-2009 economic crisis. The crisis led to declines in production and FDI inflows across the CEE automotive industry, although its effects, including post-crisis recovery, were geographically highly uneven.

Between 1990 and 2012, foreign automotive lead firms invested more than €30 billion in the CEE automotive industry, with the fastest increase in FDI stock taking place between 2000 and 2007. FDI inflows slowed during the 2007-2009 economic crisis and FDI stocks tended to decrease as foreign investors repatriated profits generated in CEE rather than reinvesting them. Although this decrease was only temporary and total FDI stock recovered by 2012, it suggests that the CEE automotive industry is vulnerable to increased profit repatriation and lower levels of investment during economic crises. Since investment by foreign lead firms in the CEE automotive industry is part of their profit-making behavior, we might expect that profit repatriation and the outflow of value from CEE will eventually exceed the volume of invested capital.

Individual automotive FDI country trends reflect the investment and location decisions of automotive lead firms, national differences in

institutional environment, and the degree of success or failure in competitive bidding among CEE countries for large investment projects. Recent FDI trends suggest that CEE continues to be an attractive destination for automotive FDI. Although the large FDI inflows related to the construction of new assembly plants in the early and mid-2000s are unlikely to be repeated any time soon, CEE will continue to be attractive for automotive FDI as long as the wage gap between CEE and Western Europe persists. It will take many decades for CEE wages to catch up with wages in Western Europe at the current rate of wage increases.

Was there any alternative to the FDI-driven development of the automotive industry in CEE after 1990? Given the CEE's history of automotive industry underdevelopment throughout the entire 20th century and the state of the CEE automotive industry at the end of the state socialist period in the late 1980s (Nestorovic 1991; Pavlínek 2002a), CEE countries were not in a position to pursue the successful development of an independent automotive industry. Attempts by domestic automakers to pursue independent development strategies, such as those by the Romanian Dacia and Russian AVTOVAZ in the 1990s and 2000s, were unsuccessful as these domestic automakers were unable to compete with the technologically more advanced production and vehicles of core-based TNCs (Pavlínek 2002c). Neither were CEE countries in a position to negotiate better terms for automotive FDI due to their small markets, similar factor endowments and strong competition over automotive FDI. As such, automotive TNCs were able to negotiate very favorable terms for their investment in CEE, often at the expense of CEE taxpayers and the subordination of state policies to the interests of foreign investors (Pavlínek 2014).

While FDI in the automotive industry strongly contributed to economic growth, job creation and the export competitiveness of CEE economies, it also significantly increased their dependence on the externally owned and controlled automotive industry. External control limits the potential economic benefits of the automotive industry for CEE economies because of truncation and because of limited opportunities for the development of an indigenous automotive industry. The long-term economic policies of individual CEE countries can be negatively affected by corporate capture, which tends to benefit foreign investors at the expense of domestic companies and population. Foreign ownership also undermines value capture in CEE and leads to value transfer from CEE to the core

regions of the global automotive industry. The increased dependence of CEE economies on the automotive industry also increases their vulnerability to business cycles. In the long run, therefore, the development of the automotive industry in CEE will most likely be significantly more beneficial for foreign capital than for CEE economies and their population.

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All links were checked on 29 June 2015.