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The Geographical Restructuring of the European Automobile Industry in the 2000s

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&

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Abstract:

The paper seeks to provide a quantitative and macroeconomic picture of the new geography of the automotive industry in Europe. Since ten new members joined the European Union in 2004, automakers and suppliers have changed their location strategies and now view the whole of Europe as a single fully integrated space. Using data on employment, production, trade and foreign control of affiliated firms, the paper measures the East-West relocation process. The first section studies the motor vehicle sector, highlighting a sharp rise in the activity levels of Central and Eastern European countries (CEEC), as well as the specific role that Germany plays. It is crucial to remember that motor vehicle manufacturing remains a key traditional economic activity for some of the larger Western European countries. The second section looks at the automotive parts sector. The CEECs' growth is particularly impressive when consideration is given to employment, a variable largely driven by foreign firms' decision to export much of their local production. At the same time, the offshoring process remains more or less selective even if it often revolves around labour-intensive activities – explaining in turn the creation today of embedded East-West networks.

Keywords: Automobile; Europe; deindustrialisation; relocation; offshoring; industry geography; auto parts industry.

JEL codes: F23, F62, L23, L62, R12

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Introduction¹

In 2004, the European Union accepted ten new member states². This sudden enlargement in the EU's unified borders had a profound effect on industrial firms' calculations insofar as it tied, once and for all, the fortunes of the older Europe nations to ten other countries characterised by their relatively high levels of training, low production costs and supposedly promising market potential. The new countries were also closely connected to the West through their transportation and communications infrastructure, with some having long entertained close economic relationships with counterparts in the West.

The question today is how this integration has played out, ten years later, in terms of the new EU member states' role in Europe's productive space. The present analysis will answer this question by focusing on the Continent's automotive industry. It is a useful approach for three reasons. Firstly, automaking is characterised by heavy fixed costs, so that plants tend to operate for a great many years. In turn, any changes in location choices can be construed in this sector as being representative of longer term trends. Secondly, most Central and Eastern European countries already made cars, even before the Iron Curtain came down. Thus, the prospect of their joining the EU once this happened sparked a series of acquisitions by European carmakers, who saw this historical event as an opportunity to move into exciting new markets. The problem is that these markets never really took off, raising questions as to what should be done with the sites in question and how to manage, on a Europe-wide scale, production capacities that became surplus to requirements. This aspect leads in turn to the third rationale for our automobile focus, namely the fact that the automotive industry has the particularity of functioning on a macro-regional basis, with productive location strategies being shaped by the way that market and production spaces interact on a macro-regional level, typically comprised of a number of economic integration zones (Freyssenet, Lung, 2000; Freyssenet, Lung, 2004; Lung, 2004). This was particularly true in Europe, where the Eastern countries' integration into the commercial space that the EU offered had the effect of changing the space in which carmakers throughout the 2000s would calculate their productive geography.

The present article seeks to measure the choices that automotive industry companies made over the decade in question and asks, in a context defined by lower output in Europe since 2007, which production spaces became preferable to automakers. Answering this question requires consideration of their situation *per se*, but also an expanded focus including manufacturing by automotive suppliers. This is because depending on the model and automaker, something like 75% of an automobile's manufacturing cost is paid to suppliers and subcontractors. Understanding the geography of the automotive industry therefore means understanding the location of automotive parts manufacturers as well.

In recent years, a number of authors have tried to understand such suppliers' location thinking, based on a so-called Global Value chains approach (Gereffi, Sturgeon, Humphrey, 2005). This corpus tends to assert that supply networks are built around embedded scales ranging from narrow clusters (Holl, Pardo, Rama, 2010; Castelli, Florio, Giunta, 2011) to an increasingly inter-zonal internationalisation of trade (Frigant, 2013) and including forms of regional integration driven by the international fragmentation of productive processes and existing on a scale defined by large regional integration zones (Klier, McMillen, 2013; Klier, Rubinstein, 2011; Frigant, Layan, 2009; Sturgeon, Van Biesebroeck, Gereffi, 2008).

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² In May 2004, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Czech Republic, Slovakia and Slovenia joined the EU-25, which became EU-27 in 2007 with the entry of Romania and Bulgaria.

Another analysis focusing on new entrant countries has honed in on the “subcontracting basins” that have emerged in Eastern Europe, whether in Poland (Domanski et al., 2013; Domanski, Gwosdz, 2009) or the Czech Republic (Pavlínek, Ženka, 2010.a, 2010.b; Rugraff, 2010). Studies have confirmed this sort of embedded representation. Indeed, two types of enterprises are located here: Host country suppliers or subsidiaries of large multinationals in charge of supplying carmakers out of their local operations; or multinational firms that have fragmented their production processes to supply whatever entities they still run in the West (or, more directly, those automaker plants that have also survived in the West).

These studies describe this ongoing geographic redistribution on a European scale but offer no global representation of the magnitude of this phenomenon. This is because their methodologies - whether monographic or based on the examination of singular territories (characterised by strong growth or decline) – rely on the fragments of a global picture that nobody has taken recently. The present article seeks to measure, on a macroeconomic level, what has changed on a European scale during the ten past years.

The first section examines the automaking sector’s trajectory, highlighting the heterogeneity of Eastern and Western countries as well as German’s real specificity. The second section focuses on auto parts manufacturing, highlighting a considerable offshoring eastwards - essentially over the past few years - as well as the real industrial specialisation that some of these countries have acquired after building up an industry that is both largely controlled by foreign firms and export-oriented. The conclusion summarises the study’s main empirical findings and emphasizes the deep sense of productive networks’ interpenetration on a European scale.

1. Automobile production’s relocation to the East – and the zones of resistance in the West

Automakers may be global firms but their markets develop on a macro-regional scale. Clearly, there are some intercontinental flows in the automobile trade, but these remain relatively marginal and usually involve niche vehicles or the initial phases of a strategy focused on penetrating new geographic zones. Instead, Europe has tended to be dominated by a dual commercial and productive integration process, one that has been regularly confirmed through expansion waves both eastwards and southwards (Layan, Lung, 2004; Layan, 2006; Layan, Lung, 2007). In this view, increased production capacities in the East continues a historical process whose importance should be assessed in light of a hypothesis emphasizing the breakdown in the old equilibrium as well as the development of a new industrial east.

Volkswagen was the trailblazer, starting with its 1991 takeover of Skoda, whose capacities were already strongly developed in the Czech Republic (particularly at Mladá Boleslav) and in Slovakia (Bratislava). The idea at the time was to build up the company’s total product offer by taking a position in entry range vehicles. At the other end of the spectrum, in 1993 VW built two Audi plants at Győr in Hungary. Similarly, FIAT reopened its Tichy plant in Poland - first established during the Communist era - bolstering the site by allocating the production of the Fiat 500 to it. Among the newcomers, there was the plant that Suzuki opened in Hungary in 1992. The Americans, on the other hand, had a preference for Poland, with Ford opening facilities in Plonsk in 1995 and Opel (GM) doing the same in Gliwice in 1998. Later, the Korean company Hyundai-Kia would open its first plant in 2006 in Slovakia, followed by a second in the Czech Republic in 2009. In 2012, the Chinese company Great Wall moved into Bulgaria with a view towards supplying other Eastern European markets. French groups, on the other hand, were more cautious, as exemplified by PSA Peugeot-Citroën, which during the 1990s deliberately opted for other emerging countries to drive its growth. It is true that as far back as 1992 Renault began running a Slovenian joint venture with Revoz before acquiring the Romanian carmaker Dacia in 1999, but these moves remained relatively marginal in terms of the

group's overall strategy. Everything changed in the 2000s when PSA combined with Toyota to make small vehicles in the Czech Republic (TPCA in Kolín, which opened in 2005), followed the next year by the new Peugeot 207 assembly plant that it established in Slovakia (at Trnava). Alongside of this, Renault-Dacia's output increased significantly thanks to the Logan's success (cf. Box 1 below).

This history of greenfield or brownfield internationalisation shows that after the fall of the Iron Curtain, automakers were already anticipating that former Eastern Bloc countries would join the rest of Europe. As negotiations advanced with the European Union, expectations were confirmed and the movement accelerated (van Tulder, 2004). The end result was that the Central and Eastern European countries built significant production capacities over the course of a decade towards the end of which the global European market went into crisis.

The 2000s were marked by a general decline in European automobile manufacturing (passenger cars and light utility vehicles combined). Output between 2000 and 2007 had risen slowly to peak at 21 million vehicles assembled (+8.4%) but then plummeted when the crisis broke out in 4Q 2008, with the production index reaching 83.8 in 2009 (for a base of 100 in 2000). Output rose again in 2010 and 2011, when nearly 19 million vehicles were produced. 2012 saw a new fall with output sinking to 17.406 million vehicles, or 2 million less than in 2000 (down 10.3% or 3.66 million vehicles, 17.4% below the 2007 peak).

Against the backdrop of a deep recession, the question became how companies would choose between the East and the West, and – conversely - whether they would opt to build modern new plants in the East or maintain their historic plants in the West. Macroeconomic statistics on production volumes and job numbers can help to answer these questions.

1.1. Growing share of production volumes accounted for by Eastern Europe countries and Germany

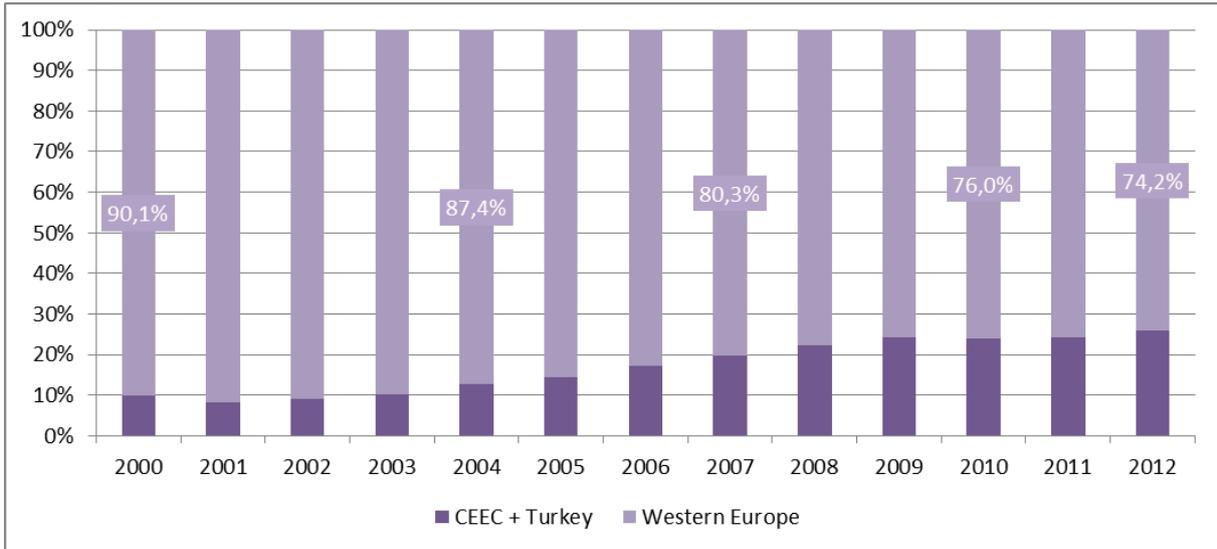
The global downturn was accompanied by a radical transformation in the geography of the automotive industry. Eastern Europe became a major European production centre, with Eastern European countries (plus Turkey) going on to account for 25.8% of all vehicles made in Europe, versus 9.9% in 2000 (cf. Figure 1). The move eastwards came from a scissors effect marked by higher output in the East versus general decline in the West.

All of the Eastern European countries (with the exception of Serbia, which has remained a minor actor) saw output volumes increase. This progression can be confirmed by analysing these countries' production indexes (cf. Figure 2); manufacturing growth rates (cf. Table 1); and share of the European total (Maps 1a and 1b). Countries like the Czech Republic, Turkey and Slovakia would become major automakers, with the first two raising output by a factor of 2.5 and Slovakia by a factor of five – the end result being that each accounts today for more than 5% of total European production. At the same time, other countries like Romania and Hungary also became big production centres, with Poland, which was already an important manufacturer in 2000, also experiencing growth, albeit at a slower pace and less consistently.

Given the decline in their global market, growth in these countries occurred to the detriment of their Western European counterparts and usually happened quite suddenly. Italy, for instance, saw a 61.4% collapse in output, so that by 2012 it was assembling a mere 3.9% of all European vehicles, versus 9% in 2000. Belgium (-47.6%), Portugal (-33.7%) and the Netherlands (-81%) all became minor assembly locations, with Finland almost completely disappearing from the market.

Among those Western European countries that still had a significant market share in 2012, three maintained their ranking despite sharp losses: Spain, Europe's second-leading carmaker, which assembled 34.7% fewer vehicles than it had in 2000, France, with 41.2% fewer; and the United Kingdom, down 13.1% (although it is noteworthy that by 2012 UK output had risen sharply to 1.577 million units assembled, well above its 2009 low of 1 million vehicles).

Figure 1 – Production distribution of all vehicles assembled in Europe (passenger cars and utility vehicles)



Source: OICA authors

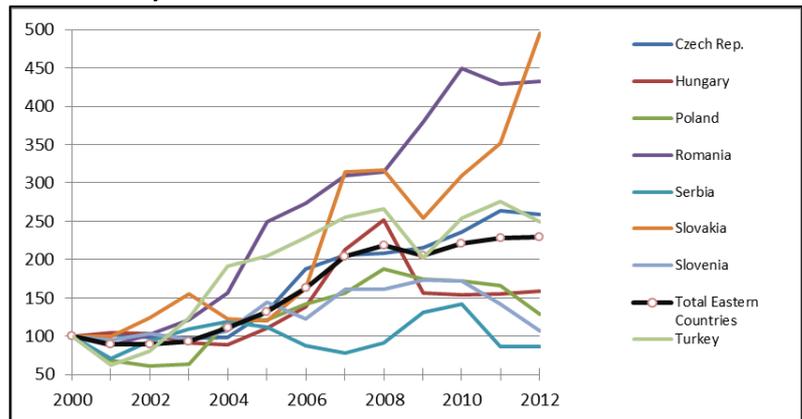
Table 1 – 2012 output totals, variation over 2000-2012 (units, %)

Countries	2000-2012	Production in 2012 (units)
Germany	2.2%	5,649,269
Spain	-34.7%	1,979,179
France	-41.2%	1,967,765
UK	-13.1%	1,576,945
Czech Rep.	158.8%	1,178,938
Turkey	148.8%	1,072,339
Slovakia	395.1%	900,000
Italy	-61.4%	671,768
Poland	28.3%	647,803
Belgium	-47.6%	541,874
Romania	332.1%	337,765
Hungary	58.5%	217,840
Portugal	-33.7%	163,561
Sweden	-46.0%	162,814
Austria	1.2%	142,662
Slovenia	6.5%	130,949
Netherlands	-81.0%	50,862
Serbia	-13.4%	11,032
Finland	-92.5%	2,900
Total Europe	-10.3%	17,406,265

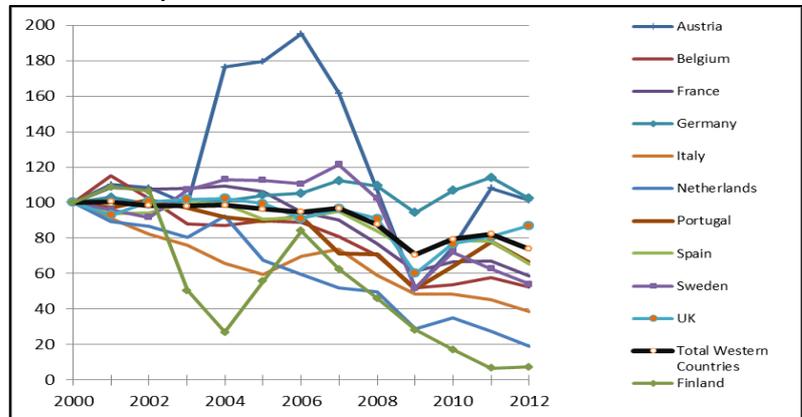
Source: OICA, authors

Figure 2 – Changes in production of vehicles assembled in Europe (index base 100 = 2000)

CEEC + Turkey



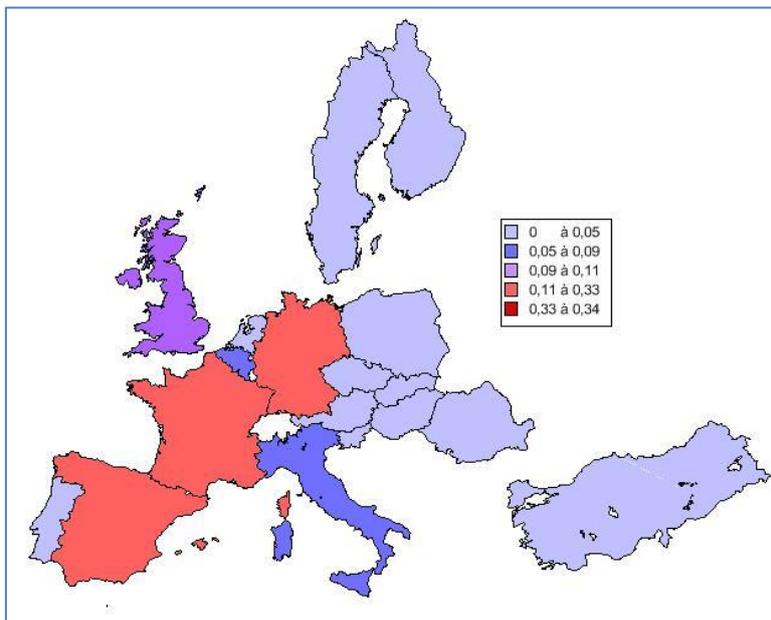
Western European countries



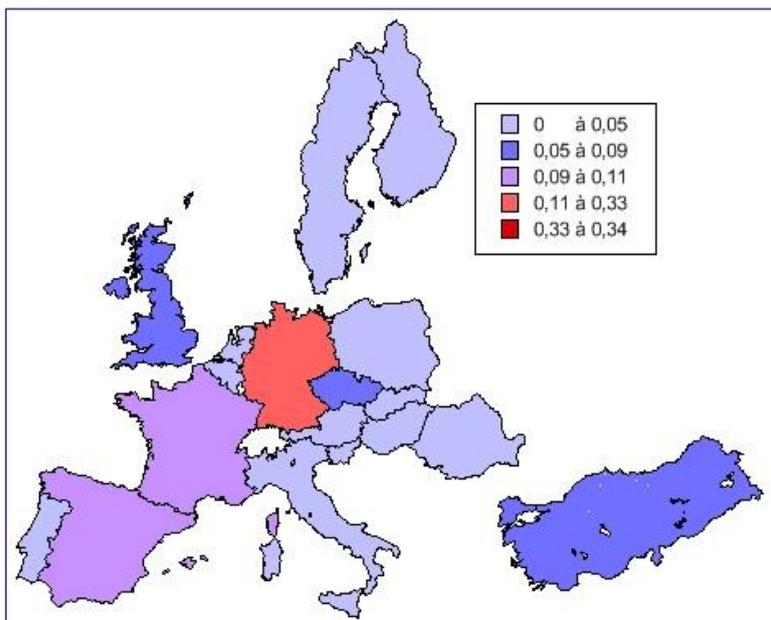
Source: OICA, authors

Map 1 – Different national shares of European automobile production (passenger cars and utility vehicles) (% of total output, including Turkey)

Maps 1.a: Share in 2000



Maps 1.b: Share in 2012



Sources: OICA data, authors' calculations

Two Western European countries stand out in this panorama.

Firstly, Austria, which increased its output and market share by 0.1 points, albeit with low production volumes that were quite volatile for the whole of this period (cf. figure 2). Above all, German output rose by 2.2% between 2000 and 2012, helping to consolidate its place as Europe's leading carmaker, responsible for 32.5% of all passenger cars and light utility vehicles manufactured in this part of the world. Having said that, the 6.9% rise in German output over the decade in question was accompanied by severe job losses in the country's automaking sector, with 2010 employment being 12% of below its 2000 levels (cf. Table 2). This fall in employment can be explained generally (i.e. without delving into levels of magnitude) by the trend towards greater outsourcing; by productivity gains; by labour-intensive production's reallocation to other countries.

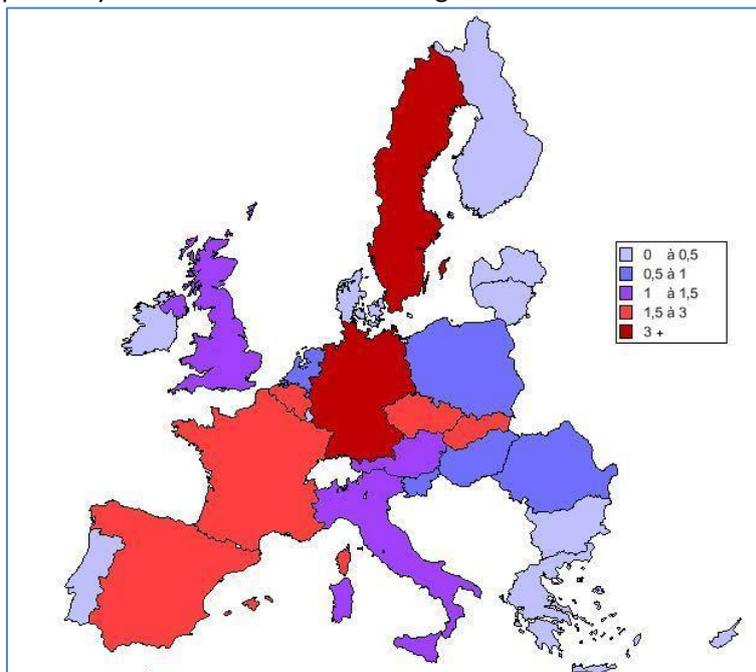
With rising output in Germany accompanied by job losses in its automaking sector, one might expect even greater cuts in countries that were assembling fewer vehicles. Leading the major automobile countries, employment in Belgium automaking was almost divided in two between 2000 and 2010. Similarly, Spain lost 25% of its jobs in this sector; Italy 17%; and Sweden 14%. French automaking, on the other hand, only experienced a 9% downturn in sector employment, despite a 33.4% fall in output over the same period. This can be contrasted with massive job losses in the UK (-43%) and in smaller countries like Norway (-83%), Portugal (-44%), the Netherlands (-34%) and Finland (-23%, a figure that should increase in the future due to subsequent collapses in output). Lastly, Austria was down 11%, although there are signs that automaking employment might rise again in this country, given higher production in 2011 and 2012.

Table 2 – Number of persons employed in the automaking sector (in units and %)

	2000	2003	2006	2009	2010	2000/2010
Germany	527,470	525,760	496,621	472,118	464,155	-12%
Belgium	37,139	31,751	29,046	21,532	18,927	-49%
Spain	84,672	77,227	73,350	65,136	63,301	-25%
France	151,409	172,102	163,700	144,611	137,527	-9%
Italy	82,823	59,409	67,814	68,291	68,386	-17%
United Kingdom	103,338	94,357	78,649	68,200 (est)	59,200 (est)	-43% (est)
Sweden	50,352	45,169	46,021	38,009	43,081	-14%
Total for major Western European manufacturing countries	1,037,203	1,005,775	955,201	877,890 (est)	855,577 (est.)	-18% (est)
Austria	15,084	15,471	16,429	14,579	13,436	-11%
Denmark	0	-	-	-	333	-
Finland	2,688	2,867	2,335	2,263	2,073	-23%
Norway	476	153	240	110	80	-83%
Netherlands	12,665	10,514	9,168	9,092	8,375	-34%
Portugal	9,679	8,041	5,615	5,130	5,405	-44%
Total for minor Western Europe countries	40,592	Na	na	na	29,702	-27%

Source: Eurostat, authors

Map 2 – Sectoral specificity index for car manufacturing in 2010



Source: Eurostat data, authors' calculations

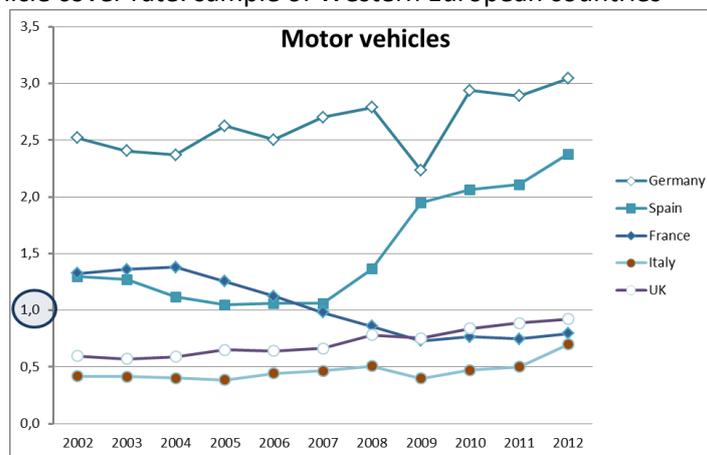
One consequence of this changing geography of automobile manufacturing was the variation in the industry's relative share of national production systems. Calculating sectorial specificity indices (based here on manufacturing employment)³ enables such calculations, measuring a given sector's importance to a domestic national economy and thereby providing an indicator of the economy's dependence on the automaking industry (Map 2).

Germany clearly went from strength to strength (almost matched by Sweden), confirming the sector's economic significance to the Germany economy. Automaking also seemed strategic in France despite its decline (in absolute value) - something also found in Spain and in Belgium. The Eastern countries (Turkey not being included at this level, due to a lack of data) saw their economies become increasingly dependent on the automobile sector, particularly Slovakia and the Czech Republic, which would come to outweigh the United Kingdom and Italy. Conversely, and despite strong growth in their automobile sector, Romania, Slovenia and Poland's manufacturing fabrics became increasingly diversified and less dependent on the automobile sector alone.

1.2. An Eastern European automobile sector that became as export-oriented as Spain and Germany

Germany's strengthened position caused a rise in exports, with the country starting to take on the appearance of an automobile export platform. Its cover rate⁴, already high at the beginning of the period, rose over the decade to such an extent that in 2012 Germany was exporting, in value terms, over three times more than it imported (cf. figure 3). Among the major automakers, only Spain preserved its position, but with a rising cover rate reflecting the domestic Spanish economy's collapse in a context of permanent crisis.

Figure 3 – Motor vehicle cover rate: sample of Western European countries



Source: Eurostat, authors

France, Italy and the United Kingdom (even if the recent rebound in UK output has helped the country's trade balance) were all in the red. This was something new for France, which first started running deficits in 2007. Having said that, these overall numbers mask a wide range of crossed bilateral flows. Thus, the three countries in question here ran big bilateral deficits with Germany (in

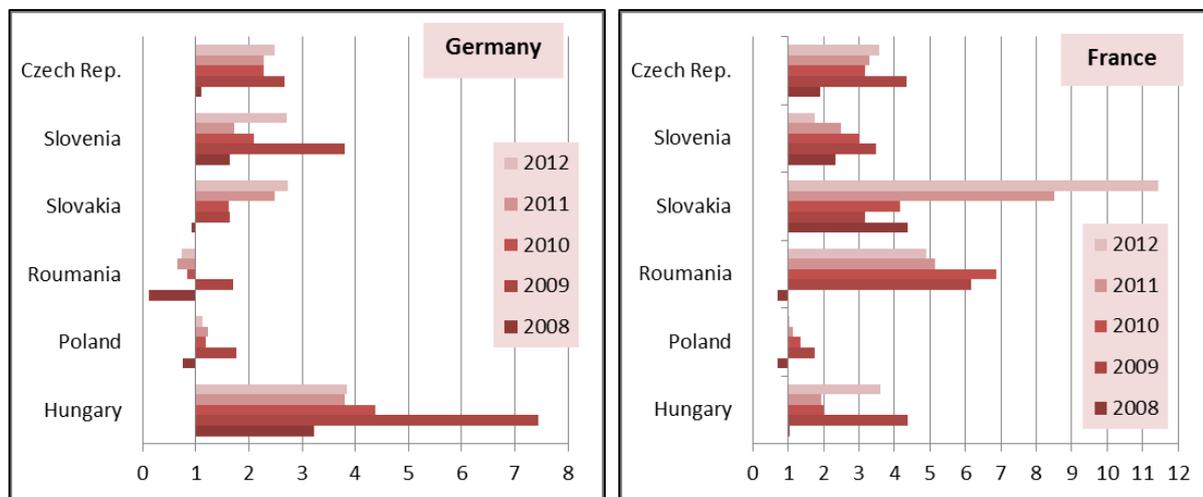
³ $r_i^k = \frac{\frac{N_i^k}{N_i}}{\frac{N^k - N_i^k}{N - N_i}}$ with N_i = number of people employed in sector i ; k = country; N = total number of

manufacturing jobs. If $r_i^k=1$, the share of sector i is equivalent to other manufacturing sectors' share in the national economy. A value above 1 reflects an over-representation. Conversely, a value below 1 reflects an under-representation

⁴ Cover rate: Exports/imports. A threshold of 1 translates a surplus/deficit.

2012, the cover rate with Germany was 0.4 for France, 0.2 for the United Kingdom and 0.4 for Italy). Spain, on the other hand, had a surplus (of 1.4) with Germany but also with France (3.8), which in turn, ran a surplus with both the United Kingdom and Italy.

Figure 4 – Bilateral motor vehicle cover rate: sample of Eastern European countries vis-a-vis Germany and France



Source: Eurostat, authors

Despite Germany and France almost balancing their trade with Poland in recent years, the two countries both ran a large deficit with most of Eastern Europe’s major manufacturing countries (cf. Figure 4). Having said that, the German deficit was smaller. The country was also different because it had a surplus with Romania, with whom France usually ran a deficit, something that can be readily explained by the performance of the Dacia brand in the French market. Traces of the commercial success of models sold in France can also be observed in the performance of Slovakia (PSA, Kia) or Hungary (Audi) since – symmetrically - both countries had relatively closed domestic markets.

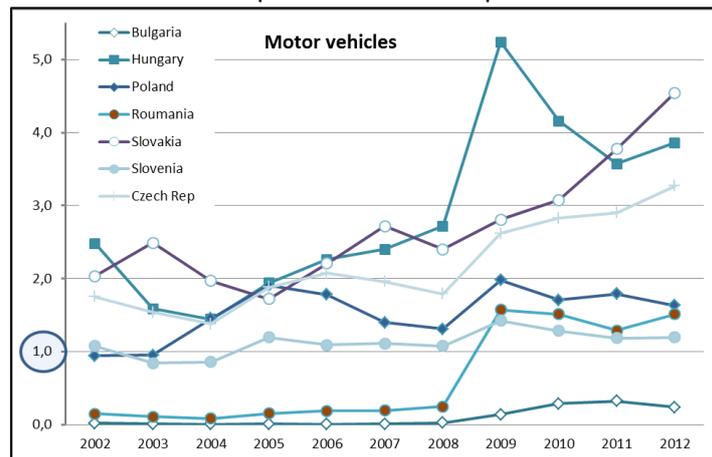
We need to stress this point. Dashing the hopes they had raised after first joining the EU, as far as new vehicles were concerned the CEECs were ultimately little more than minor markets⁵. Whereas the production capacities established in this sub-region at the beginning of the integration process were supposed to help build a direct supply activity, the local markets’ failure to take off meant that the production coming out of these capitalistically and organisationally modern (hence efficient) plants would de facto be redeployed to the export markets (Jullien, Lung, 2011), with automakers asking plants to assemble vehicles destined for the rest of Europe, specifically the West.

In terms of the nature of the local output, Central Europe mainly specialised in assembling high volume entry-range vehicles and engines, although the zone also manufactured a few very top-of-the range niche vehicles such as the Cayenne/Touareg/Q7 or the Audi TT (Layan, 2006). This meant that production here was being sent to the whole of the European market, or else to emerging markets in their first equipment stage (Dacia Logan, Daewoo Matiz, Suzuki Swift and WagonR+). Other targets included mature Western European markets (i.e. small city cars like the Twingo II in Slovenia, Fiat 500/ Ford Ka and Opel Agila in Poland, and later the C1/107 and Aygo in Slovakia). Later, however, it became possible to develop these core models even further following the arrival of Hyundai (i30) and Kia (Ceed); once Opel decided to make the Astra in Poland; or in a slightly higher segment, when Peugeot built the 208 and C3. The stereotype of a production zone specialised in small models must therefore be reconsidered. In 1996, small, entry-level models accounted for 63% of these countries’ exports. By 2006, this had fallen to 28%.

⁵ In 2012, the 11 main CEECs (as defined by the CCFA) registered all in all 883,000 new vehicles vs. 3.4 million units assembled. Market size was 41% below 2007 levels, something that can be explained by lower automobile sale volumes (note driving rates of 440‰ versus 603‰ in France); and by the preference for used cars (CCFA, 2013).

Weak markets in Eastern Europe and the strategic decision to ask local plants to make certain models that tended to be sold abroad, explain why the CEECs became so export-oriented. Figure 5 confirms the magnitude of the trade surpluses they would go on to build up. The Czech Republic and Slovakia were relatively similar again, being small countries with big production capacities developed by groups like VW (including Skoda in Czech Republic), PSA-TCPA, PSA-Toyota, Hyundai and Kia... all of whom had large assembly units that were mainly producing for West European countries' benefit. Hungary had a similar profile, with Audi playing a key role here. As for Slovenia and Romania, countries where Renault was running operations, both enjoyed comfortable surpluses (cf. Box 1).

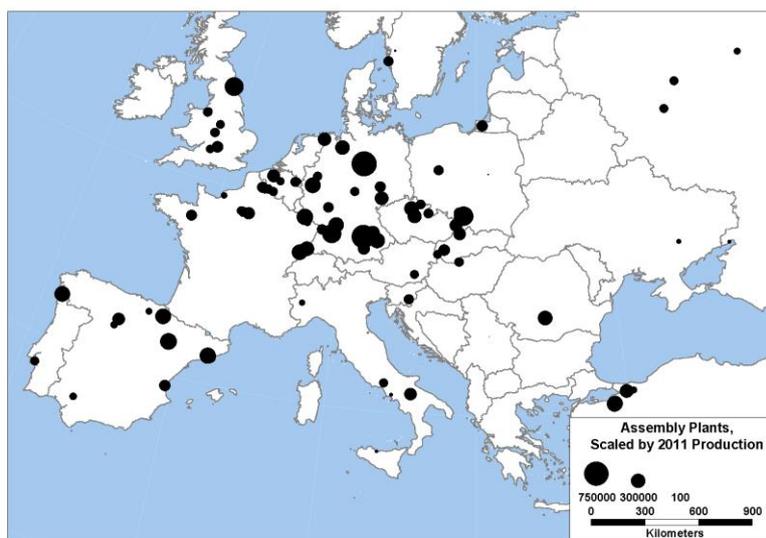
Figure 5 – Motor vehicle cover rates: sample of Eastern European countries



Source: Eurostat, authors

All in all, the CEECs turned themselves into major production centres competing with their Western counterparts in a regional market that had gone flat. Although the initial intention may not necessarily have been to close plants in the West, the reality is that European production had shifted eastwards. Even so, automaking remained an important economic activity for the major Western countries, despite weakness in the Belgian, Spanish and French markets (in contrast to the UK, which experienced a small recovery after 2010, following a major downturn between 2000 and 2010). On the other hand, the minor European countries (including Italy today) soon became marginalised. In the end, Western European automaking centred around Germany alone.

Map 3 – Vehicle assembly plants in Europe (2011)



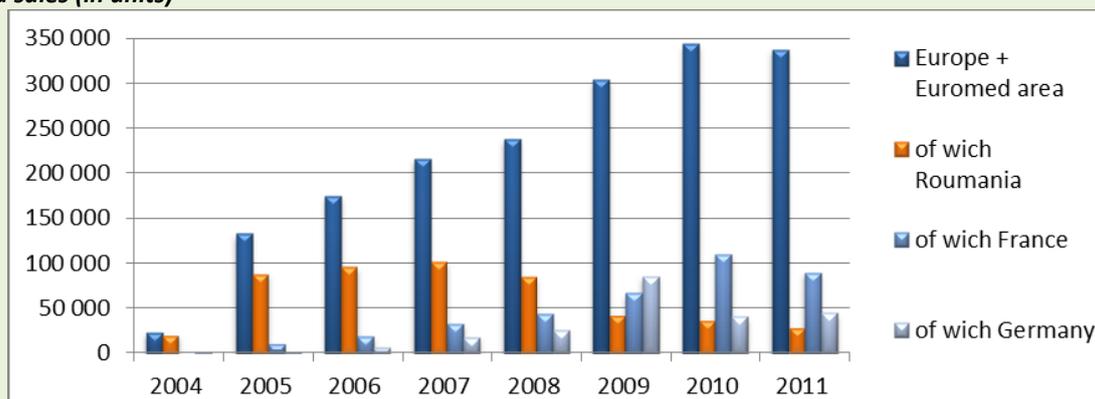
Source: Klier, McMillen, 2013, p.17

In geographic terms, these intermediary conclusions translate the fact that the centre of Europe's automotive industry had moved further east over the period in question. According to studies by T. Klier and J. Rubinstein (2011), South Germany has become the real fulcrum. This is important to remember since it signifies that center-periphery analyses based on the opposition between older EU members and newcomers are already losing their salience, as certain analysts began observing a few years ago (Layan, 2006): South Poland, Slovakia, Czech Republic, Germany and Austria have become the new geographic centre of European automobile production, with Spain, Italy and Western France being marginalised now (cf. Map 3). Inasmuch as automotive suppliers often seek proximity to their manufacturer customers (Klier, McMillen, 2013), an eastwards move in the automotive parts manufacturing industry can also be anticipated. The extent of this second shift remains unclear, however, given uncertainty about the degree of resistance by automakers in Germany (or Sweden).

Box 1: Romania, where the micro-economic shapes the macro-economic

The example of Romania (and Renault's Dacia subsidiary there) is noteworthy, since it partially illustrates a process that is ongoing in Eastern Europe. When Renault first launched its acquisition of Dacia in 1998 (an action completed in 1999), the goal was to have a tool enabling the company to design a car that would be "modern, robust and affordable at \$6,000" (Jullien, Lung, Midler, 2013, p.9). The Logan project satisfied this objective, as did the creation of authentic entry-range vehicles such as the Logan MCV (2006), Logan Pick-Up (2007), Sandero (2008) and Duster (2010), followed by the Lodgy and Dokker (2012, which were made in Morocco (in Tangiers)). Dacia's success turned Mioveni-Pitesti into a major automaking site. Initial plans targeted other CEECs but sales never really took off. Indeed, besides from the countries' domestic markets, most sales were in Western Europe and North Africa.

Dacia sales (in units)



Sources: Data from Jullien, Lung, Midler (2013)

The chart above portrays Romania's evolving trade balance, as does Figure 6. In 2004, almost all of of Dacia's output was sold domestically. Later, it was the export market that would dominate. Yet with the domestic Romanian market growing almost as fast, the country's automobile trade balance did not change much. This changed in 2009, when Romania's automobile market collapsed even as its exports skyrocketed, largely as a result of the Sandero's commercial success (with ca. 150,000 units assembled in Pitesti that year). Germany became a major outlet (2009 sales of 51,310 Sanderos and 33,542 Logans), temporarily giving Romania a positive trade balance with this country (Fig. 6) – although it was back in deficit the following year, after a 50% fall in sales here. Note the French demand for the Dacia brand never abated, giving Romania a significant positive bilateral balance with this latter country.

The lesson here is that macro-economic performance is built on the back of firms' individual strategies – especially in the CEECs, marked as they were by very low domestic demand, something that accentuated the scissors effect. By the same token, if Eastern Europe were to develop to any great extent it should become possible over time to re-balance these countries' balance of trade: not only because markets would absorb more of their domestic output; but also because of a likely rise in imports. Ultimately, what the Romanian example demonstrates is the intrinsic fragility of these countries, which have been highly dependent on the commercial successes of the carmakers operating locally - who will in time have similarly difficult productive decisions to make themselves. For instance, Pitesti's output probably peaked once the company opened plants in Russia and Morocco.

2. Selective relocation in the supplier sector

Automotive parts manufacturers have tended to base their location strategies on three types of principle. The first relates to the follow sourcing logic: in order to fulfil productive and cognitive coordination constraints, suppliers must follow their clients. The second relates to the fragmentation of international production and is based on the rationalisation of internal production costs: whether internally through an international division of productive processes; or externally via international subcontracting. Note that this latter approach has to be coherent with productive and cognitive coordination constraints, leading in turn to a hierarchisation of production sites. In turn, this reflects the nature of the activities being undertaken, not to mention the decision to move to a particular space, depending on what kinds of site networks require supplies (Frigant, Layan, 2009; Frigant, 2013). Lastly, there is a customer portfolio extension logic, one where companies are convinced to move to new spaces, even as they continue to respect the three registers of inter-firm coordination (productive, cognitive and contractual).

Within the European context, these three principles combined in a way that was relatively unique compared to what was happening in other world spaces. Economic integration, coupled with the performance of transport networks, enabled value chain actors to unify the space within which they were making their calculations. The creation of new assembly plants in the East with - in addition - the arrival of potential new customers (see below) plus an ongoing gap in production costs that was very much in favour of the new members, all of this made Eastern Europe into one of the rare spaces in the world where the three principles could play out simultaneously. During the 2000s, the CEECs became a strategic priority for suppliers. The end result was the eastwards shift in the European branch's upstream geography.

2.1. Delocalisation of jobs

Following the statistical revision of 2008, it was the automotive supplies manufacturing sector whose statistical series suffered the worst interruptions. Hence the need for caution when interpreting findings and ascertaining periods of analysis (cf. Figure 6 and Table 3).

2000-2007 saw very strong growth in employment Eastern Europe (+62%⁶), even as jobs numbers remained more or less stable in the sub-category of small Western European countries, versus a fall of 4% in the major Western European countries. The net result was that by 2007 Eastern Europe accounted for 29.3% of all jobs in this sector, versus 20% only in 2000. The major Western countries were the main victims of this shift, accounting for only 66.5% of such jobs in 2007 versus 75.6% in 2000 (cf. figure 7).

The sector also saw remarkable employment growth in some of the other Eastern countries. Slovenia, for instance, had 2,852 automotive supplies jobs in 2000 but 5,266 jobs in 2007. On a much bigger scale, the Czech Republic experienced an increase of ca. 48%, Poland 79% (to 50,000 persons) and Hungary 83% (to 40,000 persons). In Western Europe, numbers rose in Germany (+10%), Belgium (+17%) Italy (+7%), Sweden (+3%) and, from a lower starting point, Denmark (+8%), Austria (+24%) and Finland (+30%, albeit from a tiny initial figure of 751 jobs). Numbers remain stable in Spain but fell in Norway (-10%), the Netherlands (-12%) and Portugal. Most remarkable was the sharp decline in French and UK employment in this sector where, respectively, 30,448 and 32,970 jobs were eliminated over the years in question.

2008-2010 saw an overall decline in sector employment in all three of the zones discussed here. Having said that, jobs were lost much more quickly in the Western countries (est. -14%) than in the CEECs (-6%).

⁶ Estimated 2007 data is used when calculating for the Czech Republic and Portugal.

Sector employment fell by 20% in the smaller automobile countries, ranging from down 14% in Austria and Netherlands to down 35% in Norway. The larger countries were less affected, although it is worth highlighting Germany, Italy and Sweden, where the loss of employment was around 9-10%, as well as Belgium, where employee numbers rose by +3%, after rising 17% between 2000 and 2007. Lastly, sector employment plummeted in Spain (-16%) but especially France (-24%) and the UK (est. -25%), with the situation being particularly critical in the latter two given that between 2000 and 2007 both had already lost more than 30% of their total jobs in this sector.

Although all of the Eastern European countries suffered from the crisis of 2009, most recovered in 2010. For instance, Romanian employment numbers increased over 2008-2010, with Poland stabilising over this period. Declines in Bulgaria (-2%) and Slovakia (-9%) were relatively small. The downturn did, however, hit -13 to -14% in the Czech Republic, Slovenia and Hungary.

Measured in number of jobs, the Western European countries' share of the European supply sector fell dramatically over 2000-2010 (map 4). France had accounted for 11.1% of all jobs in this sector in 2000 but only 6.2% in 2010; the UK went from 11.5% to 5.7%, Italy from 8.8% to 8.6%, Spain from 7.7% to 6.6%, Sweden from 2.7% to 1.6% and Austria from 1.3% to 1.2%. Even Belgium's share fell, despite experiencing a net increase in job numbers over this period. Only Portugal saw a rising share (from 1.7% to 2.1). Most noteworthy is that Europe's leading automotive parts supplier, Germany, employed "only" 24.5% of everyone working in the sector in 2010, versus 32.7% in 2000.

Conversely, the CEECs all increased their share of the European total. The biggest rises were in Poland, the Czech Republic and Romania, each of which accounted for 10% of total sector employment in 2010 versus ca. 5% in 2000. Hungary and Slovakia ended up accounting, respectively, for 5% and 4% of all European jobs in the sector.

Figure 6 – Changes in automotive supplies sector employment, by country (index 2000=100)

Figure 6.a: Central and Eastern Europe

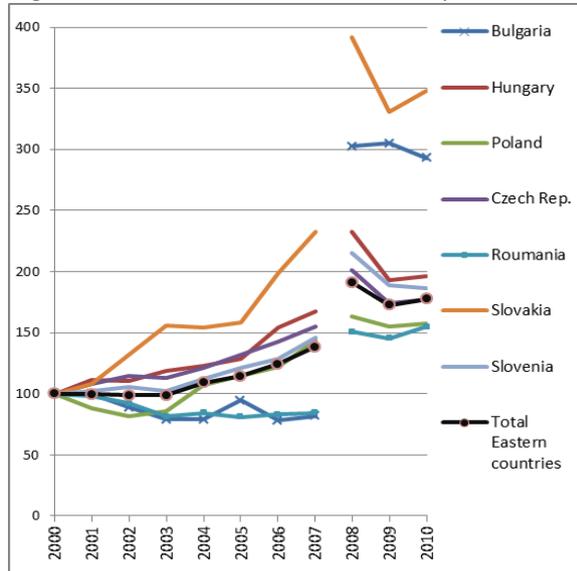
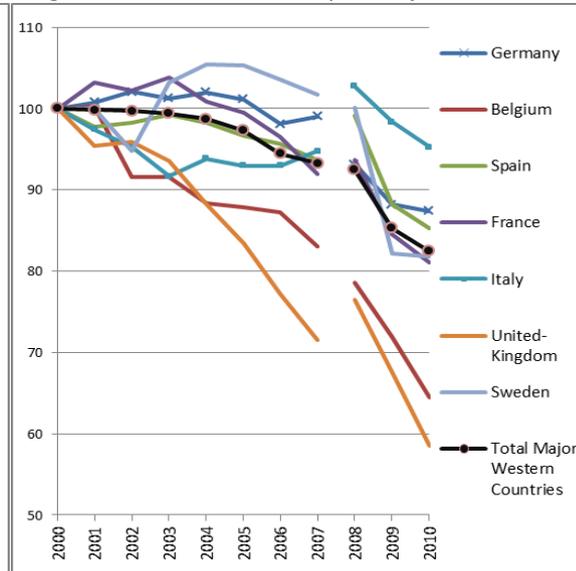


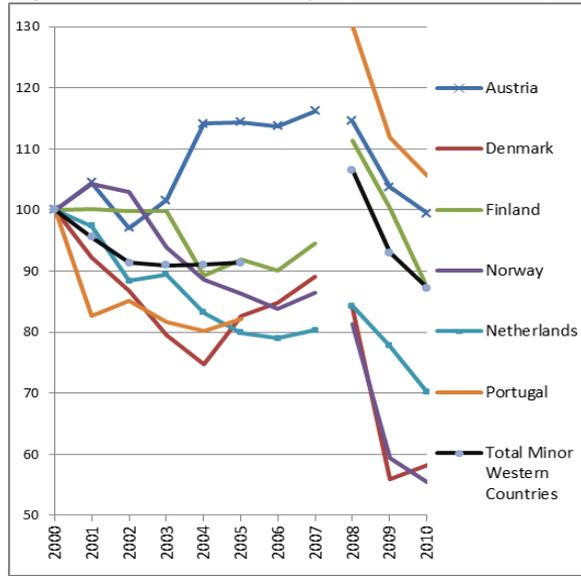
Figure 6.b: Western Europe (major countries)



Notes: Data estimated for Czech Republic in 2006 and 2007; for United Kingdom in 2009 and 2010.

Source: Eurostat, NACE Rev 1. 2000-2007/Nace Rev 2. 2008/2010

Figure 6.c: Western Europe (minor countries)



Notes: Data unavailable for Portugal in 2006 and 2007

Figure 7 – Breakdown of employment in automotive supplies sector (%)

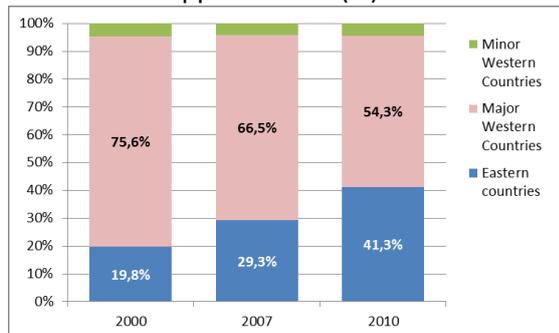
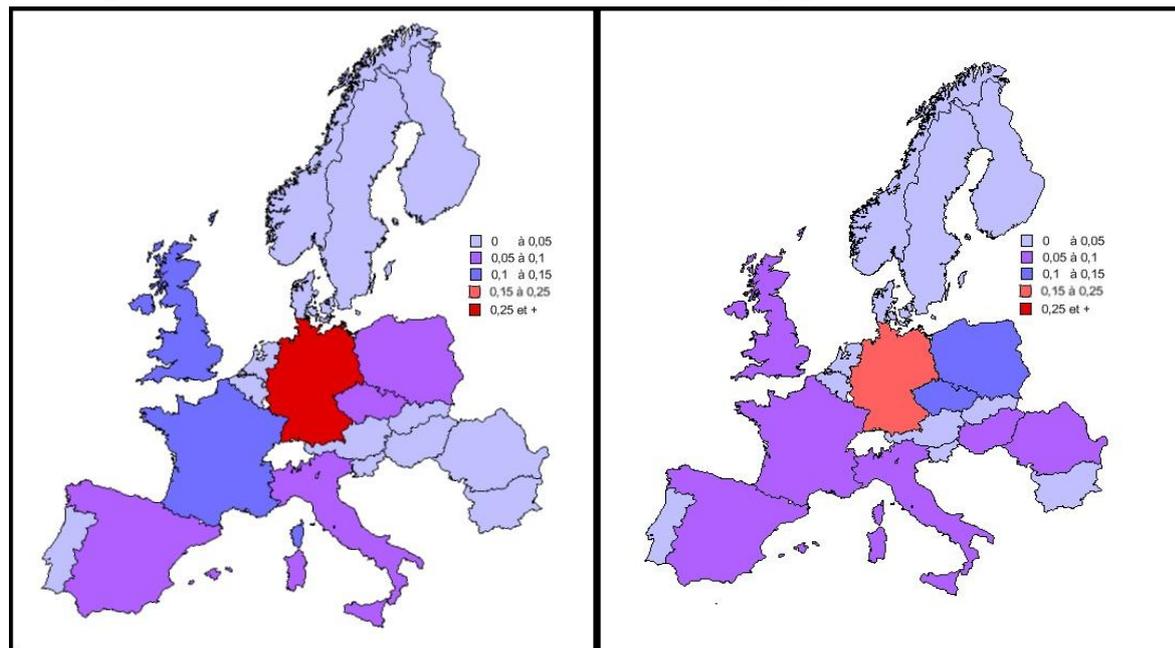


Table 4 – Employment in automotive supplies manufacturing sector, in 2010 (units)

Poland	105,762
Czech Republic	102,425
Romania	97,072
Hungary	51,617
Slovakia	37,250
Bulgaria	9,699
Slovenia	8,509
Total Eastern Europe	412,334
Germany	244,382
Italy	86,022
Spain	66,421
France	61,759
United Kingdom (est.)	56,600
Sweden	16,454
Belgium	10,947
Total Western Europe (main countries)	542,585
Portugal	21,433
Austria	11,956
Netherlands	4,655
Denmark	2,759
Norway	2,150
Finland	1,341
Total Western Europe (minor countries)	44,294
Total	999,213

Map 4 – National share of total European automotive supplies manufacturing employment (%)



Source: Eurostat, authors' calculation

All in all, Western Europe's decline as an employment centre was remarkable, with the region only accounting for 59% of all jobs in the sector in 2010, versus 80% in 2000. At the same time, national level analysis shows four different country groups in the West:

- ✓ One country whose fortunes were on the rise (Belgium),
- ✓ Countries experiencing problems belatedly after temporarily resisting the trend or even increasing their share (Germany, Spain, Italy, Sweden, Austria, Denmark, Finland),
- ✓ Countries where employment numbers fell constantly (Norway, Netherlands, Portugal),
- ✓ Countries where numbers collapsed despite retaining a large industrial base (France and UK).

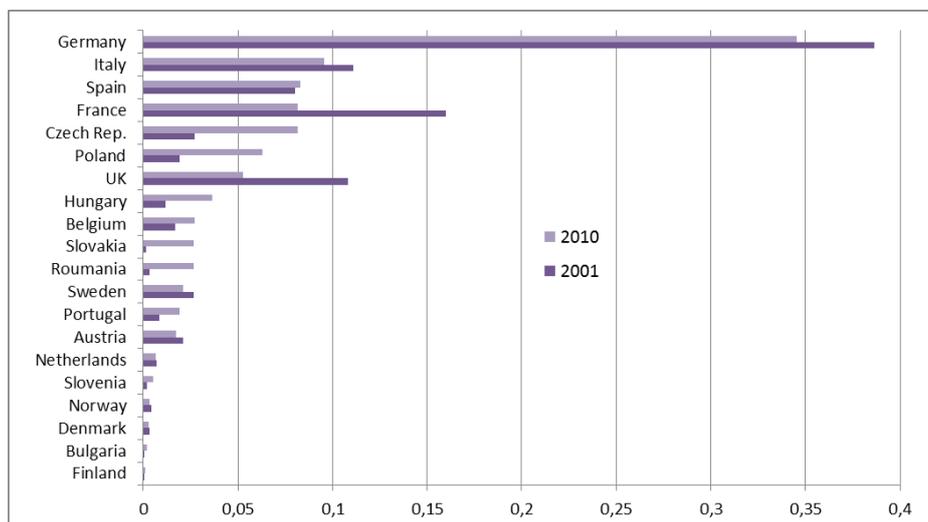
2.2. Production values: confirming the relocation trend's magnitude and selectivity

It is also worth scrutinising countries' distribution and ranking in terms of production values in the sector in question. Three main lessons can be drawn from this approach.

Firstly, changes in production values between 2001 and 2010 have confirmed automotive parts manufacturers' tendency to move from the West to the East. Except for Belgium and Portugal, the Western European countries experienced a declining share of total European production – in stark contrast to rises in all of the CEECs (cf. Figure 7).

Whereas Western European countries' production rankings (with the exception of Sweden-Austria) were congruent with their employment outcomes, the hierarchy was different in the CEECs. Thus, in production value terms, the Czech Republic was Eastern Europe's leading carmaker, coming ahead of Poland (Figure 8). Hungary and Slovakia were also ahead of Romania, despite the latter being the sub-region's third largest country in terms of sector jobs. This can be explained by the fact that the activities run in these countries had higher unit values, suggesting in turn a form of selectivity in terms of which activities were being run in each country⁷.

Figure 8 – Auto parts and accessories: European countries' share of production value (2001 and 2010)



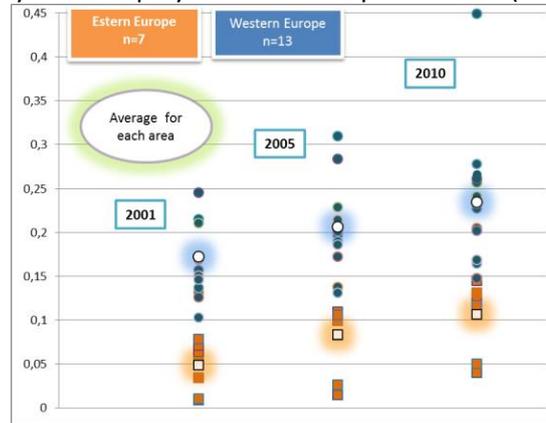
Source: Eurostat, authors

Lastly, Eastern countries' global share of production, in value terms, was lower than their share of sector employment (24.2% versus 41.3% in 2010 for the same panel of countries). The

⁷ Studies by Domanski and Pavlinek have confirmed the existence of structural differences between Polish and Czech supplier fabrics. Similarly, Hungary is very specialised in the production of engines characterised by high unit values. They are also labour-intensive, meaning that the latter country featured one of Eastern Europe's highest employee/value ratio (just behind the Czech Republic and Slovakia) (Figure 8).

activities run in Eastern Europe were more labour-intensive than those that remained in the West. Figure 9 captures this, showing the value produced by each employee in the automotive parts manufacturing sector. Ratios were much higher in the West than in the East with, on average, no Eastern country really catching up with the average for the West. Having said that, some Western countries are being overtaken by their Eastern counterparts (i.e., the Czech Republic, which has reached the level of Finland and is getting closer to Portugal and the United Kingdom).

Figure 9 – Value produced by each employee in the auto parts sector (2001, 2005, 2010)

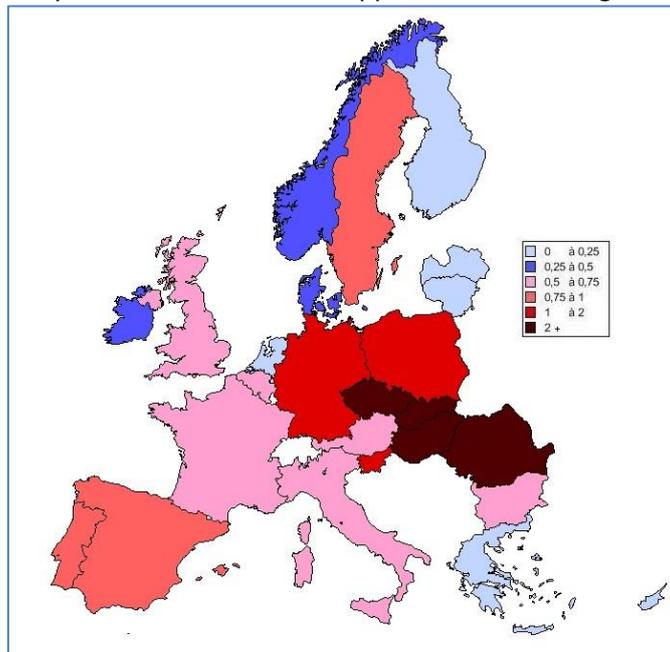


Source: Eurostat, authors' calculations

2.3. Auto parts manufacturing: a Central European speciality

The analysis above confirms a tendency to relocate to Eastern Europe. Questions might be asked, however, about the role that automotive supplies manufacturing played in different countries' productive apparatus. Sectorial specificity indices have enhanced understanding of these ongoing phenomena by measuring each country's importance in the automotive supplies manufacturing sector, along with the extent of the move eastwards (cf. Map 5).

Map 5 – Sectoral specificity index for automotive supplies manufacturing in 2010



Source: Eurostat, authors

More than Map n°2 showed for automaking, what Map 5 reveals is the deformation of the productive apparatus of those Eastern European countries that tended to specialise in automotive

parts manufacturing. The Czech Republic, Slovakia, Romania and Hungary all exceeded a score of 2 in all of the indices, showing to what extent their industrial development depended on this sector. Automotive parts manufacturing also played a big role in Poland and Slovenia, with indices above 1.

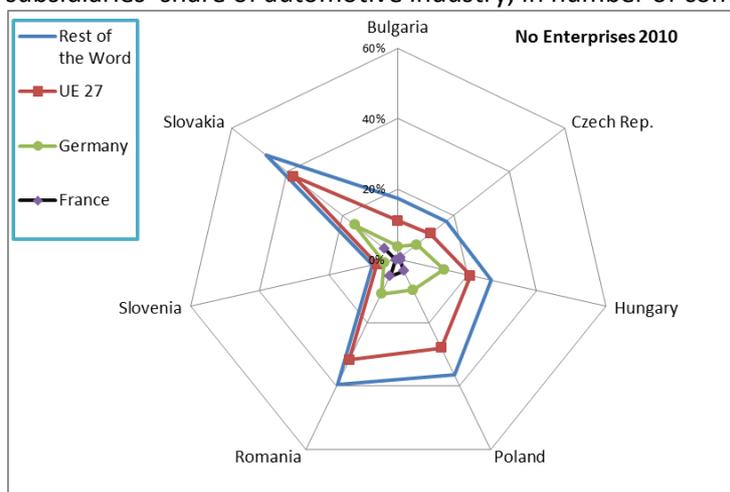
Western European countries, on the other hand, did not really specialise in this sector. Although automotive supplies manufacturing in Spain, Germany and the Portugal corresponded almost exactly to the countries' share of manufacturing employment, the other countries (Sweden, Italy, the United Kingdom, Belgium, Austria and France) saw a big gap between the two. For these five countries - and despite the important role that automobile manufacturing continued to play - the supply industry was proportionately weakened.

This distortion of speciality indices denotes an ongoing division of labour process within the European Union. The differences between the five aforementioned Eastern countries and the five Western European countries cited immediately above suggests an activity transfer process between these two groups. In this state of flux, only Germany and Spain seemed to resist. And even here, any sense of resistance is somewhat misleading, given Germany's advanced specialisation in automaking (section 1.2), an activity where a huge proportion of components are sourced from the export markets - something that can be verified by analysing German companies' share of the industries located in the CEECs.

2.4. The CEECs' auto industry - under Western control

The first section showed how the big Western European automakers either took over Eastern manufacturers (Skoda, Dacia) and built new plants themselves. The next question is what happened with the industry's other activities, like body works or automotive parts manufacturing. Although it is impossible to detail all of the sub-sectors comprising the automotive industry⁸, analysis detailing the nationality of the mother companies running CEEC operations shows that this sector was largely controlled by foreign groups.

Figure 10 – Foreign subsidiaries' share of automotive industry, in number of companies in 2010



Source: Eurostat, authors

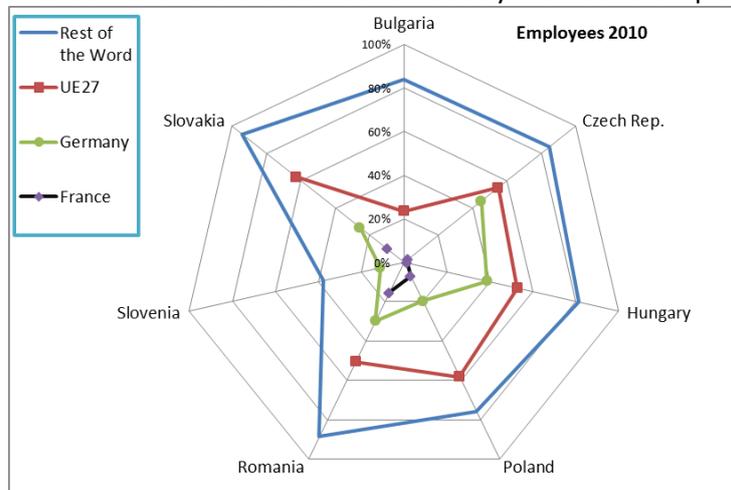
The automotive industry's rise in Eastern Europe essentially resulted from foreign players' presence. If we take the area's sept leading automobile countries, domestic companies appear to account for a singularly small proportion. This was particularly true in Slovakia, where half of all corporate actors came from abroad. Romania also experienced high levels of foreign involvement

⁸ Eurostat does not provide detailed data distinguishing between the manufacturing of cars, bodies and automotive parts. Hence our decision to work here at the level of the automotive industry as a whole, aggregated in these three sectors.

(39%), as did Poland (36%)⁹ (cf. Figure 10). This external dependency could also be seen, to an even greater extent, in the industry’s employment and production value data.

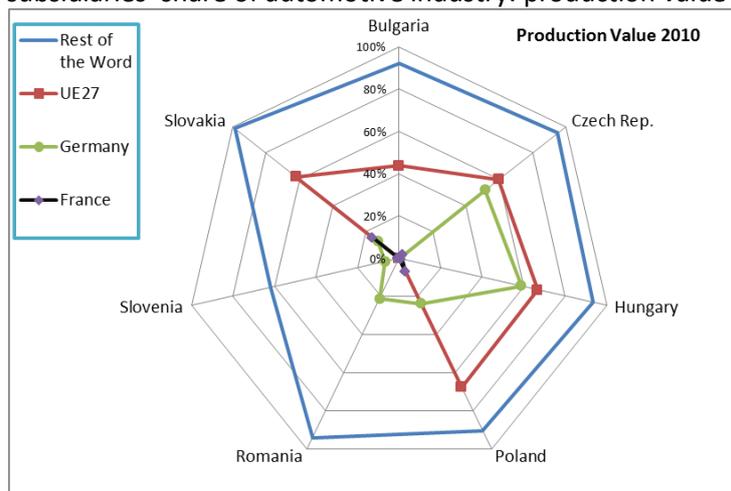
Several studies have already shown that the foreign automobile companies running operations in certain CEECs were larger than average companies in the sector (Rugraff, 2010). This finding can be verified indirectly for all countries, with, for instance, 94% of all sector employees in Slovakia working for subsidiaries of foreign companies, 89% in Romania, 84% in Bulgaria, Czech Republic and Hungary, and 76% in Poland. Slovenia stood out with a figure of only 38% (cf. Figure 11). For most of these countries, the foreign companies in question came from the European Union (58% of sector employees in Poland, 55% in the Czech Republic). Bulgaria stood out again since 84% of automotive industry employees in this country worked for foreign companies, but only 24% for EU companies. German companies played a key role in this respect, especially in the Czech Republic and Hungary, where their subsidiaries accounted for 45% and 39% of sector employment. Levels were also high in Slovakia (one-quarter), Poland (one-fifth) and in Romania (30%). This latter country was marked by the strength of French companies (10% of all employees), reflecting in turn the presence of Renault-Dacia. PSA’s Slovakian operations have a similar effect in that country (10%).

Figure 11 – Foreign subsidiaries’ share of automotive industry: number of employees in 2010



Source: Eurostat, authors

Figure 12 – Foreign subsidiaries’ share of automotive industry: production value in 2010



Source: Eurostat, authors

⁹ 8% in France and Germany.

In terms of production value (cf. Figure 12), more than 90% of the 2010 totals came from foreign companies, with the exception of Slovenia where the figure was 62%. The foreign companies in question usually came from the EU (68% of all value produced in Poland, 60% in Czech Republic), although Bulgaria did stand out in this respect as well, with 92% of all value produced in its automotive industry coming from subsidiaries of foreign companies but only 44% from EU companies. Otherwise, data converged with employment numbers to show that German company subsidiaries were the main value creators, producing singularly high levels of value in Hungary and the Czech Republic (59% and 52%), notably due to German automakers' presence in these countries. Note PSA's presence in Slovakia, creating a situation where French companies' share exceeded their German counterparts in terms of this one indicator.

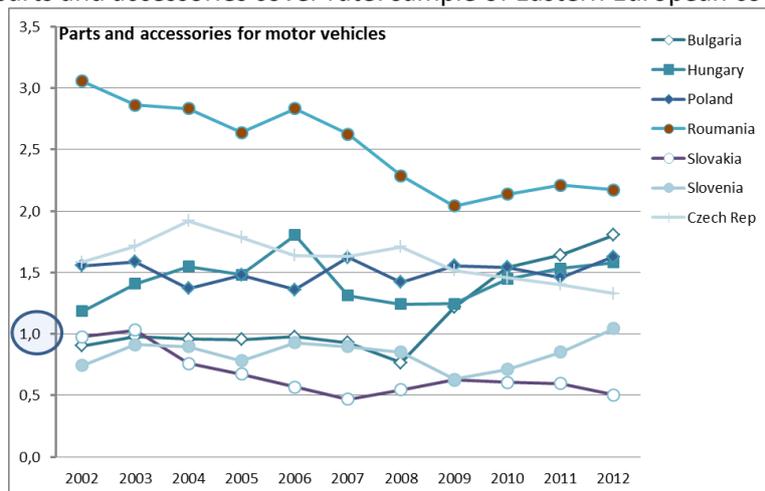
The usefulness of this data is to demonstrate that beyond automakers' plants, much of the automotive industry in the CEECs ended up being owned by foreign companies. This trend, which started in the late 1990s with the arrival of the first large Western suppliers (Sadler, 1998 & 1999), had the effect of gutting local industry and relegating it to the lower tiers of the supply pyramid, with certain authors analysing this as a sign of neo-colonialism (Havas, 2000). Recent studies have confirmed domestic companies' inability to move uprange, plus how foreign-controlled companies have come to dominate the production of more complex components, which happen to be the ones that are exported most (Pavlinek, 2012). Indeed, one shared objective for many international suppliers has been to create Central and Eastern European units that will re-export their output to the West.

2.5. The auto parts industry's export orientation

Given the size of the productive apparatus that has built up in the CEECs, predictably the lion's share of all production should be export-oriented. This is borne out by rate calculations done on a CPA basis (rev.2008) and confirming most CEECs' position as net exporters.

Having said that, the countries' trade surpluses for automotive supplies were in fact lower than for automaking (cf. figures 5 and 13). The distinction here is between countries that were major automobile production centres versus the others.

Figure 13 – Auto parts and accessories cover rate: sample of Eastern European countries



Source: Eurostat, authors

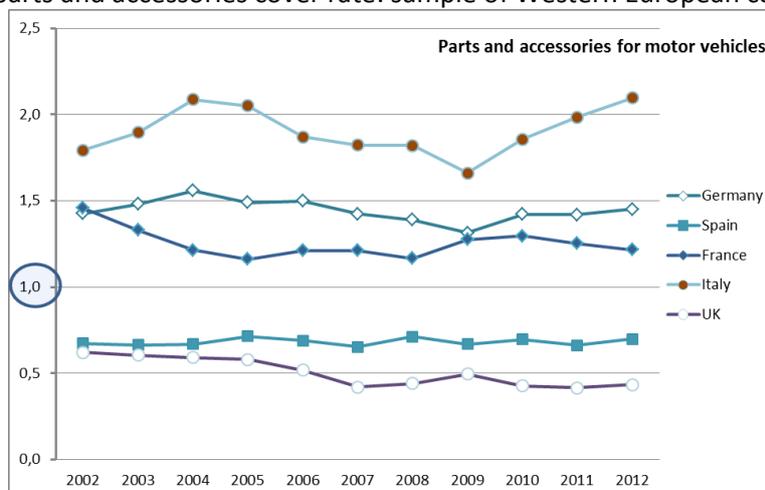
Bulgaria and Romania, for instance, featured high cover rates. This is due to the countries' relatively low import levels, reflecting the fact that their productive bases were largely export-oriented and explaining the size of their surpluses. Conversely, Poland, Hungary and the Czech Republic ran large surpluses but continued to import many items, meaning that their cover rate,

albeit still very positive, was lower. In Slovenia and Slovakia, the existing supplies manufacturing base was insufficient for automakers' local plant procurement needs, meaning that the two countries became net importers (in value) of automotive parts.

It would be wrong to surmise that all automotive parts production was relocated to the East. Clearly, a real delocalisation movement did take place but Western European countries' established productive bases remained powerful, even if they started to wane (see above). At this level, it is important not to confuse flows and stocks

Thus, when calculating the cover rate for the major Western European countries, it becomes clear that France, Germany and Italy still enjoyed significant trade surpluses (cf. Figure 14). Spain and the United Kingdom, on the other hand, were characterised by large deficits in this area, meaning that although they remained important automakers (respectively number two and number four in Europe in 2012), they relied greatly on imports to build whatever cars they assemble. In the UK, this reflects the destruction of the fabric of national suppliers during the 2000s, translating into the domestic industry's sharp decline and a deficit that would rise throughout the decade. In Spain, the deficit would be remarkably stable, with the sharp rise in the country's automobile production during the 1980s not being accompanied by any concomitant transfer bolstering its suppliers fabric, creating a situation where Spain still suffered from a parts deficit, particularly in its trade with France. In Italy, on the other hand, the process was almost diametrically opposite, with the country keeping a relatively strong industrial base for auto parts manufacturing - to such an extent that it was able to maintain its place in the European rankings (cf. Map 4). However, since domestic automobile production collapsed, local supplies companies had to reorganise their distribution networks to make them more international. In turn, this allowed Italy to retain (and even increase) its surpluses.

Figure 14 – Auto parts and accessories cover rate: sample of Western European countries



Source: Eurostat, authors

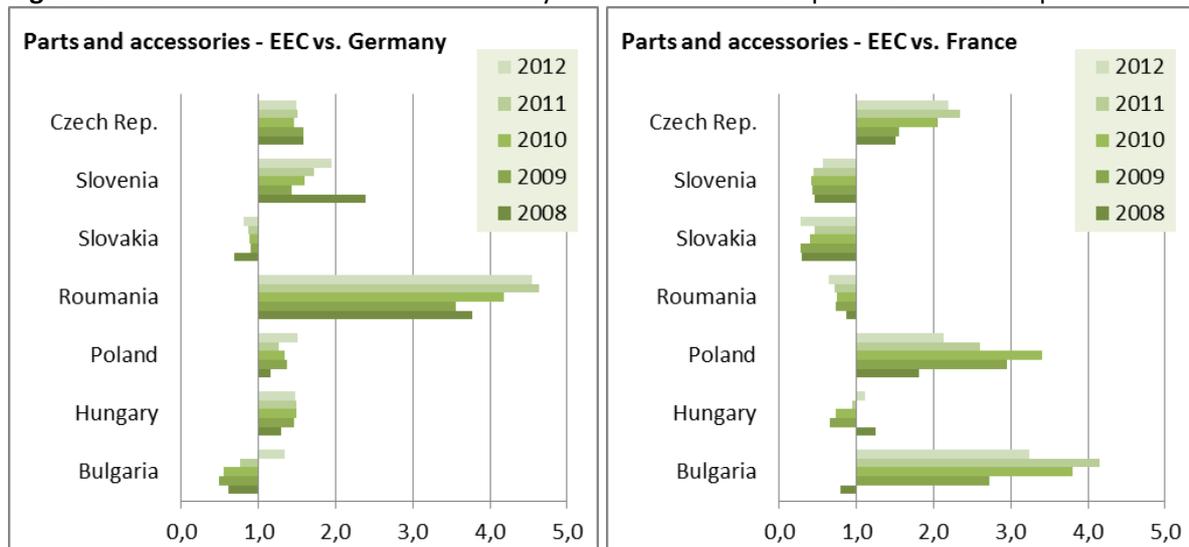
Employment numbers fell sharply in France's automotive supplies sectors, as aforementioned, but more slowly than automobile production rose, meaning that France still enjoyed a trade surplus at the end of the period in question. In Germany, rising automobile production led to increased reliance on imports, even as the industrial base involved in making automotive parts experienced significant job losses over 2008-2010. An ongoing trade surplus for vehicle parts suggests, however, that domestic companies had to reposition themselves up and down the value chain.

In a comparative analysis of Germany and France's international trade in automotive parts (Frigant, 2013), we noted that over the decade in question Germany strengthened its position in specific automobile value chain segments – matching this by the mass import of certain parts. Mapping these supply networks shows that Germany has started to rely extensively on its Eastern

European neighbours¹⁰. Figure 15 confirms that with the exception of Slovakia and Bulgaria, the five other Eastern European countries discussed here all ran trade surpluses with Germany.

In the same article, we showed that France was less selective in its supply networks – even if for certain auto parts, there was clearly a massive reliance on imports. Another notable point is that French supply networks were much more oriented towards analogous countries like Spain and Germany. It is as if some of the German suppliers suffering competition from low-cost locations had started to re-orient themselves towards exports and/or serve as re-export platforms (Frigant, 2013). This lesser dependency (direct, involving bilateral flows between France and Eastern European countries), can be seen in Figure 15 since France ran deficits with only three countries (Poland, Bulgaria and the Czech Republic). Hungary was between the two but with flows of lesser value. France did run big surpluses with Slovenia, Slovakia and Roumania (even increasing its trade balance the latter, despite the aforementioned strengthening of its supply industry over this period).

Figure 15 – Bilateral cover rate with Germany and France for a sample of Eastern European countries



Source: Eurostat, authors

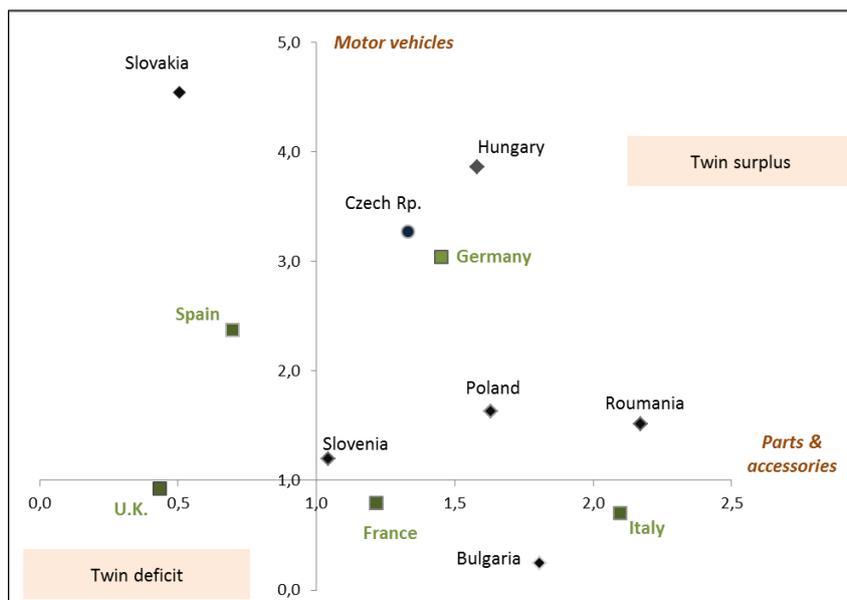
The explanation for France’s three surpluses with these countries resides in the big production units that French carmakers built up there. Despite the effects of globalisation, supply networks are still being developed according to a national logic, in the sense that connections between suppliers in a particular national space tend to be replicated abroad, above all when flows are measured in value terms (as is customary). The vehicles being developed by automakers in France were tied to the presence of suppliers running operations in France. Once the decision was taken to manufacture vehicles abroad, it may not always have seemed very attractive – given factors like fixed costs or accessibility to production sites in a well-endowed and unified space like Eastern Europe – to relocate the productive apparatus in such a way as to create export flows from the carmaker’s country of origin to the country/countries where the vehicles were meant to be assembled (Frigant, Layan, 2009). At the same time, it is clear that in the past, whenever downside production thresholds were being reached in the automakers’ home countries (or upside thresholds abroad), national suppliers would adjust their productive geography and spark a dual deindustrialisation/delocalisation movement.

One way of apprehending this consists of comparing different countries’ export performances in terms of automobiles versus automotive parts. Figure 16 positions the main European countries according to their trade surpluses (cover rate): the x-axis represents auto parts; the y-axis represents vehicles. Six countries showed surpluses for both types of production: among the Central and Eastern

¹⁰ Nor did this necessarily involve simple and inexpensive parts, as a factor endowment approach might suggest.

European countries, Hungary, Czech Republic, Romania, Poland and to a lesser extent Slovenia; with Germany being Western Europe's only representative in this category. Slovakia and Spain ran surpluses in terms of vehicles but outsourced components from the rest of the world. Italy, France and Bulgaria produced more parts than they needed for their domestic demand, despite the aforementioned sharp decline in the first two countries' national automobile production over the course of the decade, and the absence of any real growth in Bulgaria. Lastly, the United Kingdom, despite a recent recovery in production volumes and vehicle exports, ran deficits in both vehicles and parts.

Figure 16 – Positioning of major European countries according to motor vehicle and auto parts cover rate, in 2012



Source: Eurostat data, calculation authors

Conclusion

Born when the Iron Curtain fell in 1989, widely trumpeted during the 1990s and operational from 2004 onwards, the CEECs' integration into the EU caused a deep-seated transformation of the automotive industry's productive geography in terms of the manufacturing of automobiles and especially automotive parts. The present text has sought to measure, from a quantitative and macro-economic perspective, the magnitude of the geographic restructuring affecting Europe during the 2000s. There have been five key findings.

- ✓ **Western European countries** (even the smaller majors) **remain key automobile manufacturing production sites**, even if their share of Continental totals has fallen.
- ✓ **Germany's share of (and specialisation) in automobile production has risen**, reflecting remarkable export performances with respect to both automobile and auto parts manufacturing - even if in this latter sector, the country has suffered increasing competition from the CEECs.
- ✓ In absolute and relative value, the **Western European countries saw a decline in their automotive supplies manufacturing sector** (except in Belgium, involving only a small number of employees) – albeit at different rates and with real resilience, particularly visible in their ongoing trade surpluses. **This suggests that such declines have been selective, depending on the types of parts involved.**
- ✓ Central and Eastern European countries **have expanded their automobile production** - notably Czech Republic/Slovakia, which – if they were still unified – would be Europe's second leading automaker today.
- ✓ **The supply industry's move into Central and Eastern Europe has been more than proportional.** Poland, the Czech Republic and Romania have become key countries for the production of

automotive supplies whereas other countries, starting with Slovakia and Hungary, have risen very quickly. This industrial base is essentially comprised of subsidiaries **controlled by (mainly European) foreign groups**, first and foremost several German groups whose **main objective is to export**. At the same time, certain bilateral trade deficits show that these **countries did not necessarily have a sufficiently complete industrial base to cover all of their needs**, and have depended on other countries for certain automotive parts. Again, **this suggests that the supply industry's move eastwards has been selective in nature**.

This selective process shows that the 2000s culminated in a real productive integration of the CEECs. Automakers but above all auto parts suppliers benefited from EU enlargement to insert these economies into a natural strategic space. Eastern European countries offered cost, training and accessibility advantages that were all compatible with their being integrated into the heart of Europe. For many firms (notably German ones), the CEECs constituted a natural geographic extension, playing the same role as Spain or Portugal had done in the early 1980s (Layan, 2000). Corporate networks would now be divided between entities located both in the West and the East, creating a real division of labour in large, multi-entity firms (Domanski, Lung, 2009; Frigant, Layan, 2009) - even as close clusters began to take shape in response to carmakers' new internationalisation drives (Klier, McMillen, 2013). It remains that in an automotive industry that continues to evolve (albeit more slowly than it used to), sources of tension are becoming apparent and could one day change the snapshot that this text has taken.

Firstly, certain Western countries (like France and Spain) seem to have been marginal players in the European automotive supplies industry. The question then becomes what are the consequences of this change, and whether a new wave of supplier relocations might occur if these two countries cannot increase output sooner rather than later.

Otherwise (and almost conversely), certain North African countries (Algeria and above all Morocco) have become new spaces attracting carmakers, as witnessed by the new plant that Dacia has built in Tangier, featuring an annual production capacity of 350,000 units. Suppliers are attracted not only by these countries but also by spaces characterised by even lower production costs than in Central and Eastern Europe. Morocco, for instance, is geographically close to the European continent and enjoys a customs union with the EU. Recurring labour shortages and rising wages in Eastern Europe are cost reasons that could cause companies to alter their recent location strategies. In actual fact, this is one of the reasons why the Czech Republic waited so long before joining the Euro - it wanted to devalue its currency's exchange rate to restore price competitiveness

The goal here is not to predict winners and losers. There is no doubt, however, that the geography of the automotive industry, when described in these terms, is the product of a decade of change - and will change further in the future as the integration process deepens and extends, possibly further towards eastwards (Ukraine¹¹) and towards the Southeast (Turkey).

¹¹ Political uncertainty in Ukraine is undermining the country's ability to attract automobile interests, despite recent progress (Pavlinek, Zenka, 2010.b). On the other hand, there is still hope that Ukraine can join the EU soon.

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