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**The German Automobile Industry and Central Europe's Integration into the International Division of Labour: Foreign Production, Intra-industry Trade, and Labour Market Repercussions**

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# I. Introduction

Industrial relations in the German automobile industry are tense, largely because of competitive pressure from Central European countries.

The automobile industry offers a particularly interesting example to analyse the production, trade and labour-market implications of fiercer competition of Central European countries:

- comparatively favourable labour-market performance of the German automobile industry;
- strong export performance

Yet, there is reason for at least part of the workforce in the German automobile industry to be concerned about impaired employment and income prospects.



## II. Analytical Background

Standard theoretical models on the distributional effects of the liberalization of trade with, and foreign direct investment (FDI) in lower-income countries suggest that the integration of CEE into international production networks negatively affects the labour-market situation of low-skilled workers in Germany.

In contrast to horizontal FDI, outward FDI of the vertical type is expected to result in more wage inequality or higher unemployment in advanced economies (Marin et al. 2003).

FDI is considered horizontal if foreign affiliates sell their output (almost) exclusively in the host country. A high share of affiliate sales destined for markets other than the host country is taken as an indication of vertical FDI.

The motive for horizontal FDI to avoid trade and transaction costs associated with exports should be of minor importance for serving the relatively small and open neighbouring CEE markets.

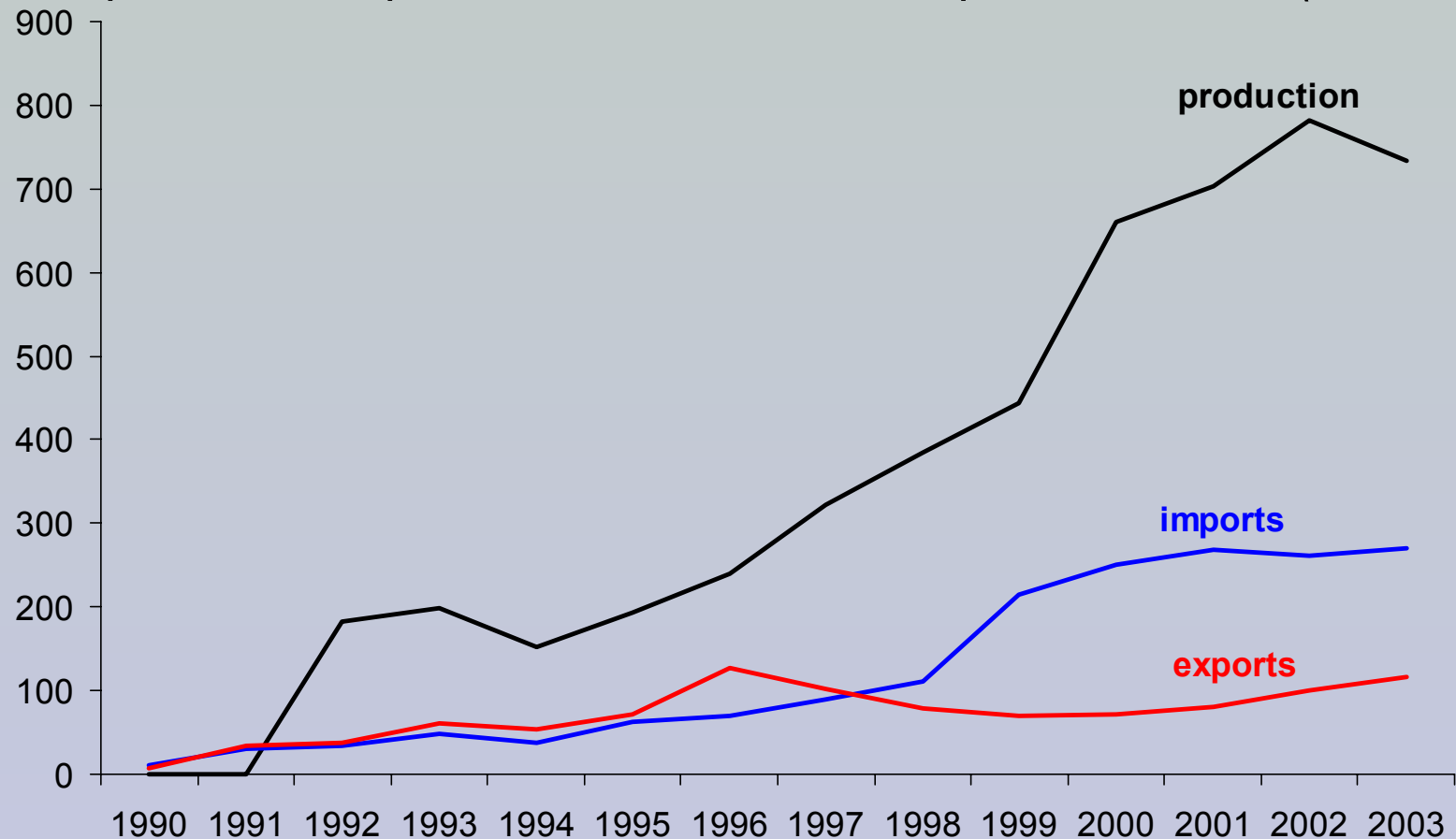
### III. Car Assembly in CEE and Substitution Effects in Germany

The evidence strongly suggests that the activities of the German automobile industry in CEE are not restricted to horizontal FDI:

- German FDI in CEE differs from that in China and Latin America.
- Central Europe has emerged as an export platform for German automobile producers.
- About one third of car production by German companies in the Czech Republic, Hungary, Poland and the Slovak Republic was destined for the German market in recent years.
- German car exports to the four Central European countries increased by much less than German imports. As a result, Germany reported an import surplus of about 170.000 units per annum in 2000-2003.

# III. ... continued

*Production of Passenger Cars by German Companies in Central Europe<sup>a</sup> and German Imports and Exports from/to Central Europe, 1990-2003 (1000 units)*



<sup>a</sup>Czech Rep., Hungary, Poland and Slovak Rep.

Source: VDA (a).

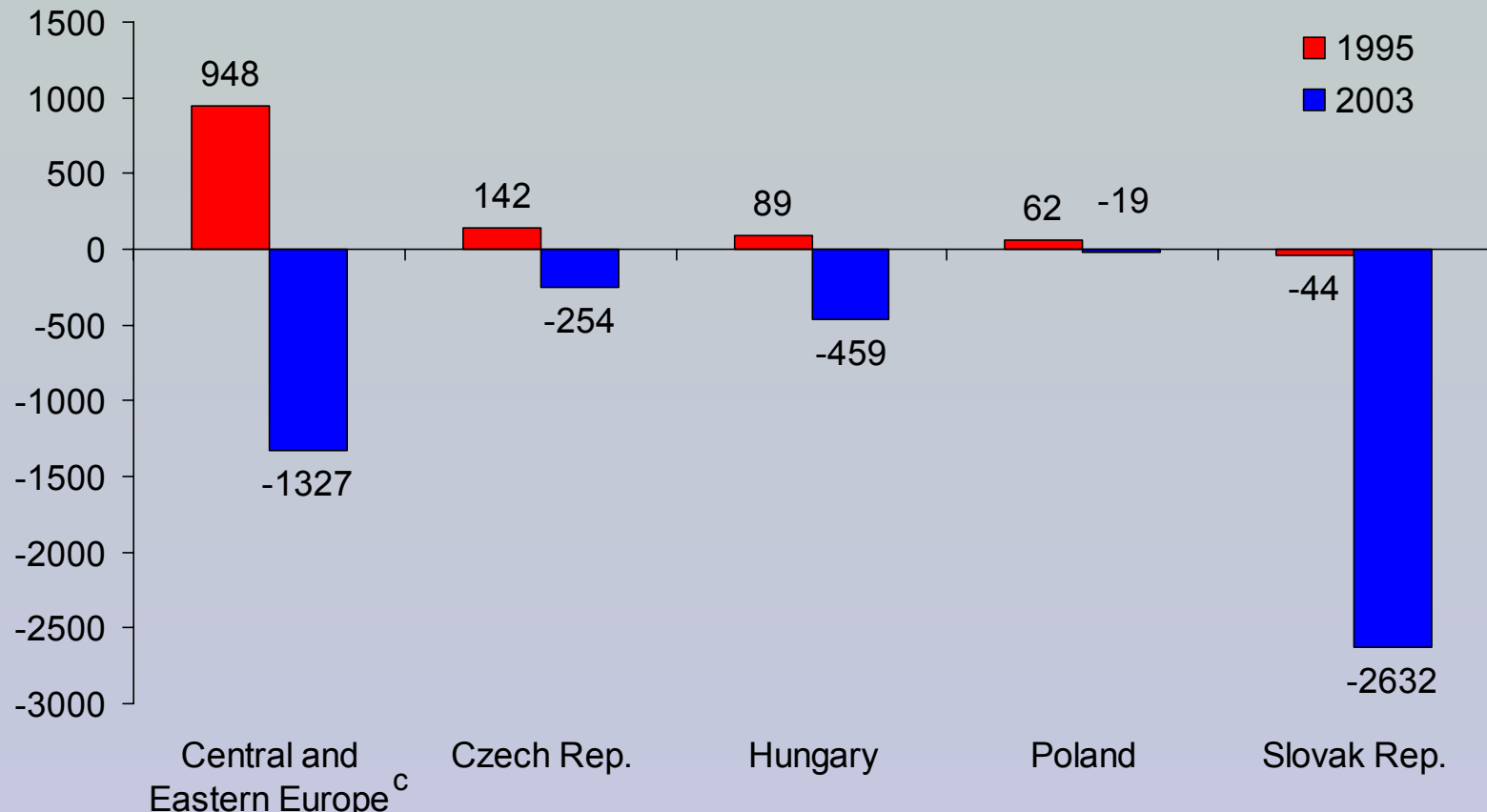


### III. ... continued

- The import surplus is no longer in terms of units only; in value terms, the German trade balance vis-à-vis CEE switched from an export surplus of almost € 1 billion in 1995 to a deficit of € 1.3 billion in 2002.

# III. ... continued

*Trade Balance<sup>a</sup> for Motor Vehicles<sup>b</sup>: Germany vis-à-vis Central and Eastern European Countries, 1995 and 2003 (million €)*



<sup>a</sup>Czech Rep., Hungary, Poland and Slovak Rep. German exports minus German imports.—

<sup>b</sup>Including chassis.— <sup>c</sup>Including Russian Federation; 2002 instead of 2003.

Source: VDA (a).



## III. ... continued

Company-specific patterns of domestic production, exports and production in CEE :

- The clearest indication of substitution effects is that Volkswagen suffered a considerable decline in domestic production as well as shrinking exports of passenger cars from Germany.
- On the other hand, the growth of domestic production and the growth of exports from Germany was relatively high for companies which were not engaged in the assembly of cars in Central Europe.



## IV. Trade in Autoparts

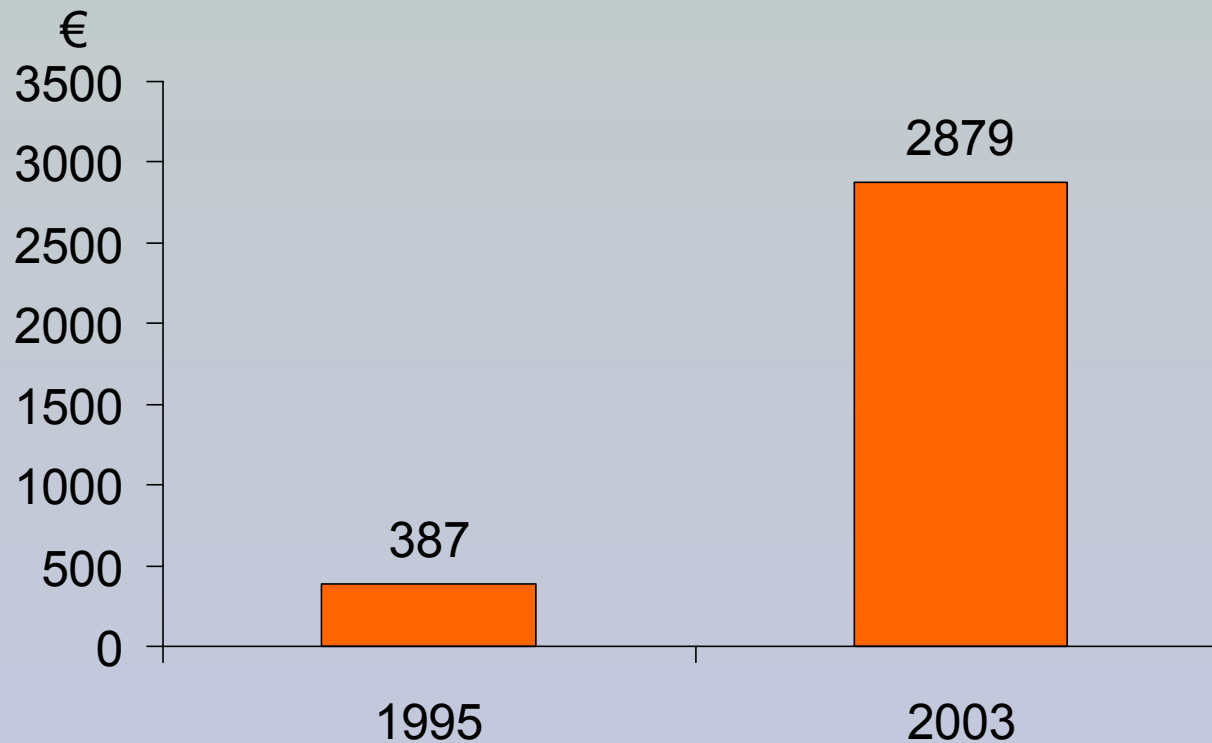
Additional labour-market effects can be expected to result from outsourcing of automobile parts production to CEE, for example through vertical FDI by car assemblers and “follow sourcing” by parts suppliers.

This is even though the fragmentation of the value chain may help sustain **overall** employment in Germany.

Trade in autoparts (engines and parts thereof plus other parts and accessories) soared from less than € 400 per car produced in Germany in 1995 to almost € 3000 within just eight years.

# IV. ... continued

*Importance of Trade in Autoparts<sup>a</sup> between Germany and Central European Countries<sup>b</sup>, 1995 and 2003 (€ per automobile produced in Germany<sup>c</sup>)*



<sup>a</sup>Sum of German exports and imports of engines and other autoparts and accessories to/from four Central European countries. — <sup>b</sup>Sum of Czech Rep., Hungary, Poland and Slovak Rep. — <sup>c</sup>In constant prices of 2000. Source: VDA (a).



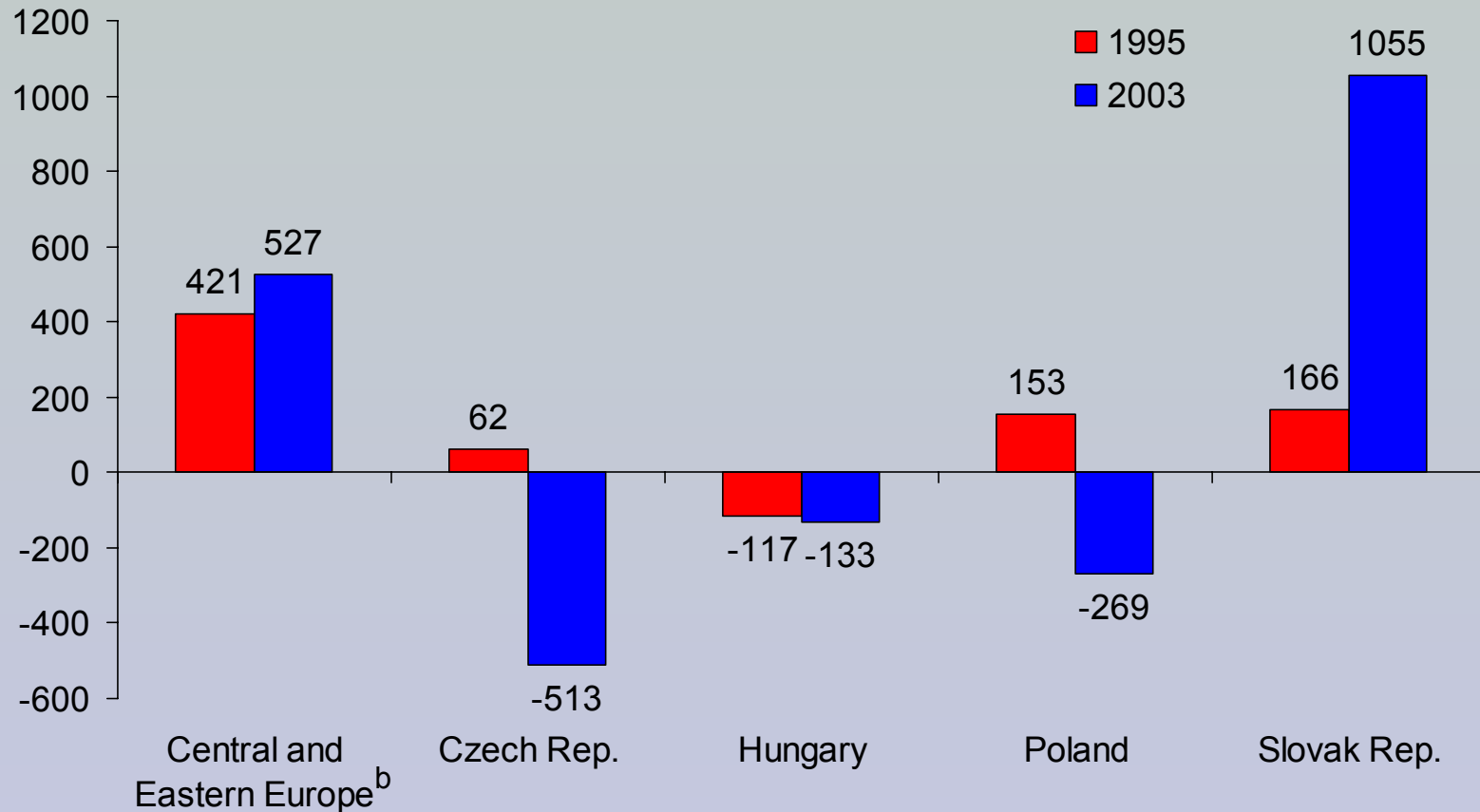
## IV. ... continued

Hungary, the Czech Republic, Poland and the Slovak Republic accounted for almost 30 percent of German imports; their share has increased fivefold since 1995.

Germany still reported an export surplus in 2002 in trade in autoparts with CEE as a whole. However, similar to trade in assembled cars, the German trade balance turned significantly negative vis-à-vis major CEECs, notably the Czech Republic and Poland.

# IV. ... continued

*Trade Balance<sup>a</sup> for Engines and Other Autoparts: Germany vis-à-vis Central and Eastern European Countries, 1995 and 2003 (million €)*



<sup>a</sup>German exports minus German imports. Car bodies not included. — <sup>b</sup>2002 instead of 2003; including Russian Federation.

Source: VDA (a).

# V. Labour-Market Implications

The labour-market implications of relocation and outsourcing to CEE are heavily disputed:

- a) Bazaar economy à la Sinn: The export of Audi passenger cars whose engines are produced in Hungary is presented as an example of German sales of “high-quality products that were not produced in the country.”
- b) Klodt: High outward FDI and imports of autoparts have helped a significant increase in employment in the German automobile industry since 1995.

## V. ... continued

The empirical evidence qualifies both of these seemingly opposing views:

- Overall employment in the German automobile industry has recovered substantially after the recession in 1993/94. Moreover, the average wage earned in the automobile industry was 24 percent higher than the average wage earned in the German manufacturing sector at the beginning of 2004.
- However, the share of value added in gross production of the automobile industry (motor vehicles and parts) declined by 8 percentage points in just eight years, to 25 percent in 2003.

# V. ... continued



Both sides of the debate tend to ignore diverging developments within the German automobile industry:

- The decline in the share of value added in production has been particularly pronounced for assembly operations.
- Employment growth was by far higher in parts production than in assembly operations.

Another dimension of intra-industry diversity: diverging employment and income trends for specific groups of employees:

- The employment share of production workers has declined by six percentage points since the early 1990s.

# V. ... continued

## *Production versus Non-production Workers in the German Automobile Industry, 1992–2003*



<sup>a</sup>Percent of total employment of production and non-production workers. — <sup>b</sup>Per-capita annual earnings of production workers in percent of per-capita annual earnings of non-production workers.

Source: VDA (a).



## V. ... continued

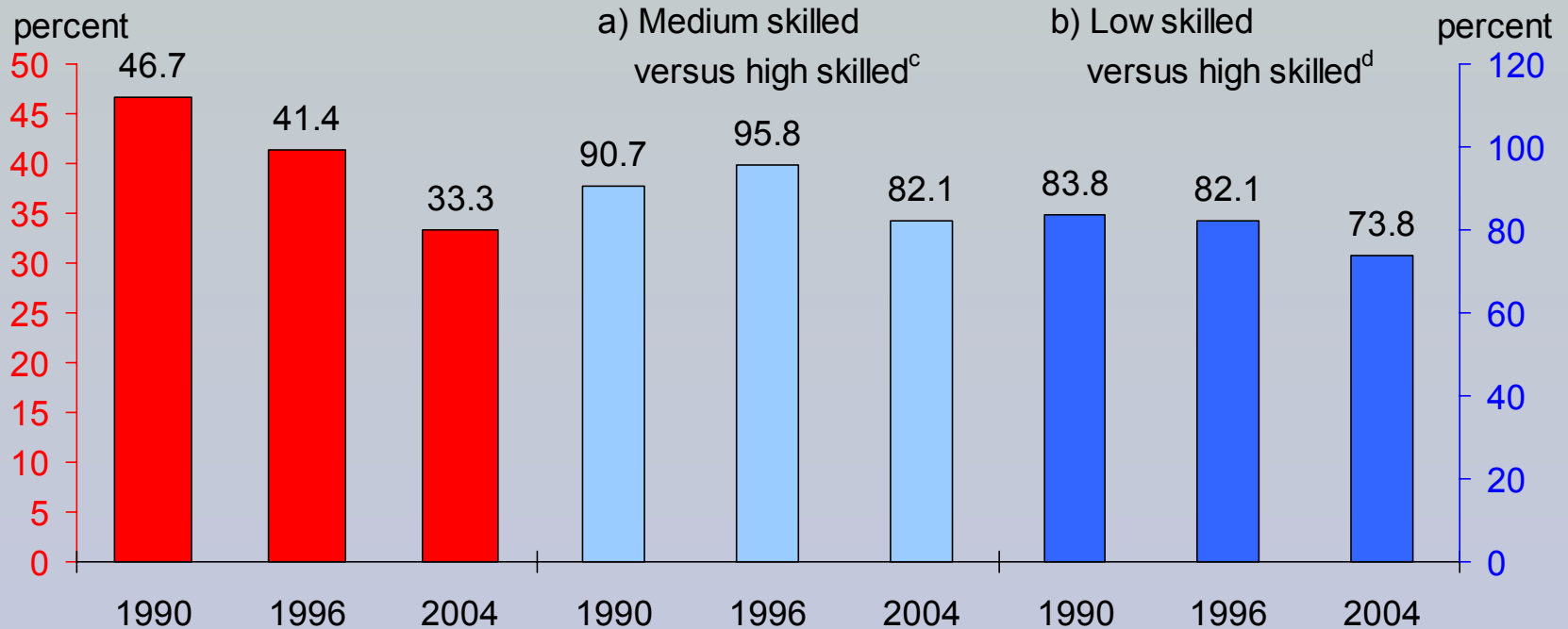
- As concerns specific categories (*Leistungsgruppen*) of production workers, less skilled workers (categories 2+3) accounted for a declining share in overall employment of production workers and, at the same time, suffered a significant drop in relative wages since 1996.

# V. ... continued

## More Skilled versus Less Skilled Production Workers in the German Automobile Industry, 1990–2004<sup>a</sup>

Employment share of less skilled production workers<sup>b</sup>

Relative hourly wages:



<sup>a</sup>As of January. — <sup>b</sup>Share of categories (*Leistungsgruppen*) 2 plus 3 in total employment of production workers; left-hand scale. — <sup>c</sup>Category (*Leistungsgruppe*) 2 in percent of category 1; right-hand scale. — <sup>d</sup>Category 3 in percent of category 1; right-hand scale.

Source: VDA (a).



## VI. Summary

The economic transformation of CEECs has added significantly to competitive pressure in the automobile industry, even though this industry is relatively technology and human-capital intensive and, thus, represents a traditional manufacturing stronghold of advanced countries such as Germany.

Seemingly opposing views on relocation and outsourcing are not inconsistent with each other.

Rather, they refer to two sides of the same coin:

- On the one hand, the automobile industry as a whole still compares favourably with other manufacturing industries in terms of employment and income opportunities.
- On the other hand, relocation and outsourcing have distributional effects within the German automobile industry.



## VI. ... continued

The need for the German automobile industry to adjust to fiercer competition from CEECs and other lower-income countries is unlikely to subside.

For the industry as a whole, there is no reasonable alternative to innovation and specialization according to comparative cost advantages.

Specialization will help secure employment and income opportunities for skilled workers, but it offers little relief to low-skilled workers.

Wage restraint will provide only part of the solution for low-skilled workers in the German automobile industry. Unless they succeed to improve their level of qualification, employment and income prospects are likely to deteriorate.