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## On the competitive position of Eastern German manufacturing: Why is catching-up so slow?

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# Kiel Working Papers

Kiel Working Paper No. 825

**On the Competitive Position of  
Eastern German Manufacturing:  
Why is Catching-up so Slow?**

by  
Katja Gerling and Klaus-Dieter Schmidt



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## **Abstract**

Seven years after the transition from plan to market, it is hard to summon up much enthusiasm for the results of active restructuring of the eastern German economy. Although companies have made considerable efforts to reach the efficiency level of their western German counterparts, the gap is still large.

In our paper, we provide a selective and interpretative account of the restructuring process in eastern German manufacturing. We start with modelling some economic relations which can be considered crucial in the restructuring process: ownership status and overall performance, sectoral and regional specialization, gross output and value added, investment and productivity, and wages and employment. In search of adjustment failures, we examine these relations by comparing the performance of eastern German with that of western German enterprises. Finally, we discuss the key policy question of how to overcome the difficulties. Without an about-face in wage policy, it will be difficult to shift the balance from wage convergence to efficiency convergence. (P 52)

*"Why, I do believe we've been under this tree the whole time! Everything's just as it was!... Well, in our country", said Alice, "... you'd generally get to somewhere else - if you run very fast for a long time as we've been doing."*

*"A slow sort of country!" said the Queen, "Now, here, you see it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!"*

*(Lewis Carroll, "Alice in Wonderland")*

## I Introduction<sup>1</sup>

Seven years after the transition from plan to market, it is hard to summon up much enthusiasm for the results of active restructuring of the eastern German economy. Despite massive government support, the gap as to the western German economy is still large. The economic clash is reflected by eastern Germany's poor contribution of less than 10 percent to the all-German GDP — compared to a share of 20 percent in total population. There is a slowly dawning awareness that there is still a long way to go for catching up.

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<sup>1</sup> Research in preparation for this paper was undertaken with support from the European Commission's Phare ACE Programme 1995 „Emerging Market Organization and Corporate Restructuring in Central and Eastern Europe“, project-no. 94-0590-R. We would like to thank the participants of the workshop, in particular the discussant of our paper Ádám Török (Institute for Industrial and Enterprise Economics, Budapest), for helpful comments. We are also indebted to Wolfgang Winkler for suggesting linguistic improvements.

Although everyone agrees that eastern Germany's economy is still in a poor state, diagnoses differ:

- Most experts insist that the pain is the rapid rise in the level of eastern wages relative to eastern productivity. As a result, eastern German companies are operating with unit labour costs significantly higher than their competitors in the west.
- Other experts emphasize low productivity rather than costs of labour. They argue that despite massive government support for rebuilding, the eastern capital stock is still inadequate compared to the western one.
- Other experts, in their part, focus on the low level of sales and, as a result, the low level of capacity utilization. They find that eastern companies are poorly integrated into sales networks. These companies are often too small for serving big retailers or cannot offer products with brand names.

The dispute on the causes of the weak performance of the eastern German economy is clearly far from settled. On the contrary, the observant is faced with a number of puzzles which seem to challenge the traditional economics of company restructuring in the transition from a centrally-planned to a market economy.

In their excellent paper on microeconomic aspects of the transition process Aghian, Blanchard and Carlin [1994] proposed a strategy which emphasizes the role of private investors as well as governments in the process of restructuring enterprises in transition economies. This strategy is based on two spearheads, namely fast privatization and massive transfer payments. It suggests that effective and efficient enterprise restructuring

"will depend on the threat to survival from tighter budget constraint which can be thought as the 'stick' and on the 'carrot' of the compensation available to the losers which will allow the passage of restructuring measures" [p. 4]. One can argue that enterprise restructuring in eastern Germany was completely in line with this strategy. The way unification was carried out forced policy makers to go ahead with privatization rapidly and resolutely. And as a rapid purchase of enterprises would not have been possible without enormous job losses, the government had paid considerable employment subsidies in form of financial concessions associated with privatization [Schmidt 1996].

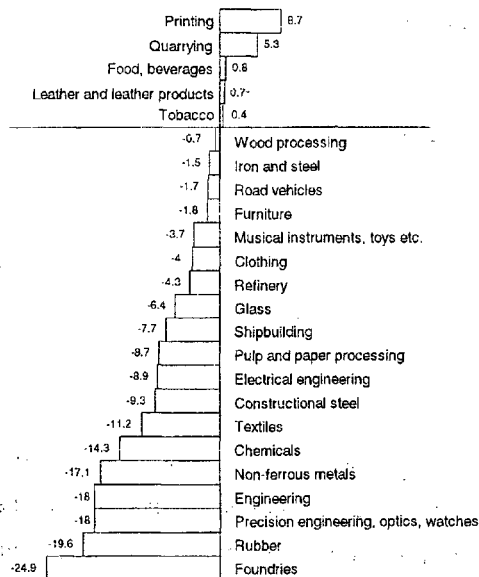
However, the poor state of the eastern German economy pursues the question whether the combination of 'stick' and 'carrot' was optimal in all respects. While policy makers might claim that the speed of restructuring in terms of job losses was too fast, economists might criticize that in terms of efficiency, it was not fast enough. It is a matter of fact that the overwhelming majority of enterprises are still operating in the red. Only in a few branches enterprises reached the profitability zone under their own steam in 1994 (Figure 1). Lewis Carroll's famous tale hits the point: Against the unpleasant background of rapid wage equalization, it is not enough to make some progress in the adjustment process. Whoever wants to advance has to move more quickly. Otherwise he will not get away from the same place.

In our paper, we provide a selective and interpretative account of the restructuring process in eastern German manufacturing. We start with modelling some economic relations which can be considered as crucial for rapid movement to the western German level of productivity (Section II). In search of adjustment failures, we examine these relations by



comparing eastern with western enterprises (Section III). Finally, we conclude with some observations and implications for economic policy (Section IV).

Figure 1 – Percentage Return on Sales in Eastern German Manufacturing<sup>a</sup> by Selected Industries<sup>b</sup> (1994)



<sup>a</sup>SYPRO classification. – <sup>b</sup>Enterprises with 20 and more employees.

Source: Central Statistical Office of the FRG; own calculations.

## II The Economics of Catching-up: The Strategic Variables

Most researchers tend to start research work with what is claimed to be a "general theory". However, such an approach is often simply an ex-ante rationalization which ex-post does not stand up to the statistical test. As

we have learnt from economies in transition, the microanalytics of enterprise restructuring is not a textbook case for which solutions are easily available. Therefore, it is advisable to concentrate first on a set of partial explanations which will serve to sort out the wheat from the chaff.

Economic restructuring concerns the way enterprises try to achieve competitive advantage. Defining their strategy, enterprises have to decide

- where, that is to say with which products and in which markets they should compete, and
- how, that is by which strategy, they could succeed.

Principally, competitive advantages may be based either on product differentiation defined by specialization (e.g., on high quality, exclusive product design, selected distribution channels) or on cost-leadership (low production and distribution costs achieved, e.g., by rationalization of the manufacturing system, pursuing economies of scale, training of staff or improving of quality control). Clearly, product differentiation and cost leadership can also be attained at the same time.

The development of competitive advantages has been the subject of many publications [Day 1984; Porter 1985]. However, these have been mostly concentrated on theoretical considerations. Empirical studies have been rare. The crucial point is that the determinants of competitive advantages are difficult to operationalize. In particular, the influence of qualitative characteristics such as product quality and design, brand image, reliability of delivery or after sales service can hardly be studied on a global level.

Due to various limitations, our study will focus on five general variables. These are: ownership, sectoral and regional specialization, investment,

vertical integration and wage costs. They may hide much more specific variables according to different conditions and competences of enterprises.

- (a) The economics of enterprise restructuring correctly emphasizes the importance of privatization in the transition process. It is recognized that neither a government or a government agency nor the old managers of the enterprises themselves would have been able to cope with this task. Privatization can provide best of all what is most urgently needed to create viable firms: entrepreneurial concepts, investment capital and management skills. However, the impact on enterprise restructuring — although generally positive — depends also on the specific implementation of privatization deals. In fact, there is no evidence for a strong correlation between privatization and economic success in general [Carlin, van Reenen and Wolfe 1994]. Therefore, closer examination of the relationship between privatization and restructuring in the course of transition is required.
- (b) Western enterprises pervade a strong product specialization in accordance with their comparative advantages. On a global level, this is defined by the given factor endowment, resp. factor prices. As (western) Germany ranks at the top of the technology frontier, its enterprises have held a strong position in the markets for products with highly-skilled labour intensity. In a competitive market environment, the given industry structure can be considered as a rough measure for competitiveness. Consequently, the deviation from the 'normal pattern' (which is supposed to be the present industry structure of western Germany) can be used as an indicator for the relative performance.

A second criterion with respect to specialization is how enterprises define the spatial dimension of their markets. On the basis of this criterion, enterprises can serve local, regional, national or international markets. Usually, they may tend to concentrate their activities on home markets which are near to them geographically. In home markets, transaction and transportation costs are lower and competitive pressure is weaker than in foreign markets. However, in home markets, sales potential is limited by the size of the resident population and their purchase power. Therefore, acting in an international context may be a strategic target for enterprises and a high degree of internationalization (in terms of foreign sales or foreign investment) can be considered an indicator for competence.

- (c) The poor performance of many enterprises in transition economies stems also from their obsolete capital equipment. Consequently, the economics of enterprise restructuring gives prominence to productive investment — to raise productivity by rationalizing production, to expand production capacity, or both. With respect to eastern Germany, one has to take into account that the existing capital stock was completely destroyed by the modus of German unification. As a consequence, an adjustment of employment became inevitable. Labour shedding in terms of its effects on rising productivity is the complementary trajectory in enterprise restructuring.
- (d) Vertical integration constitutes another form of restructuring strategies. It concerns the stages of value creation activities that enterprises integrate. A proxy variable to define the extent of integration is the ratio of value added to gross output. Usually, enterprises which are more vertically integrated have a high in-house value added.

- Compared to enterprises in western market economies, conglomerates in socialist economies were extremely integrated. In a dynamic perspective, however, there is a general preference for 'buying' over 'making'. Therefore, special attention should be paid to this point.
- (e) Although the importance of a low cost position for developing competitive advantages might differ from industry to industry and from market to market, reaching cost leadership is an important strategic variable. Among costs of production, labour costs are the most important. The level of labour costs in relation to (marginal) efficiency is decisive for the level of employment. It also influences the profitability of capital and thereby the volume of investment in fixed assets. As the volume of investment is seen as the crucial variable for eastern Germany's catching-up in productivity, a trade-off does not only exist between wages and employment but also between wages and the adjustment of the capital stock [Thiemann and Breitner 1995]. This conflict can only be resolved by massive subsidization of either labour or investment, or both. Therefore, the key question is: how can the balance be shifted in a politically acceptable way from wage convergence to productivity convergence?

### **III Monitoring Enterprise Restructuring: The Constraints**

The examination of enterprise restructuring in the transitional process is a very challenging task for researchers because it requires an appropriate informational base. Idealiter, a data base on a firm-level should be available. Realiter, only data on an aggregate level — by industries and by firm size — are provided because data protection legislation in Germany is very strict. Therefore, the German Institute for Economic Research (DIW),

Berlin, and the Kiel Institute of World Economics (IfW), commissioned by the Federal Ministry of Economic Affairs to monitor the adjustment process in eastern Germany, decided at an early stage to establish their own data base by way of a survey.<sup>2</sup> The first survey was started in summer 1991 with a sample of 1,700 manufacturing companies, the fifth in summer 1996 with 2,500 companies. In principle, these surveys can be considered as a panel since it is tried to keep the population of the sample stable. However, due to enormous fluctuations in the eastern German enterprise sphere — at the beginning, panel mortality as well as panel entry were very high — only a relatively small proportion of the panel members have longitudinal records without missing years. A fairly stable panel of respondents only exists as from the fourth survey made in summer 1995.

On the descriptive level, these panel data were examined in a former paper when we tried to find out how different types of companies perform — for instance with respect to ownership, plant size or industry [Gerling and Schmidt 1997]. However, there are some limitations in the material resulting from the survey techniques: the information is collected by a questionnaire sent by mail. Inevitably, a questionnaire cannot be too complex, covering all the areas under examination — it should not include more than 25 fully structured questions. Additionally, in order to get a high rate of return, it is necessary to avoid crucial questions. It is well known that companies are usually markedly reticent about their balance sheets and profit and loss values.

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<sup>2</sup> Data collecting and data processing have been carried out by the DIW in its own responsibility.

In this paper, we mix some soft data from the panel with hard data provided by the German Central Statistical Office from 1991 onwards. However, the change in the classification of industries from the German SYPRO<sup>3</sup> to the NACE<sup>4</sup> on 1 January 1995 makes intertemporal comparisons difficult. Only a few series have been converted from SYPRO to NACE or vice versa [Görzig and Noack 1996]. Matching data defined by different classifications can produce many inconsistencies. This is the main reason why we abstain from testing the relationships between the different sets of variables in a systematic manner.

## **IV The Misalignment of Adjustment: Some Puzzles**

### **1 Ownership Structure and Overall Performance**

The most important lesson from the transition process in eastern Germany is that privatization is not a sufficient, but a necessary precondition for successful corporate restructuring. The privatization of a company does not guarantee its survival. Like any other company, it can still fail if its new owner is unable to cope with the task.

Although the Treuhandanstalt carried out its job rapidly and, in terms of the interaction of economics and politics, effectively [Schmidt 1996], it has not reached all its goals. In many cases, the business concept proved to be unable to carry the load. The new owners often miscalculated their abilities to run the company successfully. They underestimated the diffi-

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<sup>3</sup> Systematik der Wirtschaftszweige im Produzierenden Gewerbe (Ausgabe 1979).

<sup>4</sup> Nomenclature générale des activités économiques dans les Communautés européennes.

culties of restructuring — of reorganizing production and sales, of generating products and, above all, of developing new markets. Consequently, they overestimated the cash flow and the net value of the company. In these cases, the successor of the Treuhandanstalt, the Bundesanstalt für vereinigungsbedingte Sonderaufgaben (BvS), is under strong pressure to re-negotiate the privatization contracts. One can interpret that as a second round of privatization through which the failures of the first round are corrected by markets.

Table 1 – Firms and Employees in the Eastern German Manufacturing Sector According to Ownership Status (percent) 1991–1996

Ownership status	Summer 1991		Summer 1992		Winter 1993/94		Summer 1996	
	Firms	Empl- yees	Firms	Empl- yees	Firms	Empl- yees	Firms	Empl- yees
Private firms	14	8	66	41	94	76	99	95
of which:								
Privatized Treuhand-firms	X <sup>a</sup>	X <sup>a</sup>	48 <sup>b</sup>	36 <sup>b</sup>	41	55	30	52
Reprivatized Treuhand-firms	X <sup>a</sup>	X <sup>a</sup>			20	8	12	9
Private firms before 1990	X <sup>a</sup>	X <sup>a</sup>	5	2	7	5	8	7
Firms founded after 1989	X <sup>a</sup>	X <sup>a</sup>	13	3	26	7	49	28
Firms owned by the Treuhand or Treuhand-successors	86	92	34	59	6	24	1	5
All firms	100	100	100	100	100	100	100	100
Note:								
Independent firms	9	1	49	19	80	42	77	52
Firms owned by western German or foreign firms	5	7	17	23	14	34	22	43

<sup>a</sup>Too few to mention. – <sup>b</sup>Including reprivatized firms.

Source: DIW.

Privatization in eastern German manufacturing followed different routes:

- First, it involved both privatizing 'from the top' by selling existing Treuhand companies and privatizing 'from the bottom' by founding new companies. Meanwhile, new firm start-ups, although in manufacturing they are less numerous than in trade and services, have clearly



surpassed the number of privatized and re-privatized firms (Table 1). However, this dynamics is obviously restricted to the category of small- and medium-sized firms.

- Second, it involved both selling to owners and giving back to former rightful owners. Although the Privatization Law provided for restitution to assume priority before fresh privatization, this has been partly overturned by the so-called Investment Act and, respectively, Investment Priority Act. Since the government was interested in quick restructuring, the former owner, as a rule, was only given preference if he agreed to make the same investments as another would-be investor.
- Third, it involved both privatizing firms as 'independent' units in the hands of eastern German residents and as 'dependent' firms in the hands of western German or foreign firms. Eastern Germans got mainly locked into small-scale production, in particular in the craft sector.

Referring to the diversity of the privatization pattern, there is no clear-cut picture of the firms' performance according to their ownership status and history. As it is obvious from the survey findings, all categories of companies — privatized, reprivatized and newly founded ones — are still facing serious competitiveness problems (Table 2). Although their situation has improved significantly over recent years, more than half of the companies stated in summer 1996 that they were experiencing great difficulties. A closer look, however, reveals a somewhat differentiated picture:

- Companies still owned by the Treuhandanstalt successor organization have been the least competitive. This is not surprising because

the few companies that have not been privatized at all so far are frequently hopeless cases.

- Companies privately owned before 1989 or founded thereafter have started more successfully into the market economy compared to previous Treuhand companies. Clearly, these companies have suffered less from the heritage of the past than former state-owned companies. As they are small in size, they have often found a profitable niche. Nevertheless, recently they have been facing more and more difficulties in withstanding market pressure. This might be partly the result of exaggerated expectations by inexperienced entrepreneurs.
- Reprivatized companies seem to be significantly worse off than e.g. newly founded companies. Frequently, these companies had to be handed over to the heirs of the former owner who often had no experience or even no interest in running the business successfully. This may support the view that the partial replacement of restitution by fresh privatization under the Investment Act and, respectively, the Investment Priority Act proved its worth. However, the poor performance of re-privatized companies may also be explained by poorer starting conditions: the owners of reprivatized companies frequently complained that because they had to accept historic debts or the damage of historic pollution, they were often treated worse than in-

vestors in fresh privatizations, which were partly or completely let off these obligations by the Treuhandanstalt [Müller 1996].<sup>5</sup>

- Finally, western German- or foreign-owned companies report competitiveness problems to a lower degree than independent companies in the ownership of easterners. The difference between the two categories is smaller than might have been expected, though. At first glance, the ownership by a western partner does not appear to be a crucial advantage. However, this result may be affected by other variables such as firm size or type of industry, considering that the Treuhandanstalt tended to sell large companies, in particular in 'sensitive branches', mostly to westerners. Data evaluated suggest that restructuring these companies is more painful than restructuring small- and medium-sized companies in other branches.

Regarding the profit situation, rapid privatization and subsidization have not been sufficient to make eastern German companies fit for competition. Most of them are still suffering from low productivity, poor product quality and a lack of reputation so that the turnovers they realize are not high enough to cover their costs. Especially labour costs impose a heavy burden on companies, keeping their returns below the break-even point.

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<sup>5</sup> The majority of companies had already been transferred to their former owners in the short time from January to March 1990 during which the last socialist (Modrow) government was in power.

Table 2 – Shares of Eastern German Manufacturing Firms Facing Competitiveness Problems 1991–1996 (in percent)

Ownership status	Summer 1991	Summer 1992	Winter 1993/94	Summer 1996
Private firms	62	57	55	55
of which:				
Privatized Treuhand-firms	X <sup>a</sup>	62 <sup>b</sup>	60	62
Reprivatized Treuhand-firms	X <sup>a</sup>		64	60
Private firms before 1990	X <sup>a</sup>	58	51	51
Firms founded after 1989	X <sup>a</sup>	41	45	49
Note:				
Independent firms	73	59	55	56
Firms owned by western German or foreign companies	56	52	56	50
Firms owned by the Treuhandanstalt or its successor organizations	88	84	82	89

<sup>a</sup>Too few cases to mention. – <sup>b</sup>Including reprivatized firms.

Source: ~ DIW.

Table 3 – The Profit Situation Perceived by Eastern German Manufacturing Firms 1995 and 1996

Ownership status	Percentage of firms achieving in 1995 ...				Profits in 1995 not estimable	Percentage of firms expecting in 1996 ...				Profits in 1996 not estimable
	rea-son-able profits	low profits	a bal-anced result	signi-ficant losses		rea-son-able profits	low profits	a bal-anced result	signi-ficant losses	
Private firms	16	24	27	30	3	13	26	35	21	5
of which:										
Privatized Treuhand-firms	13	20	27	39	1	10	23	37	26	4
Reprivatized Treuhand-firms	12	22	26	38	1	10	20	38	27	5
Private firms founded before 1990	23	34	19	22	2	17	26	34	15	8
Firms founded after 1989	18	26	29	21	6	16	30	32	16	6
Firms owned by Treuhand-successors	0	4	11	85	0	0	4	27	65	4
Note:										
Independent firms	15	26	27	28	4	13	27	35	19	6
Firms owned by western German or foreign firms	17	18	27	35	3	14	23	32	27	4
All firms	16	24	27	30	3	13	26	35	21	5

Source: DIW.

From the survey data in Table 3, it can be seen that private firms founded before as well as after the collapse of the old system report a better profit situation as previous or current Treuhand firms. Only a relatively small share of them accounted significant losses, almost one half reached reasonable or small profits. Newly founded firms seem to be most successful not only in finding a profitable niche in the market but also in coping with cost pressure: because they are often very small, they can avoid being members of employers associations and thus, avoid to pay standard wages. The same seems to be the case with reprivatized companies which are also mostly small. Surprisingly, they report a rather satisfactory profit situation, which is in contrast to their poor competitiveness. As a consequence, the reason for higher profits must be sought on the cost side, not on the market side here. As already seen in the competitiveness picture, western German or foreign ownership does not always seem to be an advantage for eastern German firms. On the one side, these firms clearly gain from being integrated in the sales networks of their western partners. On the other side, they still suffer from the heritage of the past.

## **2 Sectoral and Regional Specialization**

One important aspect of the catching-up process of the eastern German manufacturing sector is to find a specialization pattern as to products and markets which is in accordance with its comparative advantages. It is well-known that in the socialist economy this pattern was heavily distorted [Landesmann and Székely 1995; Jackson and Biesbrouck 1995]. In this context, it is astonishing to see that the sectoral specialization in the field of manufacture on a two-digit level in the GDR did not show significant

differences compared to the specialization of the manufacturing sector in the FRG.<sup>6</sup> As a consequence, changes in the sectoral structure in eastern Germany after the unification have been relatively small and have developed in a parallel way as to western Germany (Table 4).

However, a closer look at the figures reveals some minor but interesting structural development patterns. In two respects, the emerging sectoral pattern in eastern Germany shows typical signs of a dual economy:

- Whereas the shares of most industries producing intermediate goods and consumer non-durables have increased or have remained stable, those of some industries producing equipment goods have fallen. The most striking feature is the collapse of the machinery industry, once the showcase of the GDR industry. This type of dualism can be explained by the special German way of transformation, which has pushed the decline of industries producing goods saleable in international markets and the revival of industries serving mainly local markets [Gerling and Schmidt 1997].
- Whereas the shares of most industries producing human capital-intensive goods have declined or remained unchanged, those of most industries producing fixed capital-intensive goods have remarkably increased. Huge investment subsidies have encouraged building up large modern fixed capital-intensive capacities, in particular in the re-

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<sup>6</sup> This was shown by Schmidt and Naujoks [1995]. However, from this one cannot conclude that both specialization patterns were more or less identical. The GDR production structure was biased in favour of poor product design and quality, low productivity and overall performance and high resource costs. In fact, there was a significant — vertical — differentiation.

finery, chemical and road vehicle industries. These industries have caught up rapidly.

Table 4 – Structure of Gross Output of Eastern and Western German Manufacturing<sup>a</sup> 1991 and 1995 (Shares in p.c.)

NACE No.	Industry	1991		1995	
		Eastern Germany	Western Germany	Eastern Germany	Western Germany
15	Beverages, food	17.7	9.7	19.5	10.6
16	Tobacco products	2.3	1.6	1.5	1.5
17	Textiles	2.1	2.0	1.8	1.6
18	Clothing	1.0	1.8	1.6	1.2
19	Leather	0.6	0.6	0.2	0.4
20	Wood	1.0	1.4	1.9	1.6
21	Pulp, paper	1.6	2.7	0.9	1.7
22	Publishing and printing <sup>b</sup>	0.9	1.7	0.9	1.7
23	Refinery, coke oven products	1.2	5.2	4.2	5.7
24	Chemical products	2.3	4.4	3.9	4.5
25	Plastics, rubber products	2.3	4.4	3.9	4.5
26	Glass, pottery, mineral products	4.6	3.2	9.3	3.4
27	Metals	6.5	5.2	5.4	5.1
28	Metal products	3.9	5.7	7.8	6.2
29	Machinery	17.3	13.8	9.7	12.7
30	Computers, office machinery	0.5	1.7	0.6	1.4
31	Electrical engineering	6.1	6.1	5.7	6.2
32	Media technology products	1.4	2.1	1.4	2.0
33	Precision instruments	2.0	2.6	2.1	2.4
34	Road vehicles	2.3	14.0	6.8	13.5
35	Other transport equipment	6.6	1.8	3.6	1.5
36	Furniture, toys	2.8	3.0	2.9	2.7
	Total manufacturing <sup>b,c</sup>	100	100	100	100
	Note:				
	Intermediate products	44.2	45.0	47.1	47.7
	Equipment products	30.2	33.4	28.2	31.6
	Consumer durables	4.5	5.1	3.7	4.6
	Consumer non-durables	21.0	16.4	22.0	16.1

<sup>a</sup>Enterprises with 20 and more employees only. – <sup>b</sup>Without publishing. – <sup>c</sup>Without recycling.

Source: Görzig and Noack [1996].

A special case is the favourable development of construction-related industries such as glass, pottery and mineral products or metal products (which in the NACE classification includes steel construction). This can be explained with the building boom in eastern Germany which, however, has surpassed its peak by now.

All in all, the sectoral adjustment of the eastern German manufacturing sector is far from coming to an end. The congruence on the aggregate level conceals a strong vertical differentiation between eastern and western German producers — with respect to product quality and product markets as well as with respect to technological and organizational environment. The division of labour corresponds to an inter-industry type rather than an intra-industry one. However, as far as wage rates will equalize, there is a strong pressure towards an upward movement ending up in an intra-industry specialization. Thus, the hopes have to be pinned on a few promising branches — namely the car industry and the micro-electronics industry — which have started to establish highly productive and innovative production centres in several eastern German regions.

The picture of weakness is completed by poor market specialization. The main sales markets are local and regional markets in eastern Germany — almost half of the overall sales are realized there. Foreign markets play only a minor role. Export quotas were on average not even half as high as in western Germany in 1995, and the contribution to overall German foreign sales was only 2.5 percent — which is very modest considering the share of eastern German in overall German population of around 20 percent (Table 5). Only in a few branches, eastern German firms have managed to offer a product range which is in line with international preferences. However, among these are in particular light industries such as



food, textiles and clothing. In sharp contrast to these are the traditionally export-orientated capital goods industries, which obviously have not yet got over the breakdown of eastern European markets.

Table 5 – Export Quota<sup>a</sup> of Eastern and Western German Manufacturing<sup>b</sup> 1991 and 1995 (in p.c.)

NACE No.	Industry	1991		1995	
		Eastern Germany	Western Germany	Eastern Germany	Western Germany
15, 16	Beverages, food, tobacco	3.9	8.2	6.1	10.3
23-26	Refinery, chemical products, plastics, rubber products, glass, pottery, mineral products	17.4	25.1	10.0	26.4
27, 28	Metals, metal products	12.8	22.7	10.9	25.4
29	Machinery	27.5	39.9	22.4	43.7
30-33	Computers, office machinery, electrical engineering, media technology products, precision instruments	11.8	30.5	14.2	36.4
34, 35	Road vehicles, other transport equipment	42.1	43.6	19.8	48.7
17-22, 36	Textiles, clothing, leather, wood, pulp, paper, publishing and printing <sup>c</sup> , furniture, toys	12.0	18.7	14.6	19.8
	Total manufacturing <sup>c,d</sup>	16.3	27.5	12.4	30.3
	Note:				
	Intermediate products	13.0	23.9	11.8	26.6
	Equipment products	25.6	39.2	16.5	43.6
	Consumer durables	13.0	25.8	14.9	26.0
	Consumer non-durables	5.4	12.4	6.8	14.0

<sup>a</sup>Share of sales in foreign markets in total sales. – <sup>b</sup>Enterprises with 20 and more employees. – <sup>c</sup>Without publishing. – <sup>d</sup>Without recycling.

Source: Görzig and Noack [1996].

Table 6 – Share of Eastern German in overall German Manufacturing Sales<sup>a</sup> 1991 and 1995 (in p.c.)

NACE No.	Industry	1991			1995		
		Total	of which:		Total	of which:	
			Domes- tic	Foreign Sales		Domes- tic	Foreign Sales
15, 16	Beverages, food, tobacco	7.7	8.0	3.8	9.9	10.3	6.1
23-26	Refinery, chemical products, plastics, rubber products, glass, pottery, mineral products	3.7	4.1	2.6	6.0	7.3	2.4
27, 28	Metals, metal products	5.1	5.7	2.9	6.9	8.1	3.1
29	Machinery	5.1	6.1	3.6	4.6	6.2	2.4
30-33	Computers, office machinery, electrical engineering, media technology products, precision instruments	3.2	4.0	1.3	4.8	6.4	1.9
34, 35	Road vehicles, other transport equipment	2.4	2.4	2.3	4.1	6.3	1.7
17-22, 36	Textiles, clothing, leather, wood, pulp, paper, publishing and printing <sup>b</sup> , furniture, toys	3.7	3.9	2.4	5.2	5.7	3.9
	Total manufacturing <sup>b,c</sup>	4.3	4.9	2.6	5.9	7.3	2.5
Note:							
	Intermediate products	4.7	5.4	2.6	6.3	7.5	2.9
	Equipment products	4.2	5.1	2.8	5.1	7.4	2.0
	Consumer durables	2.8	3.2	1.4	4.8	5.5	2.8
	Consumer non-durables	6.1	6.4	2.8	7.9	8.5	4.0

<sup>a</sup>Enterprises with 20 and more employees. – <sup>b</sup>Without publishing. – <sup>c</sup>Without recycling.

Source: Görgiz and Noack [1996].

To a certain extent, the low export quotas might reflect the suboptimal size structure in eastern German manufacturing: the very high share of

smaller firms which are typically local players with most of their customers in the vicinity. However, their contribution to overall German manufacturing sales in domestic markets is still relatively low: it was only 7 percent in 1995 (Table 6). This is to a great extent due to a lack of reputation and brand names. Eastern German producers find it extremely difficult to gain access to the networks of large retail chain stores, which usually expect from their suppliers not only products which represent a good value but also extensive customizing and sales promotion activities.

Sailing into the safe harbour of local markets may be the need of the moment for many companies. But it is a dangerous strategy. In the medium and long run, it may prove to be a trap without any escape. Usually, local markets can provide only a limited growth potential. Consequently, the recent sharp slow-down in the growth rate of disposable income in the eastern economy has promptly caused also a sharp slow-down in the growth rate of economic activity as most companies have not been able to compensate for this on foreign markets.

### **3 Gross Output and Value Added**

Vertical supplier relationships between companies can also affect efficiency. In western market economies, many companies have reorganized these in recent years by sourcing out parts of their activities — buying outside rather than making more and more inside [McMillan 1995]. The direct gains from this strategy result from a finer division of labour, which lowers production costs through specialization. As a result, the share of value added in gross output has steadily decreased.

The socialist conglomerates, in contrast, were extremely vertically integrated 'production units', producing most of their inputs inside. When they

were split up, privatized and reorganized, the new firms started to optimize their value-adding chain. Two contrasting kinds of changes occurred:

- First, they began to purchase more inputs, replacing parts of inside production. By that, the share of value added in gross output decreased.
- Second, they began to restructure their production, replacing low-value-adding activities by high-value-adding activities. By that, the share of value added in gross output increased.

In the early stage, as a result of the splitting-up of conglomerates, the first effect was predominant. The share of value added in gross output fell dramatically, revealing, however, the poor performance of most of the companies rather than an advanced restructuring process according to the western example. Meanwhile this share has increased: from 14 p.c. in 1991 to almost 20 p.c. in 1994. Nevertheless, it is, on average, still considerably lower than in western Germany (Table 7). Only in a few branches, the net production quota has almost reached or even surpassed the western German level (refinery, paper and pulp processing, printing). Interestingly, the gap has narrowed in basic goods and consumer goods industries, not so much in capital goods industries.

Table 7 – Share of Value Added<sup>a</sup> in Gross Output in Eastern and Western German Manufacturing<sup>b</sup> by Selected Industries 1991 and 1994 (in p.c.)

SYPRO No.	Industry	1991		1994	
		Eastern Germany	Western Germany	Eastern Germany	Western Germany
22	Refinery	-2.2	2.3	3.0	2.7
25	Quarrying	25.2	32.6	24.5	33.0
27	Iron and steel	1.4	26.4	16.0	24.5
28	Non-ferrous metals	-2.4	21.0	-0.1	21.6
29	Foundries	13.3	41.9	21.9	40.4
40	Chemicals	3.5	29.1	10.4	28.8
31	Constructional steel	27.4	36.5	27.2	34.9
32	Engineering	19.9	37.1	22.2	36.6
33	Road vehicle building	13.2	26.0	13.8	26.5
34	Ship building	47.6	31.2	19.3	30.5
36	Electrical engineering	21.8	37.1	24.3	32.7
51	Pottery	8.9	46.3	33.2	44.2
52	Glass	-2.8	35.1	22.3	35.3
53	Wood processing	19.0	34.7	27.2	35.3
56	Paper and pulp processing	8.6	26.4	26.8	29.7
57	Printing	36.7	39.5	45.7	39.7
58	Plastics	13.0	32.8	25.4	32.5
63	Textiles	2.0	29.0	19.6	29.4
64	Clothing	16.1	27.5	36.6	44.9
	Total manufacturing	14.2	29.0	19.5	28.0
	Note:				
	Basic goods	4.4	23.3	14.9	22.8
	Capital goods	21.7	33.8	22.1	32.2
	Consumer goods	13.7	32.5	29.8	33.0
	Food, beverages	11.0	17.1	13.7	17.5

<sup>a</sup>Gross output minus material consumption, merchandise for resale, subcontracting costs, other service costs, rents and leases, other costs, depreciations, indirect taxes less subsidies. – <sup>b</sup>Enterprises with 20 and more employees only.

Source: Central Statistical Office of the FRG.

Table 8 – Share of Selected Costs in Gross Output in Eastern and Western German Manufacturing<sup>a</sup> 1991 and 1994 (in p.c.)

	1991		1994	
	Eastern Germany	Western Germany	Eastern Germany	Western Germany
Material consumption	45.4	36.7	42.1	35.5
Energy consumption	7.3	2.2	4.4	2.1
Merchandise for resale	6.0	10.7	5.8	10.9
Sub-contracting	1.4	2.4	2.3	2.5
Rents and lease	0.8	1.4	1.6	1.7
Other costs <sup>b</sup>	11.6	8.6	10.7	9.7
Depreciations	7.4	3.8	7.2	4.0
Interest payments for outside capital	2.4	1.2	2.3	1.1
Total above	88.3	69.2	76.4	67.5

<sup>a</sup>Enterprises with 20 and more employees. – <sup>b</sup>Expenses for advertising, transport, insurance, legal advice etc.

Source: Central Statistical Office of the FRG.

The low share of value added stems from the unfavourable cost structure of eastern German companies (Table 8).

- Material consumption in relation to gross output has decreased only marginally since 1991. In 1994, it still exceeded the quota of western German companies by 16 percentage points (Table 8). This cannot be explained by the dominance of material-intensive industries. On the contrary, a rough calculation shows that the quota would have been even higher if eastern Germany had had the same structure of production as western Germany. Many eastern German plants are still operating as 'prolonged workbenches' of western German companies. They frequently perform relatively simple production steps creating only a low value added, such as assembling or refining, which imply high shares of material supply.
- Energy consumption, although decreasing in relation to gross output between 1991 and 1994, is also still higher than in western Germany.

This is mainly due to the energy-intensive production structure within industries: the chemical industry in eastern Germany, e.g., is an important supplier of mass-produced articles like primary products, fertilizers, lacquers and plastics while in western Germany it is rather a supplier of sophisticated products, in particular of pharmaceuticals.<sup>7</sup>

- Finally, depreciations on fixed capital and interest payments for outside capital are almost twice as high as those of western German companies. This is the consequence of the modern capital equipment established in recent years.

The unfavourable cost structure of eastern German companies, however, must be partly ascribed to the low capacity utilization. Most of the cost categories, except material consumption, are fixed costs. Unit costs tend to decrease with the increase of output and sales. Therefore, companies are trapped: a higher capacity utilization could lower their costs, but without lower costs a higher capacity utilization is hardly achievable.

#### **4 Investment and Productivity**

Companies in transformation countries started into the market economy with an obsolete capital equipment and enormous overmanning. Therefore, investments in the fixed capital stock and a reduction in employment mark the route to raise productivity.

As the potential for labour augmenting is limited (there are some complementarities between input of labour and output), the strategic variable

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<sup>7</sup> It should also be noted that due to the monopolistic position of suppliers, prices for electricity in eastern Germany are by one fifth higher than in western Germany.

must be capital spending. Consequently, economic policy for eastern Germany has considered the rebuilding of a new capital equipment as a precondition for an economic revival [Schmidt 1996].

Table 9 – Relative Capital Intensity and Labour Productivity of Eastern German Manufacturing<sup>a</sup> by Selected Industries 1994  
(Western German Manufacturing = 1)

SYPRO No.	Industry	Capital intensity <sup>b</sup>	Labour productivity <sup>c</sup>	
			Gross output	Value added
22	Refinery	1.48	0.16	0.17
25	Quarrying	0.94	0.82	0.61
27	Iron and steel	1.38	0.86	0.56
28	Non-ferrous metals	1.78	0.74	
29	Foundries	1.61	0.56	0.31
40	Chemicals	1.36	0.52	0.19
31	Constructional steel	0.98	0.61	0.48
32	Machinery	0.92	0.57	0.35
33	Road vehicle building	0.78	0.85	0.44
34	Shipbuilding		0.68	0.43
36	Electrical engineering	0.81	0.59	0.44
51	Pottery	0.92	0.51	0.39
52	Glass	1.00	0.68	0.43
53	Wood processing	0.98	0.63	0.49
56	Paper and pulp processing	0.71	0.61	0.56
57	Printing	0.94	0.85	0.97
58	Plastics	0.78	0.79	0.62
63	Textiles	0.70	0.51	0.34
64	Clothing	0.65	0.32	0.44
	Total manufacturing	0.96	0.63	0.44
	Note:			
	Basic goods	1.31	0.56	0.37
	Capital goods	0.77	0.61	0.42
	Consumer goods	0.85	0.61	0.54
	Food, beverages	0.76	0.68	0.53

<sup>a</sup>Enterprises with 20 and more employees only. – <sup>b</sup>Fixed capital stock per working hour. – <sup>c</sup>Per employee.

Source: Central Statistical Office of the FRG; DIW; ifo; own calculations.

In fact, as a result of heavy government support, investments in the eastern German capital stock have been impressive. Meanwhile, most of the



capital stock in the manufacturing sector has been completely renewed. In addition, fast progress has been made in raising capital intensity. An internal estimation by the German Institute for Economic Research (DIW) suggests that at the end of 1994, the capital stock per working hour in eastern German manufacturing reached on average 96 percent of the western German level (Table 9).<sup>8</sup> However, this astonishing result needs some qualifying:

- First, there is a wide dispersion between industries. In basic goods industries, capital intensity is significantly higher than in western Germany. This is partly due to differences in product mix and, hence, in production technology. In other industries, capital intensity is significantly lower.
- Second, in eastern Germany there is a considerable share of idle capacities. On average, capacity utilization is by some 10 percent lower than in western German manufacturing. Actual capital input per working hour, therefore, has reached somewhat more than 90 percent — as it is suggested by potential capital input.
- Third, there are many investments which though still incomplete nonetheless appear in the statistics. In particular in basic goods industries, the gestation period of new investments can involve several years. The high relative capital intensity in eastern German refinery industry, e.g., can be mainly explained by the large investment pro-

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<sup>8</sup> Calculating the eastern German capital stock is a crucial task, mainly due to the problems of evaluating the investments done before summer 1990 and the scrapings made thereafter.

ject of Elf Aquitaine Corp. in Leuna that will not be finished before 1998.

- Fourth, there is a higher proportion of blue collar jobs (which are relatively capital-intensive) in eastern Germany and of white collar jobs (which are comparably low capital-intensive) in western Germany. In the eastern parts, western firms mainly run assembly plants and simple services, while their headquarters, research departments and high value-adding services are concentrated in the western parts.

For all these reasons, a substantial subtraction should be made. It seems reasonable to calculate that the used capital stock per working hour in eastern German manufacturing has reached not more than 75 percent of the western German level at the end of 1994.

To a certain extent the productivity gap between east and west — on average more than one third in terms of gross output and more than one half in terms of value added — can be explained by a lower capital intensity. However, there is no correlation between variations of inter-industry capital intensities and those of inter-industry productivities. Further empirical work is required to explain this puzzle.

Table 10 – Electricity Consumption per Working Hour<sup>a</sup> in Eastern and Western German Manufacturing<sup>b</sup> 1992 and 1995 (in kilowatts)

NACE No.	Industry	1992		1995	
		Eastern Germany	Western Germany	Eastern Germany	Western Germany
15, 16	Beverages, food, tobacco	12.8	18.2	20.5	20.8
23-26	Refinery, chemical products, plastics, rubber products, glass, pottery, mineral products	51.3	55.0	59.8	64.1
27, 28	Metals, metal products	25.6	39.4	35.4	46.7
29	Machinery	8.1	7.0	8.8	8.7
30-33	Computers, office machinery, electrical engineering, media technology products, precision instruments	9.7	9.5	10.2	11.4
34, 35	Road vehicles, other transport equipment	9.4	12.6	9.4	16.2
17-22, 36	Textiles, clothing, leather, wood, pulp, paper, publishing and printing <sup>c</sup> , furniture, toys	12.2	20.1	23.3	25.8
	Total manufacturing <sup>c,d</sup>	20.6	24.4	27.2	29.7
	Note:				
	Intermediate products	42.6	43.2	54.3	50.9
	Equipment products	7.4	8.2	7.6	10.5
	Consumer durables	7.1	6.3	6.8	7.7
	Consumer non-durables	8.6	12.8	14.1	16.9

<sup>a</sup>Blue collar workers. – <sup>b</sup>Enterprises with 20 and more employees only. – <sup>c</sup>Without printing. – <sup>d</sup>Without recycling.

Source: Görzig and Noack [1996].

It is obvious that differences in capital intensity are not fully responsible for the large productivity gap. A comparison of electricity consumption per working hour, which is a proxy for the degree of mechanization of the production process, shows that in 1995 in most industries, electricity inputs in eastern and western companies did not differ so much. Among a few exceptions are industries with a different product mix, such as metals and metal products (where western Germany holds a relatively high share of

the electricity intensive aluminium industry in total) and transport equipment (where eastern Germany holds a relatively high share of the less electricity-intensive shipbuilding and railway transport industries) (Table 10). This implies that many eastern German companies have been able to catch up in applying the same technology as their western counterparts. They do not succeed in appropriating all of the returns to their physical investments, though. It is clear that, besides investments in equipment, other factors may contribute to productivity growth such as specific investments in research and development, organizational strategies and structures or corporate culture. More generally, it seems that many eastern German companies suffer from inappropriate modes of doing business rather than from lack of physical capital. However, it is evident that there are many unanswered questions here.

## **5 Wages and Employment**

The high cost of labour is the eastern German economy's Achilles heel. On average, wages and salaries in the manufacturing sector increased from below one third of the western German level in 1991 to almost two thirds in 1994, a figure well above the eastern German level of productivity (Table 11). The most drastic increase in industries with a traditionally strong influence of trade unions — in the metal and metal products industry, in the machinery industry, in electrical engineering and some other capital goods industries —, is melting away any potential comparative advantage of low labour costs.

Table 11 – Ratio of Eastern to Western German Manufacturing<sup>a</sup> Wages and Salaries 1991 and 1995 (in p.c.)

NACE No.	Industry	1991	1995
15, 16	Beverages, food, tobacco	40.4	65.9
23-26	Refinery, chemical products, plastics, rubber products, glass, pottery, mineral products	30.9	61.8
27, 28	Metals, metal products	33.3	70.3
29	Machinery	29.9	70.2
30-33	Computers, office machinery, electrical engineering, media technology products, precision instruments	26.5	70.3
34, 35	Road vehicles, other transport equipment	28.1	61.3
17-22, 36	Textiles, clothing, leather, wood, pulp, paper, publishing and printing <sup>b</sup> , furniture, toys	31.4	62.5
	Total manufacturing <sup>b,c</sup>	30.3	65.0
	Note:		
	Intermediate products	33.1	68.0
	Equipment products	28.8	66.1
	Consumer durables	31.3	66.5
	Consumer non-durables	34.7	63.4

<sup>a</sup>Enterprises with 20 and more employees only. – <sup>b</sup>Without printing. – <sup>c</sup>Without recycling.

Source: Görzig and Noack [1996].

It is often argued that labour costs could not be the source of competitive weakness since wages and salaries in eastern Germany are still significantly lower than in western Germany. However, wages and salaries are only one side of the coin. The other side is productivity. Taking a look at the unit labour costs, which include both sides, reveals that most eastern German industries have a strong competitive disadvantage to western German ones (Table 12). In particular, numerous branches that are prone to export considerable shares of their production — e.g. chemicals, engineering, electrical engineering and shipbuilding — are burdened by ex-

cessive labour costs, which can to a certain extent explain the low shares of these branches in overall German foreign sales. The only eastern German export branch which documents a somewhat more positive development concerning wages, unit labour costs and development of employment is the road vehicles industry. Its relatively favourable unit labour costs noted for 1995 seem to be influenced by the two highly productive assembly plants that General Motors and VW set up in Thuringia and Saxony.

Among the industries which managed to achieve or to maintain a relatively balanced level of unit labour costs as to western Germany, we find in particular many locally-orientated industries like e.g. quarrying, wood processing, printing, food and beverages. In these industries, the wage increase has been comparably moderate due to the small size of many firms and their possibility to stay outside or leave employers organizations.

The negative effects of the expensive wage strategy on the level of employment are more than obvious. From 1991 to 1995 the number of employees in eastern German manufacturing fell from 1.6 million to 600,000 (-65 p.c.). Eastern Germany's contribution to overall Germany's manufacturing employment decreased from 18 percent to 9 percent (Table 13). The decline was most dramatic in capital goods industries (machinery, electrical engineering) and in labour-intensive consumer goods industries (leather, clothing, furniture, toys). It was less dramatic in beverages, food and tobacco as well as in some other industries mainly producing for local markets (glass, pottery, mineral products), which are naturally not hit so strongly by international competition and which, in addition, benefit from high consumptive transfer payments to eastern Germany.

Table 12 – Ratio of Payroll to Value Added (Unit Labour Costs) in Eastern and Western German Manufacturing<sup>a</sup> by Selected Industries 1991 and 1994

SYPRO No.	Industry	1991		1994	
		Eastern Germany	Western Germany	Eastern Germany	Western Germany
22	Refinery	1.56	1.32	2.46	1.14
25	Quarrying	0.81	0.76	0.79	0.73
27	Iron and steel	1.10	1.03	1.09	1.07
28	Non-ferrous metals	2.95	0.91		0.90
29	Foundries	0.99	0.92	2.12	0.98
40	Chemicals	0.91	0.87	2.37	0.88
31	Constructional steel			1.34	0.92
32	Engineering			1.79	0.96
33	Road vehicle building			1.12	0.94
34	Shipbuilding			1.44	0.98
36	Electrical engineering			1.36	0.98
51	Pottery	8.39	0.93	1.68	0.95
52	Glass		0.84	1.28	0.86
53	Wood processing	2.22	0.84	1.07	0.83
56	Paper and pulp processing	4.72	0.87	0.88	0.87
57	Printing	1.21	0.86	0.81	0.93
58	Plastics	2.77	0.81		0.85
63	Textiles		0.86	1.57	0.91
64	Clothing	4.44	0.81	1.11	0.81
	Total manufacturing				
	Note:				
	Basic goods	6.55	0.89	1.36	0.89
	Capital goods	1.96	0.89	1.40	0.94
	Consumer goods	3.85	0.84	1.03	0.87
	Food, beverages	1.27	0.77	0.94	0.80

<sup>a</sup>Enterprises with 20 and more employees only.

Source: Central Statistical Office of the FRG.

Table 13 – Share of Eastern German in overall German Manufacturing<sup>a</sup>  
Employment 1991 and 1995 (in p.c.)

NACE No.	Industry	1991	1995
15, 16	Beverages, food, tobacco	20.8	13.7
23-26	Refinery, chemical products, plastics, rubber products, glass, pottery, mineral products	16.8	9.1
27, 28	Metals, metal products	16.8	9.6
29	Machinery	20.5	7.4
30-33	Computers, office machinery, electrical engineering, media technology products, precision instruments	17.8	7.6
34, 35	Road vehicles, other transport equipment	12.1	7.8
17-22, 36	Textiles, clothing, leather, wood, pulp, paper, publishing and printing <sup>b</sup> , furniture, toys	20.1	8.1
	Total manufacturing <sup>b,c</sup>	17.8	8.7
	Note:		
	Intermediate products	17.6	8.6
	Equipment products	18.9	8.9
	Consumer durables	17.3	8.1
	Consumer non-durables	22.1	11.4

<sup>a</sup>Enterprises with 20 and more employees only. – <sup>b</sup>Without printing. – <sup>c</sup>Without recycling.

Source: Görzig and Noack [1996].

The conflict between wage adjustment and employment is the key dilemma in the transformation of the eastern German economy. As long as the gap between productivity and wages persists and as long as employment is low, massive transfers from western Germany will be necessary — to maintain consumption and to spur investment. It is evident that a re-increase in employment can only be expected under an about-turn of wage policy. Actually, it is not enough to postpone the dynamics of wage adjustment as it happened recently. A substantial reduction of the level of wages and salaries would be necessary. Otherwise, much of the investment dynamics might get lost [Thiemann and Breitner 1995].



## **V Conclusions and Policy Implications**

In the seven years after economic unification, eastern German companies have made great efforts to reach the efficiency level of their western German counterparts. However, against the unpleasant background of the high pace of wage increase, they have not gained much ground. With respect to competitiveness, there is still a large gap between companies in the east and in the west.

Although eastern German companies differ widely with respect to ownership status, size and industry [Gerling and Schmidt 1997], most of them still suffer from the same problems: a poor sectoral and regional specialization, an insufficient integration in international and nation-wide supplier and sales networks, an under-utilization of their productive capacities and, as a result, a low productivity and a negative rate of return.

The key policy question is how to overcome these difficulties.

- The strategy which is preferred by most economists and policy makers is to continue the massive government support for eastern Germany. The rationale behind this strategy is to raise the eastern German capital stock in terms of quality and quantity to the level of western Germany as soon as possible. It is supposed that the productivity gap will close when the capital stocks in east and west are at about the same level. However, there is some evidence that eastern Germany's productivity growth does no longer keep pace with capital stock growth — that the elasticity of the growth of productivity with respect to capital stock growth has become significantly smaller than one. In addition, there is also some evidence that under the actual wage strategy the incentives for additional investments are declining — that in particular the elasticity of investment with respect to

transfer payments has become significantly smaller than one. As a result, the fiscal costs of this strategy must be rising and may finally become unpayable.

- The alternative strategy would be to encourage eastern Germany to follow its own avenue as it has recently been proposed by Paqué [1997]. His argument is that due to the rapid increases in the level of eastern wages relative to eastern productivity even massive transfer payments from the west cannot transform eastern Germany into a power-house since the effects of both are not symmetrical. Paqué recommends that eastern Germany should strengthen its attractiveness for mobile resources — with all possible parameters of locational competition, including downward flexibility of wages. The pre-conditions for a take-off can only emerge from 'the bottom' but cannot be created from 'the top'.

From an economic point of view, the arguments for a volte-face in economic policy appear to be convincing. However, they are out of touch with political reality. Eastern Germans contribute in fact just 10 percent to overall German GDP but they account for 20 percent of the voters. Consequently, the Federal Government has recently decided to continue its support for eastern Germany 'on a high level' until the end of 2004 — which means: business as usual. This might help some politicians to maximize their votes but it is obviously not the right course to be charted, namely to shift the balance from wage convergence to efficiency convergence.

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