

Upgrading through Integration? The Case of the Central Eastern European Automotive Industry¹

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Introduction

While it is a fact that (formerly) peripheral countries are increasingly participating in the manufacturing process of commodities, it is an open and on-going research question if they are able to upgrade and develop as a result of this integration. This paper² aims to address this research question. In so doing, it will narrow down the focus on the international division of labor in terms of both sector and region. It will look at the automotive sector as this industry is characterized by combining both the production of very high value-added components which are capital-intensive and require research and development (R&D) activities on the one hand, and manufacturing of low value-added components which are very labor-intensive on the other. Furthermore, the automotive sector has strong links to related industries such as engineering and the chemical industry. In terms of region this paper will concentrate on the international division of labor in the European Union (EU), in particular the new member states in Central Eastern Europe. The EU is not only one of the largest markets for the automotive sector but also hosts many of the most important and largest companies in the industry. Most importantly, the relatively recent Eastern enlargement of the EU provides an interesting field of inquiry as peripheral countries are being integrated in both ways, economically and politically. How does the pattern of international division of labor in the European automotive sector look like? Did the new member states and its actors benefit? Did integration in the value chain allow for upgrading and development on their side? How is EU-integration linked to upgrading prospects? These are the key research questions this paper will try to answer.

The paper is structured as follows. It will start off by providing the theoretical framework for assessing upgrading and development. In this context, the Global Value Chains approach will serve as a starting point. However, as will be argued below, this theoretical perspective needs to be broadened: Its focus on the individual firm as unit of analysis is not

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sufficient; instead, upgrading needs to be defined in broader terms and must take developments in the work models and industrial relations into consideration as well. In this context, the conceptual differentiation between high-road and low-road models to economic development (Pyke and Sengenberger 1992) appears to be very fruitful. Through a broadened understanding of upgrading, it is argued, the level of development of actors can be better assessed even though development is too complex and contested a phenomenon to allow for a clear link between the two. In a second step the paper will look at the recent trends towards internationalization of production in the European automotive industry. In this context, it will explore if the actors in the new member states were able to upgrade and develop as a result of integration. In accordance with the theoretical framework used in this paper, this section will not only look at production output, value added, trade and investment, employment, and R&D activities, but also at the work model and the industrial relations in the new member states. Finally, distinct institutions, regulations, and policies on various levels are suggested to be crucial in structuring the potential and form of upgrading. This implies that there is a significant amount of room for local maneuvers which can be used to potentially shape a contextual framework conducive to sustained upgrading.

The paper contributes to the existing literature in two ways: First, it offers a broadened notion of upgrading in theoretical and empirical terms. The second contribution of this paper is that it points to the embeddedness of value chains. Looking at the way value chains are operating in particular cultural, social, institutional, political, and economic contexts is an important area for further research.

Broadening the Concept of Upgrading

Both dependency theory as developed by Frank (1969, 1978) and world-system theory (Wallerstein 1974) claim the existence and reproduction of a hierarchically structured international division of labor in which the role of the periphery is more or less limited to supplying raw materials. These theoretical approaches identify a system of unequal exchange in which the periphery is exploited by the core appropriating the gains from division of labor. Other theoretical approaches, however, identify a 'new international division of labor' (Fröbel et al. 1980) or a 'global shift' (Dicken 2003). These approaches argue that the pattern of international division of labor has increased in complexity insofar as peripheral countries moved beyond being only supplier of raw materials but instead increasingly become the site of manufacturing themselves. The Global Commodity Chains approach (Gereffi and Korzeniewicz 1994) is a theoretical response to this emerging form of international division of labor. Typically, the concept commodity chain is used as defined by Hopkins and Wallerstein: "[A] network of labor and production processes whose end

result is a finished commodity.” (1986: 159) However, the Global Commodity Chains (GCC) approach departs from Hopkins and Wallerstein in terms of unit of analysis: While Hopkins and Wallerstein linked the idea of commodity chains to the concept of a hierarchically structured world-system, the GCC approach concentrates on individual firms or inter-firm networks. It is important to note that contrary to world-system theory, proponents of the GCC approach believe in the idea of development. A core concept introduced by the GCC approach is that of lead firms: Lead firms are the most powerful firms in a sector which makes them key actors in commodity chain governance. In fact, Gereffi argues that “[o]ne of the major hypotheses of the global commodity chains approach is that development requires linking up with the most significant lead firms in the industry.” (2001: 1622) The automotive sector is characterized by strong lead firms, the so-called Original Equipment Manufacturers (OEMs). This strong chain governance position of OEMs has an impact on form and structure of the international division of labor in the industry, as will be shown below.

The Global Value Chains (GVC) approach is pointing in a similar direction. In fact, it is a matter of scholarly debate to what extent the GVC approach constitutes a qualitatively new theoretical perspective (cf. Bair 2009). It seems that the GVC framework was developed primarily for terminological reasons (Bair 2005; Gereffi et al. 2001; Gibbon and Ponte 2005). The GVC approach is a useful theoretical tool to study patterns of international division of labor in an era in which the production process becomes increasingly dispersed in geographic terms and between various actors. With its focus on the value chain of a particular firm or sector, the GVC approach is able to identify and locate the various nodes and actors involved in the production process. Moreover, this theoretical perspective is sensitive to the unequal distribution of benefits which remains despite integration and participation in the manufacturing process. Central to the GVC approach is the idea of upgrading. Gereffi et al. (2001) name four ways of upgrading: product upgrading, process upgrading, intra-chain upgrading, and inter-chain upgrading. Product upgrading refers to firms which move into more sophisticated product lines, process upgrading is defined as “transforming inputs into outputs more efficiently through superior technology or reorganising the production systems.” (2001: 5) Intra-chain upgrading can be achieved in several ways:

„Firms can acquire new functions in the chain, such as moving from production to design or marketing (functional upgrading). Firms can also move backward or forward to different stages in a value chain, such as moving from the production of finished goods to intermediates or raw materials (upgrading via vertical integration). In addition, firms can diversify their buyer-supplier linkages within a value chain, for instance an apparel

maker adding different kinds of lead firms such as an upscale retailer or brand-name client to expand or raise the price points of its orders (network upgrading).” (ibid.)

Finally, inter-chain upgrading “occurs when firms apply the competence acquired in a particular function of a chain to a new sector.” (ibid.)

What becomes clear from this is that the GVC approach locates upgrading on the level of the individual firm, i.e. upgrading is conceptualized as industrial upgrading. If one aims to relate upgrading to the much broader concept of development, this is problematic due to two reasons: First, firm-level upgrading does not necessarily translate in an equally shared upgrading on the level of the stakeholders, most importantly the workers. And second, in this case the relationship between industrial upgrading of the individual firm or a particular sector and the broader socio- and political-economic sphere is neglected.

In order to try establishing a link between upgrading and the very complex idea of development, the concept of upgrading needs to be defined more broadly. This paper argues that upgrading as defined by much GVC research is insufficient to make sense of broader socio- and political-economic developments. Hence, the idea of upgrading needs refinement: It has to refer and be applied to multiple levels and actors, not only the firm-level. Consequently, in this paper upgrading is not only assessed through indicators such as production output, trade and investment patterns, value added, employment, and R&D activities. Rather, the paper also looks at the prevalent work model and the industrial relations in the new EU member countries of Central Eastern Europe. This allows for a more differentiated and accurate picture of upgrading. Of course, even this broadened perspective does not allow for a clear understanding of the relationship between upgrading and development. To establish this link is far beyond the scope of this paper.

In a sense the theoretical framework used in this paper returns to the origins of GVC and GCC research, respectively. As Bair (2005) points out, GCC and GVC approaches depart from world-system theory insofar as they are less holistic. She criticizes this confined scope and instead argues that “closer attention to the larger institutional and structural environments in which commodity chains are embedded is needed in order to more fully inform our understanding of the uneven social and developmental dynamics of contemporary capitalism at the global-local nexus.” (2005: 153) At the same time, however, the chain approaches are very useful in the sense that they direct our attention to the nodes and actors within a chain, regardless of national borders. While the focus of world-system theory lies on a holistic understanding of a world-system, it is operating based on a concept of national territoriality and sovereignty; the chain approaches, in contrast, concentrate on the individual firm or inter-firm networks. Both units of analyses seem to be inadequate to study the international division of labor in the 21st

century. This paper argues that research in this field needs to go beyond the narrow perspective of value chain research. At the same time, research needs to go beyond and below the focus of world-system theory – beyond in the sense that it has to move above the concept of the nation state as container of upgrading-related developments; below refers to being sensitive to important processes within the confines of national territoriality. Such a perspective allows for addressing those aspects influencing the international division of labor and upgrading possibilities. In the context of the subject matter of this paper, these aspects are, amongst others, macro-economic developments, firm strategies and trajectories, sector-wide trends in work organization, regulatory mechanisms and policies, and technological innovations in the automobile industry. While it is certainly beyond the scope of this paper to address all or even most of them, it will look at some indicators for upgrading in a broader sense. Consequently, in addition to exploring upgrading dimensions of classic GVC research, this paper will draw on the concepts of high-road and low-road work models. According to Pyke and Sengenberger,

„the ‘low road’ to restructuring [...] consists of seeking competitiveness through low labor cost, and a deregulated labor market environment. [...] [T]he ‘high road’ of constructive competition [is] based on efficiency enhancement and innovation; that is, through economic gains that make wage gains and improvements in social conditions feasible, as well as safeguarding workers’ rights and providing adequate standards of social protection.“ (1992: 12-3)

Employing this broadened upgrading concept, this paper will try to explore to what extent the new EU member states of Central Eastern Europe witnessed upgrading of their automotive industries as a result of economic and political integration.

The Tapping of an Emerging Market

Central Eastern Europe is one of the emerging markets for the automotive sector. Particularly after the collapse of the Soviet Union and the subsequent economic integration of the newly independent countries, many OEMs from Western Europe, the USA and Japan sought to tap this market potential.

There are three stages of integration of Central Eastern Europe’s automotive industry. During the first half of the 1990s, the Foreign Direct Investment (FDI) inflows into the region were primarily motivated by market-entry goals. During that phase, the structure of international division of labor bore strong resemblance to a core-periphery dichotomy as proclaimed by world-system theory. In fact, mostly small and cheap models were produced in the newly built plants.

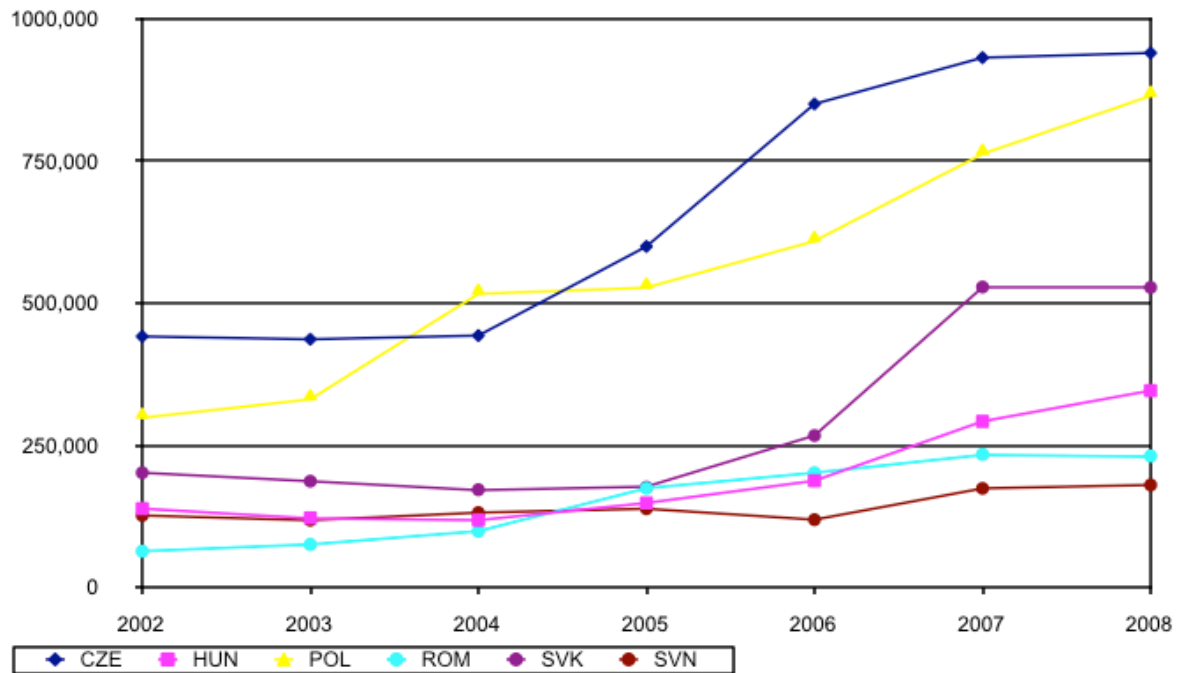
For example, the smallest Fiat model, the Fiat Seicento, was built solely in Poland. Accordingly, Ruigrok and van Tulder (1998) characterized Eastern Europe as 'the low end of European car complex'. However, it is important to differentiate between the technological sophistication of the produced models on the one hand, and the production technology in place on the other. While the produced cars were predominantly low-tech, the production sites in this region had state-of-the-art equipment and were operated according to the latest work organization models. Thus, to refer to the types of upgrading mentioned earlier, while there was none product upgrading, there was significant process upgrading in the Central Eastern European region even in this first phase of internationalization.

As market growth considerably lagged behind original expectations, investment motivations on the side of the companies changed. This marked the beginning of the second phase of integration. In the environment of a slow-growth market for cars in Central Eastern Europe (CEE), the recently installed plants ran far below their maximum capacity utilization. As a consequence, OEMs changed their strategy: From the late 1990s onwards, they re-defined the role of CEE to be primarily hosting export-oriented assembly and component plants. This is a crucial shift in strategy which greatly affected form and structure of the international division of labor. Due to their state-of-the-art technology, the plants in CEE were able to produce high-tech components and high value-added parts while having much lower labor costs. For example, in 1999 Volkswagen decided to assemble the premium model Touareg in the Bratislava plant in Slovakia. Also the high-end car Porsche Cayenne is manufactured to a significant extent in Bratislava: While the final assembly is performed in the plant in Leipzig, Germany, the auto bodies are imported from Bratislava. A Prognos (2007) study arrives at the conclusion that the German share of production costs of the Porsche Cayenne is 47,1% only.

The third and latest stage of integration refers not only to the economic dimension of integration, but to integration in political terms as well. In 2004, the EU welcomed ten new member states, among them the Czech Republic, Hungary, Poland, and Slovakia. Finally, in 2007, they were joined by Bulgaria and Romania in the latest stage of EU enlargement. Formal EU membership has an impact on the framework of value-chain integration of these CEECs in terms of institutions, regulatory mechanisms, and policies.

Figure 1 shows a marked increase in production of passenger cars in the wake of EU membership in the cases of the Czech Republic, Poland, Slovakia and Hungary. These are the CEECs in which the automobile industry plays a central role in the national economy which is why the empirical section of this paper will largely concentrate on them.

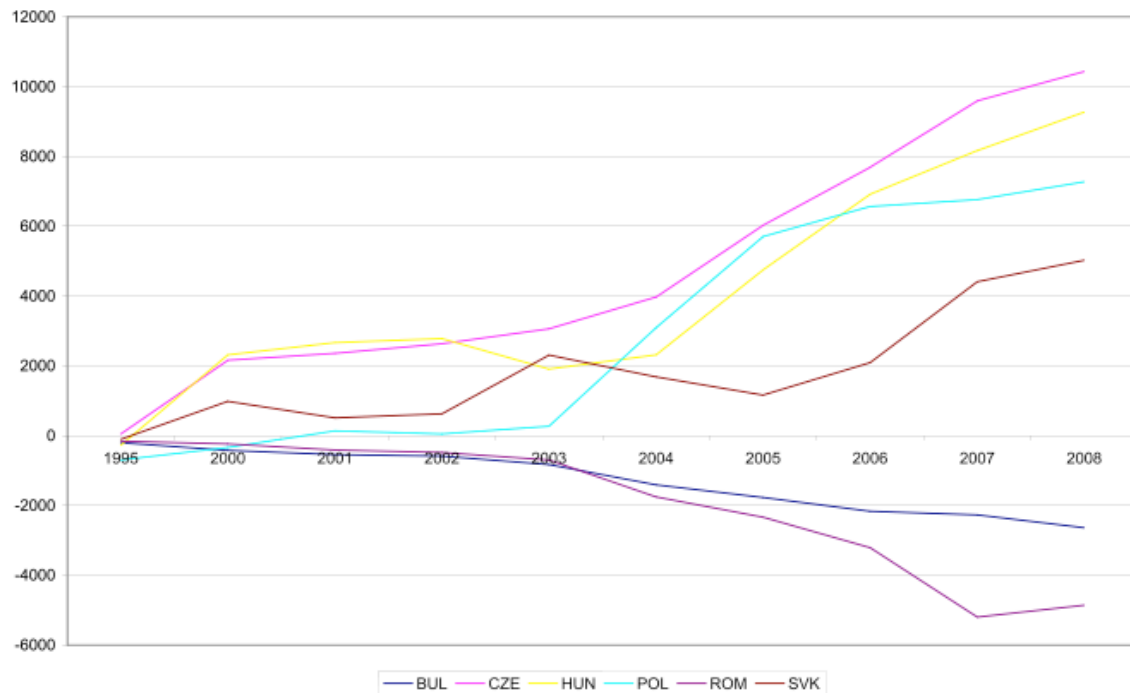
Figure 1: Production of passenger cars 2002-2008.



Source: Compiled on the basis of VDA (2006, 2009).

The level of economic integration can also be seen from FDI flows and trading patterns. Taking a look at the latter, figure 2 illustrates the trade surplus or deficit, respectively, of automotive products of selected countries with the world. The numbers indicate that the automotive industry in these countries became increasingly integrated in world trade over the last couple of years (WTO 2009). For example, the Czech Republic managed to more or less triple the amount of its exports of automotive products since it joined the EU in 2004, from 7876 to 23462 million \$ in 2008. The corresponding numbers for Hungary and Poland are equally or even more impressive. While it is somewhat difficult to directly link this growth in trade to EU membership, it seems that EU integration has at least accelerated the trend of economic integration. Furthermore, figure 2 illustrates that most countries show a trade surplus, the only exceptions being Bulgaria and Romania. While in 1995, all given countries except for the Czech Republic ran trade deficits, from around the year 2000 this has changed markedly.

Figure 2: Trade surplus/deficit of automotive products of selected countries with world, in million \$ (US \$ at current prices).



Source: Compiled on the basis of International Trade Statistics (WTO 2009).

Table 1 illustrates the development of gross value added in selected countries for NACE 34 classification. NACE is the General Nomenclature of Economic Activities in the EU and NACE 34 comprises manufacturing of motor vehicles and of motor vehicles parts. The numbers listed show that the gross value added in these CEECs has been rising in recent years, at least most of the time. However, it is difficult to directly link the increasing numbers to the recently gained membership in the EU. As can be seen from the data provided in table 1, the trend is clearly positive more or less irrespective of EU membership status. Only in the cases of Bulgaria and Poland integration in the EU seems to have accelerated the trend of increasing gross value added.

Table 1: Gross value added in manufacture of motor vehicles and motor vehicle parts (NACE 34), in million €.

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-----|---------|---------|---------|---------|---------|---------|---------|
| BUL | 12.3 | 7.2 | 9.6 | 12.7 | 14.1 | 20.2 | 19.3 |
| CZE | 1,973 | 2,110 | 2,461 | 2,894 | 3,656 | 4,132 | 3,740 |
| HUN | 1,247.8 | 1,444.9 | 1,601.6 | 1,771.2 | 2,223.1 | 2,708.2 | 2,702.9 |
| POL | 1,561 | 1,785 | 2,713 | 3,072 | 3,464 | 4,033 | 4,173 |
| ROM | 259.4 | 300.7 | 383.6 | 477.5 | 760.7 | 970.1 | 1,070 |
| SVK | 432.3 | 575.4 | 550.3 | 570 | 781 | 1,182 | 1,200 |

Source: Compiled on the basis of VDA (2006, 2009).

An important trend in the internationalization of production in the automotive industry is the growing importance of so-called 1st-tier and even 0.5-tier suppliers. Due to the trend towards modularization and in the wake of the lean production discourse, 1st-tier suppliers took over more and more responsibilities in both R&D and production, requiring their linkages to OEMs to become more 'relational' in nature (Van Biesebroeck and Sturgeon 2010). The new pre-requirements significantly raise the entry barriers for firms, thus reducing the upgrading opportunities for local suppliers who tend to lack the necessary resources to be competitive on an international level. Today, large 1st-tier suppliers can be thought of as lead firms as conceptualized by the GCC and GVC approaches. Much like OEMs, they increasingly control and drive value chain processes. Modularization refers to the trend in the automotive industry that components such as the cockpit or seats and systems like brake systems are being defined as modules and their development and production is outsourced to suppliers. As such, it falls under the rubric of technical-organizational dimension of restructuring (Blöcker and Jürgens 2008). The lean production debate in the automotive industry was triggered by a book called *The Machine that Changed the World* (Womack et al. 1990). It was argued that American and European OEMs lost ground compared to Japanese companies which were considered more competitive and innovative due to their specific production model. While many researchers today reject the idea of a best practice that can be applied to all OEMs in a one-size-fits-all fashion (cf. GERPISA network²), over the course of the 1990s the lean production debate led OEMs to focus on 'core competencies' and 'just-in-time' production. As a consequence, US car manufacturers disintegrated and spun off their internal supply operations. With respect to the American automobile industry, Sturgeon et al. state that "[u]ntil 1985, parts and assembly employment were roughly equal. After 1985, employment shifted into the supply base as automakers made fewer sub-assemblies such as cockpit assemblies, rolling chassis and seats in-house, purchasing them instead from outside suppliers." (2008: 305) Regarding the global level, they point to the fact that "vehicle production increased by 18,4% from 1999 to 2005, while supplier sales grew at more than twice that pace." (ibid.) Also European OEMs transferred value-adding activities to their suppliers: While European OEMs had a depth of added value of about 50% in the 1990s, in 2007 this has declined to between 25% and 35% only (Blöcker 2009).

² GERPISA (Groupe d'étude et de recherche permanent sur l'industrie et les salariés de l'automobile) is an international network of social scientists who do research on the automobile industry. They agree on dismissing the hypothesis of convergence of production models. Instead, GERPISA researchers argue that there are different production models in the automotive industry, depending on firm-specific profit strategies which need to fit the context of the particular markets. These production models are understood as governance-compromises between relevant actors in the companies (cf. Boyer and Freyssenet 2003).

Both trends on the level of production organization have a significant impact on form and structure of the international division of labor. As suppliers take on more and more responsibilities (and more and more risks), they need to fulfill certain preconditions in terms of size and development capacity. Also, they need to be capable of supplying the OEMs with parts on a global level. As a consequence, there has been a significant concentration in the supplier base and increased cost-pressure. This has led to considerable relocation to CEECs on the side of suppliers (cf. Jürgens and Krzywdzinski 2009a, 2010). It is important to note that suppliers are more likely to relocate their production to CEECs than OEMs are.

The automotive industry is playing an increasingly prominent role in the manufacturing sectors of CEECs. In the Czech Republic, the share of this industry in total manufacturing in terms of persons employed was 8,7% in 2008, whereas it amounted to 6,5% in 2002. In the case of Hungary, the number increased from 4,2% to 7,3% over the same period. For Poland the respective numbers are 3,3% in 2002 and 5,3% in 2008 and for Slovakia it is 4,7% and 8,0% (VDA 2006, 2009). As the sector is growing in importance for the national economies, its position in the value chain and its role in the international division of labor are important aspects with regard to upgrading and development on the national level. In the following paragraphs, it will be tried to examine to what extent the automotive industry was able to upgrade as a result of economic and political integration.

Upgrading through Integration? The Automobile Industry in CEECs

Upgrading requires more than being increasingly the site of assembly and production. GCC and GVC research often highlights the value added as one of the indicators for upgrading, the rationale being that the more value is added at a particular site the higher its position in the value chain. This relates to the concept of product upgrading mentioned earlier.

While it is difficult to assess the value added due to the number of production steps and value chain nodes and, most importantly, due to the fact that components for the automotive industry are frequently re-imports so that the amount of local content is hard to measure, a number of authors have tried to find alternative solutions to the methodological problem of measuring value added. For example, Pavlínek et al. (2009) divide automotive components into three categories: high, medium, and low value-added. They classify components such as wire harnesses, seats, bumpers, and wheels, amongst others, to be low value-added, while engines, transmissions, steering systems and braking systems are considered high value-added products. All those components not included in either one of these categories are classified as medium value-added. While this

categorization is debatable and does not reflect the enormous variances in technological sophistication within each category, it still gives a rough idea of how production patterns have developed in Central Eastern European automobile plants. The authors find that the proportion of low value-added components produced in Central Europe – comprising the Czech Republic, Hungary, Poland and Slovakia – decreased from 26,1% in 1996 to 23,9% in 2006. Over the same period of time, the amount of components classified as high value-added increased from only 14,1% to 32,3%. Taking a look at the individual countries under scrutiny, Poland's product upgrading is most impressive: While only 4,0% of the automotive components produced in Poland in 1996 can be considered high value-added, ten years later it is 33,3% (Pavlínek et al. 2009: 49). These findings indicate that while the percentage of low value-added components remained relatively stable over a ten-year period, the Central European automotive industry did manage to become increasingly integrated in the value chain of high-tech component production. Accordingly, Pavlínek et al. claim that the automobile industry in Central Europe has a dual role in the European division of labor: "On the one hand, CE continues to produce small inexpensive cars and low value-added, labor-intensive parts and accessories. On the other hand, CE has increasingly attracted more capital-intensive and skill-intensive manufacturing of high value-added components [...]" (2009: 49) Another important dimension to consider is whether production is foreign-owned or performed by domestic companies. In this context, Domański makes the observation that "[i]ndigenous firms play a secondary role in automotive supply networks, especially in the delivery of high value-added components and services." (2010: 7) The GVC approach pays special attention to whether companies succeed in linking up with so-called lead firms, the most powerful drivers of the value chain. In this context, Domański's findings imply that local companies play a marginal role only. He concludes that "the industry is dependent on decisions, financing and innovations from abroad, which may be a serious obstacle to further functional upgrading, the growth of broad non-production competences in particular." (ibid.)³ Pointing in a similar direction, Jürgens and Krzywdzinski's (2010) study suggests that the kind of foreign investment is structuring the extent to which local suppliers can benefit: According to their research, brownfield sites draw more from local suppliers than greenfield sites which have been built from scratch. As evidence, they present the share of local content⁴ at different sites in Poland: In 2006, local content was about 70% at the

³ Nölke and Vliegenthart (2009) argue that this dependence on foreign companies is characteristic of this region in general. Accordingly, they argue for enlarging the Varieties of Capitalism to include what they term Dependent Market Economies. The authors argue that countries within this basic variety have comparative advantages "in the assembly and production of relatively complex and durable consumer goods" (2009: 672), such as automobiles.

⁴ It is important to remember that high local content does not necessarily reflect close links to domestic suppliers (cf. Pavlínek et al. 2009: 54).

brownfield plant by Fiat in Tychy, whereas it was only between 35% and 55% at a number of other greenfield plants operated by different OEMs (2010: 138).

Classic GCC and GVC research uses the existence of R&D centers and activities as one indicator for upgrading. The study by Pavlínek et al. (2009) mentioned above looked at R&D activities in the Central Eastern European region. The authors identify 26 R&D centers with a minimum of 50 employees. According to their findings, more than half were established after 2004, suggesting that there might be a direct relation to EU membership. It is important to note that two thirds of the R&D units are co-located with manufacturing plants. This implies that their role in the value chain is limited to production-related R&D services. The remaining one third are stand-alone R&D centers, typically located in larger cities which provide the required skilled workforce. However, they lack competencies in the areas of purchasing, marketing and distribution.

This suggests that the Central Eastern European automotive sector was so far not able to move up the value chain through increased R&D activities. However, the fact that many of the R&D units were established since 2004 only might suggest that we are at the beginning of a process in which CEE is playing an increasingly important role in R&D. For example, Continental recently announced that it launched a R&D investment in Romania worth €70 million which is expected to create 1.400 jobs by the end of 2010 (Eurofound 2010b). What is more, findings by Carrillo and Lara (2003) suggest that R&D units in peripheral regions have the potential to upgrade within a relatively short period of time. They show that Delphi's R&D center in Juarez, Mexico, has taken over more and more responsibility and competencies within one decade only. However, combined public and private investments on R&D in CEECs "are below the West European average, and certainly far behind Germany, which spends almost 2% of its GDP on research and innovation, against less than 0.9% in [CEECs]", as Bernaciak and Šćepanović (2010: 17) point out.

Winter (2010) goes beyond R&D and develops a conceptual framework comprising four levels of corporate competencies: R&D competencies, manufacturing competencies, organizational competencies, and steering competencies. He argues that subsidiaries can acquire competencies either through a top-down process guided by the headquarter or through a bottom-up process in which local efforts lead to increased competencies and responsibilities, or through a combination of these two paths. He looks at two cases of subsidiaries from Poland, VW Commercial Vehicles Poznań and the Technical Centre Kraków of the American supplier Delphi. With regard to the former, Winter (2010) states that the Polish subsidiary performed labor-intensive and low-skill operations at the beginning. However, in 2002 a transformation process set in through which the plant developed from being a highly dependent

assembly plant to a competitive vertically integrated firm which managed to extend its manufacturing and organizational competencies. For instance, while at the beginning production planning, logistics, and quality management were largely organized externally, by now VW Poznań has acquired large organizational competencies in these fields (Winter 2010: 157). However, the subsidiary's R&D and steering competencies have risen only very little, if at all. In terms of Delphi, Winter's study concludes that the Polish subsidiary in Kraków was successful in increasing the level of its R&D and organizational competencies, while it remains to have no local manufacturing competencies and only very little steering competencies (2010: 157). The author concludes that

"strategically important, highly sensitive competencies such as product and process definition, core development and application engineering, branding and marketing as well as control and steering of the value chain predominantly remain centrally bound and, with few exceptions, immobile. In contrast, non-core competencies, such as engineering support and launch, manufacturing and local plant organization, responsibilities for 'zero error production' and quality management, optimization and adjustment of product and process as well as software development and IT services are increasingly decentralized to emerging markets." (Winter 2010: 158-9)

This suggests that while the Polish subsidiaries under scrutiny managed to acquire higher levels of competencies over the course of time, steering and control functions – or governance in GVC vocabulary – remains highly centralized in the headquarters located in core countries.

As argued in the section on the theoretical framework, assessing upgrading through integration needs to take a look at aspects beyond the process of value creation. A useful starting point is the differentiation between high-road and low-road models as suggested by Pyke and Sengenberger (1992). Based on these concepts, one could argue that upgrading in a broader sense depends on the development towards a high-road work model, i.e. seeking competitiveness through efficiency, innovation, and social protection. This raises the question to what extent work models and industrial relations are transferred abroad together with production. Alternatively, one could imagine that the process of integration of formerly peripheral actors and countries is used for 'regime flight' on the side of traditional core actors.

In their extensive study, Jürgens and Krzywdzinski (2010) try to find out which work model is in place in the automobile industry in CEE by looking at four dimensions: collective negotiation systems and the development of wage levels, employment security and flexibility,

qualification systems in the companies, and employee representation in the companies.

In terms of collective negotiation systems, the authors make the observation that there are differences between the CEECs. In some countries, the negotiations take place at the firm-level (Poland, Czech Republic), in others at the sector-level (Slovakia, Ukraine). Also the percentage of firms and employees covered by collective agreements differs markedly, not only on the national level but also within a country. In this context, the authors identify an important difference between OEMs and suppliers: While about 30% to 70% of the OEMs are covered by collective agreements, this applies to only 10% to 20% of the suppliers (2010: 175). Furthermore, they make the observation that wages have been kept down deliberately by governments in order to sustain competitiveness. As a consequence, the development of wages has not kept up with the increases in productivity. However, Jürgens and Krzywdzinski (2010) identify a lack of workforce in CEECs in the wake of the integration into the EU and the migration resulting from that. Thus, there are prospects for rising wages as companies struggle to find qualified workers. This points into the direction of a high-road work model.

Regarding employment security and flexibility, Jürgens and Krzywdzinski (2010) find out that the lay-off protection in the CEECs studied is clearly lagging behind the high standards in Western Europe. They depict two aspects which are important to note: Fixed-term contracts are widespread and often can be renewed multiple times. They also include very short periods of notice only. The second significant aspect worth mentioning is the relevance of agency work in CEECs. Jürgens and Krzywdzinski report that the percentage of agency workers in relation to total employees can reach up to 30% in companies like Volkswagen or General Motors (2010: 186). Apparently, external flexibility takes precedence over internal flexibility. Thus, fixed-term contracts and agency work combined lead to a relatively large amount of precariously employed.

Moving on to qualification systems, Jürgens and Krzywdzinski (2010) make the observation that German and local companies in CEE invest in the vocational training of their employees. However, this applies largely to skilled workers only; production workers, in contrast, tend to be recruited without having formal vocational education. Furthermore, American, French and Japanese companies do not rely on the dual training, instead their employees tend to get on-the-job training. This evidence suggests that firm-specific production models and governance-compromises affect how the international division of labour is organized on the firm-level (cf. Boyer and Freyssenet 2003). It is important to note that the number of those who go to university rather than choosing an apprenticeship is on the rise. In this context, Jürgens and Krzywdzinski give the example of Poland: Between 1997 and 2008, the

number of engineering graduates more than doubled (from 18.537 to 40.945) while the corresponding number of successfully completed production-related apprenticeships dropped from 240.964 to 93.710 (2010: 195). While the consequences of rising formal qualification profiles for an industry can be manifold – for example, with regard to the automotive industry it may put the labor market under further strain if automotive companies are not attractive employers to university graduates –, rising education levels in general form an important basis for a high-road work model in a country.

Employee representation on the firm-level is the fourth dimension Jürgens and Krzywdzinski (2010) study. They find out that CEECs were pressured to implement works councils in order to be eligible for membership in the EU. While evidence does not support the fear that labor unions and works councils are played off against each other, the authors nonetheless state that employee representation has not improved in the wake of the introduction of works councils. This is largely due to the unsatisfactory quality of information and consultation on the side of the companies. What is more, the implementation of works councils does not apply to those areas which so far were not covered by labor union organization, as the EU had intended. Employee representation thus remains limited to labor unions. With regard to the Polish automobile industry, Jürgens and Krzywdzinski (2010) report some cases of newly formed labor unions in greenfield plants. They mention two types of industrial relations models: cooperative relation between management and labor union and anti-labor union activities. The former can be found in Volkswagen and Volvo plants while the latter applies to many supplier companies. There are also cases where initially there was anti-labor union activity but eventually labor unions were accepted and cooperative relations established. Cases are, for example, Suzuki Hungary and GM and Fiat, both in Poland. In terms of employee representation, thus, the evidence provided by Jürgens and Krzywdzinski (2010) is rather complex and contradictory.

Based on their study, Jürgens and Krzywdzinski (2009b, 2010) argue that the 1990s were characterized by what they refer to as a “limited” high-road work model in CEECs “which combined skilled labor and secure employment for the core workforce with a broad margin of precarious employment, low wages and limited employee voice.” (2009b: 471) Moreover, their study illustrates pronounced differences between manufacturers and suppliers. The authors go on arguing that the integration into the EU was a decisive moment as migration causes the unemployment rate to drop: “In the context of labor shortages after the accession to the EU [...], companies faced recruitment problems and labor conflicts, which threatened to destabilize [the “limited” high-road work] model. The first reactions of firms pointed towards the strengthening of the high-road orientation, but the development remains unstable [...].” (ibid.) They arrive at the

conclusion that high-road models coexist with low-road models in CEECs and that work regulation in these countries generally allows for developments in both directions (Jürgens and Krzywdzinski 2010: 232).

Moving Beyond the Sector: Institutions, Regulation, Policy

How does the evidence from the automobile sector relate to wider aspects in the national economies of CEECs? Value chains are embedded in particular contexts and structured by certain forms of institutions, regulation, and policy. This section looks at some of these broader factors shaping and reflecting form and structure of the international division of labor in general, and the economic geography of the automobile industry in the EU in particular.

As workers representation is an important aspect of upgrading in the broader sense, it is helpful to consult further evidence going beyond the automobile sector. Moving beyond the sector-level, total trade union membership in CEECs gives a rather pessimistic picture: Between 2003 and 2008, the number of trade union members in Hungary declined by 9,3%. Over the same period, trade unions in Poland and Bulgaria lost 16,1% and 16,2% of its members, respectively. Even worse is the situation in Slovakia where the number of organized employees dropped by 34,1%. Only Romania and Slovenia witnessed growth in membership: 4,2% and 2,6% respectively (Eurofound 2009). Unfortunately, no data is available for the Czech Republic. However, the membership development in some individual trade unions is given. This information suggests that total trade union density in the Czech Republic is very likely to have decreased as well. In sum, there is strong evidence that union membership has declined in CEECs in the wake of the integration into the EU (cf. Bohle and Sadowski 2010). This implies a trend towards a low-road work model on the national level. Moreover, it raises an interesting question regarding model transfer and the concept of 'regime flight' which, however, cannot be addressed within the realm of this paper.

Evidence from industrial action⁵ across sectors in selected countries is rather mixed. In Hungary, for example, the number of working days lost through industrial action was 1,133 only in 2005 while it went up to 6,474 in 2009. In fact, in 2007, over 32,000 working days were lost. In the case of Poland the number was 413 for 2005, but it went subsequently up to 176,300 in 2008 before dropping to 8,750 in 2009 (Eurofound 2010a). Developments in Romania and Slovakia look very similar while there is no data available on the Czech Republic. In general, Eurofound makes the observation that "the level of industrial action in the new Member States was only about a quarter of that in the

⁵ There are methodological uncertainties in assessing industrial action across countries as national statistics tend to differ in terms of defining what constitutes industrial action and data gathering (see Eurofound 2010a: 2).

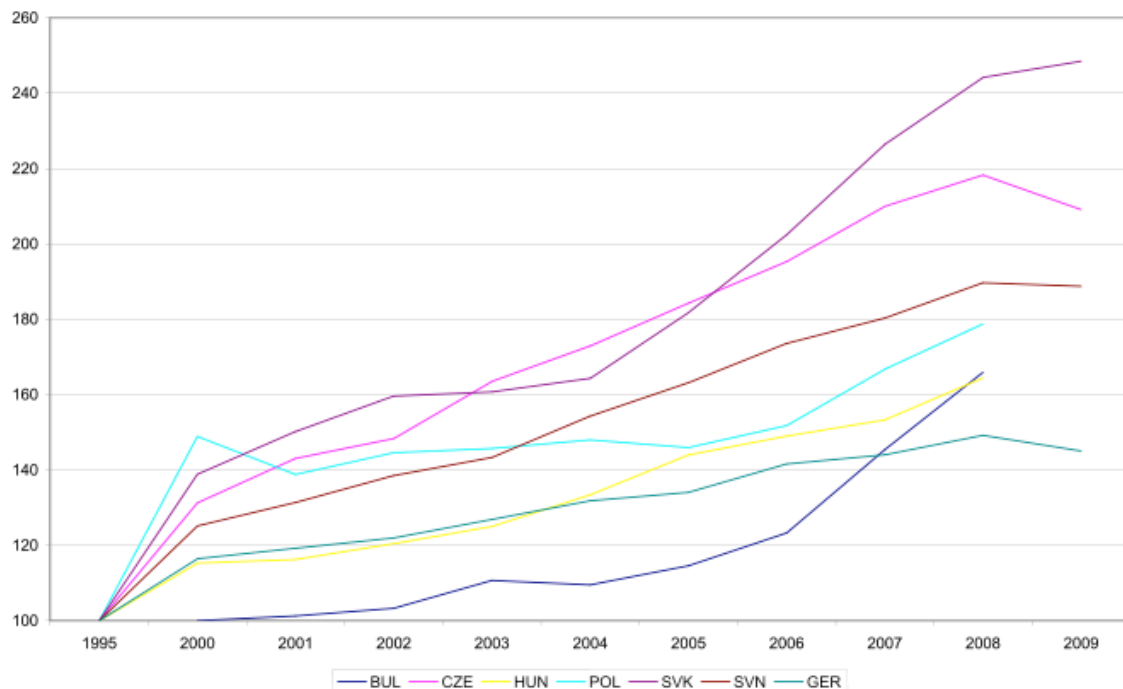
EU15.” (2010a: 2) In sum, the data on industrial action therefore gives a mixed picture: While we see an increasing level of industrial action in CEECs suggesting trends towards a high-road work model on the national level, it still remains far below the level attained in the core countries of the EU.

Much FDI flowing into the Central Eastern European region is aimed at reducing labor-costs⁶. Figure 3 illustrates the development of labor compensation per employee in the manufacturing sector in selected countries. According to the OECD database, this statistical concept comprises a number of indicators: wage rates, earnings, and further compensation of employees such as employer contribution to statutory social security schemes or unfunded employee social benefits paid by employers, amongst others⁷. As such, labor compensation per employee is a broader concept than average wage. In order to allow for comparison, the development in Germany as a classic high-wage and high-road country is given as well. It is striking that all countries shown have witnessed large increases in labor compensation over the last fifteen years. This is true for Slovakia in particular: While it amounted to \$8681 (PPP-adjusted) in 1995, the respective number for the year 2009 is \$21570. Although the figures suggest that the labor compensation gap between Germany and CEECs is slowly closing, the differential remains considerable five years after the enlargement of the EU. Comparing pre-EU-membership figures with those after EU-integration, the data for the given CEECs suggests that deeper economic integration in combination with political integration has fostered the rate of increases, the only exception of this sample being the Czech Republic. With respect to the latter, the OECD numbers show that while labor compensation increased by 27,9% between 2003 (the year before EU-integration) and 2009, the increase amounted to 46,9% between 1997 and 2003. In contrast, Hungary experienced higher growth rates in labor compensation per employee between 2003 and 2008 – 31,6% – compared to the time frame from 1998 to 2003, the period prior to EU-membership: 20,6%. This holds true also for Poland (22,7% compared to 11,5%), Slovakia (54,6% compared to 33%), and Bulgaria which saw a rise by 34,6% between 2006 and 2008 compared to 12,5% between 2004 and 2006. Germany, in contrast, witnessed slower growth in labour compensation per employee between 2003 and 2009 (14,3%) than between 1997 and 2003 (20%). Thus, the numbers presented indicate that labour compensation per employee has risen faster after EU-integration, even though the trend was clearly positive already in the period before 2004 (2007 in the case of Bulgaria, respectively).

⁶ With regard to this, Piotti (2009) claims that the idea of cost-reduction through relocation is to a significant extent a myth that is being produced and reproduced through a particular discourse.

⁷ <http://stats.oecd.org/mei/default.asp?lang=e&subject=11> [accessed: 13.08.2010].

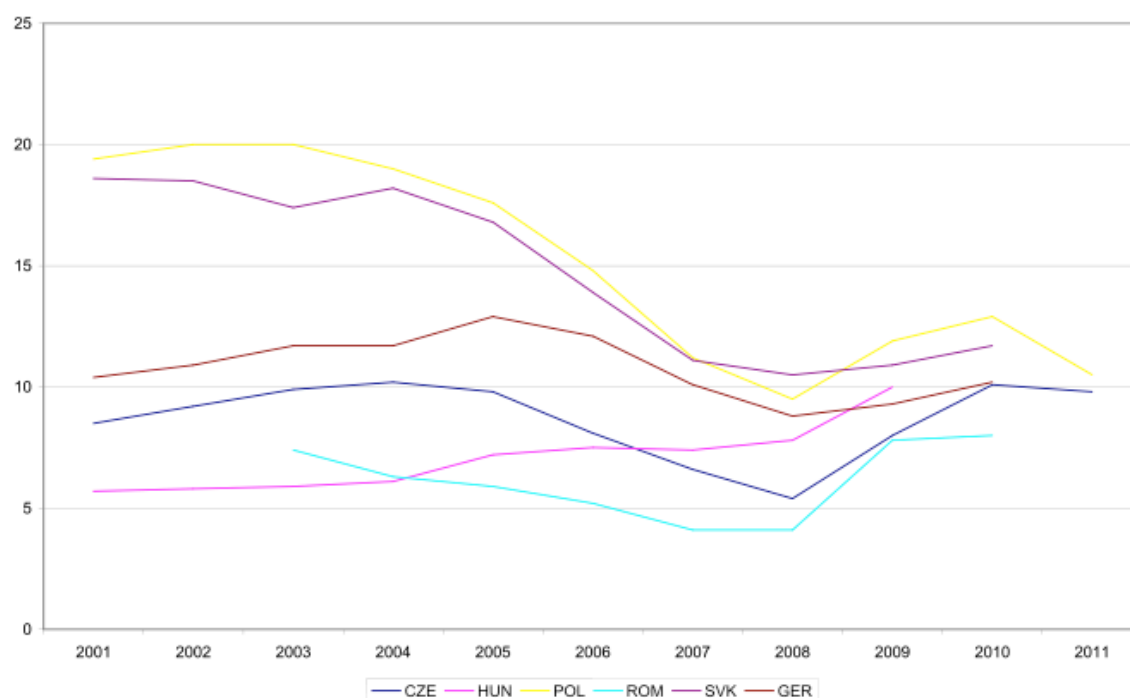
Figure 3: Labor compensation per employee (PPPs) in the manufacturing sector in selected countries, standardized (1995 = 100; BUL: 2000 = 100).



Source: Calculated on the basis of OECD (2010).

Taking a look at the development of unemployment rates in selected CEECs over the last years (figure 4), one can see that the percentage of unemployed decreased in the wake of EU integration in all but one country, namely Hungary. It is also important to note that the numbers went up in recent years, probably as a result of the current world economic crisis. However, it is striking that the unemployment rate has decreased significantly in both Poland and Slovakia over this decade. To allow for comparison, also the numbers for Germany are given. These figures need to be seen in the light of current debates about a German 'job miracle' which has materialized at end of 2010 when less than 3 million people were unemployed. In fact, Germany's current unemployment rate is 7,2% and it is expected to remain below 8% for the foreseeable future. As such, it is significantly below the number given here. This suggests that a high-wage country such as Germany can be extremely competitive despite or even because of global market integration.

Figure 4: Unemployment rates in selected countries.



Data for 2010 and 2011 are forecasts; data on Hungary based on OECD (2010).

Source: Compiled on the basis of ACEA (2010).

The extra-sectoral evidence from unemployment rates, labor compensation figures, and industrial relations indicators give a rather mixed picture, and the medium- to long-term path of CEECs is not yet known. Distinct national institutions and policies structure the form of the international division of labor. In this regard, there were signs of a 'race to the bottom' within CEE in the past. For instance, Hungary cut taxes in the middle of the 1990s in order to attract foreign investment, with Poland and the Czech Republic following suit⁸. The most radical tax cut was implemented by Slovakia in 2004 as it introduced a flat tax rate of 19% only for all income tax, corporate tax, and value-added tax (Bohle 2006: 356). This points to policy as actively reshaping the spatial division of labor. While Meardi et al. (2009) argue that national initiatives have led to what they refer to as 'social dumping', this outcome is not inevitable. Shaping the international division of labour is an active process performed by numerous actors: consumers, firms with their distinct governance compromises and production models, labor unions, politicians, workers. While there are cases of a cutthroat competition for FDI between CEECs, it seems that the challenge today and for the upcoming years is not so much to attract further FDI, but rather to upgrade those actors and structures that are present in the region by now. Whether or not this will succeed depends on a complex

⁸ In this context, Ganghof and Genschel (2008) argue that the cutthroat competition between EU member states in terms of corporate tax schemes is a form of negative integration which is not balanced by positive integration and significantly reduces the policy space of national governments.

set of influencing factors, amongst them the research and education infrastructure. In terms of research and education infrastructure, evidence from CEECs suggests that both OEMs and national politics are of the opinion that the skill-level needs to be raised, and that they are prepared to invest accordingly. For example, in Slovakia there is a coordinated effort by OEMs to boost engineering and R&D competencies through investments in centers of innovation, facilitated by politics. The picture is very similar in Hungary where the Cooperation Research Center for the automobile and electrical industry and logistics is sponsored by the federal ministry of education which also supports the Regional University Knowledge Center for the automotive industry (Blöcker et al. 2009). Drawing on Bohle and Greskovits (2006), one could argue that the specific capital-labor compromise depends on the particular sectoral logic. Applying this idea to the automotive sector in Slovakia, Bohle and Greskovits claim that “[i]n terms of wages and work conditions, the auto industry easily provides among the best standards in Slovakia.” (2006: 18) They relate this to the sector-specific demand for high-skilled labor and argue that “[...] the achieved progress [is] primarily linked to the rational interests of skill-seeking investors, and only secondarily to labor-protecting union activity, party variation, or state policies.” (2006: 23) This points to the firms as not only governing the value chain, but also driving the creation and development of institutions and regulatory frameworks. In other words, firms appear to be not only embedded in a particular context; they actively shape the context in which they maneuver. This raises the question to what extent firms internationalizing their production try to replicate the national comparative advantages deriving from institutional complementarities, as the Varieties of Capitalism literature argues (Hall and Soskice 2001). While it is certainly beyond this paper to address this question, there are strong reasons to combine the idea of firm-specific production models with the basic arguments made by Varieties of Capitalism proponents in the future.

Formal and regulatory integration is a further factor shaping the global economy. EU membership means both economic and political integration. The latter opens up the possibility to coordinate policies and institutions on a regional level, thereby preventing a ‘race to the bottom’ and encouraging broader upgrading instead. However, Europeanization defined as a “process in which states adopt EU rules [comprising] rules for regulation and distribution in specific policy areas, rules of political and administrative and juridical process, and rules for the set-up and competencies of state and sub-state organizations” (Schimmelfennig and Sedelmeier 2005, cited from Bohle et al. 2007: 83) might not necessarily be the road towards upgrading for CEECs. As Bohle et al. suggest, “it is far from self-evident that institutions, rules and regulations taken from advanced market economies are adequately meeting the needs of less advanced countries.” (2007: 85) This suggests that European integration might be

a way to upgrade, for example through adopting industrial relations institutions and regulations as effective in the Western European states. At the same time, however, policy initiatives conducive to upgrading need to fit in the particular context of CEECs.

Conclusion and Outlook

This paper addressed the question whether the automobile industry in CEECs was able to upgrade in the wake of economic and political integration resulting from EU membership. In this context, the paper used a broadened notion of upgrading going beyond the concept of firm-level upgrading as prevalent in GCC and GVC approaches.

The evidence presented in this paper suggests that there are signs of industrial upgrading in the CEECs: Not only are these countries increasingly the site of production of passenger cars and components, but, and more importantly, their share of value-creation is on the rise. In addition, today, unlike in earlier phases of internationalization, it is also premium cars which are produced in CEECs. For example, Daimler has invested €800 million in a plant in Kecskemét, Hungary, where it will produce 100,000 A- and B-classes annually from 2011 onwards. However, the observed pattern of international division of labor still often takes the form of what Jürgens and Krzywdzinski (2009a, 2010) term “complementary product specialization” in which CEECs tend to specialize on rather low- to medium-value cars and components while core competencies, particularly in the field of R&D, remain located in the home countries of large companies (cf. Winter 2010). Still, the empirical data presented in this paper suggests that the automobile industry in CEECs is in the process of moving up the value chain. But, as Bair proposed, “we need to be wary of interpreting the transition from low value-added to high-value added activities as *prima facie* evidence of upgrading (especially since this is mere tautology when upgrading is defined as such a shift), let alone development.” (2005: 171) Based on this insight, further evidence in the area of work models was looked at.

Industrial upgrading is a necessary but not sufficient criterion for upgrading in the broader sense. In fact, evidence from beyond the value chain, i.e. from the context in which the automobile production is embedded, gives a much less optimistic picture. Taking developments in work models into consideration, this paper suggests on the basis of the study by Jürgens and Krzywdzinski (2010) that upgrading in the narrow sense does not automatically translate into upgrading in the broader sense. In fact, large parts of the automobile industry in CEECs do not seem to be on the path towards a sustained high-road work model. Furthermore, the progress made in some areas seems very vulnerable precisely because of the high degree of integration and the corresponding level of foreign ownership and dependence. What is more, there appear to be pronounced differences between OEMs and

suppliers, the latter facing greater competitive pressures. While many suppliers achieved industrial upgrading due to sector-wide trends towards modularization and lean production, their work models considerably lag behind those of OEMs.

Moving beyond the automobile sector, evidence from trade union density, industrial action and unemployment rates shows that industrial relations in CEECs are not as well developed as those in Western European countries. Probably, this makes CEECs vulnerable to crises such as the very recent world recession. With regard to this, it remains an open question whether political integration will lead to institutional transfer to CEECs in the medium run. An alternative future scenario is that high-road work models in core automobile countries might get under pressure due to competition with CEECs. In fact, Jürgens and Krzywdzinski (2009a: 47) identify first signs of a convergence between West European and Central Eastern European work models towards a "limited high-road model."

The overall picture that is emerging is complex and contradictory in parts. There is ample evidence to believe that the upgrading path of CEECs is not yet established, and that its direction depends on a number of influencing factors.

Domański and Gwosdz (2009) interpret the changing position of the peripheral countries from the perspective of what they refer to as dynamic localized capabilities: "[These] can be tangible and intangible assets embodied in relationships between firms, people and institutions in a particular country." (Domański 2010: 6) This perspective is helpful in understanding shifts in the international division of labor insofar as it points to the importance of embeddedness of value chains, and that form and pattern of embeddedness is dynamic and open to change. In this paper it was tried to take into consideration that value chains are embedded in particular contexts. This has implications for the theoretical and empirical conceptualization of upgrading: Upgrading in a broader sense refers to spheres beyond the individual firm or a particular sector. There is a local-specific, complex, and multi-dimensional inter-relationship between the actors involved in a particular value chain and institutions, regulations, and policies on the national, regional, and even global level, and it is precisely this complex inter-relationship that structures the degree of upgrading and development. Which inter-relationships are conducive to upgrading and which rather hinder upgrading in a broader sense is an important field for future research.

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