



OECD Economics Department Working Papers No. 307

The Economic Integration of Germany's New Länder

Eckhard Wurzel

<https://dx.doi.org/10.1787/777416102672>

Unclassified

ECO/WKP(2001)33



Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

17-Sep-2001

English text only

ECONOMICS DEPARTMENT

ECO/WKP(2001)33
Unclassified

THE ECONOMIC INTEGRATION OF GERMANY'S NEW LÄNDER

ECONOMICS DEPARTMENT WORKING PAPERS, No. 307

by
Eckhard Wurzel

Most Economic Department Working Papers beginning No.144 are now available through OECD's Internet Web site at <http://www.oecd.org/eco/eco>.

JT00112702

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English text only

ABSTRACT / RÉSUMÉ

The economic integration of the eastern German states has progressed rapidly in many respects. The infrastructure has been rapidly built up and modernised. A strong trend to modernise the business capital stock has been established, aided by financial assistance from the west. Already at the beginning of the 1990s the elaborate western German social security system had been extended to the new states. Incomes of both the employed and the non-employed, in particular retirees, have risen fast, and have approached west German levels. There has also been a high degree of structural change, as witnessed by high growth rates in manufacturing, increasing export shares, the rapid expansion of the service sector and the down-sizing of the construction sector after very high -- and largely policy-induced -- growth rates in the first half of the 1990s. However, in the second half of the 1990s economic growth in the east decelerated, and income convergence has stalled and employment stagnated at the aggregate level. Absorption in the new states persistently exceeds eastern production by some 50 per cent, and average productivity has levelled off at two-thirds of the western level, although the size and quality of the production factors would suggest significantly higher levels. These developments took place against the background of a high level of west-to-east transfers, which changed little, amounting to some 4½ per cent of western GDP on a net basis annually (tax concessions and debt take-overs not included). The failure to achieve a self-sustaining strong growth path must in part be ascribed to the size and persistence of the initial transition challenge. However, distortions in the economic structure of eastern Germany and high labour costs play a major role. While industrial subsidies helped to establish a modern capital stock, associated distortions of the production structure appear to have reduced productivity growth. Rapid wage increases, that were not warranted in terms of productivity improvements, hampered the economic expansion and biased it in the direction of non-tradable goods. Such wage increases would not have been sustainable without massive transfers from the west. Looking to the future, structural and fiscal policies should rely much more on market forces to bring about economic convergence with the west than they did in the past.

JEL Code: H72, H77, J30, O11, O23, P21.

Keywords: Economic integration, economic development, transition economy, fiscal policy, government expenditures, transfers, intergovernmental relations, labour mobility, wage level, active labour market measures

L'intégration économique des Länder d'Allemagne orientale a progressé rapidement dans des domaines essentiels. Les infrastructures ont été développées et modernisées rapidement. Grâce à l'aide financière de l'Ouest, un puissant processus de modernisation du parc d'équipements industriels et commerciaux s'est instauré. Dès le début des années 90, le système élaboré de sécurité sociale de l'Allemagne occidentale a été étendu aux nouveaux Länder. Les revenus des actifs et des inactifs, en particulier les retraités, ont rapidement augmenté et se sont largement rapprochés des niveaux observés en Allemagne occidentale. On constate en outre jusqu'à présent un profond changement structurel, dont témoignent la forte croissance dans le secteur manufacturier, l'augmentation des parts de marché à

l'exportation, la vive expansion des services et la contraction très marquée dans la construction, qui avait connu durant la première moitié des années 90 des taux de croissance très rapides, induits dans une large mesure par l'action des pouvoirs publics. La croissance économique à l'Est s'est néanmoins ralentie au cours de la deuxième moitié des années 90 et, au total, la convergence des revenus s'est enlisée et l'emploi a stagné. L'absorption dans les nouveaux Länder reste supérieure à la production de 50 pour cent environ et la productivité moyenne plafonne aux deux tiers seulement du niveau de l'Allemagne occidentale ; ces chiffres devraient être nettement plus élevés compte tenu du volume et de la qualité des facteurs de production. Ce recul est allé de pair avec le volume élevé des transferts Ouest-Est, qui n'a guère changé, à environ 4½ pour cent du PIB annuel de l'Allemagne occidentale en termes nets (sans les avantages fiscaux et les reprises de dettes). L'incapacité de parvenir à un sentier de croissance forte et autonome doit être imputée pour partie à l'ampleur et à la persistance du défi initial de la transition. Les fortes hausses de salaires, injustifiées du point de vue de la croissance de la productivité, ont entravé l'expansion économique et l'ont faussée au profit des biens non échangeables. Ces hausses de salaire ont largement contribué à déclencher les transferts massifs en provenance de l'Ouest, mais par ailleurs elles n'auraient pas été possibles sans ces mêmes transferts. Il faut à l'avenir que les mesures structurelles et budgétaires s'appuient davantage sur les mécanismes du marché pour parvenir à la convergence économique avec l'Allemagne occidentale.

Classification JEL : H72, H77, J30, O11, O23, P21

Mots-clés : Intégration économique, développement économique, émigration, économie en transition, politique fiscale, dépenses publiques, transferts, relation gouvernemental, mobilité du travail, niveau du salaire, mesures actives du marché du travail

TABLE OF CONTENTS

ABSTRACT / RÉSUMÉ.....	2
THE ECONOMIC INTEGRATION OF GERMANY'S NEW LÄNDER	5
Introduction	5
The evolution of production, employment and incomes	6
Major forces shaping the economic performance of the new states	18
The capital endowment has improved, but business sector productivity is lower than to be expected.....	20
Unit labour costs have not adjusted to competitive levels.....	32
Policy implications	40
Conclusions	52
BIBLIOGRAPHY	54

Tables

1. Value added and employment by sector
2. The size of old age pensions
3. Public transfers to the new states
4. Infrastructure capital stock per inhabitant of the states and communities
5. Capital intensity and productivity in manufacturing, 1999
6. Intra-German migration by qualification
7. Repetitiveness of participation in active labour market measures (ALMPs)
8. Spending patterns of the states and communities

Figures

1. Contributions to value-added growth by sector
2. Economic performance by sector
3. GDP and employment
4. The evolution of wages and pensions
5. Unemployment and active labour market measures
6. Labour force participation and employment rates, 2000
7. The income distribution of households
8. Composition of household income by source
9. Deficits in infrastructure perceived by enterprises
10. Capital intensity in the business sector
11. Fixed investment per capita
12. Capital intensity and productivity in manufacturing
13. Population density in the new and the old states
14. Intra-German migration
15. Unit labour costs by sector
16. Appropriateness of collective wage contracts in the view of industrial firms
17. Effective wages and wage settlements
18. Public investment, revenues and debt
19. Employment in the government sector
20. Marginal effective burden due to financial equalisation and tax sharing

Boxes

- | | |
|--|----|
| Box 1. State aid for private enterprises in the new Länder..... | 24 |
| Box 2. The effectiveness of active labour market measures in eastern Germany | 39 |

THE ECONOMIC INTEGRATION OF GERMANY'S NEW LÄNDER

by

Eckhard Wurzel¹

Introduction

1. The economic development of eastern Germany over more than ten years that have passed since the wall came down has been largely shaped by the full integration of the new states into the western German market economy. At the time of reunification analysts pointed to the benefits to be expected from taking over western Germany's legal and economic system and from receiving assistance from the west both financially and in terms of human capital. But concerns were also voiced that completely integrated markets for goods and factors of production could over-stretch the adaptability of the new states and instigate demands for transfers to compensate for the weak position of the east in such integrated markets. In the event, both the positive expectations and the warnings were warranted. Unification extended -- virtually in one sweep -- the western German legal, economic and social system to the new states. Accordingly, the new states were exposed on impact to a highly productive competition-based environment in which their enterprises faced enormous difficulty to compete at the wage levels that were established. On the other hand the new states were instantly embraced by the western German solidarity principle.² This implied *inter alia* that the elaborate western German social security system was fully and rapidly extended to the population in the eastern part of the country, that work provision measures were boosted to cushion labour shedding in the east, that the new states and communities received massive budgetary transfers from both the Federal Government and the old states, largely equalising per capita tax revenues across the federation, and that new and privatised enterprises obtained substantial financial aid to cope with the competitive disadvantages associated with transition.

2. In several respects the achievements of restructuring the eastern German economy are impressive. Viable market structures have largely been established with formerly state-run enterprises having been privatised and newly founded enterprises accounting for a large share of production. Earnings of the employed and transfer incomes of the non-employed have risen fast. A large part of the housing stock has largely been renewed and extended, new infrastructure has been established on a large scale, and tremendous environmental damages inherited from the GDR have been remedied. However, in the second half of the 1990s the economic convergence process stalled. Economic growth in the east has stagnated at relatively low levels, a sizeable productivity gap with the west persists and unemployment rates are twice

-
1. This paper was originally produced for the *OECD Economic Survey of Germany* published in May 2001, and has been extended to include additional material. The author is Head of the Germany/Austria Desk in the Economics Department. He is indebted to Jørgen Elmeskov, Mike Feiner, Johannes Hoffmann, Val Koronzay and Andreas Wörgötter for their valuable comments, special thanks go to Josette Rabesona for technical support and to Diane Scott for technical preparation.
 2. Main features of the West German economy since the 1950s have been a high income per capita, a high degree of competitiveness and a solidarity based approach to social policy and intra-state fiscal relations that is being reflected in the constitutional postulate to secure roughly equal living conditions across Germany ("Social Market Economy", *Soziale Marktwirtschaft*).

as high as in the old states. These setbacks have occurred against the background of an almost unchanged high level of west-to-east transfers over the 1990s, amounting to an annual average of some 4½ per cent of western German GDP on a net basis, excluding tax concessions and certain debt take-overs by federal institutions.

3. The choice of appropriate policy instruments to foster rapid convergence of the eastern German economy with that of the west was difficult. Blueprints based on past experiences were not available, and policymakers had to act quickly in a great variety of fields under conditions of severely limited information. Beginning in 1990 the OECD Surveys on Germany have contributed to the policy debate on the economic integration of the new states. The stance taken by the OECD in the early 1990s was that convergence to the western German economy should be market driven. Key recommendations at the time were that the restructuring of the eastern economy and social support would require sizeable real transfers from the western public budgets, and these were assessed to pose no major problem for the west. Simultaneously, the OECD warned that setting wages in the new states above market clearing levels would jeopardise convergence because of adverse effects on investment and job creation. Massive and sustained levels of financial support were judged to risk severe distortions in eastern Germany's economic structure. Aid would therefore have to be only temporary, tapering off over time.

4. The developments that occurred within roughly ten years after currency union and reunification underline the relevance of a fundamental stock taking with respect to the effectiveness of integration policies and the identification of measures to improve them. The plan of this paper is as follows: main features characterising the macroeconomic and structural evolution of eastern Germany are highlighted in the next section. The following section seeks to identify major forces shaping the economic performance of the new states. Based on this analysis the fourth section derives a number of policy options that should foster further economic convergence. Finally, the last section concludes and summarises.

The evolution of production, employment and incomes

After a buoyant start growth has levelled off at low levels...

5. The sectoral contribution to growth and employment in the new states changed markedly over the last decade, shaping economic activity in the aggregate (Figure 1):

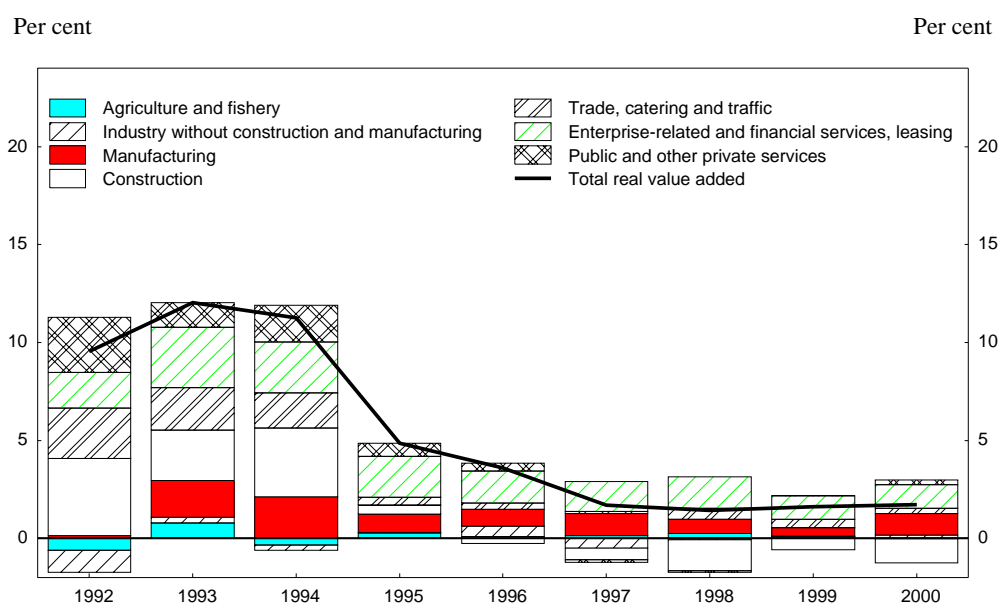
- The manufacturing sector collapsed in 1990 and 1991, accounting for the bulk of the contraction in aggregate production at the beginning of the decade. The sector started growing slowly in 1992, but expanded at rates of around 20 per cent in the two years thereafter. From the middle of the 1990s on, manufacturing value added expanded at annual rates above 7 per cent on average, becoming a main contributor to aggregate growth. While the export share still remains substantially below the level of western Germany, in recent years high-growth branches within the manufacturing sector experienced marked improvements of their export performance. But labour shedding continued (Figure 2).³
- In the first half of the decade the construction sector was the main contributor to growth. The early lead of construction mainly reflects high rates of public investment in infrastructure, high priorities by policy makers to upgrade and replace east Germany's housing stock as well as high investment by enterprises in business related buildings. Private-sector investment was spurred by high rates of subsidisation. By the middle of the decade the share of construction in east German value added totalled three times the size of the sector's share in the west. Construction also constituted the main source for employment growth in the first half of the

3. By the middle of the decade employment in manufacturing had almost halved in comparison to 1990.

1990s. The picture changed substantially in the second half of the 1990s, with the role of construction twisting from the main contributor to aggregate growth to the main brake on further growth. This was related to over-capacity in both the housing sector and business construction, largely created by special depreciation allowances (*Fördergebietsgesetz*) that were finally phased out by the end of 1988. With activity slowing employment creation also came to a halt and employment declined at increasing rates in the second half of the 1990s (Figure 2). Labour shedding in the second part of the 1990s is almost exclusively attributable to the downsizing in construction.

- Business related and financial services grew rapidly from a very small base, the low initial output level reflecting the irrelevance of these sectors in the GDR. While growth slowed down in the second half of the 1990s, it was higher in the second half than in all other sectors, but manufacturing. Employment continued to grow over the entire decade (Figure 2).

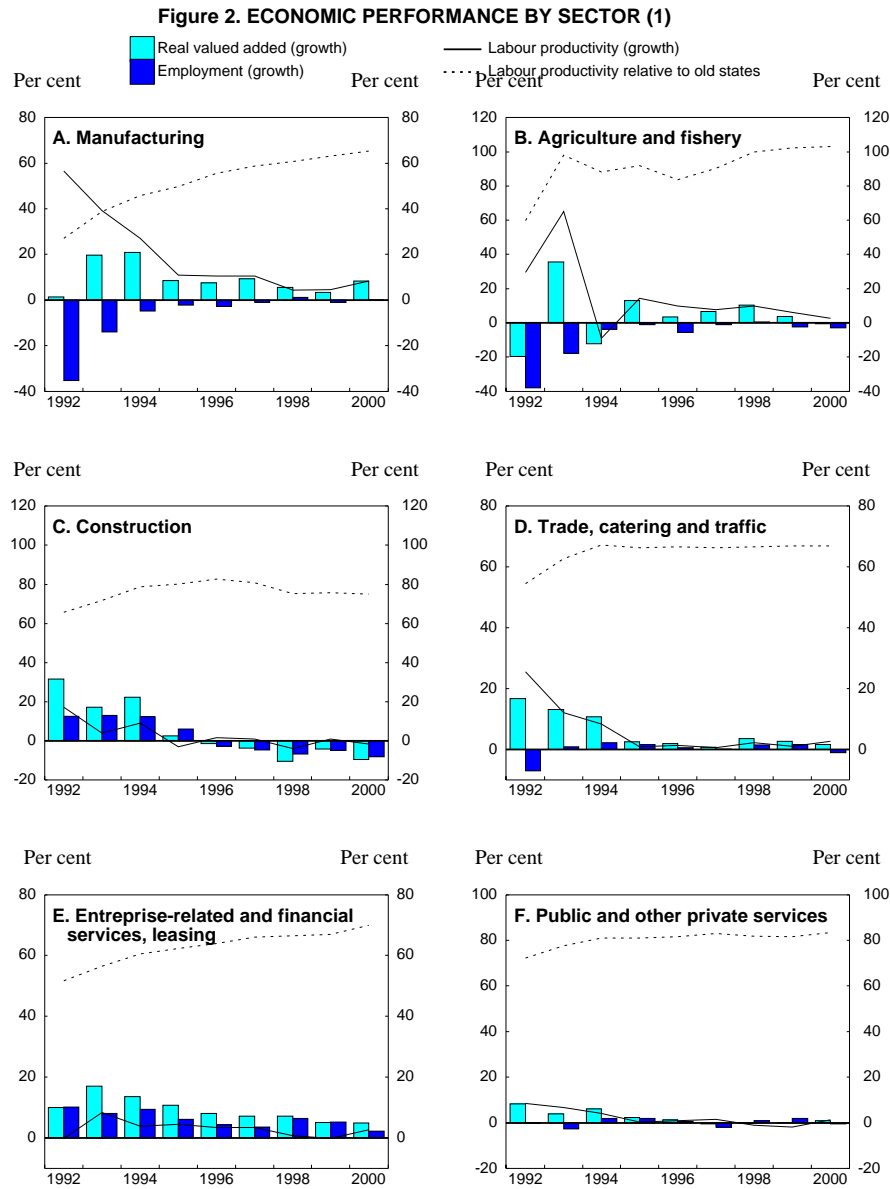
Figure 1. CONTRIBUTIONS TO VALUE-ADDED GROWTH BY SECTOR (1)



1. Value added in 1995 prices. Total value added growth is decomposed by a weighted sum of value added growth by sector, with the weights being the share of sectoral value added in the total recalculated each year. Excluding Berlin.
Source : Arbeitskreis 'Volkswirtschaftliche Gesamtrechnungen der Länder' and OECD.

6. The sectoral composition of real value added reflects these developments. The largest sustainable gains have been made by the manufacturing sector and enterprise-related and financial services. The share of construction in overall value added is still very high, but after a further boost in the middle of the decade it is coming back down to the level that prevailed at the beginning of the 1990s. Despite the steady expansion of the value-added share in manufacturing, its share in employment is now some 11 percentage points lower than in 1991. Indeed, by the end of the decade manufacturing employment totalled about one fourth of what it was in the end phase of the GDR, reflecting the magnitude of the previous over-manning and slow employment creation after reunification. Overall, the sectoral composition of production and employment is gradually approaching a pattern that is normal in a market economy, although the value

added share of construction -- totalling two and a half times the share in the west -- is still very large (Table 1).⁴



1. Excluding Berlin.
 Source : Arbeitskreis 'Volkswirtschaftliche Gesamtrechnungen der Länder'; Arbeitskreis 'Erwerbstätigenrechnung des Bundes und Länder' and OECD.

4. The value-added share of construction in the new states also exceeds that of the European transition countries. The share of construction in real value added totalled 13.5 per cent in 1999 (down from 17.1 per cent in 1994). In contrast, the share was 4.6 per cent in the Czech Republic (1999), 4.4 per cent in Hungary (1998), and 7.9 per cent in Poland (1998).

Table 1. Value added and employment by sector¹

Share of total, per cent

		1991	1995	2000	2000 Old states
Agriculture and fishing	Value added	3.1	2.3	2.6	1.2
	Employment	7.3	4.0	3.6	2.4
Industry, excluding construction and manufacturing	Value added	6.7	3.9	3.7	2.2
	Employment	3.5	1.9	1.3	1.1
Manufacturing	Value added	10.4	11.5	14.4	23.5
	Employment	25.8	15.0	14.8	22.9
Construction	Value added	12.5	16.9	11.2	4.5
	Employment	10.3	17.4	13.4	5.9
Trade, catering and traffic	Value added	15.5	16.3	16.3	18.1
	Employment	20.5	22.4	23.7	25.5
Enterprise-related and financial services, leasing	Value added	18.1	20.4	25.3	31.3
	Employment	6.0	9.2	11.8	14.8
Public and private services	Value added	33.8	28.8	26.5	19.1
	Employment	26.6	30.1	31.3	27.4
Total	Value added	100.0	100.0	100.0	100.0
	Employment	100.0	100.0	100.0	100.0

1. Value added in 1995 prices.

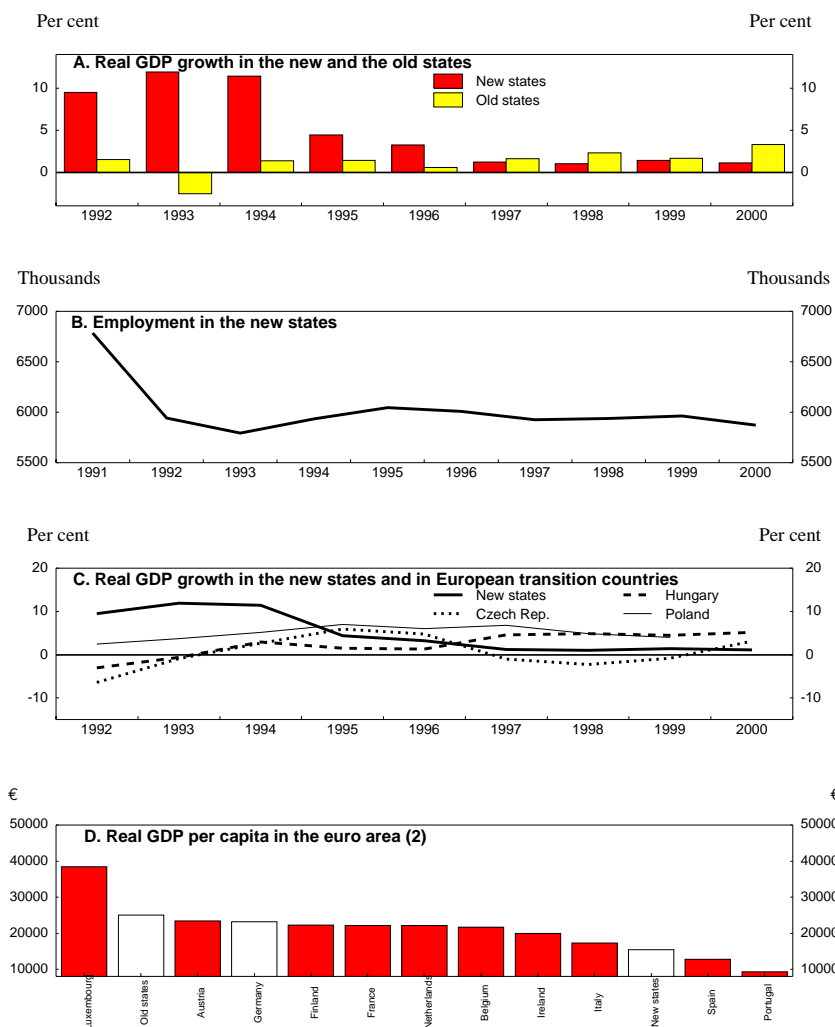
Source: Arbeitskreis "Volkswirtschaftliche Gesamtrechnungen der Länder"; Arbeitskreis "Erwerbstätigenrechnung des Bundes und der Länder"; and OECD.

7. Following the collapse in manufacturing production and employment in 1990 and 1991, aggregate growth was buoyant in the first half of the decade, with real GDP growing at annual rates of around 10 per cent.⁵ But activity decelerated markedly from the middle of the decade onwards, and for the last four years growth even fell short of that in the west, at rates of below 2 per cent. While the slowdown occurred in all major sectors, aggregate growth suffered most from the recession in construction. In contrast, those segments of the economy with relatively strong growth -- notably manufacturing and business-related services -- are still too small to produce robust growth in the aggregate. Overall, real GDP in the new Länder grew by about 54½ per cent cumulatively between 1991 and 2000 (as opposed to some 11½ per cent in the west), with the eastern share in total Germany's real GDP rising from 8½ to 11½ per cent (both regions excluding Berlin). Measured on a per capita basis real GDP in the new states reached

5. In the third quarter of 1990, immediately after the introduction of the Deutschemark in eastern Germany, industrial production dropped by some 50 per cent (index of industrial production of the German Democratic Republic). Following this decline, production was roughly stabilised for a few months by massive government aid supporting the trade with eastern European countries. When this aid was phased out, the recession accelerated again, leading to a further drop in manufacturing output of some 25 per cent in the first half of 1991 (index of manufacturing production of the *Statistisches Bundesamt*). See Deutsches Institut für Wirtschaftsforschung *et al* (1999). National accounts statistics do no longer separate between the western and the eastern part of Berlin. To facilitate comparisons, the GDP and employment figures stated above refer to eastern Germany, western Germany and total Germany (GDP) without Berlin.

60½ per cent of the western level in 2000, falling short of the EU average by some 27 per cent. While the average gap in economic activity between the new and the old states is still large, some regions in the east have surpassed weaker regions in western Germany.⁶ Despite output growing rapidly from 1991, mainly due to the labour shedding in manufacturing, employment continued to decline in the first years of the 1990s. Sizeable employment gains occurred temporarily in the mid-1990s, helped by massive employment creation programmes of the Federal Labour Office. In the second half of the decade employment fell again, however, and in 2000 employment undercut the 1991 level by 13½ per cent (Figure 3).⁷

Figure 3. GDP AND EMPLOYMENT (1)



1. Excluding Berlin.
 2. In 1999.
 Source : Arbeitskreis 'Volkswirtschaftliche Gesamtrechnungen der Länder'; Arbeitskreis 'Erwerbstätigenrechnung des Bundes und Länder' and OECD.

6. Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Wirtschaftspolitik unter Reformdruck, — Jahresgutachten 1999/2000, Stuttgart, 1999.
7. Between 1990 and 1995 1.3 million new companies were formally registered, and 0.6 million were dropped. However, the actual balance has been estimated considerably lower by some 0.3 million. In the second half of the decade, the rate of foundations declined significantly. See Deutsches Institut für Wirtschaftsforschung *et al* (1999).

... with a sizeable productivity gap persisting despite substantial labour shedding

8. In the first half of the 1990s, labour productivity grew rapidly, from roughly one-third of the level in the old states in 1991 to some 55 per cent in 1995.⁸ This productivity growth, some 5 per cent per year, was higher than in any of the eastern European transition countries. Productivity gains were particularly high in manufacturing. Indeed, the pressure to adjust was higher in manufacturing than in the other sectors: initial productivity levels were very low, due to massive over-manning inherited from the old system, while exposure to competition from western German and foreign companies was higher. But similarly to the evolution of output, the catch up process with the old German states slowed in the second half of the decade, and in 2000 labour productivity totalled around 68 per cent of the western level for the economy overall and 65 per cent in manufacturing.⁹ However, with the two economies being fully integrated with respect to the rules governing the economic and the social systems, similar productivity levels by economic sector between the new and the old states are a key condition for economic convergence of the new and the old Länder.

Real wages have risen strongly...

9. Between 1991 and 2000 gross compensation per dependent employee rose by some 91 per cent, raising its level relative to the west from 49 to 77 per cent. Rapid wage increases were mainly driven by the attempt to reach fast convergence with western wage levels. Already in 1991 the social partners agreed on a wage path that aimed at achieving wage equalisation with the west within five years. Wage increases were buoyant within the first three years after reunification, and today's wage levels relative to the west are still dominated by the early settlements. In recent years, wage increases have levelled off, the slow down reflecting not only more modest collective bargaining agreements but also a significant undercutting on the level of individual companies of collectively bargained wages (see further below) (Figure 4, left panel).

... and unemployment is high

10. When manufacturing employment collapsed at the beginning of the 1990s unemployment increased accordingly, although it was cushioned by active labour market measures and schemes to reduce labour force participation (Figure 5). Rapid structural change, as it occurs in the new German states, is normally associated with high levels of labour turnover between jobs and into and out of unemployment, implying higher levels of unemployment than would be observed otherwise.¹⁰ Indeed, movements between jobs indicate a high dynamism in the eastern German labour market: In 1997 14 per cent of the employees changed their employer, as opposed to 9 per cent in the old states, and since unification some three quarters of employees have changed their working place.¹¹

11. However, the persistence of high unemployment rates and the high level of long-term unemployment point to serious deficiencies in adjustment mechanisms on the labour market. According to official statistics, average unemployment duration totals some 30 weeks¹², more than in the west, and about one-third of the registered unemployed are jobless for more than a year. With active labour market policies

8. Measured in terms of real gross value added per employed; Berlin excluded.

9. Labour productivity in the overall economy totalled around 61 per cent of the western level in 2000 if measured in terms of real gross value added per hours worked rather than per employed persons.

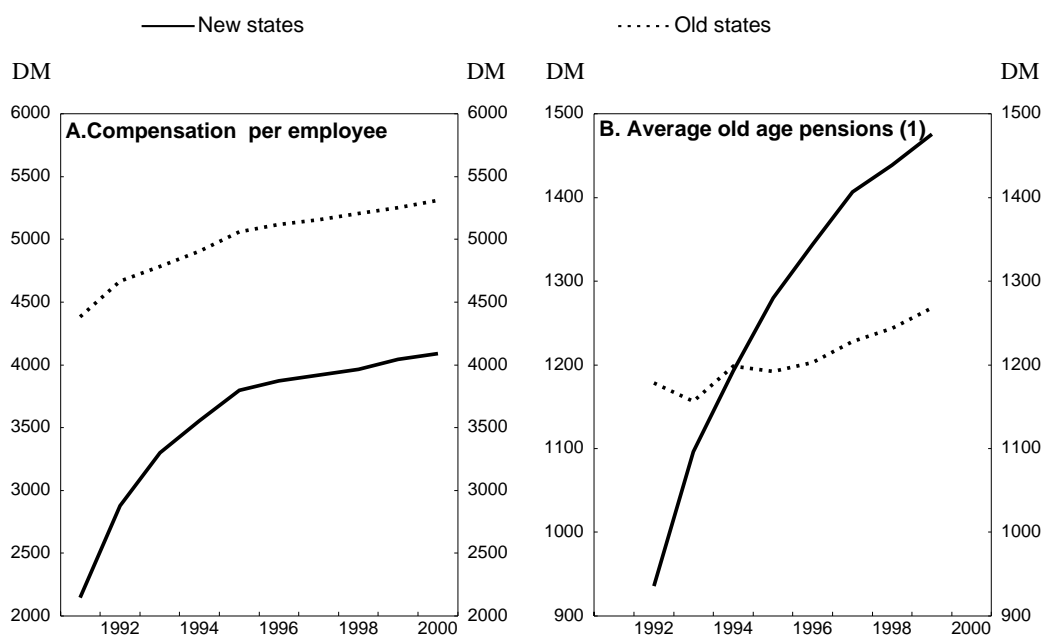
10. Unemployment stocks are proportionately related to inflow rates into unemployment and unemployment duration. For example, one and the same unemployment rate can be generated by high inflow rates into unemployment and short unemployment duration or by the opposite combination. For an exposition about the relation between stocks and flows on the labour market see Wurzel (1993).

11. Deutsches Institut für Wirtschaftsforschung *et al* (1999).

12. Unemployment duration sampled as complete spells from the flow.

(ALMPs) -- work provision and training schemes -- mainly targeting the long-term unemployed, long-term unemployment would even be higher in the absence of such schemes. Moreover, unemployment is frequently re-entered immediately after completion of one or more consecutive spells of ALMPs, and it has been estimated that long-term unemployment may be twice as high as apparent in the official figures if such episodes were considered as one extended unemployment spell.¹³ Econometric studies indicate that long-term unemployment is more likely for the less qualified, the older and for women.¹⁴ Indeed, although the employment ratio of the low-qualified was already much lower than in the old states at the beginning of the 1990s, it continued to decline in the years thereafter.¹⁵

Figure 4. THE EVOLUTION OF WAGES AND PENSIONS
DM per month



1. Pension insurance for workers and salaried employees.
Source : Arbeitskreis 'Volkswirtschaftliche Gesamtrechnungen der Länder'; Arbeitskreis 'Erwerbstätigenrechnung des Bundes und Länder'; Pension Report 2000 of the Federal government and OECD.

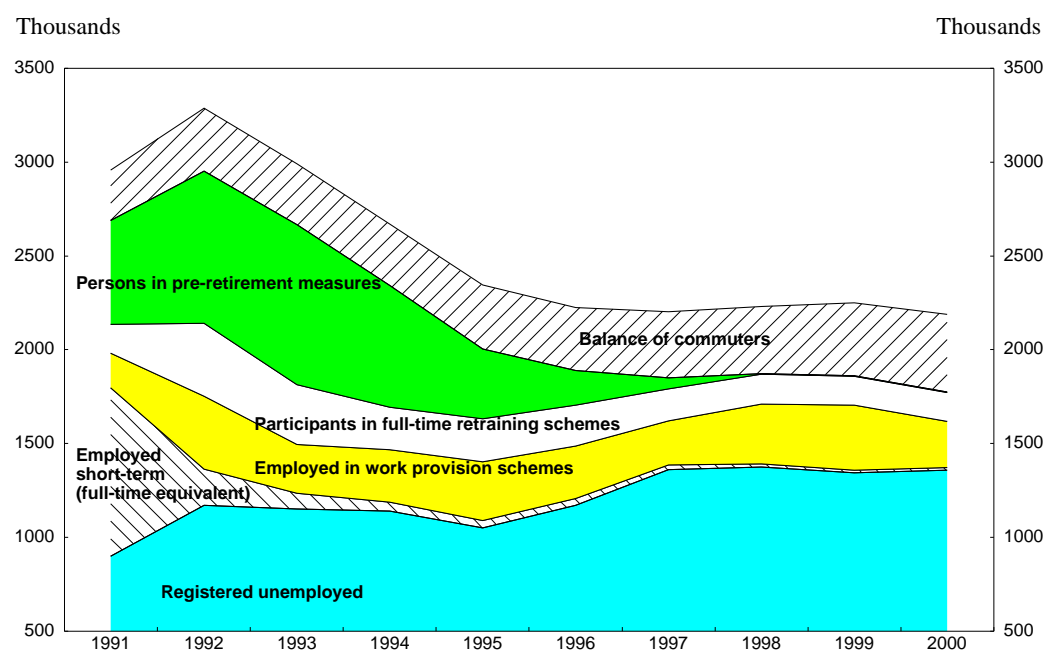
... despite efforts to reduce labour supply

12. Starting immediately after reunification, ALMPs were applied on a large scale, together with early retirement schemes that aim at reducing labour force participation of older people. While active labour market measures were meant to preserve and develop the human capital of those made redundant for later re-employment, they were also seen as social measures to avoid even higher levels of unemployment. The scale at which various ALMPs were applied was uneven over time (see OECD,

13. See Schulz (1998).
14. See Hagen, Steiner (2000).
15. See Franz and Steiner (2000).

1999).¹⁶ In 2000 people in full-time active labour market programmes and recipients of unemployment benefits without an obligation to accept job offers totalled 7.8 per cent in terms of employment (Figure 5). However, the total degree of under-utilisation of labour is even larger: early retirements on account of unemployment expanded rapidly and in 1999 totalled some 8 per cent in terms of employment.¹⁷ Adverse employment prospects also account for part of the early retirements on account of incapability to work.

Figure 5. UNEMPLOYMENT AND ACTIVE LABOUR MARKET MEASURES



Source : Institute for Labour Market Research of the Federal Labour Office and OECD.

13. Despite these efforts the labour force participation rate in the east is still somewhat higher than the one in the west, higher female participation accounting for most of the difference.¹⁸ In addition, the annual average working time of employees is higher than in the west (by more than 7 per cent).¹⁹ Measured

16. There was also income support paid on a large scale for workers in regular jobs working for shorter periods to maintain the companies' labour force. This type of support -- which is being applied in the west to ease redundancies over the business cycle -- has been scaled back to the extent other active labour market measures have been installed.

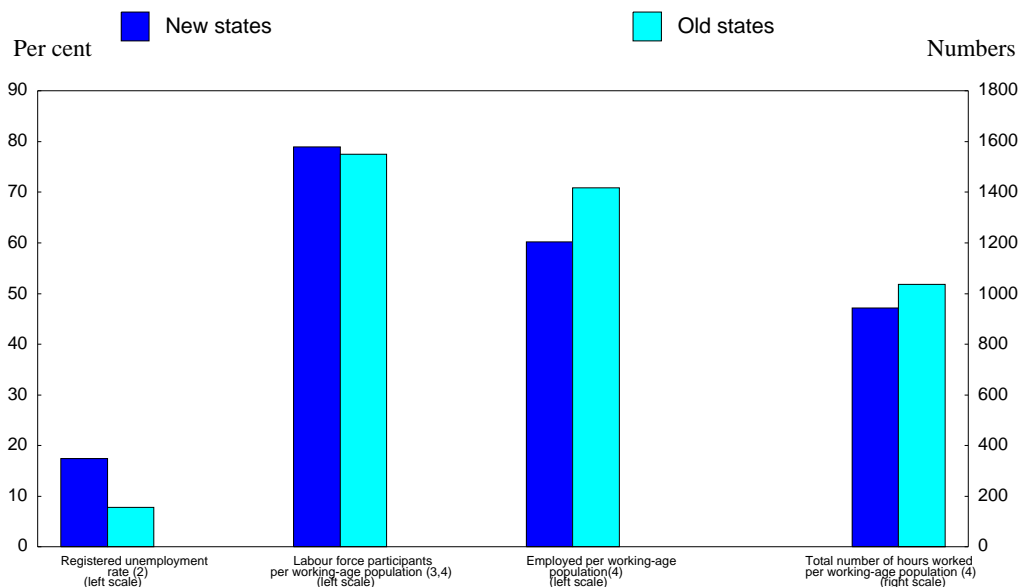
17. This includes persons who previously have been in pre-retirement measures.

18. High labour force participation at the time of unification reflected the inefficient operation of the old planned economy. While female labour force participation in the east declined substantially over the 1990s, it still exceeds participation in the west.

19. According to census information of the Institute of Labour Market Research of the Federal Labour Office. According to survey information from the German Socio-Economic Panel the difference between eastern and western employees amounts to 8.5 per cent, measured in terms of the number of hours worked per week (1998). See Deutsches Institut für Wirtschaftsforschung *et al* (2000).

in hours per working age population the difference in the volume of employment -- including work provision schemes -- between east and west is relatively moderate (Figure 6). However, although labour supply in the new states might decline further towards western levels, labour market conditions need to adjust if the work preferences of the people in the east are to be accommodated.

Figure 6. LABOUR FORCE PARTICIPATION AND EMPLOYMENT RATES, 2000 (1)



1. Old states including Berlin, except for the unemployment rate.
 2. Registered unemployment as a percentage of the civilian labour force.
 3. Labour force participants comprise the employed, the unemployed, participants in training courses offered by the Federal Labour Office and persons in pre-retirement measures (taking into account commuters).
 4. Working-age population: population aged from 16 to 65.
- Source : Federal Statistical Office; Institute for Labour Market Research; Institut für Wirtschaftsforschung Halle and OECD.

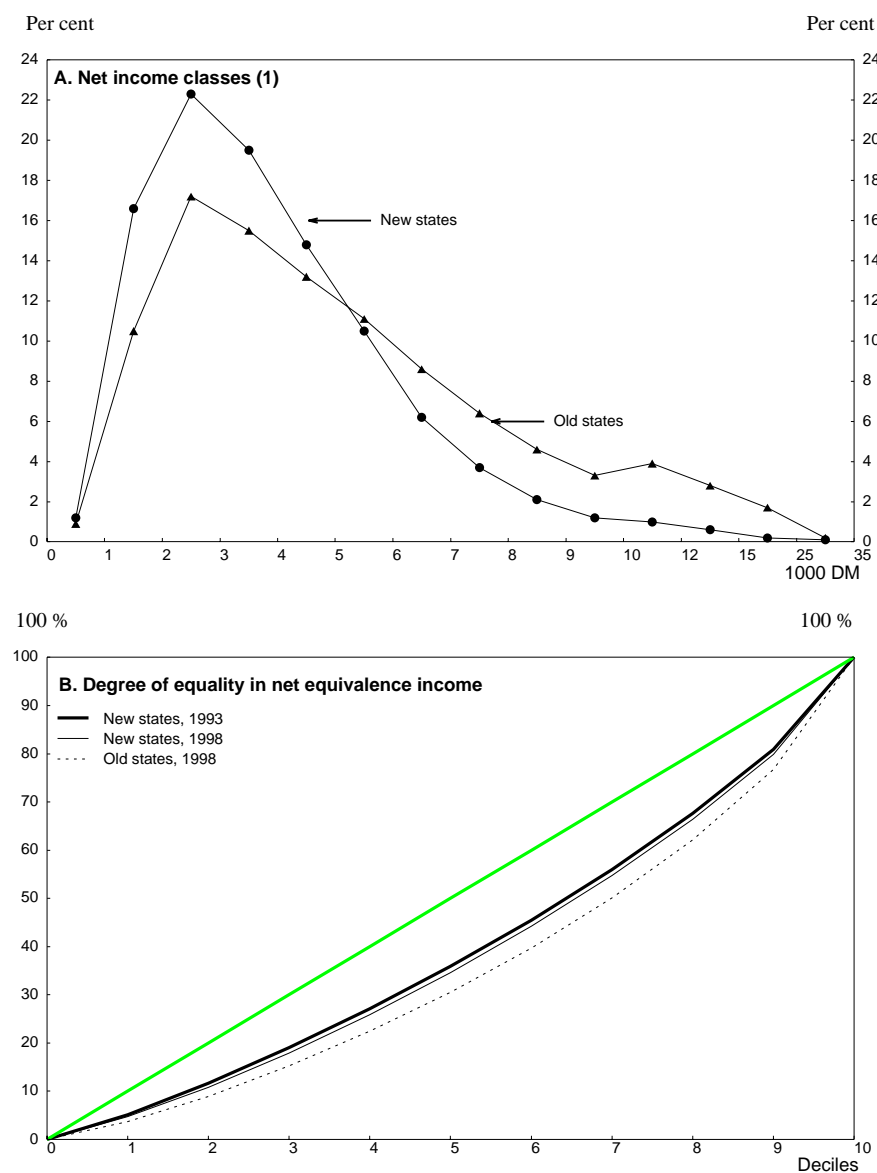
Incomes have converged much more rapidly than output...

14. With transfer incomes growing strongly as well household incomes in the new states have largely approached those in the west. According to the 1998 Income and Consumption Survey, both average household gross and net incomes totalled some 75 per cent of the level in the old states, and information from other sources similarly suggests a net income ratio of around 80 per cent.²⁰ In real terms this would imply net household disposable income totalling around 85 per cent of the western level, given that consumer prices (including rents) in the new state fall short of those in the west. For both east and west the household net income distribution peaks in the same income bracket (between DM 2 000 and DM 3 000 per month). But in the east the distribution is more concentrated around lower income groups than in the west, and the opposite is true for households in the top income range. The net income distribution reflects a relatively high degree of income equality, which is partly attributable to the operation of the benefit system: Measured in terms of net equivalence incomes, where incomes of individual household members

20. See Paquè (2000) and Leibfritz (1999). The data are subject to a selection bias in that higher income households are likely to be under-sampled in relation their distribution in the population. This, in turn, would imply that the true income gap between the new and the old states is somewhat larger than the one sampled.

are weighted according to their position in the household, the income distribution in the new states has become more dispersed in the 1990s, but is still more equal than the one in the west (Figure 7).²¹

Figure 7. THE INCOME DISTRIBUTION OF HOUSEHOLDS



1. In 1998. Percentage of households with net income within the respective bracket.
Source : Federal Statistical Office, 1998.

21. Household “net equivalent incomes” are computed to account for the fact that the financial needs of households do not rise proportionately with household size. For this purpose, each family member is attributed a weight, which is a certain fraction of the weight attributed to the head of household. Total household net income is then divided by the sum of the weights rather than the sum of household members. In the present case, a weight of one is attached to the head of household, weights of 0.5 for each other household member aged 15 or older, and weights of 0.3 for each further household member aged 14 or younger. See Münnich and Ilgen (2000) and Münnich (2000).

15. With the evolution of unemployment-related benefits and pensions being linked to the development of wages, large wage increases were also a main driving force behind rapid increases in transfer income of households from public sources.²² Gains were particularly pronounced for retirees. With the western German rules of pension adjustment having been extended to the east, an initial boost in pensions received was succeeded by large annual adjustments driven by rising wages.²³ Between 1991 and 1999 average old-age pensions in the new states have increased by 140 per cent. On average public old-age pensions in the east exceed those in the west, and this is also true for the ratio of average old-age pensions to average compensation per capita. Mainly this is due to differing employment biographies: Given that the German pension system links the level of entry pensions to the length of the working life, high pensions in the new states are largely attributable to longer uninterrupted employment spells than those that occurred in the west. In the GDR a high level of labour input was needed to fulfil economic plans, making up for economic inefficiencies. However, for similar reasons eastern retirees often receive less additional pensions from other sources than those in the west. The difference between eastern and western employment biographies is particularly pronounced for women. In 1999 average old-age pensions paid for females exceeded the western level by 39½ per cent, as opposed to 7½ per cent for males (Figure 4, right panel, and Table 2).

Table 2. The size of old age pensions¹

	Per cent				Average pensions as a fraction of average compensation	
	Percentage deviation of average pensions in the new states from average pensions in the old states ²				New states	Old states
	Males		Females			
	Stock	Inflows	Stock	Inflows	Stock, males and females	
Total	+7.4	+2.8	+39.6	+51.0	37.4	24.9
Statutory retirement age (65)	+28.5	+135.8	+60.7	+63.9	35.6	20.2
Early retirement						
On account of unemployment	-13.3	-15.5	+3.4	+7.2	46.2	39.9
Invalidity	-13.0	-16.3	+7.5	+0.2	44.5	38.6
For females	+5.9	+7.5
Long-term insured	-5.1	-6.9	+33.7	+33.7	51.6	38.9

1. In 1999; stocks at 31 December.

2. A + sign indicates that pensions in the new Länder exceed those in the old Länder.

Source: Verband Deutscher Rentenversicherungsträger; Arbeitskreis "Volkswirtschaftliche Gesamtrechnungen der Länder"; Arbeitskreis "Erwerbstätigenrechnung des Bundes und der Länder" and OECD.

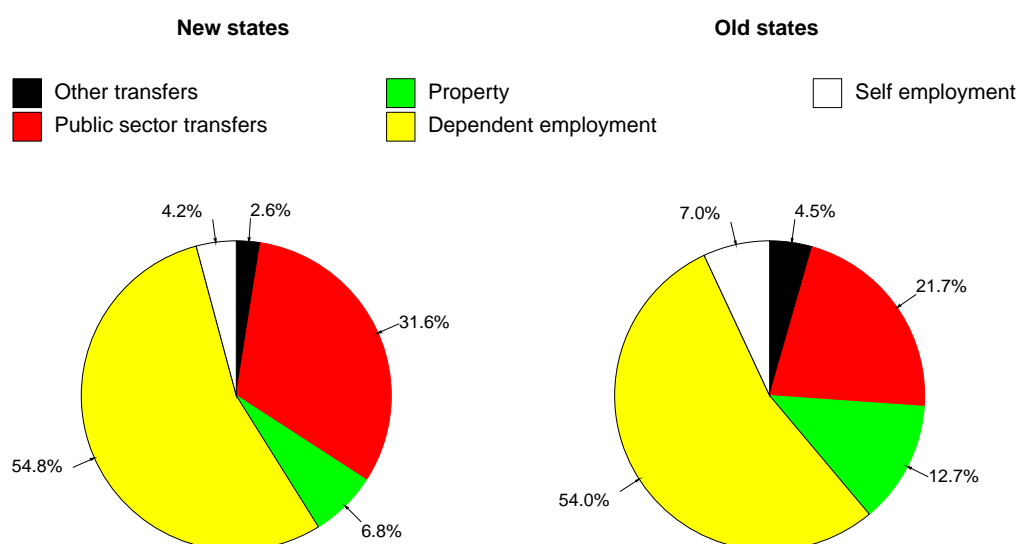
16. The composition of household income by source reflects the high transfer dependency of the eastern economy. Public transfers account for 32 per cent of average gross income, 10 percentage points more than in the old states. Between 1993 and 1998 the share of transfers has increased by 2½ percentage points. The rise in pensions and increases in child benefits, which occurred in Germany overall, are main

22. Household surveys on income and consumption patterns by the Central Statistical Office are available for 1993 and 1998. See Münnich and Illgen (2000) *op. cit.*

23. As all flows, public pensions in eastern Germany were converted to Deutschemarks at a conversion ratio of 1:1. The adaptation of the eastern pension system to the western standard proceeded in two steps: in the first stage, the ratio of pensions to net earnings was raised proportionately such that the replacement ratio equalled 70 per cent for those with 45 years or more of employment, as in western Germany. In mid-1990, after the currency conversion the average pension level increased by 30 per cent. The second major step occurred in January 1992 when the western German pension system was legally extended to the east in accordance with the Pension Transition Law (*Rentenüberleitungsgesetz*). In cases where the new pension fell short of the pension previously paid, supplementary pensions (*Auffüllbeträge*) were introduced. Since 1996 the *Auffüllbeträge* are decreasing as pensions rise. Up to 1996 the level of eastern German pensions was adjusted twice a year in accordance with the development in net wages in the new states, and this now takes place once a year.

factors behind this increase. Apart from pensions, the level of unemployment-related transfers and child benefits relative to the income of salaried employees also exceeds the western levels. Wages account for the same income share as in the old Länder while the contribution of income from self-employment and property income falls short of the one in the west (Figure 8).

Figure 8. COMPOSITION OF HOUSEHOLD INCOME BY SOURCE



Source : Federal Statistical Office.

... and absorption exceeds production by a wide margin

17. A major characteristic of the eastern German economy is the huge gap between total absorption (private and government consumption and investment) and domestic production. In 1994, the last year for which separate national accounts statistics by east and west Germany are available, total absorption exceeded GDP by more than 50 per cent. This ratio has remained roughly unchanged: in 1999 net public transfers from the west accounted for roughly one-third of eastern GDP. Capital inflows -- including credits by the public sector -- have been estimated to total some 15 per cent of GDP.²⁴ Hence, about one-third of total absorption by private households, investors and the government in the new states was financed by transfers from the west or capital imports. Totalling some 50 per cent of GDP, net imports of the new German states (which equal net transfers and capital imports received) are extra-ordinarily high.²⁵

24. Sinn, Hans-Werner (2000).

25. The highest net imports observed in the OECD in 1999 amount to 10.4 per cent of GDP (Greece) followed by 8.4 per cent (Portugal). While the imports of an entire country are not fully comparable with those of an area such as eastern Germany, this illustrates the high level of the new Länder's imports in relation to their economic activity.

18. Public sector transfers to the new states involve the Federal Government, the western states and communities, the social security system and the EU. Some 51½ per cent of the gross total are social transfers, allocated mainly to the unemployed and pensioners, 12½ per cent finance public sector investment, and some 6 per cent consist of direct subsidies, 24½ per cent are general budgetary transfers to public sector authorities, designed to compensate for the low revenue power of the eastern states (Table 3). About one-quarter of all public-sector transfers are based on specific (federal) legislation for the new states, with the remainder being implied by the rules governing Germany's federal fiscal and social system.²⁶

Major forces shaping the economic performance of the new states

19. The macroeconomic indicators considered above clearly show that much has been achieved in raising eastern Germany's economic performance and increasing incomes in the new states. In part, the failure to achieve a self-sustaining strong growth path must be ascribed to the size and persistence of the initial transition challenge. Indeed, the exposure to competition of the eastern Germany economy revealed that its structural deficiencies were too severe to be remedied quickly. Consequently, a large part of eastern German industry had to be closed down. The reindustrialisation thereafter had to start almost from scratch. Its impact on aggregate performance is to some extent masked by the downsizing of construction since the middle of the 1990s. However, two characteristics of the eastern German economy also account for the fact that the actual growth and employment performance over the last decade has remained subdued below its potential:

- In the business sector labour productivity in eastern Germany falls short of the western level by a margin that is significantly larger than the east-west gap in the capital intensity (business capital stock per employed in the business sector) would suggest.
- Unit labour costs on average in the eastern German economy have failed to reach competitive levels. Although declines in unit labour costs have been substantial -- in particular in manufacturing -- they are still above the level in western Germany.

20. The productivity of labour and capital inputs determines the size of output associated with any level of labour and capital employed. Hence, for self-sustaining growth in eastern Germany to be generated and economic convergence with the west to be achieved it is crucial that in the new states labour and capital are employed as productively as they are in the old states. Moreover, even if this condition were met, it would not suffice to establish the new states on a high growth path if eastern German products were still lacking competitiveness. Hence, it is crucial as well that unit labour costs not exceed western German levels and rather undercut them. This section highlights both of these aspects. Policy implications following from this analysis are presented in the next section.

26. Ragnitz *et al* (1998).

Table 3. Public transfers to the new states

	1991	1992	1993	1994	1995	1996	1997	1998	1999
A. Gross and net transfers by source¹									
(DM billion)									
Expenditures									
Federal government	75.1	90.0	115.7	115.9	136.7	136.7	129.6	130.8	140.0
Western states and communities	5.3	5.7	10.3	13.5	11.2	11.3	11.6	11.5	11.6
Germany Unity Funds	31.0	24.0	15.0	5.0	0.0	0.0	0.0	0.0	0.0
Social security system (net) ²	18.7	34.2	23.0	29.8	33.3	30.9	34.7	31.9	36.0
EU	4.0	5.0	5.0	6.0	7.0	7.0	7.0	7.0	7.0
Treuhandanstalt	8.8	13.7	23.0	23.8	0.0	0.0	0.0	0.0	0.0
Revenues									
Federal government	33.0	39.1	41.4	45.2	46.8	48.2	47.8	48.6	50.6
Gross transfers	142.9	172.6	192.0	194.0	188.1	186.0	183.0	181.2	194.6
Net transfers	109.9	133.5	150.6	148.8	141.3	137.7	135.1	132.6	144.0
As per cent western German GDP ³	4.2	4.8	5.4	5.2	4.7	4.5	4.4	4.1	4.4
B. Gross transfers by function¹									
(Per cent of total)									
Business-near infrastructure	12.4	9.9	8.6	10.1	13.0	13.3	13.2	12.9	12.6
Support to enterprises	2.5	4.7	7.6	7.5	8.0	7.0	6.3	6.4	5.8
Social transfers	45.4	54.1	54.3	54.4	49.5	49.7	49.7	49.1	51.4
Non-earmarked transfers	28.0	22.3	20.0	19.5	23.5	24.6	25.0	25.8	24.5
Not attributable	11.7	9.0	9.3	8.4	6.0	5.4	5.8	5.8	5.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1. Excluding special depreciation allowances, debt servicing expenditure and credits.

2. Without the contributions by the federal and state governments.

3. GDP of western Germany excluding Berlin.

Source: Institut für Wirtschaftsforschung Halle and OECD.

The capital endowment has improved, but business sector productivity is lower than to be expected

The infrastructure has improved...

21. It became obvious immediately after the fall of the wall that the dramatic lack of infrastructure and its obsolete conditions would act as a major brake to economic competitiveness and growth. Indeed, with certain infrastructure being of particular importance for exporters, the slow expansion of the production of tradable goods is likely to be attributable to some degree to these adverse conditions. However, since the beginning of the 1990s a great deal has been achieved in building up a modern infrastructure, although deficiencies remain, mainly in local roads and sewerage systems.

22. The infrastructure endowment of the new Länder grew strongly over the last decade. According to recent estimates, by 1999 the per-capita public sector capital stock of the states and communities combined (in 1991 prices) exceeded its 1992 level by 66 per cent (respectively 53 per cent when a more narrow definition is applied that excludes public sector investment in areas where agents outside the general government also contribute to the infrastructure, such as energy supply). The rapid speed of instalment is also apparent from the fact that about half of the eastern capital stock dates from the 1990s, compared with somewhat more than 20 per cent in the old Länder. Despite this progress, on a per capita basis the capital stock of the new states and communities still falls substantially short of that in the old German states. Compared with the western "area states" (*Flächenländer*), *i.e.* excluding the city-states Hamburg, Bremen and Berlin, the gap amounts to between 36 and 43 per cent (depending on the measurement concept) in the wider and 30 per cent in the narrower definition. Compared with the financially weaker western area states, the gap narrows somewhat to between 30½ and 38 per cent in the wider and somewhat more than 25 per cent in the narrow definition (Table 4).²⁷ These relations might look different if other bases were chosen for comparison. For example, relative to the number of students the east-west gap in the university sector is smaller than on a per-capita basis, whereas the gap for the roads system is larger if related to the area. Nevertheless, the conclusion would remain that on average the western level is not yet reached.

23. Infrastructure investment by the states and communities appears to be biased, however, in favour of culture, social security, hospitals, housing and area development, and the central administration. The estimates suggest that the per-capita capital stock associated with cultural and social security services exceeded the western average already in 1992 by a significant margin. This is largely attributable to the fact that these services have been provided to a larger extent within the government sector than in the west. By 1999 the "overhang" had increased further, totalling more than 100 per cent and almost 50 per cent,

27. See Seidel and Vesper (2001). See also Seidel and Vesper (2000). Assessment of the infrastructure capital stock is subject to a number of methodological problems. Mainly, these concern the valuation of the pre-unification capital stock still in use, and definitional issues arising from investment activity outside the general government sector. To facilitate comparison between the east and the west, a narrow definition of the capital stock was computed as well. The comparison with the financially weaker western Länder considers only the old Länder which are receivers in the Fiscal Equalisation system (*Länderfinanzausgleich*).

Table 4. Infrastructure capital stock per inhabitant of the states and communities¹

	In per cent of western German area states ²				In per cent of financially weak western German area states ³			
	In 1991 prices		In current prices 1999		In 1991 prices		In current prices 1999	
	1992	1999	Including communal institutions and enterprises		1992	1999	Including communal institutions and enterprises	
Infrastructure								
Central administration	35.9	103.8	104.3	104.3	39.5	112.7	113.1	113.1
Public security and order	58.2	98.4	98.8	98.8	60.2	105.5	105.7	105.7
Jurisdiction	59.0	82.4	82.7	82.7	69.5	102.6	103.0	103.0
Schools	47.4	61.1	61.2	61.2	45.9	60.3	60.2	60.2
Universities and other research	35.0	56.1	55.9	55.9	46.4	74.9	74.4	74.4
Culture	122.1	147.0	147.3	151.8	186.2	220.8	219.3	219.3
Social security	117.0	119.4	119.7	119.7	139.6	146.4	146.6	146.6
Sports and recreation	62.4	76.5	79.8	79.8	71.7	88.0	90.8	90.8
Hospitals	71.3	110.9	110.8	110.8	81.2	131.2	130.8	130.8
Housing and area development	8.4	92.5	93.1	93.1	10.1	109.4	109.7	109.7
Nutrition, agriculture and forests	97.0	79.6	81.5	81.5	77.7	64.1	65.3	65.3
Traffic and communication service	44.5	53.2	53.7	53.7	45.0	53.4	53.6	53.6
<i>of which: Roads</i>	38.1	49.3	49.6	49.6	38.1	49.2	49.4	49.4
Total infrastructure in a narrow sense	50.1	69.9	69.7	69.9	52.9	74.3	73.6	73.8
Further infrastructure								
Communal joint tasks	5.6	20.4	21.3	29.2	6.1	23.5	24.5	30.5
<i>of which: Sewerage</i>	5.2	19.8	19.9	30.8	5.8	23.5	23.7	31.7
Energy, water, services	12.8	73.9	74.5	74.5	11.3	65.1	65.5	65.5
Companies	2.2	16.8	16.9	97.6	3.2	26.8	26.9	144.4
Total infrastructure	38.3	57.5	57.2	64.0	41.2	62.8	62.2	69.3

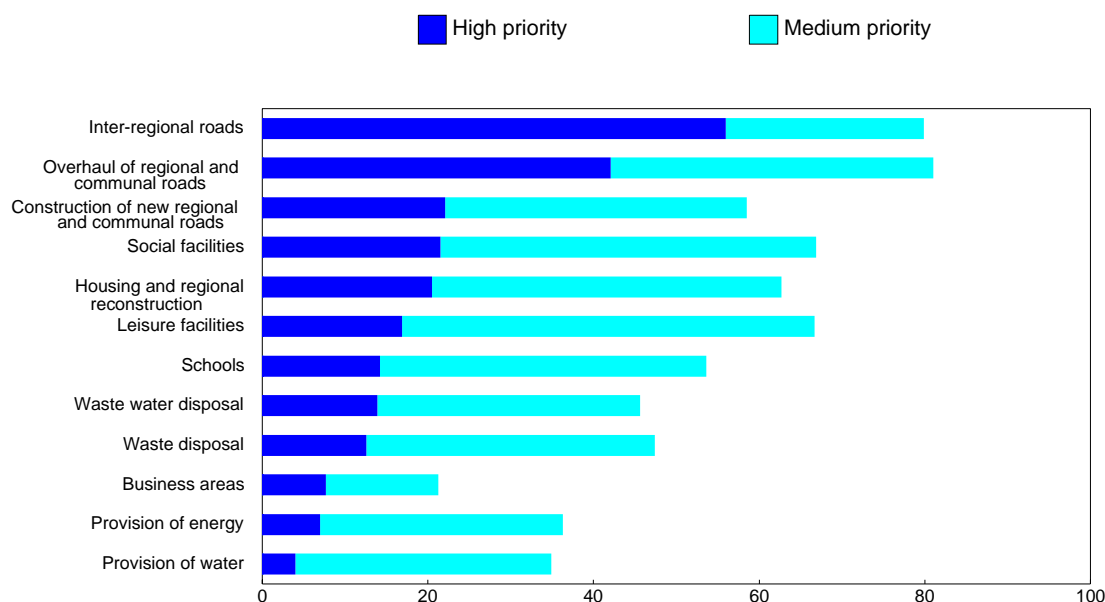
1. Without residential construction and sea-harbours.
2. The area states do not comprise the city-states Berlin, Bremen and Hamburg.
3. Western German states receiving transfers in the inter-state fiscal equalisation system.

Source: Seidel, B. and D. Vesper (2001).

respectively, of the endowment of the financially weaker western states. In the other three fields, the per capita endowment also has surpassed the western levels by a significant margin. Although desirable for various reasons, these investments are not at the core for raising the growth potential of the economy. It is also worth noting that more than one-quarter of the total infrastructure gap to the west (in the more comprehensive definition) is attributable to the sewerage systems of the communities, which appear to be less important as a bottleneck to growth.

24. However, in fields, which appear to be more important for economic growth -- notably road construction -- the gap still appears to be sizeable. Indeed, surveys indicate that enterprises attach the highest priority to improving the network of inter-regional roads, to construction of new roads, and the overhaul of obsolete regional roads (Figure 9). The infrastructure gap in these fields should account to some extent for the productivity gap between the eastern and the western states, and the sluggish improvement in competitiveness more generally.

Figure 9. DEFICITS IN INFRASTRUCTURE PERCEIVED BY ENTERPRISES(1)
Per cent of enterprises sampled



1. The survey was conducted among industrial enterprises by the Institut für Wirtschaftsforschung Halle in January 1998. The question asked was: In what fields of public infrastructure should investments be made, seen from the perspectives of your company?
Source: Snelting, M., C. Schumacher, W. Komar, P. Franz (1998).

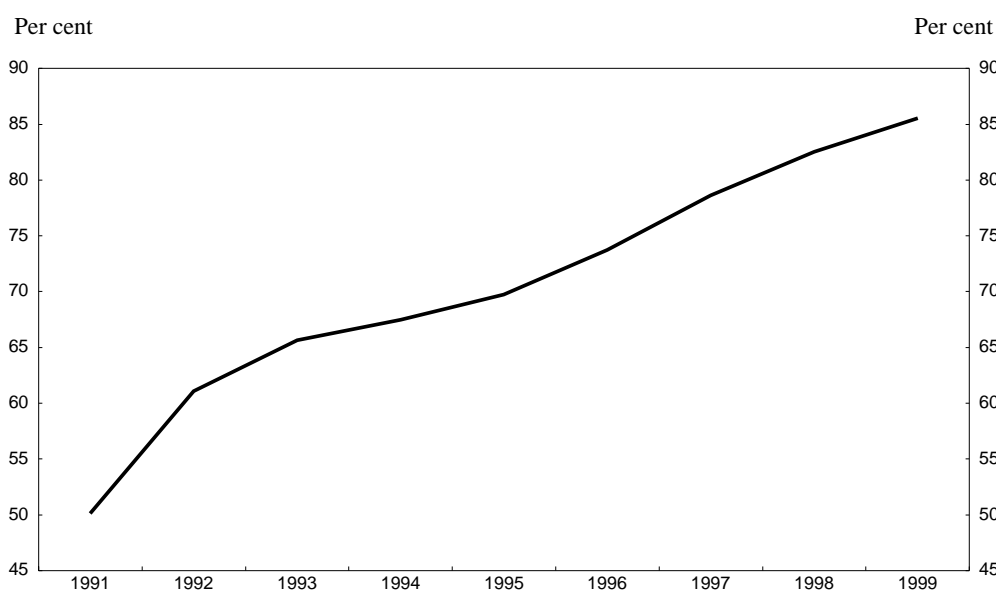
... and the business capital stock has been expanded and modernised

25. The capital stock of eastern German business increased rapidly as well. At present, the average capital intensity in the eastern German business sector (gross fixed capital stock per employed in the business sector) is estimated to total 85½ per cent of the western level (up from 50 per cent in 1991), and in manufacturing it has been estimated to fall short of the western level by just 8 per cent.²⁸ Disaggregated

28. See Müller, A. (2001) for estimates of the capital intensity in the business sector overall. Estimates of the capital intensity have been affected by the adoption of new national accounting conventions (ESA 95). For older studies, which were based on national account data prior to the revision, see the following references: for 1998 the capital intensity in the business sector has been estimated to total three-quarters of the western level if related to the number of employed (Ragnitz, 2000b) and if related to the size of the working-age

data for manufacturing indicate large differences in capital intensities between sectors, however, with the intensity in final goods-producing sectors on average falling substantially short of the level in the west. Moreover, with fixed capital formation growing at rates substantially higher than those in the west, the present average age of the business capital stock in the new states should roughly equal the one in the old Länder (Figure 10). This is confirmed by surveys on the average age of equipment in eastern and western enterprises. The firms' own judgement also supports the assessment that the technical state of equipment has reached the western level. In the 2000 "Enterprise Establishment Survey" only 6 per cent of the eastern firms judged their equipment to be old or very obsolete. This share is unchanged from the first wave of the panel conducted in 1996 and matches the corresponding share amongst western German establishments (5 per cent).²⁹

Figure 10. CAPITAL INTENSITY IN THE BUSINESS SECTOR (1)
In per cent of the level in the old states (2)



1. Capital stock per employed.
2. New states excluding Berlin; old states including Berlin.
Source : Müller, A. (2001).

26. Although the building up of the business capital stock coincided with a large increase in labour productivity, empirical investigations point to the fact that productivity levels in the business sector relative to the west should be substantially larger than those actually observed. This is especially visible in manufacturing: in 1999 labour productivity in manufacturing equalled some 65 per cent of the western

population (Müller A., 2000). For 1999 six leading German research institutes jointly estimated that the capital intensity in the business sector totalled three-quarters of the western level in terms of the population. See Ragnitz (2000); Müller A. (2000) and Deutsches Institut für Wirtschaftsforschung, HWWA *et al* (2000).

29. In the Enterprise Establishment Panel of the Institute for Employment Research establishments in all sectors of the economy are asked to rate their equipment on a five brackets scale extending from "newest state of technology" to "very obsolete". There are hardly any response differences between firms in the new and the old states. See Schäfer and Wahse (2000), and (2001).

level, more than 25 percentage points less than what the relative size of the capital stock would suggest. Various factors influencing the productivity gap have been identified and to some extent they reflect distortions in the market process, although it is difficult to specify their relative importance.³⁰

Subsidies helped renew the capital stock, but had significant distortionary effects

27. The rapid growth of the capital stock was supported by massive state aid to enterprises. With infrastructure in the new states initially lacking to a substantial degree, industrial subsidies appeared to be justified to compensate for competitive disadvantages. The bulk of this aid subsidises investment, but there is also financial support for research personnel to foster the development of research and development in the east (Box 1). Subsidies to the new states peaked in 1995 but declined since then by some 20 per cent until 1999.³¹ But the intensity of subsidisation remains much higher in the east than in the west, with the volume of subsidies relative to GDP having been estimated to total 3½ times the western level in 1999³² While financial support to eastern German enterprises is likely to have generated positive output and employment effects, available evidence also indicates that it implied distortions in the production structure which should have retarded productivity growth. Mainly, investment support and special depreciation allowances have biased resource allocation in favour of capital intensive industries and construction in particular.³³ In the process, to some extent investment was pushed into low-productivity sectors, and in some sectors the capital intensity of production was driven to high levels relative to the west while associated gains in relative productivity were only modest.³⁴ The development of a competitive export base was hampered by the over-expansion of the construction sector which was associated with profit rates that proved to be unsustainable. Other features of the eastern German economy with adverse effects on productivity growth, such as a lack in product marketing and unfavourable terms of trades, are also likely to be related to distortions associated with high levels of financial aid. In view of such developments the Federal Government phased out special depreciation tax allowances for investment in 1998 and restructured support schemes in favour of small and medium-sized enterprises and capacity widening investments.

Box 1. State aid for private enterprises in the new Länder

To foster the reconstruction of the eastern German economy, beginning in 1990 the Federal Government and the governments of the new states as well as state-owned banks and the EU set up several support programmes for private enterprises, designed to foster investment, business start-ups, research and development, and exports. Additional funds were utilised to rescue former state-owned enterprises held by the *Treuhandanstalt* and its successor organisation (*Bundesanstalt für Vereinigungsbedingte Sonderaufgaben*). Counselling and training was also funded, mainly by the Federal Labour Office.

With the states having established their own programmes, a multitude of individual support programmes is still in operation (several hundred), but the bulk of the aid extended (some 90 per cent of the funds) has always been concentrated on a handful of instruments highlighted below (excluding training and active labour market measures).

-
30. For summaries of the research see Rothfels, Wölfl (1998); Müller, Rothfels, Wölfl (1998); Institut für Wirtschaftsforschung Halle (2000); Ragnitz (2001a). See also Schäfer and Wahse (2001).
31. This is based on the subsidy accounting of the Federal Government as laid out in the Subsidy Report. See Bundesministerium der Finanzen (1999).
32. This is based on the Subsidy Report of the Federal Government. See Ragnitz (2000a).
33. The impact of the various types of investment support schemes on the user cost of capital has been studied by several authors. See Sinn, G. and H. Sinn (1991).
34. For a similar argument see Sinn (2000) and Klodt (2000). Sinn (2000) argues that high rates of subsidisation may even have induced firms to employ capital up to a point where labour productivity has been decreased. The argument is based on estimates indicating negative user cost of capital in the first half of the 1990s.

Eligibility conditions, volumes extended and rates of subsidisation of these instruments have repeatedly been subject to change. Initially, the Federal Government envisaged a phased reduction of the volume of aid after 1998, when the first phase of funding agreed between the Bund and the states expired. But with the reconstruction of the new states progressing slower than expected main programmes of special support for eastern Germany have been fixed until 2004. For the follow-up phase after 1998 tax concessions were reshaped: Special depreciation allowances for the new *Länder* are no longer available, and tax-free investment grants are the only tax instruments applied. There has also been a restructuring of aid in favour of small and medium-sized companies in manufacturing and business-related services. The modified design has implied a substantial reduction in tax expenditures for the new states. On average, annual tax revenues foregone on account of special allowances for eastern Germany are projected to total between 1999 and 2004 roughly 35 per cent of the level prevailing between 1991 and 1998. Regional aid has also been reduced over the 1990s. Overall subsidies in the new states -- in the definition of the Federal Government's Subsidy Report -- declined by some 20 per cent between 1995 (the year where subsidies peaked) and 1999.¹ But the support intensity overall in the new states remains much higher than in the west. Relative to GDP subsidies have been estimated to total 3½ times the western level for 1999, based on the information of the Federal Government's Subsidy Report (see Ragnitz, 2000a). Subsidies extended by the states and communities account for some 40 per cent of the total. Maximum support rates vary between 20 and 50 per cent and must be in line with the EU regional support regime (*EU-Fördergebietsrahmen für Ziel-1-Gebiete*). Accumulation of different support schemes is possible (grants, bonuses and credits), but in total have to respect maximum subsidisation limits. The major instruments presently applied are:

- Investment grant (*Investitionszuschuss*). This is a taxable cash payment co-financed by the federal and state governments. Support is extended on a case-by-case basis without a legal right for funding. It is designed to help economically disadvantaged regions ("Improvement of Regional Economic Structure") by fostering investment that is expected to raise employment and training or to strengthen the innovation process, or which is associated with enterprise foundation. Support rates amount to up to 50 per cent for small and medium-sized enterprises and up to 35 per cent for other enterprises.
- Investment bonus (*Investitionszulage*). Tax-free cash payment after completion of investment. Those eligible have a legal right for funding. Bonuses are given for investment in machinery and equipment as well as construction investment by manufacturing enterprises, providers of enterprise-near services, and small and medium-sized craftsmenships. Bonuses are also granted for rental apartment construction and the renovation of rental houses in inner city districts. Support rates vary between 5 and 27.5 per cent, depending on the type of investment, the size of the firm and the region. Maximum support rates are only applicable for investment by small and medium-sized enterprises in manufacturing and business-related services enlarging their production capacities and being located along border regions to Poland and the Czech Republic. Subsidies for replacement investments in larger companies presently have a support rate of 5 per cent; they will expire by the end of 2001.
- Credit Programmes. On the federal level, preferential credits are extended by the German European Recovery Programme Funds (ERP) and federal development banks (KfW, DtA). Aid is given for investment projects and company acquisitions by small and medium sized enterprises as well as to personal entrepreneurs for the purpose of fostering start-ups, enterprise growth and reorganisation. The credits offer preferential interest rates and special debt redemption conditions. They can be designed to function as surrogates for equity capital. Besides direct support, credits are also granted to investment firms for the purpose of refinancing equity participation in small and medium-sized enterprises. In most cases credits are mediated by private sector banks, which then become liable to the public banks. The private banks, in turn, normally must participate in the crediting with their own funds.
- Support programmes for research and development, consisting of aid to small and medium-sized enterprises for research projects and research personnel, as well as support to research networks.

1. See Bundesministerium der Finanzen (1999).

28. Indeed, while overall fixed investment per capita substantially exceeds the level observed in the old states, this is essentially accounted for by the abnormally high level of construction investment. Per-capita investment in machinery and equipment has continued to grow strongly but stands below the

western German level (Figure 11).³⁵ Subsidy-induced misallocations of investment -- which adversely affect the productivity of the economy's capital stock -- are perhaps best visible in residential construction. In 2000 almost one million flats in eastern Germany stood empty, twice as many as in 1993. Flat vacancy rates ranged from 17 per cent in Saxony to 9 per cent in Thuringia. They reflect migration from old homes to -- subsidised -- new residences, and -- to a lesser extent -- migration to the west. Prior to desertion, a large share of the old flats was renovated with the help of public sector funds. Moreover, to reduce mounting over-capacity, old homes -- mainly tiles' constructions (*Plattenbauten*) -- are now being dismantled with the Länder governments covering the cost of demolition.³⁶ In addition, there are demands that the Federal Government and the eastern states should financially support the rehabilitation of such deserted areas. The total implications for resource allocation of this phenomenon could even extend further in that associated regional shifts might necessitate the establishment of new infrastructure, such as public transport, waste disposal and water supply and disposal.

29. It is striking that within the manufacturing sector -- the only sector where disaggregated information on both capital endowment and productivity is available on the branch level -- labour productivity relative to the west does not positively correlate with relative capital intensity. Such a positive correlation is to be expected, however, if distortions in the production structure in the east did not exceed those in the west. Within the group of branches, whose capital intensity has expanded above the corresponding levels in the old states, relative productivity and capital intensity even appear to be negatively related, although the correlation is not significant (Figure 12). This group represents 51.8 per cent of the total manufacturing gross fixed capital stock in the new states (1999). In contrast, the same branches account for 32.3 per cent of the capital stock in the old states.³⁷ The mismatch between capital intensity and productivity appears to be largely concentrated in basic goods industries and mainly reflects action during the 1990s (Table 5). In mining, the capital intensity exceeds the western level by 50 per cent while productivity undercuts that in the west. Cases where the mismatch between capital intensity and productivity is very high if measured against the western standard raise questions whether investment would be profitable at all without subsidies.³⁸

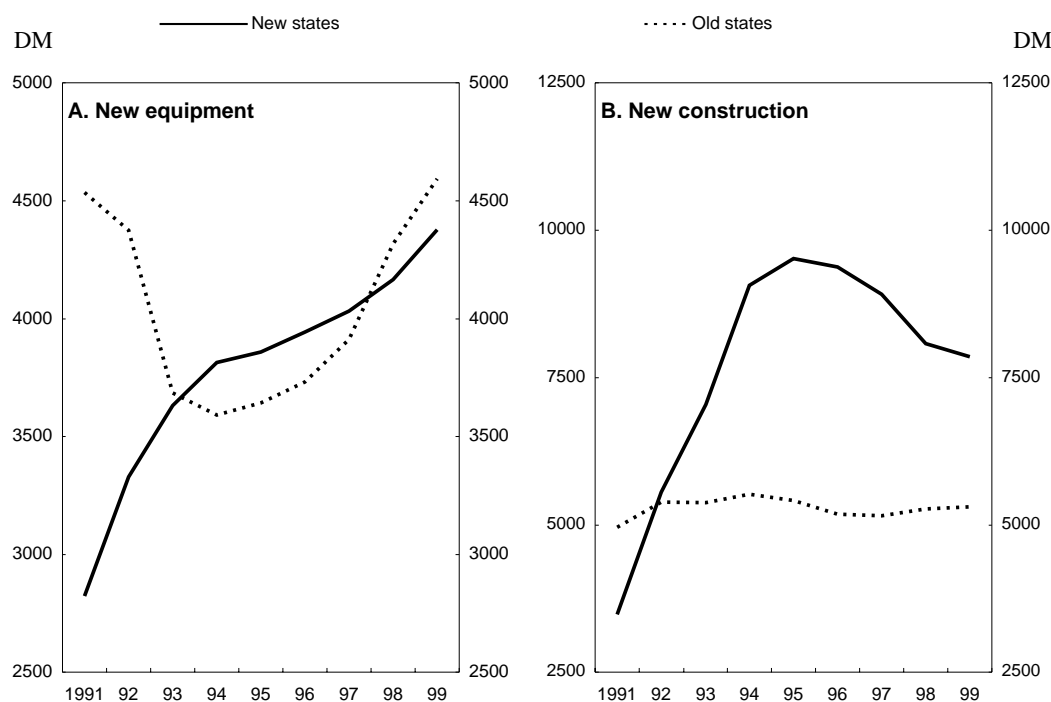
35. For an account of investment by sector see Albert Müller (2001). Investment data have been subject to significant change due to the adoption of the new European national accounting conventions, ESA 95. The information presented in this paper is based on the new, revised figures.

36. Most of the tiles' buildings are owned by housing societies, which in turn belong to the communities. Given the weak revenues base of the communities the Länder will bear the costs of dismantling the *Plattenbauten*. In addition, the Federal Government will remit the debt of the housing societies in proportion to their holdings of vacant flats.

37. For the group of manufacturing industries with capital intensity below the western level (70 per cent of the total) the correlation coefficient across sectors between productivity and capital intensity (both relative to the west) amounts to +0.2. For the group of industries with capital intensity above the western level (30 per cent of the total) the correlation coefficient amounts to -0.6. Overall the disaggregation of the manufacturing sector considered comprises 30 industries. The inverse relationship between relative capital intensity and productivity is forcefully demonstrated by mineral oil processing whose capital intensity exceeds the western level by 90 per cent while the productivity level reaches only 35 per cent of that in the west.

38. The branch data, on which this analysis is based, have been made available by the German Institute for Economic Research (DIW). Information on productivity and capital intensity is also available from the Establishment Panel of the German Institute for Employment Research covering smaller establishments as well. See Bellmann and Brüssig (1999).

Figure 11. FIXED INVESTMENT PER CAPITA



Source : Ifo Institut für Wirtschaftsforschung; Federal Statistical Office and OECD.

30. At the same time, the strong incentives for investment and capital intensive sectors are likely to have caused a substitution of capital for labour and adversely affected the development of labour intensive sectors that benefited less from financial support, such as the services sector.³⁹ However, human capital intensive products and service activities are increasingly important for designing and marketing industrial products and for generating high overall productivity growth. Indeed, various investigations suggest that the competitiveness of eastern German products is hampered by a lack of marketing and organisational labour input.⁴⁰ This deficiency should also explain to some extent the observation that eastern German companies are able to charge only relatively low output prices for their products.⁴¹

A lack of “net-working” adversely affects productivity

31. Part of the productivity gap to the west has also been attributed to a lower density of enterprises than in the old states. Networks of enterprises can produce positive scale and spill-over effects, and these in turn may contribute to lowering input prices. To some extent the existence of networks is likely to be related to population density within the regions, and therefore only to a lesser degree influenceable by

39. For empirical work on capital for labour substitution in eastern Germany see Gerling (1988) and Gerling (2000).

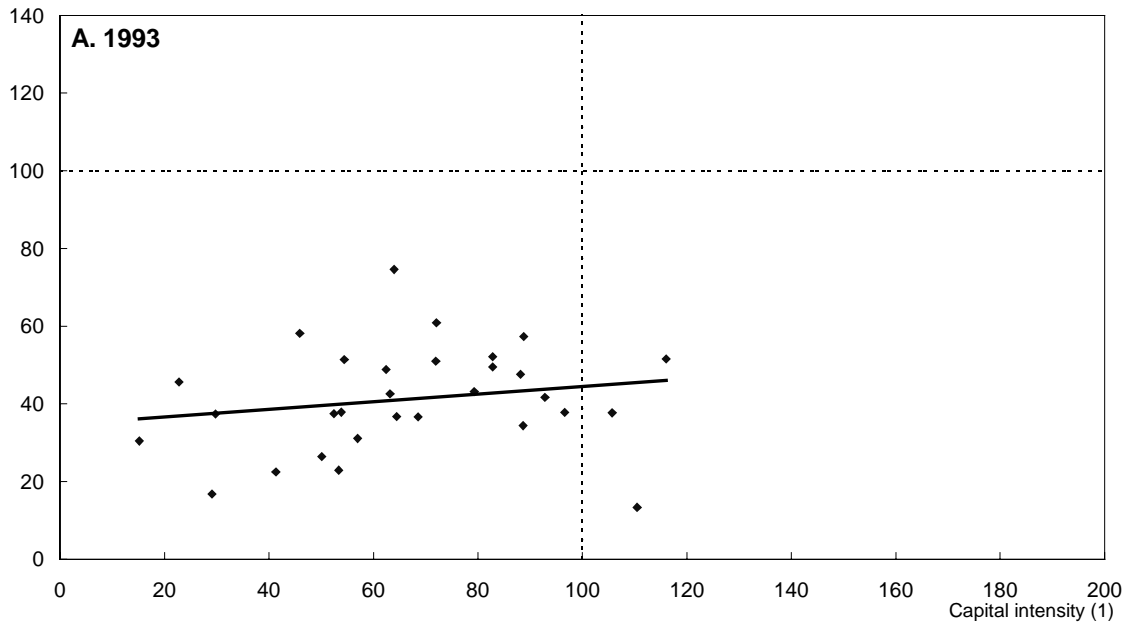
40. See R. Barrell and D. W. te Velde (2000).

41. Distortions in eastern Germany’s market structure might also contribute to relatively high input prices in comparison to the west. G. Müller (1998) estimates that the productivity gap to west Germany would drop significantly if west German input and output prices were assumed.

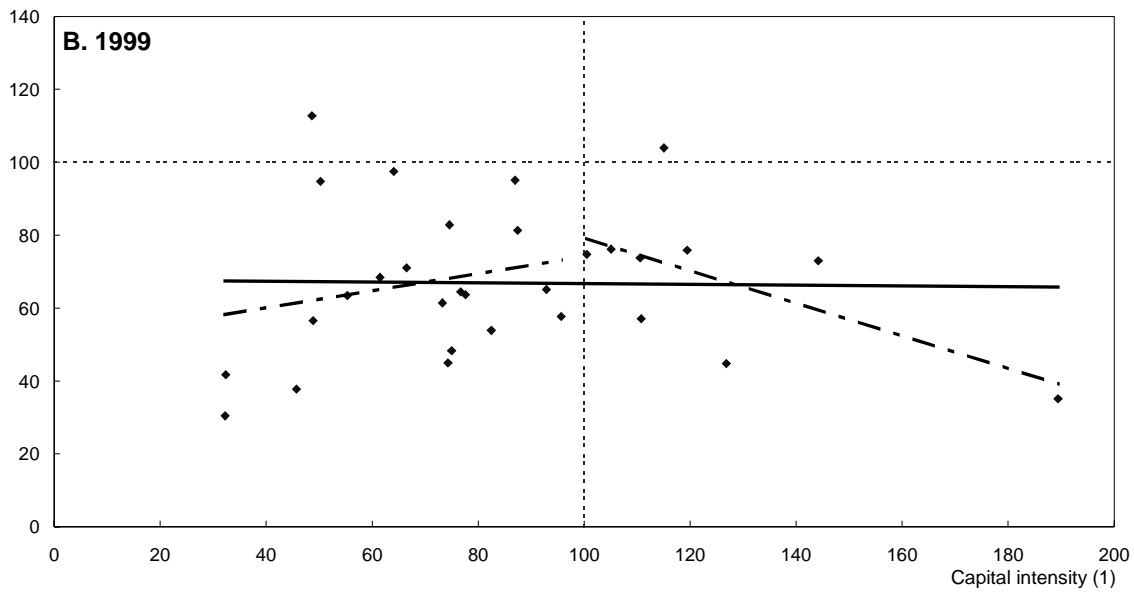
Figure 12. CAPITAL INTENSITY AND PRODUCTIVITY IN MANUFACTURING
 In per cent of the levels in the old states

— Regression line for all sectors - - - - - Regression line for all the sectors with capital intensity
 in the new states smaller/larger than the capital intensity
 in the old states

Productivity



Productivity



1. Business gross fixed capital stock per employed.
 Source: Deutsches Institut für Wirtschaftsforschung and OECD.

Table 5. **Capital intensity and productivity in manufacturing, 1999¹**

	Capital intensity	Productivity	Share in total capital stock	
			New states	Old states
	Old States = 100		Per cent	
Refinery, coke oven products	189.4	35.1	5.7	1.6
Parts of motor vehicles	144.2	72.9	4.0	3.9
Other transport equipment	126.8	44.8	6.0	1.8
Basic chemicals	119.4	75.9	9.7	7.8
Wood	115.0	103.9	2.9	1.6
Metals	110.7	57.1	7.6	6.8
Glass, pottery, mineral products	110.6	73.7	12.4	4.9
Leather	105.1	76.2	0.5	0.5
Pulp, paper	100.5	74.8	3.0	3.5
Media technology products	95.7	57.7	3.1	2.7
Power machinery	92.9	65.1	1.7	2.8
Other chemical products	87.5	81.3	2.9	5.9
Printing	87.0	95.1	1.8	3.0
Specialised machinery	82.5	53.9	2.2	3.1
Plastics, rubber products	77.6	63.7	3.7	5.0
Food	76.7	64.5	10.1	6.5
Machine tools	75.0	48.3	0.9	1.4
Other metal products	74.6	82.8	3.1	4.9
Other machinery	74.3	44.9	1.9	3.2
Furniture, toys	73.3	61.4	2.0	2.3
Structural metal products	66.5	71.0	2.4	1.4
Beverages	64.1	97.5	4.2	3.7
Textiles	61.5	68.4	3.0	2.7
Motor vehicles	55.3	63.4	1.4	8.8
Computers, office machinery	50.3	94.8	0.4	1.1
Other electric products	48.8	56.5	1.3	2.4
Precision instruments	48.7	112.7	1.1	2.4
Tobacco products	45.7	37.8	0.2	0.4
Clothing	32.3	41.7	0.2	1.0
Distribution, control apparatus	32.3	30.4	0.7	3.0
Total	92.0	64.4	100.0	100.0

1. Gross capital stock per employed and value added per employed, respectively; in 1995 prices. Without recycling and publishing.

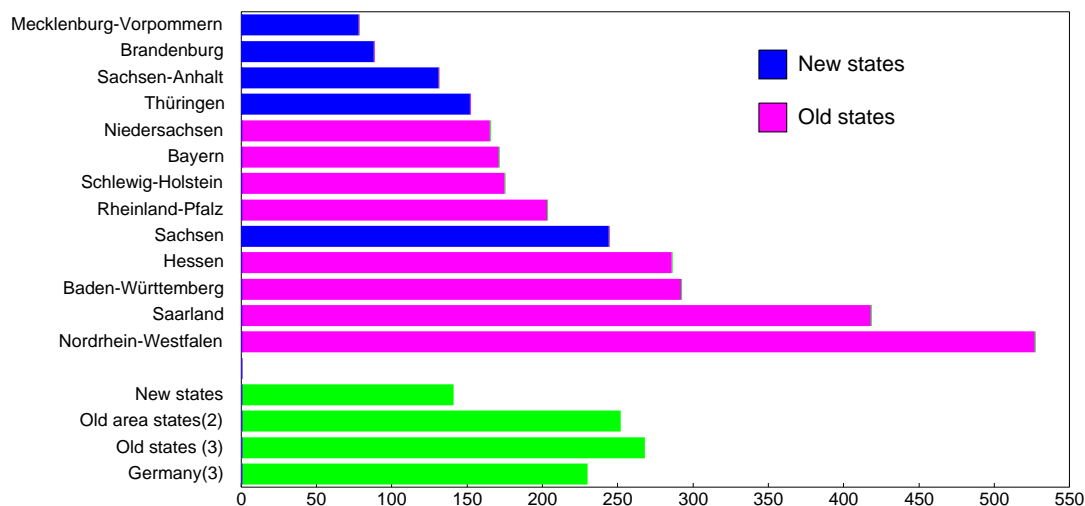
Source: Deutsches Institut für Wirtschaftsforschung, OECD.

economic policy. For western Germany empirical investigations indicate significant positive links between productivity and agglomeration.⁴² In the new states both population density by state and the number of high-density regions within states are significantly lower in the east than in the west (Figure 13).⁴³

42. For western Germany average labour productivity in rural administrative units has been estimated to fall short by 8 per cent or more of productivity in administrative units with a medium population density. See Seitz (2000b).

43. However, with respect to input prices it is worth mentioning that eastern German firms are subject to higher energy prices than their western counter-parts. This is due to the fact that electricity generation from brown coal -- which dominated energy generation in the GDR -- is sheltered against competition from other energy sources.

Figure 13. POPULATION DENSITY IN THE NEW AND THE OLD STATES (1)
Inhabitants per square km



1. In 1998.

2. Excluding the city states Berlin, Bremen and Hamburg.

3. Including the city states.

Source : Federal Statistical Office and OECD.

32. Moreover, the share of young and smaller companies is larger in the new Länder than in the old ones, and the difference in the age and size distribution might also explain some portion of the productivity gap to the west.⁴⁴ This is also true for the rate of capacity utilisation. In 1999 and 2000 the capacity utilisation of eastern German manufacturing was found to fall short of the western rate by only between 2 and 3 percentage points.⁴⁵ Similarly, according to other survey information average capacity utilisation in all sectors combined was lower in the east than in the west by 3 percentage points.⁴⁶

... but skill levels are high, and migration does not appear to constrain economic growth

33. The eastern German labour force is generally considered to be well qualified. Indeed, in manufacturing establishments the proportion of skilled workers is much higher in the east than in the west. To a large extent this is still attributable to the high level of formal training provided in the former GDR, although little can be said about actual demands on these skills.⁴⁷ Similarly, while companies in the east spot a “shortage” of skilled labour, it appears to fall short of the one recorded by western firms: according to the 1997 wave of the enterprise panel of the German Institute of Employment research, 11.1 per cent of all sampled firms in the east notified a shortage of qualified labour, as opposed to 17.0 per cent of the firms

44. See Deutsches Institut für Wirtschaftsforschung *et al* (2000).

45. See Lindlbauer (1999) and (2001).

46. See Schäfer and Wahse (2000).

47. See Bellmann and Brüssig (1999). The 1995 Labour Force Survey leads to the same conclusion. See Franz and Steiner (2000).

in the old states. In the 2000 wave, 13 per cent of eastern German firms stated for the next two years that they expect difficulties in finding qualified labour.⁴⁸ On the other hand, the employment share of qualified white-collar workers has been found to be smaller than in the west, and this seems to hold in the first place for smaller firms.

34. Nevertheless, the public debate about east-to-west migration within Germany is still dominated by the concern the new states might suffer a drain of qualified labour, hampering economic development in the east and raising excess labour supply in the west. Indeed, in 1989 and 1990 almost 800 000 persons migrated to the west, some 5 per cent of the eastern German population. This high outflow, reflecting to a large extent uncertainty about the political future of eastern Germany at the time, had a major impact on the decision to establish the “currency, economic and social union” between the two parts of Germany in July 1990 -- prior to political unification. After the currency union was established east-west migration ebbed down and was increasingly matched by migration in the opposite direction. Since 1998 east-west migration has slightly increased, as the GDP growth differential between eastern and western Germany widened in favour of the west. Throughout, expectations of potentially detrimental effects of east-to-west migration continued to rank high among policy makers. In the early 1990s they were an important motivation for the high wage settlements in the new states, and they also motivate high levels of financial transfers to eastern Germany and large-scale provisions of active labour market measures (Figure 14).

35. Empirical evidence points to differentials in earnings and job availability as significant explanatory factors for intra-German east-west migration.⁴⁹ Seen in isolation, both the steep increase in eastern wages relative to the west and the high level of ALMPs should have contributed to the drop in east-west migration in the first half of the 1990s. However, the overall effect of these measures on migration appears less clear taking into consideration that high-wage policies have retarded job creation in the primary labour market.

36. While east-west migration in 1989 and 1990 was associated with a considerable outflow of skilled labour, the new states did not continue to suffer from such a net drain in the following years. Relative to their weight in the total population, young people and those with higher education have been found to be more inclined to migrate than others.⁵⁰ However, evidence from the German Socio-Economic Panel for the period between 1992 and 1997 shows that among the highly qualified, west German residents have been more inclined to move to the east than east German residents to the west, and that the new states experienced net migration gains of highly qualified labour.⁵¹ Net outflows to the west were confined to lower and medium qualifications. After 1997 -- with growth in the east persistently running below that in the west -- this picture appears to have reversed, and eastern Germany experienced net migration losses of highly qualified labour (Table 6).⁵² About half of the west-to-east migration consists of re-migration of people who initially lived in the new states but had emigrated to the west. Most of them got formal or informal training in the west before they re-migrated to the east.

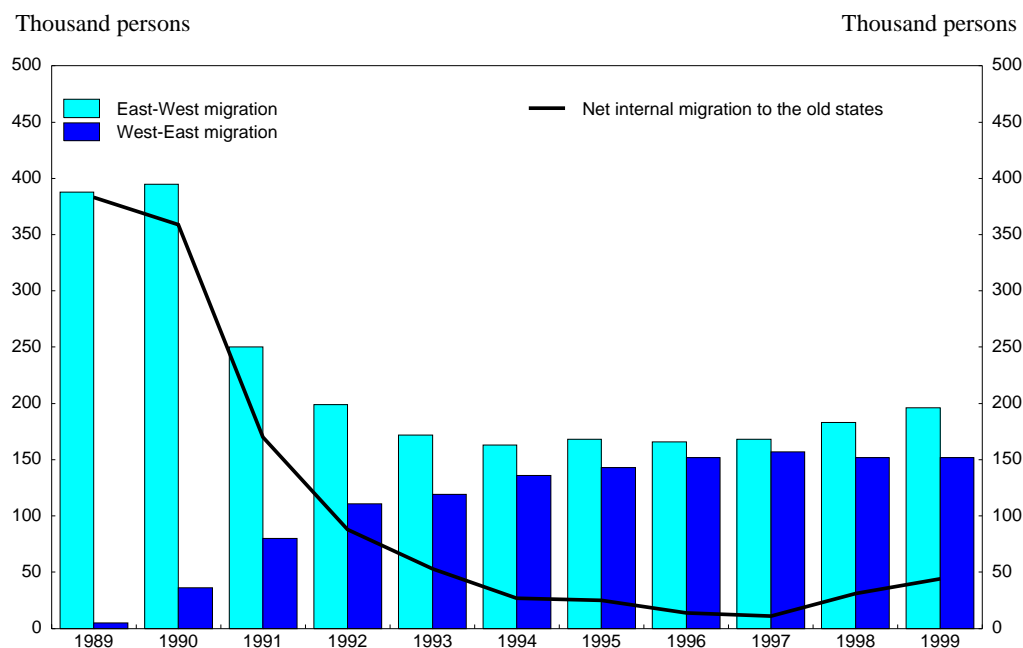
48. See Schäfer, R. and J. Wahse (2001).

49. This finding is consistent with the fact that net east-to-west migration increased since 1998, after eastern German growth rates had declined and even fell below west German levels.

50. For empirical work on east-west migration and commuting in Germany see Burda (1993); Burda *et al* (1998), Kempe (1999) and Hunt (2000).

51. See Kempe (1999) and Kempe (2001).

52. See Kempe (2001).

Figure 14. INTRA-GERMAN MIGRATION

Source : Institut für Wirtschaftsforschung Halle.

Unit labour costs have not adjusted to competitive levels

High labour costs retarded growth and employment

37. Unit labour costs in the total economy came down from 117½ per cent of the western German level in 1991 to 111½ per cent in 2000, with the development differing across sectors.⁵³ In the construction sector, unit labour costs have temporarily declined to below the level in the old states. But the largest reduction occurred in manufacturing -- which is more exposed to competitive pressures than other sectors -- where unit labour costs fell by 110 percentage points (Figure 15).⁵⁴ The decline in unit labour costs has largely been achieved by employment reductions, notably in the first half of the 1990s, while wages increased throughout the 1990s. However, this implied that adjustment was not designed to improve the competitiveness of the new states so as to support high levels of sustainable growth and rapid employment creation.

53. Unit labour costs are measured here in terms of compensation per dependent employee divided by value added in 1995 prices per employee.

54. Downsizing of employment in the manufacturing sector was much stronger in Germany than in the other European transition countries.

Table 6. Intra-German migration by qualification¹

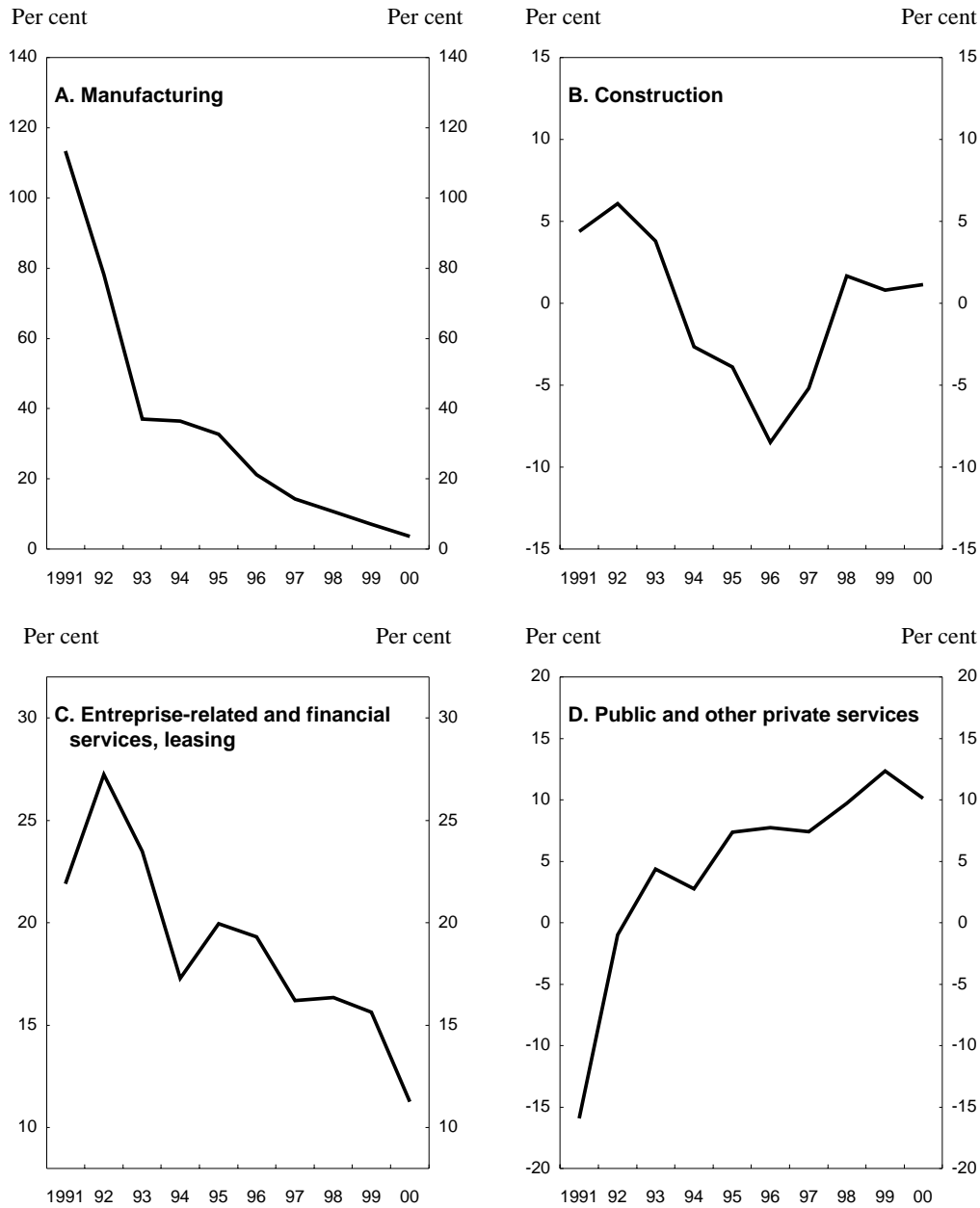
Qualification	East-West-migrants		<i>For comparison: total population new states in per cent²</i>	West-East-migrants		<i>For comparison: total population old states in per cent²</i>	Net intra-German migration to the new states (absolute in 1000)
	Absolute in 1000	In per cent		Absolute in 1 000	In per cent		
A. 1992-97							
Primary education							
Low	91	23.0	29.8	74	19.2	48.2	-17
Medium	212	53.3	52.8	176	45.4	31.9	-37
High	94	23.7	17.4	137	35.4	19.9	+43
Total	397	100.0	100.0	387	100.0	100.0	-11
Vocational/higher education							
Low	82	20.3	13.6	66	16.8	27.4	-16
Medium	274	68.3	75.3	250	63.7	60.3	-24
High	46	11.4	11.1	77	19.5	12.3	+31
Total	402	100.0	100.0	393	100.0	100.0	-9
B. 1997-1999							
Primary education							
Low	15	8.6	27.8	32	26.4	46.1	+17
Medium	75	44.5	55.5	48	39.5	32.4	-28
High	79	46.9	16.7	41	34.1	21.5	-38
Total	169	100.0	100.0	121	100.0	100.0	-49
Vocational/higher education							
Low	29	17.1	14.3	17	13.4	27.9	-12
Medium	99	57.9	75.3	85	66.7	59.0	-14
High	43	25.0	10.4	25	19.9	13.1	-17
Total	171	100.0	100.0	127	100.0	100.0	-43

1. Projections of the total based on sample outcome of the Socio-Economic Panel. For the period between summer 1997 and summer 1999 (Panel B) the estimates are derived from a relatively small sample and are therefore less reliable.

2. In 1997 for panel A and 1999 for panel B.

Source: Kempe, W. (2001).

Figure 15. UNIT LABOUR COSTS BY SECTOR (1)
 Unit labour costs relative to the old states (percentage point difference)



1. Unit labour costs have been computed as compensation per dependent employed divided by gross value added in 1995 prices per employed. Excluding Berlin.
 Source :Arbeitskreis 'Volkswirtschaftliche Gesamtrechnungen der Länder'; Arbeitskreis 'Erwerbstätigenrechnung des Bundes und Länder' and OECD.

38. Rapid wage increases were the major factor depressing the development of eastern German competitiveness. Effective wages were already boosted prior to reunification by the 1:1 currency conversion of Deutschmarks for East Marks. The impact of the conversion on labour costs has been substantial, although a concise assessment of the revaluation is hardly possible.⁵⁵ Neutralisation of the implied cost push for labour input would have required, at the minimum, a considerable delay of further nominal wage increases (which still would have preserved the increased purchasing power of wages in comparison to the state prior to currency conversion). Such an adjustment did not materialise, however. Instead, the social partners agreed in 1991 on a predetermined wage path targeting wage convergence with the west within five years. Although this agreement was abandoned in 1993, after it proved to be unsustainable, it led to very high wage increases in the first years after unification and continuing increases thereafter. Indeed, the parties involved in wage negotiations at the beginning of the 1990s had little incentives to agree on a low wage policy. Employers were represented by managers of former state-owned firms and representatives of western employers' associations. The employees' side was dominated by the west German Trade Union Federation (*Deutscher Gewerkschaftsbund*) which rapidly established branch-wide unions after the breakdown of the socialist regime. Total labour costs were further boosted by rising social security charges, which increased from 37.3 per cent of the gross wage base in 1990 to 41.7 per cent in 1999, despite successive broadenings of the revenue base.⁵⁶ In sum, between 1991 and 2000 hourly compensation in manufacturing increased by almost 85 per cent, following sizeable wage increases that had already occurred in 1990.

39. Obsolete production structures -- and the breakdown of eastern Germany's traditional eastern European export markets in the first half of the 1990s -- inevitably implied a massive re-allocation of labour accompanied by large employment losses over a transitional period. However, imposing a strongly accelerating wage path on this process retarded the capacity of the economy to generate new competitive working places in the primary labour market. This policy also negatively influenced the terms of trade, which should have contributed to the sluggish development of eastern Germany's export share (presently amounting to about 55 per cent of that in the west). A high degree of competitiveness is crucial, however, for generating growth. This is evidenced by the fact that all those branches in manufacturing which experienced very high growth rates over the last couple of years, are export oriented. A state characterised by high wage increases relative to productivity, very high and persistent unemployment, and relatively modest net migration to the west would not have been sustainable without massive transfers from western Germany.⁵⁷ Industrial subsidies effectively helped safeguarding the viability of enterprises despite the push in labour costs, and unemployment related benefits provided income support to replaced workers.⁵⁸

55. At the time of the GDR the official exchange rate between DM and East Marks was 1:1. This represented a vast over-valuation of the East Mark. However in the absence of an exchange market for the East Mark, no reliable data on the market evaluation of the currency are available. The black exchange market was too narrow to yield such information. Estimates based on purchasing power parity, such as Sinn (1991) suffer from the fact that the conditions for purchasing power parity to hold were not given.

56. The "tax wedge" between consumption and production wages increased rapidly in the new states, with potentially adverse effects on labour demand. For an analysis of the tax wedge in eastern Germany see: Franz (1999). For an account of the concept see also OECD (1994).

57. Sinn and Westermann (2000) compare eastern Germany with the Italian Mezzogiorno, arguing that in both cases high and persistent transfers have changed the incentive structure in the economy away from productive activities.

58. Investment subsidies lower the price of a factor of production, which in isolation increases output and employment (output effect). On the other hand, they lower the price of capital relative to labour, which favours the substitution of capital for labour (substitution effect). The net effect of capital subsidisation on employment can be either positive or negative, depending on which of the two effects dominates. Indeed, in an economy exhibiting very high fixed capital investment, as observed in the new Länder, the technical feasibility of substituting one factor of production for the other -- capital for labour or *vice versa* -- is

Simultaneously, high and persistent unemployment was cushioned by work provision and training schemes, often in the public sector, while early retirement schemes reduced labour force participation.

40. While wage differentials across industrial sectors have increased in the 1990s they appear to be smaller than in western Germany or other developed market economies. In particular, in sectors which are little exposed to competition and where coverage with sector-wide wage bargainings is high -- in the first place the (oversized) government sector and heavy industries -- little pressure on wages has occurred.⁵⁹ Flexible relative wages are important, however, to support structural change.

41. Surveys indicate that firms consider high labour costs still as a major impediment for higher competitiveness and more employment.⁶⁰ This is in line with empirical evidence on the regional level suggesting that employment is higher when past wage increases were subdued.⁶¹ Given that area-wide agreed wage settlements proved unsustainable for a sizeable share of enterprises, wage agreements on the company level, to some extent based on opening clauses in collective contracts and often undercutting collectively-agreed wages, have gained importance. According to survey information, at the end of 2000 almost 70 per cent of industrial enterprises in eastern Germany did not belong to an enterprise association and are therefore not bound by collective wage contracts. This share has increased over recent years. Somewhat less than half of the enterprises pay wages in accordance with branch-wide collective agreements, while more than 40 per cent pay wages below this standard. Also, a large majority of enterprises opts in favour of either introducing a higher degree of flexibility into collective contracts or abolishing them entirely (Figure 16).⁶² These developments are reflected in the wage drift becoming increasingly negative (Figure 17).⁶³ In the process, labour cost flexibility has improved in recent years, notably in manufacturing, which is particularly exposed to competition.

... and large-scale active labour market measures have been largely ineffective

42. While active labour market policies (ALMPs) — work provision and training schemes — have helped to cushion the displacement of workers, the available evidence suggests that they have done little to increase employment prospects in the primary labour market. As has been discussed in the 1999 *OECD Economic Survey on Germany*, several studies indicate that work provision and training schemes in eastern Germany have not been effective in raising re-employment prospects of the unemployed in comparison to “passive” unemployment benefits. New empirical work supports the conclusion that work provision schemes in the east either have no effect at all or even reduce re-employment prospects (Box 2). There is also a high likelihood of circular participation in such schemes. According to longitudinal information on

higher than if the capital stock is largely given. Empirical evidence suggests that the output effect of investment subsidies has been larger than the substitution effect. However, there is evidence for the manufacturing sector that investment subsidies have implied significant substitution effects in favour of capital and at the expense of labour. This has reduced the employment intensity of economic growth in particular for low skilled labour. By contrast, in research and development the subsidisation of labour input has led to over-staffing in the production process if assessed against western Germany. See Gerling (1998). Also, Gerling (2000).

59. See Franz and Steiner (2000).

60. Deutsches Institut für Wirtschaftsforschung *et al* (1999); Schäfer, R. and J. Wahse (2001).

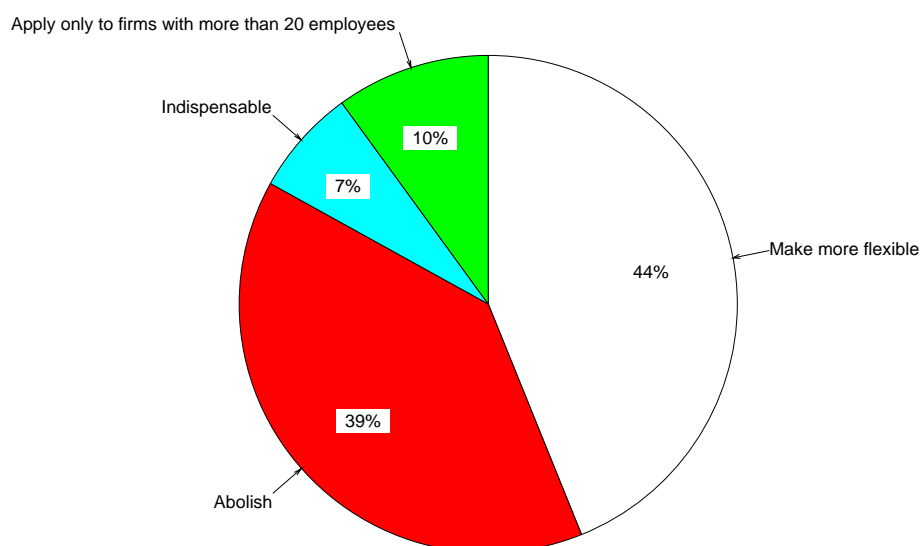
61. See Barjak (1999) and Laschke (1999).

62. See Laschke, Bärbel and Udo Ludwig (2001).

63. The wage drift is even larger than Figure 17 indicates since social security contributions by enterprises -- which are included in compensation -- have risen over most of the 1990s.

participation histories in Saxony, between 1990 and 1998 56 per cent of participants in a work provision scheme in the first year re-entered a work provision or a training programme at least one more time. The same is true for 44 per cent of the participants in a training scheme (Table 7). However, the limited availability of job mediation data for empirical research is preventing more detailed analysis of the effectiveness of different programme designs and associated deadweight costs.⁶⁴ Recent econometric work on the effects of ALMPs on aggregate unemployment suggests that work provision and training schemes even increase the stock of unemployment in eastern Germany rather than reducing it. This may be attributable to displacement effects and induced labour supply, which would not have come about without these measures.⁶⁵

Figure 16. Appropriateness of collective wage contracts in the view of industrial firms
Percentage share of firms sampled

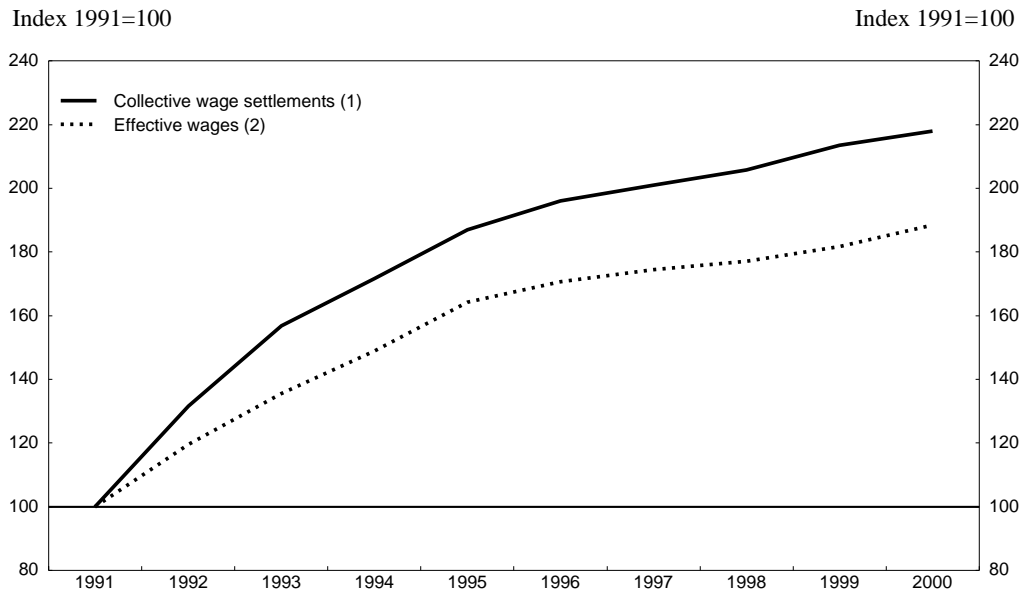


Source : Laschke B. and U. Ludwig (2001).

64. The Federal Government is aiming at more comprehensive evaluation studies of ALMPs and has made a commitment to facilitate access of third parties to the data of the Federal Labour Office. See the Annual Economic Report of the Federal Government 2001.

65. See Hagen and Steiner (2000).

Figure 17. EFFECTIVE WAGES AND WAGE SETTLEMENTS



1. Collectively agreed hourly wages.

2. Compensation per hour worked.

Source : Deutsche Bundesbank; Institute for Labour Market Research and OECD.

Table 7. Repetitiveness of participation in active labour market measures (ALMPs)¹

From first participation in ALMP in 1990:	Into second participation in ALMP between 1990 and 1998 in: (per cent)			
	Work provision scheme	Training scheme	Other state	Total
Work provision scheme	26	30	44	100
Training scheme	23	21	56	100

1. Sample of the Labour Market Monitor Saxony-Anhalt (*Arbeitsmarkt-Monitor Sachsen-Anhalt*).

Source: Institut für Wirtschaftsforschung Halle.

Box 2. The effectiveness of active labour market measures in eastern Germany

Active labour market measures (ALMPs) have been used extensively in the new states, whereas in the old states they have been applied on a much more limited scale.

The Box Table summarises the findings of micro-econometric studies on the transition into regular employment for eastern Germany. They are all based on longitudinal data sets of individual labour market transitions. The methodological framework rests either on an approach, which models conditional exit probabilities from non-employment for the sample of participants in ALMPs and non-participants (given the length of time that passed in the respective state already), such as hazard rate models, or is a statistical matching approach that constructs a comparison group of non-participants in ALMPs and then compares average outcomes for both groups. Various approaches are applied to control the potential bias on estimates associated with unobserved sample heterogeneity. While the results of these studies differ, most of them do not find significant positive employment effects of participation in job-creation or training schemes. In some cases, participation in such schemes is estimated to even reduce transition probabilities into regular employment.

Box Table **Microeconometric studies on the effectiveness of ALMPs in eastern Germany**

Author	Time span/data set	Impact on employment
Job-creation schemes		
Eichler, Lechner, 1999	1991-97/LMMSA	negative
Hübler, 1997	1990-94/LMME	Males: negative Females: insignificant
Kraus, Puhani, Steiner, 1998	1990-94/LMME	negative
Schneider, Bergemann, Fuchs <i>et al.</i> , 2000	1990-98/LMMSA	Over large range: negative
Steiner, Kraus, 1995	1990-92/LMME	Males: insignificant Females: negative
Training schemes		
Fitzenberger, Prey, 1998,	1990-94/LMME	negative, insignificant, positive
Hübler, 1997	1990-94/LMME	Males: positive Females: insignificant
Kraus, Puhani, Steiner 1999	1990-94/LMME	1990-92: negative 1992-94: positive
Lechner, 1999	1990-96/SOEP	negative, insignificant
Pannenberg, 1996	1990-94/SOEP	positive
Schneider, Bergmann, Fuchs <i>et al.</i> , 2000	1990-98/LMMSA	Over large range: negative
Staat, 1997	1992-94/SOEP	insignificant
LMME:	Labour market monitor eastern Germany (<i>Arbeitsmarktmonitor Ostdeutschland</i>)	
LMMSA:	Labour market monitor Saxony-Anhalt (<i>Arbeitsmarktmonitor Sachsen-Anhalt</i>)	
SOEP:	Socio-economic panel (<i>Sozio-ökonomisches Panel</i>).	
For similar summaries see also: Hagen and Steiner (2000) and Fitzenberger and Speckesser (2000).		

Aggregate effects and efficiency costs

A full evaluation of ALMPs would also need to take into account potential dead-weight costs and worker displacement effects (dead-weight costs concern expenditures which are actually not necessary to achieve a given labour-market outcome, while displacement effects refer to the possibility that there will be only a substitution between individuals, leaving aggregate unemployment unaffected). Moreover, there are other effects apart from workers' displacement (notably the adverse impact of financing ALMPs) which may render ALMPs ineffective in the aggregate, even if they had a positive impact on individual re-employment probabilities. Econometric work assessing the overall effect of work provision and training schemes for the unemployed on aggregate unemployment in eastern Germany — rather than the impact on individual re-employment probabilities — indicates that both types of programmes increased unemployment rather than reducing it.¹ In part, this might also be attributable to higher rates of labour force participation induced by ALMPs.

Research in other countries suggests that job-creation/work-provision schemes are associated with sizeable deadweight costs and displacement effects (Fay, 1996; Martin, 1998). Little is known on such effects in Germany, however, due to a lack of suitable statistical data. The responses from a firm sample by the Institute for Labour Market and Occupational Research of the Federal Labour Office (*Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, IAB*) indicates that the deadweight costs associated with wage subsidies may be substantial. 54 companies in the new states were asked about the impact of wage subsidies on hirings, and 22 per cent answered that the wage subsidies they receive over-compensated for the lower productivity of the supported workers they had hired. 30 per cent replied that they would have hired the same worker without financial support. Another 22 per cent answered that without support for the person hired they would have employed another worker. But this response does not necessarily indicate the size of the displacement effect, because in some cases companies would have hired another financially supported person. Attempts to econometrically quantify dead weight costs based on aggregate data failed to produce statistically significant outcomes, however, and this reinforces the need to make available micro-data sets on job mediation that are sufficiently rich to allow for cost-benefit analyses by programme type.²

1. See Hagen and Steiner (2000).

2. See Schneider, Hilmar *et al* (2000).

Policy implications

43. From the beginning on financial support policies for the new states were meant to serve two purposes: They should compensate for various disadvantages the new states had inherited, and they should help to overcome these adverse framework conditions paving the way to self-sustainable growth in the eastern German economy. As the analysis above has shown, economic conditions in eastern Germany have improved strongly over the last decade. However, the evidence suggests that subsidisation has biased resource allocation in favour of capital intensive industries and construction with negative implications for factor productivity. Moreover, high wage policies of the social partners, which have been introduced in the early 1990s, are still keeping wages at levels too high relative to productivity and have rendered much of eastern German industry uncompetitive. Such wage settlements, in effect would not have been sustainable without massive transfers from the west. Under such conditions persistently lower per-capita GDP levels and higher levels of unemployment than in western Germany are likely, and this induces migration to the west of eastern German employees who want to improve their employment prospects. In the future, structural and fiscal policies therefore need to rely much more on market forces to bring about economic convergence with the west than they did in the past. The dynamic developments within the manufacturing sector indicate the growth potential of the eastern German economy. In fact, the OECD recommended early after reunification that convergence should be market driven.⁶⁶ The restructuring of industrial support policies in the second half of the 1990s -- notably the phasing out of special depreciation allowances (*Investitionszuschüsse*) -- has been a significant step in this direction. The ongoing business and income tax reform also contributes to strengthening market forces (see OECD, 2001). But more needs to be done. Industrial subsidies need to be further reduced and restructured, and resources should be redirected in

66. See OECD (1991).

favour of abolishing bottlenecks in infrastructure to the extent these still exist.⁶⁷ Reallocation of resources also requires further attempts by the governments in the new states to streamline and reshape their spending. To reduce unemployment wage moderation is unavoidable and this needs to coincide with reforms in the social transfer system, notably with respect to active labour market measures. This section highlights the policy recommendations. In some cases, conditions observable in the new states reinforce the need for policy reform in Germany overall rather than requiring special action for the east.

44. Indeed, these policies are largely complementary. Lower wage settings relative to productivity developments facilitate reducing transfers and costly work provision schemes, which in turn eases the fiscal pressure on public-sector households and frees resources that could be used to abolish remaining infrastructure bottlenecks. As has been outlined in OECD (2001), the government has installed round table talks involving the government, industry and the unions, which aim at developing a joint strategy for fostering jobs and competitiveness. These “Alliance for Jobs” talks should be utilised to establish a policy framework that fosters market-driven convergence between eastern and western Germany.

Continue the development of the infrastructure

45. As has been highlighted above, infrastructure gaps in comparison to the west -- notably with respect to roads -- may account to some degree for the productivity gap. However, it would not be appropriate -- as is often done in the public debate -- to equate the projected value of the east-west infrastructure gap with the level of west-east transfers required for financing the catching-up of the east. Links between infrastructure and productivity depend on the projects chosen and their degree of complementarity to private-sector investment. Efficient infrastructure investment therefore requires that concrete bottlenecks hampering growth be identified. Hence, individual infrastructure investment projects should be subjected to cost-benefit analysis. While east-west comparisons of relative infrastructure endowments can give a rough picture of potential shortcomings they can be no substitute for project evaluation. Foregoing such evaluations risks a misleading assessment of requirements in the new states and a waste of capital, which in turn might instigate further demands for additional aid.

46. Moreover, as is apparent from the analysis above, infrastructure spending by the new states has been biased in favour of social services, housing, health and the central administration, and high endowments in these fields co-exist with gaps in other fields that are more important to foster the economic integration of the new states. These imbalances need to be abolished, requiring a reallocation of resources by the eastern states and communities.

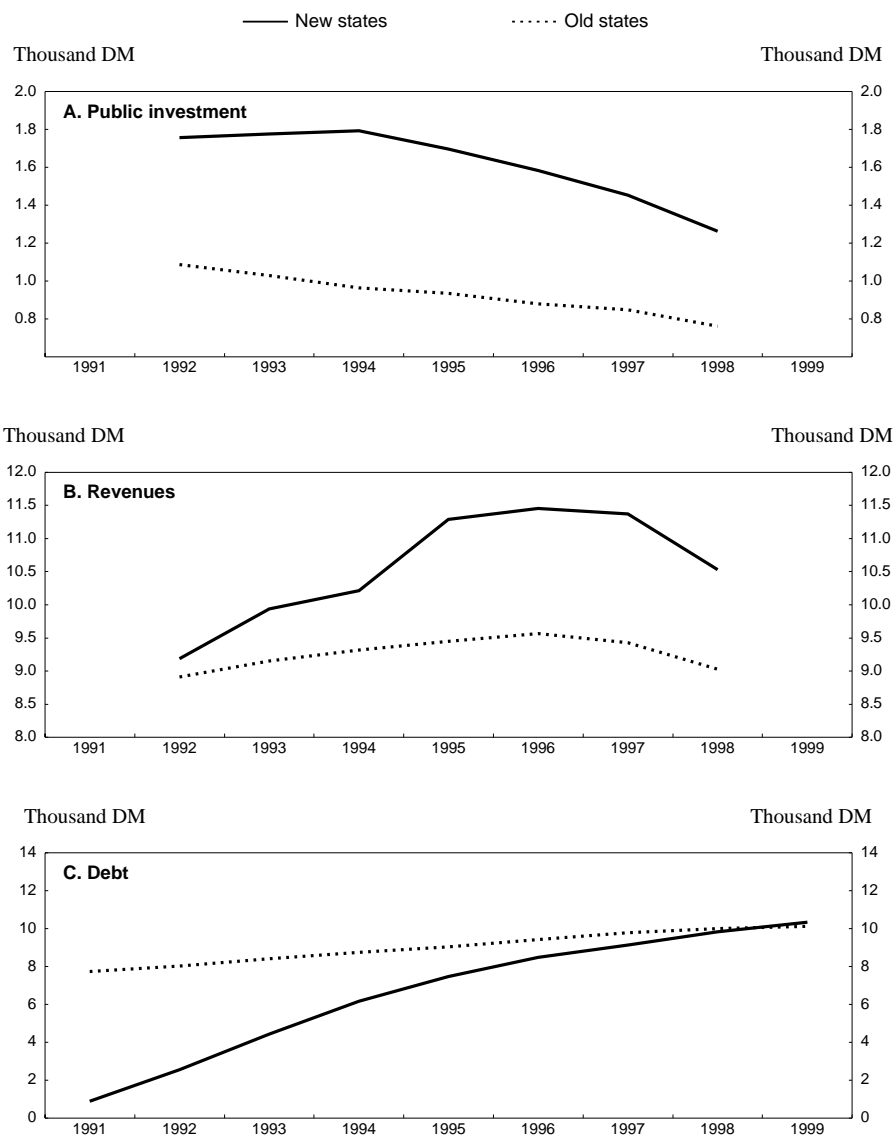
47. The need to reallocate spending is reinforced by the fact that in the 1990s the new states and communities devoted a declining share of their overall resources to investment. Between 1992 and 1998 investment by the communities and the state governments declined by 30 per cent, and this trend continued thereafter. In contrast, revenues increased, although the development was uneven⁶⁸. Moreover, the

67. Federal transfers to the new states are largely fixed within the “Solidarity Pact I” arrangement that expires at the end of 2004. For the period 2005 to 2019 further massive support will be extended, mainly for the purpose of financing infrastructure investment, within a follow-up arrangement (Solidarity Pact II), see Ragnitz J. (2001b).

68. In the second part of the 1990s revenues of the states and communities combined levelled off due to tax shortfalls that were largely unforeseen. The investment spending restraint in the east has been attributed to the shortfall in tax revenues (see Bach, Vesper, 2000). However, since these shortfalls were largely driven by tax expenditures in favour of the new states, industrial subsidies for the east have effectively crowded out eastern public sector infrastructure investment. At its peak, annual revenues foregone from special depreciation allowances for eastern Germany alone totalled ¼ per cent of pan-German GDP (1996) declining thereafter when tax concessions were reshaped (*Investitionszulagen*).

indebtedness of the new states and communities increased sharply over the last 10 years and by now has reached the western level on a per-capita basis (Figure 18)⁶⁹

Figure 18. PUBLIC INVESTMENT, REVENUES AND DEBT
Per capita (1)



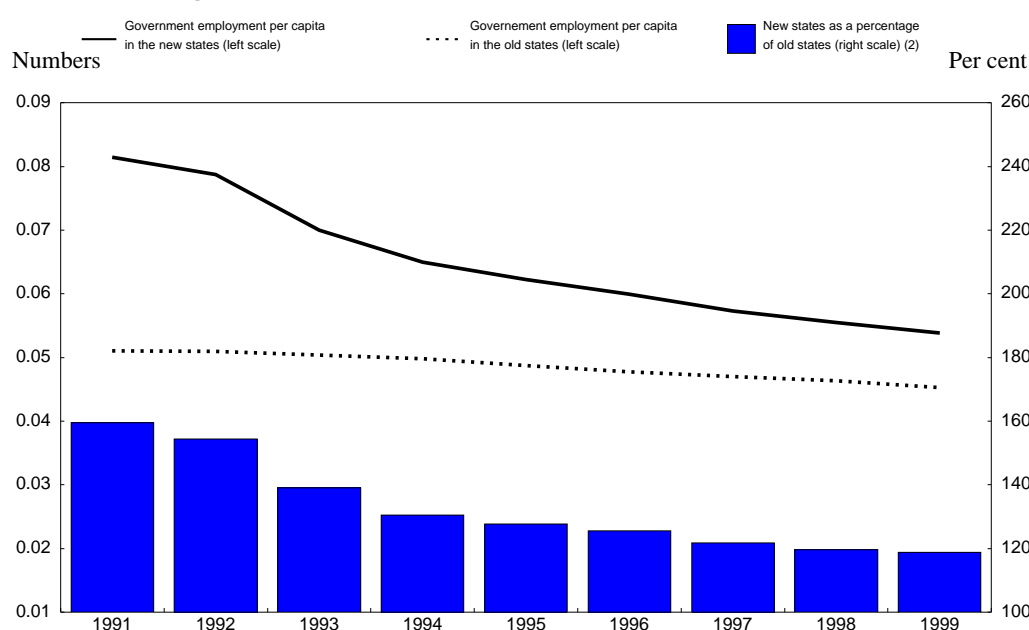
1. Excluding Berlin.
Source : Federal Statistical Office; Deutsche Bundesbank and OECD.

69. In real terms investment now matches the level that prevailed in the old Länder at the beginning of the 1980s, at a time where the infrastructure capital stock in the west was more advanced as the one in the east is now. In west Germany growth in infrastructure investment after the war exceeded GDP growth for two decades. During the 1950s and 1960s nominal GDP grew at an annual rate between 11 and 8 per cent, while government fixed investment expanded by between 17 and 13 per cent annually. This changed in the seventies, with the average annual growth in infrastructure investment (5 per cent) falling short of average nominal GDP growth (8 per cent) by 3 percentage points. In the 1980s west German infrastructure investment stagnated on average (falling at the beginning of the decade but rising in the second half), while nominal GDP grew by 5 per cent on average.

Streamline and restructure spending by states and communities

48. Government employment in the new states is still relatively high in relation to the west, despite massive reductions over the 1990s. Indeed, between 1991 and 1999 employment of the state and community governments in the new Länder was cut down by some 37 per cent, as opposed to 7½ per cent in the west. Nevertheless, government employment per inhabitant in the new states exceeds the western level by some 19 per cent, and the difference is particularly pronounced at the level of the communities (Figure 19). Moreover, with wages having risen faster than employment having been cut, total wages paid by state and local governments relative to the west increased over the 1990s.⁷⁰ Retirement outlays for civil servants, on the other hand, are nearly irrelevant. This is mainly attributable to the limited time that elapsed since re-unification, implying that retirement spending can be expected to rise substantially in the future when the stock of retirees is maturing.⁷¹

Figure 19. EMPLOYMENT IN THE GOVERNMENT SECTOR (1)



1. Government employment refers to employment in state and community governments combined.
2. Government employment per capita in the new states as a percentage of government employment per capita in the old states.

Source : Federal Statistical Office and OECD.

70. Budgetary spending patterns by the new and the old states exhibit broad differences that one would associate with the differential stages of structural adjustment: The new Länder (states and community governments combined) devote a higher share of their budget to operating expenses (*Sachaufwand*), infrastructure investment, and transfers to enterprises (Table 28, upper panel). Overall outlays for personnel per inhabitant (wages and outlays for retired civil servants) fall short of those in the west.
71. In the German system, full pensions are paid out of the governments' budgets -- rather than by the pension insurance -- only for tenured civil servants *Beamte*. Since this type of tenure could only be given after reunification the average seniority of active *Beamte* as well as the stock of those having already retired is much lower than in the west.

49. Government employment appears to be inefficiently high and needs to be scaled down. Indeed, it is already visible that those new states with relatively low per capita outlays for personnel tend to spend more on infrastructure.⁷² The need to cut down government consumption is further reinforced by the fact that in some fields budgetary pressures are likely to increase. With unemployment benefits and active labour market measures financed by the Federal Labour Office and the Bund, social assistance outlays to be paid by the states could increase to the extent eligibility for other support is fading or the level of ALMPs were scaled down. The latter would also have a direct impact on personnel outlays of regional governments, which employ a significant share of participants in such schemes. In addition, there may be hidden budgetary risks associated with the Länders' financial support for enterprises, notably in terms of government guaranties.

50. Hence, the downsizing of government employment needs to be continued. This is facilitated by the fact that the share of tenured civil servants in the new states is relatively low (18.5 per cent as opposed to 42.2 per cent in the old states in 1999). But adjustments of relative wages within the public sector should be considered as well. East-to-west wage convergence is most advanced in the public sector. This observation coincides with the fact that the system governing the remuneration of civil servants precludes any regional wage differentiation, apart from the east-west differential of 13.5 per cent. This restriction should be abolished and wage differentiation be allowed. Such reform would contribute to relieving the budgets of regional governments and raising the allocative efficiency within the public sector. In addition, it would support a larger degree of wage differentiation in the private sector.

51. Regarding the functional distribution of wage consumption, in most fields outlays in the east per inhabitant appear high in relation to the west (Table 8, lower panel). Moreover, the structure of consumption largely mirrors the one that has already been ascertained with respect to capital spending. In particular, public sector employment in the east exceeds western levels in those fields where the endowment with infrastructure capital, controlled by the states and communities, has already been found to surpass the western levels: the central administration, culture and social security (Table 4 above). Once capacities have been created, the size of staff employed appears to be complementary.

52. Given the budgetary constraints in the new states and in Germany overall and the need to improve the framework conditions for self-sustainable growth (in particular with respect to continuing the modernisation of the infrastructure), it is necessary to restructure the Länder budgets. Public day care services for children (*Kindertagesstätten*) are a major example for social services provided on terms much more generous than in the west. The availability of substantial day care is a positive achievement. However, the demand for such services by private households is a matter of preferences -- which might differ between east and west -- and the provision of the services has important private goods features and should therefore be adequately priced. With respect to schooling, higher employment-to-population ratios than in the west may be justified given the higher share of young people in the new states. However, demographic developments will dramatically reduce the demand for teachers in the near future. Some new states have already reacted to this prospect by offering conditional part-time contracts to teachers, but a more general adoption of such schemes would be appropriate (see the *1998 Survey*). More generally, surveys indicate that enterprises attach a high value to reducing bureaucratic hurdles to entrepreneurial activity and improving the efficiency of services by state and community governments to foster business activity.⁷³ Progress in this field appears to be an important contribution to strengthening the framework conditions for self-sustainable growth.

72. See Deutscher Bundestag (2000).

73. See Deutsches Institut für Wirtschaftsforschung *et al* (1999).

53. Efforts should also be made to engage more non-governmental bodies and associations in the provision of social and cultural services that up to now are supplied directly by the government. Although of importance for Germany overall, this point is of particular relevance for the eastern states, where the need to mobilise funds to support economic restructuring coincides with above-average government activity in these fields.⁷⁴ With a higher weight on subsidiary the extent and quality of the supply of such services could be better tested. Although such action would not fully translate into budgetary savings because public outlays for personnel would be replaced to some degree by transfers to non-governmental organisations, savings could be generated.⁷⁵

Table 8. Spending patterns of the states and communities

Per capita outlays, percentage of spending in the old states (1999)			
Current expenditures	100.0	Capital expenditures	211.2
<i>of which:</i>		<i>of which:</i>	
Personnel	96.1	Investment	161.2
Operating expenses	117.0	<i>of which:</i>	
Interest	97.5	Construction	192.0
Current transfers to private sector	97.3	Equipment	86.7
		Capital transfers to private sector	330.7
		Loans to private sector	169.0
		Purchase of equity participations	84.0
Per capita employment and outlays for employees in the government sector, percentage of magnitude in the old states			
	Outlays (1998) ¹	Employment (1999)	
Central administration	122.7	122.2	
Public security and order	113.2	113.6	
Jurisdiction	86.1	84.3	
Schools	134.7	131.6	
Universities and other research	93.9	88.7	
Culture	154.0	174.6	
Social security	101.9	121.8	
Sports and recreation	144.5	120.2	
Housing and area development	116.2	111.9	
Nutrition, agriculture and forests	..	179.3	
Traffic and communication services	103.4	104.5	
<i>Of which: Roads</i>	106.1	--	

Source: Federal Statistical Office and OECD.

74. There are fewer associations outside of the government sector providing social and cultural services. In part, such tasks are therefore provided within the government sector.

75. For a discussion of the public finances in the new states see Seitz (1999) and (2000a).

Further reduce and restructure subsidies

54. Subsidies to enterprises in the new states have originally been motivated by the intention to temporarily compensate enterprises for comparative disadvantages originating from the time of the GDR, notably a rotten infrastructure. More than ten years after reunification this rationale is vanishing. Nevertheless, the subsidy intensity has remained very high over the last decade, in contrast to original intentions. To avoid further distortions of the type highlighted above, aid needs to be further scaled down, and support rates need to be reduced, taking into account the accumulation of different support schemes as well.⁷⁶ Indeed, the more the economic framework conditions in the east are becoming similar to those in the west the higher will be the damage implied by the distortionary effects of large-scale subsidisation, and the risk that enterprises and activities are supported that would not stand the market test without aid. Moreover, empirical work suggests that the investment volume triggered by subsidies falls short of the financial aid extended if the rate of subsidisation exceeds a certain threshold (an estimated 33 per cent). This threshold is significantly lower than the accumulated maximum support rates applied in the new states. The average rate of investment support in manufacturing has been estimated to total 14 per cent (geometric mean), with about one-third of the supported enterprises exhibiting support rates between 20 and 50 per cent.⁷⁷ The resources freed by reducing subsidies would be available for other purposes supporting restructuring and growth, such as the abolishment of still existing bottlenecks in the infrastructure of the new states. Care needs also to be taken to avoid that aid for structurally weak regions results in supporting geographically concentrated declining industries.⁷⁸

55. Consequently, the recent trend towards applying the same set of rules for subsidisation for Germany overall should be enforced and continued.⁷⁹ This proposal is reinforced by the fact that the economic performance of some regions in the new states has surpassed the performance of weaker regions in the old states.⁸⁰ To account for this fact, the regional support schemes (*Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur"*) should be based on a unified scheme for Germany overall. Implementation of this policy is restrained by the fact that the present regional support scheme has been fixed until 2003, tax subsidies until 2004. However, a phasing out or restructuring of subsidies should be decided and announced soon to trigger the necessary adjustments on the side of the enterprises. Since the new Länder are still structurally weaker on average than the old ones a unified subsidy regime for Germany overall would imply that the new states would continue to obtain the larger share of aid per capita.

56. As highlighted above, empirical research suggests that a significant part of the eastern German productivity gap is attributable to a lack of management and marketing skills. More resources should therefore be devoted to providing such skills. The share of financial aid for training the management and the workforce should be increased at the expense of investment subsidies, reflecting the fact that relatively

76. For simulations of the demand effects of reducing transfers to the new states see Dreger and Ragnitz (2000).

77. This work is based on the 1997 wave of the Establishment Panel of the Institute for Employment Research. See Müller, G. (2000). See also Ford and Suyker (1990).

78. In the past, leading German economics research institutes have repeatedly claimed that high rates of subsidisation, notably for declining industries such as shipbuilding and steel, have hampered structural change in Germany. There appears to be some evidence to support this proposition although a recent study based on vector auto-regressive analysis failed to establish a statistically significant link between subsidisation patterns and structural change. See Stammer (1998).

79. See Ragnitz (2000a).

80. See Sachverständigenrat (1999).

high degrees of labour turn-over in a transition period make it more difficult for enterprises to finance such training. The propensity of the trained workforce to stay in the east will increase to the extent a more efficient policy mix is contributing to the upswing of the eastern economy.

57. It has been estimated that there are more than 400 support programmes for eastern German enterprises, including financial aid extended by the state governments. Often the programmes by the states -- accounting for some 40 per cent of the total volume of subsidies -- are designed so as to fill "support gaps" left in federal programmes.⁸¹ This heterogeneity is likely to increase the distortionary risks of state aid and favours "subsidy competition" between the states. Efforts should therefore be made to co-ordinate and streamline support programmes between the governments involved.

Reform the inter-governmental Revenues Equalisation System

58. In order to secure roughly equal living conditions across the federation, Germany's fiscal equalisation system transfers tax revenues -- after primary tax sharing -- from the wealthier to the poorer states, and federal transfers are also directed towards states with below average per capita revenues. As has been argued in OECD (1998), the major shortcoming of the present fiscal equalisation system consists of disincentives in terms of the high effective outflow of additional tax revenues generated by the states that is implied by the rules of secondary tax redistribution both between the states and between the Federal Government and the states.⁸² By construction the burden affects both the wealthy and the poor Länder. For wealthy states the equalisation system transfers part of the additional revenues after tax sharing to poorer states. For the poorer states additional revenues after tax sharing reduce the eligibility for equalising transfers from the wealthy Länder and the Bund. In effect, individual states lose between 86 and 49 per cent of the additional income tax revenues they generate, measured as a percentage of revenues available after the primary tax sharing with the Federal Government (in 1999). The new states range among those states with the highest loss rates, amounting to between 82½ and 85 per cent. These rates are even higher if primary tax sharing is also included as an outflow from the Länder's tax revenues (Figure 20).

59. With effective taxation of additional income tax revenues at such high levels, the equalisation system in itself produces few incentives to create conditions which attract companies and to support the development of taxable activity (notwithstanding the fact that such incentives exist outside the sphere of fiscal redistribution).⁸³ Indeed, empirical evidence suggests that the marginal effective taxation of the states' tax revenues has a significantly negative impact on tax enforcement by the states, although there appear to be improvements in the technology of tax auditing.^{84 85} Moreover, tax auditing by the new states

81. See Ragnitz (2000a), *op. cit.*

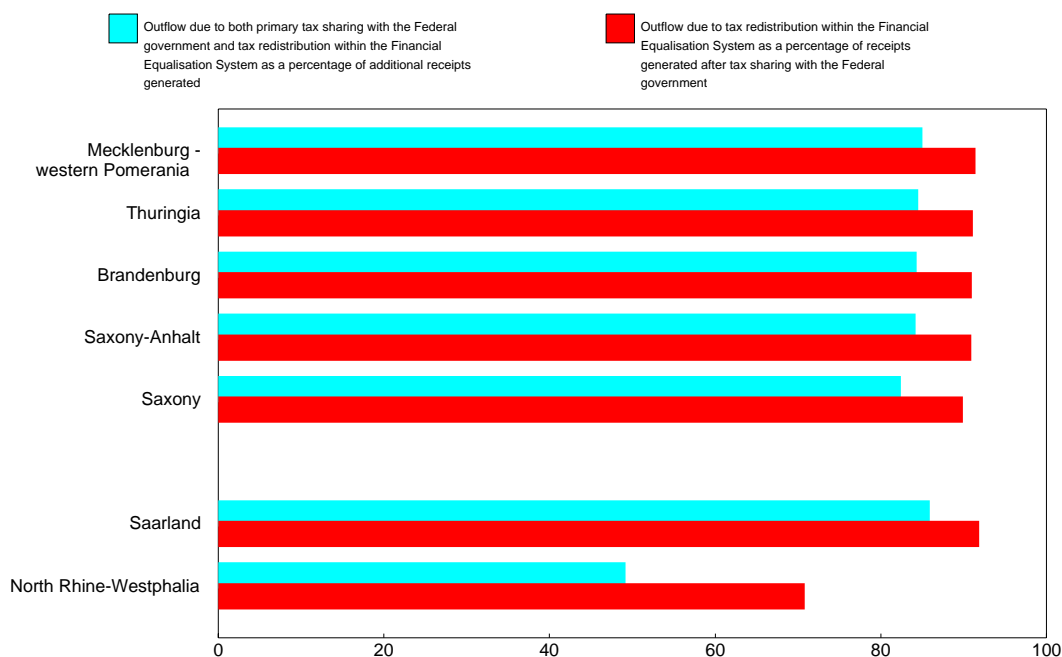
82. See also Wurzel (1999).

83. Lowering unemployment is one such incentive. However, similar to taxation of individuals, the equalisation system is associated with disincentives to raise the income base. The loss of a Land's additional tax revenues due to redistribution and transfer reductions can itself be considered as a "taxation" of Länder revenues, in analogy to effective taxation of personal income. For individuals, effective taxation of additional income also consists of charges to be paid by those receiving income above a certain level and benefit withdrawals for those with income below this level.

84. Following interventions by the Federal Ministry of Finance the number of tax auditors was raised, and tax audit coverage rates have improved from 1996 onwards. The number of tax audits of medium-sized companies increased from 51 240 in 1996 to 67 054 in 1999. Moreover, in 1999, the Federal Finance Office participated in a total of 1 374 audits conducted by the revenue authorities of the Länder. This figure includes 185 full audits of large-sized enterprises in the new states undertaken by the Federal Finance Office after consultation with the states' revenue authorities in the new states. In 1999 the tax audits generated almost 27 billion additional tax revenues in Germany overall.

was criticised by the Federal Auditor-General's Office. The Court, in its 2000 annual report to the Federal Government, stated that for enterprises of all size classes the auditing density in the new states fell short of the density in the old states by a wide margin. In the Court's assessment, in eastern Germany between one-third and more than one-half of posts required for the auditing of enterprises (*Betriebsprüfer*) are not filled, implying serious shortfalls in tax revenues and requiring immediate action by the states.⁸⁶

Figure 20. MARGINAL EFFECTIVE BURDEN DUE TO FINANCIAL EQUALISATION AND TAX SHARING (1)
Per cent



1. In 1999. It is assumed that a Land generates an increase in income tax receipts of DM 1 million.
Source : Huber, B. and K. Lichtblau (2000).

60. Hence, introducing a more incentive compatible system is necessary. While this concerns Germany overall, reform is of particular importance for the new states, whose taxing power falls substantially short of that of the western Länder. Improving incentives requires reducing the link between the level of equalising transfers and the annual development of the Länder's financial capacity as measured by their tax revenues. As has been argued in OECD (1998), one such reform that is consistent with ambitious redistribution objectives could be realised by allocating to poorer states lump-sum transfers that are fixed over a multi-annual period. At a second stage, taxes could be redistributed between states conditional on their financial capacity as it prevails after stage one. Given that the financial endowment of the poor Länder would have been already raised at the lump sum stage, the transfer rate for redistributing revenues on an annual base could be reduced. After the reference period has passed, the allocation of lump-sum transfers would be reviewed and new allocations decided.⁸⁷ With the periodically revised lump-sum

85. See Baretto *et al* (2000).

86. Bundesrechnungshof, Bemerkungen 2000 zur Haushalts- und Wirtschaftsführung des Bundes, Bonn, 2000.

87. Proposals for reform along these lines, taking into account the rulings of the Constitutional Court have are contained in Huber and Lichtblau (2000).

allocations likely to reflect the Länder's long-term economic development, this system is unlikely to fully abolish adverse incentives for developing the Länder's own revenues base. However, the reformed system would be more incentive compatible than the rules currently in operation.

61. Another aspect, that has gained importance in the policy debate and is of particular relevance for the new states, concerns the fact that in the present equalisation system income redistribution appears to be biased in favour of states with a high population density. When establishing a measure for the states' "financial needs" the equalisation system is based on the assumption that financial requirements increase with population density. Therefore "needs premia" are allocated to Germany's three city-states (Berlin, Bremen and Hamburg) as well as to states with large municipalities. The latter increase with the size of the community. The proposition that "financial needs" rise with population density has been questioned by the Constitutional Court in a ruling in 1999. The Court demanded examining whether high degrees of agglomeration or particularly low population densities within federal states could imply higher financial needs per inhabitant. In addition, the Court demanded investigating the link between taxing power and agglomeration. The ruling explicitly referenced three thinly populated states in eastern Germany. Empirical work, following the Court ruling, on the adequateness of compensation given to the city states produced mixed results. While one study found that the redistribution system over-compensates additional spending needs by the city states another study arrived at the conclusion that even higher premiums might be warranted to compensate the city states for their overall fiscal disadvantages.⁸⁸ More generally, the cost of providing public sector services on the level of state governments has been found neutral with respect to population density.⁸⁹ Other work, which considers both the state and community levels combined, found significant additional per-capita costs of providing a given standard of infrastructure endowment associated with sparsely populated states.⁹⁰ While these studies differ with respect to the degree the various levels of government are covered as well as the methodological approach chosen, they cast doubt on the adequateness of the extent to which the fiscal equalisation system compensates states with higher degrees of agglomeration for presumed higher per-capita costs of public sector activity. Similarly, for the purpose of establishing the area states' financial endowments prior to redistribution, the equalisation system adds in only 50 per cent of communal tax revenues. Empirical evidence suggests, however, that this rule

88. See Baretto *et al* (2001). This study uses two approaches to assess the differences in costs between the city states and the area states. One approach compares the costs of input factors (personnel, equipment), identifying as determinants for the overall cost differentials both differences in input prices and in quantities necessary to produce a given output level. The other approach is output-oriented and aims at identifying additional public-sector services of the city states in comparison to the area states. Netting out additional services from the total allows estimating the city states' incremental costs of producing the same level of output as the area states. Furthermore, see Deutsches Institut für Wirtschaftsforschung (2001). The DIW argues that commuting of employees to and from city states implies major fiscal disadvantages for the city states which in combination with agglomeration-related factors require a high premium in the revenues redistribution system. Mainly, the commuters' income tax revenues do not accrue to the city states. On the other hand, the city states face extra outlays for providing infrastructure for the commuters.

89. The Centre for European Economic Research, Mannheim, found for the level of state governments that the per-capita costs of certain public sector activities are significantly positively related to population density while for other activities the opposite is true. Overall, the study finds that the degree of agglomeration has no statistically significant impact on total costs in the budgets of the state governments (see Büttner *et al*, 2001).

90. Seitz (2000b) also considers the impact of population density on the costs of providing certain types of public-sector services. This study includes spending on the level of the communities as well, and arrives at the conclusion that additional per-capita costs on account of extremely low population density relative to the norm for providing infrastructure services totalled at least between 6.5 and 9.5 per cent of the Länder and community governments' overall expenditure. For a similar view questioning the justification of redistribution premia for more densely-populated areas see Söllner (2001).

disadvantages low-density areas because they produce smaller revenues per inhabitant than agglomerations.⁹¹ Hence, if provision of similar standards of infrastructure across the federation -- and for the new states in particular -- is a goal, the population based rules would have to be adapted to the extent discrimination is not justified.

Better control social security transfers

62. As is the case in other segments of the general government budget, in the social insurance system the revenues generated in the eastern Länder do not suffice to finance current spending. West-east transfers via the social insurance system are predominantly financed via taxation of labour (contributions from the wage base). Relieving the system from spending pressures and lowering the tax burden on labour associated with income redistribution would be a potentially important step to reduce adverse effects on employment.

63. High levels of pensions relative to earnings and a rapidly increasing stock of early retirements, encouraged by financial incentives, put pension finances in the east under particular stress.⁹² The special conditions associated with German re-unification therefore reinforce the need for effective pension reform along the lines discussed in the 2001 and 1999 *OECD Germany Surveys*. Moreover, they point to the benefits of introducing a tax-financed layer into the pension system as suggested in the 1999 Survey. If high pension incomes in the east are welcomed as an element of social policies, general tax revenues appear to be better suited than payroll contributions for financing income redistribution because they are more neutral with respect to employment (although they still may imply distortions). The future evolution of pension adjustments in the new states relative to the west might be worth considering as well. While the pension system is unified across the federal states and governed by a common set of rules, eastern pensions are still indexed to the evolution of wages in the east accounting for the fact that full convergence of wage levels has not yet been reached. But with eastern wages still rising faster than those in the west, pensions in the new states also continue to grow faster than in the old ones.

64. For several years in a row, health care spending in the east exceeded the revenues of the system, and as a consequence, the debt of the health funds is mounting. Indeed, health care spending is not only expanding faster than the eastern German wage base but also as spending in the west. Again, these findings reinforce the necessity for a general reform of the German health care system, as it has been addressed in the special chapter of the 1997 Economic Survey on Germany.

65. To enable the eastern health funds to reduce its accumulated debt, since 1999 transfers are paid from the western to the eastern health funds, with the transfer volume increasing (by about DM 1 billion between 1999 and 2000). While this has helped reduce the debt and the contribution rates of the health funds in the new states, such transfers across the boundaries of individual health insurers do not appear to be compatible with the government's plan to introduce a higher degree of competition between health insurers. They are also at risk to boost spending further. Moreover, at the margin the implied contribution burden in western Germany provides an incentive for the insured in the west to exit the public health insurance system in favour of private insurance, which would have adverse effects on the wage base for the public system overall. Similar problems could arise when the risk equalisation system

91. See Seitz (2000b).

92. Long employment spells of the retirees during their economically active life -- which constitute the main factor explaining the high level of pensions in the new states -- cannot serve as an economic rationalisation for high pension levels. In the GDR long work spells, in particular for women, came about because of the inefficiency of the centrally-planned economy.

(*Risikostrukturausgleich*) is being extended to the east. It is therefore welcome that the government is phasing in the extension of the pan-German risk equalisation system over a longer horizon only (between 2001 and 2007), rather than introducing it quickly. However, conditioning the introduction of this system on further progress in the economic integration of the new Länder would be preferable.

Allow for wages undercutting productivity growth and reduce effective labour taxation

66. As has been argued above, excessive wage settlements in the 1990s relative to the evolution of productivity have diminished east Germany's competitiveness and hampered employment creation. Wage settlements undercutting the evolution of productivity are required to improve competitiveness and employment prospects. While plant level bargaining and opening clauses in collective contracts allowing for plant level agreements have substantially increased at the end of the 1990s, the pace of adjustment appears insufficient given the scale of the unemployment problem. Shrinking membership in employment associations -- mainly due to exits by small and medium-sized enterprises -- low and declining union membership rates, and a significant share of non-observance of collective agreements indicate that collective outcomes are still largely considered to be at variance with the requirements of individual companies (see 2001 and 1999 *Surveys*). Furthermore, the wage distribution in the new states needs to become broader with respect to economic activity to better accommodate structural change and it needs to be sufficiently wide across qualifications to attract the highly qualified while simultaneously supporting employment of those at the low end of the skill distribution. To achieve these goals, the scope for plant level agreements should be widened further.

67. For labour demand in low wage segments to develop, supplementary reform in the tax and transfer system is necessary that reduces the effective taxation of labour. This is particularly true for social assistance payments to prevent them from acting as effective minimum wages (see the 1996 and 1999 *Surveys*). While reform in this sphere is appropriate for Germany overall, its urgency is re-enforced by the particularly high levels of unemployment in the new states.

Scale-down and revise active labour market measures

68. While the labour market after unification was in a very difficult condition, and keeping unemployed in work programmes under such exceptional circumstances may have had a value in itself, it cannot be ignored that work provision and training schemes for the unemployed (ALMPs) have not proven to be effective in eastern Germany, might be associated with substantial displacement effects, and are therefore inappropriate in their present form. Work provision and training schemes might be useful tools to foster the re-employment chances of a narrowly-focused group of persons with particularly unfavourable socio-economic characteristics. But extended on a massive scale, such measures give incentives to resist necessary wage adjustments in the primary labour market, and act as an expensive means of social policy, which is also burdensome for the budgets of regional governments.⁹³

69. ALMPs have also been motivated by the desire to reduce east-west migration. However, as has been outlined above, eastern Germany does not appear to suffer from a "brain drain" to the west, and re-migration of qualified labour to the east is occurring at a significant rate. Given the available evidence, a policy is fruitless that aims at keeping young people in the east by means of ALMPs extended on a large scale. Commuting and migration to western Germany should be seen as a chance to improve employment

93. See OECD (1991) *op.cit.*

prospects -- and preserve and develop human capital in the primary labour market -- at a time when the overall capacity of the east to absorb "domestic" labour supply falls short of that in the west.⁹⁴

70. Hence, the scale of work provision and training schemes in eastern Germany should be reduced considerably, to levels where the programmes and subsequent placement are better manageable than in the present system. With such schemes being concentrated on narrowly defined problem groups, the content of market relevant training should be raised via close consultation with employers on programme design. Programme evaluation by independent bodies should be institutionalised to widen the scope for further corrective actions if necessary. Indeed, the experience in eastern Germany reinforces the need for more efficient job mediation (see OECD, 2001). Given the high costs of work provision and training schemes in comparison to unemployment benefits the savings generated by such a policy would be very large.

Conclusions

71. In major fields the economic integration of the eastern German states has progressed rapidly. The infrastructure has been built up and modernised at a high speed. Although deficiencies in infrastructure remain, major barriers to growth have been removed. Aided by financial assistance from the west, a strong trend to modernise the business capital stock has been established. The indicators suggest that the age and quality of equipment have reached the west German standard, although the capital intensity, especially in final goods manufacturing, still falls short of the western level. Already at the beginning of the 1990s the elaborate western German social security system has been extended to the new states. Incomes of both the employed and the non-employed, in particular the retirees, have risen fast, and largely approached west German levels. Also, up to now there is a high degree of structural change, as witnessed by high growth rates in manufacturing, increasing export shares, the rapid expansion of the service sector and the downsizing of the construction sector after very high -- and largely policy induced -- growth rates in the first half of the 1990s.

72. However, in the second half of the 1990s economic growth in the east decelerated, and on the aggregate level income convergence has stalled and employment stagnated. Absorption in the new states persistently exceeds eastern production by some 50 per cent, and average productivity has levelled off at two-thirds of the western level only (slightly less if measured in terms of hours worked) although the size and quality of the production factors would suggest significantly higher levels. These backdrops took place against the background of a high level of west-to-east transfers, which changed little, amounting to some 4½ per cent of western GDP on a net basis annually (tax concessions and debt take-overs not included).

73. Various factors are associated with this finding. In part, the failure to achieve a self-sustaining strong growth path must be ascribed to the size and persistence of the initial transition challenge. Indeed, the exposure to competition of the eastern German economy revealed that its structural deficiencies were too severe to be remedied quickly by restructuring or wage moderation. Consequently, a large part of the eastern German industry had to be closed down. The industrialisation thereafter had to start almost from scratch and its impact on performance is to some extent masked by the simultaneous downsizing of construction. However, distortions in the economic structure of eastern Germany and high labour costs play a major role. While industrial subsidies helped establishing a modern capital stock, associated distortions of the production structure appear to have reduced productivity growth. In manufacturing, distortions appear to be largely concentrated in basic goods industries. Rapid wage increases, that were not

94. More generally, with substantial differences in productivity -- such as those observable between east and west Germany -- migration from low productivity, low wage areas to high productivity, high wage areas is welfare enhancing. Wages need to be made sufficiently flexible, however, to accommodate the shifts in labour supply.

warranted in terms of productivity improvements, hampered the economic expansion and biased it in the direction of non-tradable goods. Such wage increases have been a major factor instigating massive transfers from the west, but simultaneously would not have been sustainable without such transfers.

74. In the future structural and fiscal policies need to rely much more on market forces to bring about economic convergence with the west than they did in the past. The dynamic developments within the manufacturing sector, seen in recent years, indicate the growth potential of the eastern German economy which is to be broadened by such an approach.

BIBLIOGRAPHY

- Bach, Stefan and Dieter Vesper (2000) Finanzpolitik und Wiedervereinigung – Bilanz nach 10 Jahren, Vierteljahreshefte zur Wirtschaftsforschung 69, 2/2000.
- Baretti Christian, Bernd Huber, Karl Lichtblau and Rüdiger Parsche (2001), "Die Einwohnergewichtung auf Länderebene im Länderfinanzausgleich", ifo Schnelldienst 3/2001.
- Baretti, Christian, Bernd Huber and Karl Lichtblau (2000), "A tax on tax revenue", CESifo Working Paper No.333.
- Baretti, Christian, Robert Fenger, Bernd Huber, Willi Leibfritz and Matthias Steinherr (2000), "Chancen und Grenzen föderalen Wettbewerbs", ifo Institut, München.
- Barjak, Franz (1999), "Beschäftigungsentwicklung in Ostdeutschland: Räumliche Muster und Hinweise auf einige Determinanten", *Wirtschaft im Wandel*, No.3/1999.
- Barrell, Ray and Dirk Willem te Velde (2000), "Catching-up of East German Labour Productivity in the 1990s", *German Economic Review* 1(3).
- Bellmann, Lutz and Martin Brussig (1999), Productivity differences between western and eastern German establishments, Institute for Employment Research, Topics No. 37/1999.
- Brinkmann, Ch. (1999), Controlling and Evaluation of Employment Promotion and the Employment Services in Germany, IAB Topics, No.36.
- Brinkmann, Christian (2000), Zur Evaluation der aktiven Arbeitsförderung nach dem SGB III -Monitoring und Wirkungsforschung im Umbruch, Mitteilungen aus der Arbeitsmarkt- und Berufsforschung 2/2000.
- Bundesministerium der Finanzen (1999), "Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes unter der Steuervergünstigungen für die Jahre 1997 bis 2000 (Siebzehnter Subventionsbericht)", Bonn.
- Bundesrechnungshof, Bemerkungen 2000 zur Haushalts- und Wirtschaftsführung des Bundes, Bonn, 2000.
- Burda, Michael (1993), "The determinants of east-west migration: some first results", *European Economic Review*, Vol.37, 2-3.
- Burda, Michael, Wolfgang Härdle, Marlene Mueller and Axel Werwatz (1998), Semiparametric analysis of German east-west migration intentions: facts and theory, *Journal of applied econometrics* Vol.13.

- Büttner, Thiess, Robert Schwager, and Dan Stegarescu (2001), Einwohnergewichtung, Siedlungsdichte und Mehrbedarf - Eine empirische Untersuchung der Kosten der Bereitstellung öffentlicher Leistungen durch die deutschen Bundesländer, Zentrum für Europäische Wirtschaftsforschung, Mannheim.
- Carlin, W., A. Glyn, and J. Van Reenen (1999), "Export Market Performance of OECD Countries: An Empirical Examination of the Role of Cost Competitiveness", The Institute for Fiscal Studies, Working Paper Series No.W99/21.
- Council of Economic Experts (2000), Annual Report 2000/2001, Chancen auf einen höheren Wachstumspfad, Wiesbaden.
- Deutscher Bundestag (2000), Jahresbericht 2000 der Bundesregierung zum Stand der Deutschen Einheit, Drucksache 14/4129.
- Deutsches Institut für Wirtschaftsforschung, Institut für Weltwirtschaft an der Universität Kiel, Institut für Wirtschaftsforschung Halle (1999), Gesamtwirtschaftliche und unternehmerische Anpassungsprozesse in Ostdeutschland - neunzehnter Bericht, Halle
- Deutsches Institut für Wirtschaftsforschung, Institut für Weltwirtschaft an der Universität Kiel, Institut für Wirtschaftsforschung Halle (2000), Gesamtwirtschaftliche und unternehmerische Anpassungsprozesse in Ostdeutschland - Kurzexpertise.
- Deutsches Institut für Wirtschaftsforschung, Hamburgisches Weltwirtschaftsarchiv, ifo Institut für Wirtschaftsforschung, Institut für Weltwirtschaft an der Universität Kiel, Institut für Wirtschaftsforschung Halle and Rheinisch-Westfälisches Institut für Wirtschaftsforschung (2000), Die Lage der Weltwirtschaft und der deutschen Wirtschaft im Herbst 2000, ifo Wirtschaftskonjunktur 10/2000.
- Deutsches Institut für Wirtschaftsforschung (2001), Wochenbericht 11-12/2001.
- Dreger, Christian and Joachim Ragnitz (2000), Kürzung von Transferleistungen für die ostdeutschen Bundesländer: Nur kurzfristig kontraktive Effekte, *Wirtschaft im Wandel* 7/2000.
- Eichler M. and M. Lechner (1999), "An Evaluation of Public Employment Programs in the East German State of Sachsen-Anhalt", University of St. Gallen.
- Elmeskov, J., J. P. Martin and S. Scarpetta (1999), "Key Lessons for Labour Market reforms: Evidence from OECD Countries' Experience", *Swedish Economic Policy Review*, Vol.5, No.2.
- Fay, R. (1996), "Enhancing the Effectiveness of Active Labour Market Policies: Evidence from Programme Evaluations in OECD Countries", *Labour Market and Social Policy Occasional Papers*, No.18, OECD, Paris.
- Fitzenberger, Bernd and Stefan Speckesser (2000), "Zur wissenschaftlichen Evaluation der Aktiven Arbeitsmarktpolitik in Deutschland: ein Überblick" in *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, Vol.3/2000.
- Ford, Robert and Wim Suyker (1990), "Industrial subsidies in OECD economies", *OECD Economic Studies* No.15.

Franz, Wolfgang and Victor Steiner (2000), "Wages in the East German Transition Process: Facts and Explanations" in *German Economic Review*, Vol.1/2000.

Franz, Wolfgang (1999), *Arbeitsmarktökonomik*, Berlin.

Gerling, Katja (1998), "Transfers and Transition: The impact of Government Support on Factor Demand and Production in Eastern Germany, Kiel Institute of World Economics", Working Paper No.878.

Gerling, Katja (2000), "Subsidisation and structural change in eastern German transition: Did economic policy meet its objectives?", Kiel Institute of World Economics, Working Paper No.998.

Hagen, Tobias and Viktor Steiner (2000), "Von der Finanzierung der Arbeitslosigkeit zur Förderung von Arbeit", Baden-Baden.

Huber, Bernd and Karl Lichtblau (2000), Ein neuer Finanzausgleich – Reformoptionen nach dem Verfassungsgerichtsurteil, Institut der deutschen Wirtschaft Köln, Beiträge zur Wirtschafts- und Sozialpolitik 257, Köln.

Hübler, Olaf (1997), "Evaluation beschäftigungspolitischer Massnahmen in Ostdeutschland", Jahrbücher für Nationalökonomie u Statistik, Vol.216/1.

Hunt, J. (1999), Has work-sharing worked in Germany? *Quarterly Journal of Economics* Vol.144, No.1.

Hunt, Jennifer (2000), Why do people still live in East Germany? NBER Working Paper no.7564.

Institut für Wirtschaftsforschung Halle (2000), Produktivitätsunterschiede und Konvergenz von Wirtschaftsräumen. Das Beispiel der neuen Länder; Zwischenbericht, Halle.

Jacobebbinghaus, P. and V. Steiner (2000), Subventionierung der Sozialbeiträge. Wenig effektiv und teuer, ZEW news No.3.

Kempe, W. (1999), Bildungsstruktur der Ost-West-Migration: Humankapitalverlust Ostdeutschlands gestoppt, Institut fuer Wirtschaftsforschung Halle, *Wirtschaft im Wandel* 15/1999.

Kempe, Wolfram (2001), Neuer Trend in der Bildungsstruktur der Ost-West-Wanderung? Institut für Wirtschaftsforschung Halle, *Wirtschaft im Wandel* 9/2001.

Klodt, Henning (2000), "Industrial policy and the east German productivity puzzle", *German economic Review* Vol.1/2000.

Kraus, Florian, Patrick A. Puhani and Viktor Steiner (1998), "Do public works programs work? -- Some unpleasant results from the East German experience", Zentrum für Europäische Wirtschaftsforschung, *Discussion Paper* No.98-07, Mannheim.

Kraus, Florian, Patrick A. Puhani and Viktor Steiner (1999), "Employment Effects of Publicly Financed Training Programs, The East German Experience" in Jahrbücher für Nationalökonomie und Statistik, 219.

Laschke, Bärbel (1999), Kontrastreicher Aufwärtstrend der Unternehmen im verarbeitenden Gewerbe, *Wirtschaft im Wandel* 2/1999.

- Laschke, Bärbel and Udo Ludwig (2001), *Industriemfragen 2000, Dokumentation der Hauptergebnisse*, Institut für Wirtschaftsforschung Halle, Discussionpapier No.140.
- Lechner, Michael (1999), "An Evaluation of Public-Sector-Sponsored Continuous Vocational Training Programs in East Germany", University of St. Gallen.
- Leibfritz, Willi (1999), *Prognose 1999/2000: Überwindung der Konjunkturschwäche*, ifo *Wirtschaftskonjunktur No.7*.
- Lindlbauer, J. D. (1999), *Westdeutsche Industrie – Tendenzwende in der EU stützt Anstieg der Kapazitätsauslastung*, ifo-Schnelldienst No.22.
- Lindlbauer, Jürg Dieter (2001), "Westdeutsche Industrie: Unveränderte Auslastung, schwächere Auftragslage", ifo Schelldienst 2/2001.
- Martin, J. (1998), "What works among active labour market policies: evidence from OECD countries' experience", *Labour Market and Social Policy Occasional Papers*, No.35, OECD, Paris.
- Müller, Albert (2000), *Aufholprozess der ostdeutschen Wirtschaft stagniert*, ifo *Schnelldienst No.3/2000*.
- Müller, Albert (2001), *Verbesserte Produktionsmöglichkeiten bei unveränderten Absatzproblemen - Die Zeit in Ostdeutschland drängt*, ifo Schnelldienst 3/2001.
- Müller, G., J. Rothfels, A. Wölfl (1998) *Determinanten der Produktivitätslücke in Ostdeutschland – Ergebnisse einer Tagung am IWH Teil II*, *Wirtschaft im Wandel 2/1998*.
- Müller, Gerald (1998), *Schmalere Produktivitätslücke bei Beachtung von Preiseffekten*, *Wirtschaft im Wandel, 4/1998*.
- Müller, Gerald (2000). "Wirkungen der Investitionsförderung auf das Investitionsvolumen in den neuen Bundesländern", *Wirtschaft im Wandel*", No.7.
- Müller, Ralf (1998) *Ist eine spezifische FuE-Förderung für die neuen Länder notwendig?* *Wirtschaft im Wandel 14/1998*.
- Müller, Ralf, Anita Wölfl (2000) *Ist die ostdeutsche Industriestruktur nachteilig für die Produktivitätsentwicklung?* *Wirtschaft im Wandel 3/2000*.
- Münnich, Margot (2000), *Einkommens- und Geldvermögensverteilung privater Haushalte in Deutschland – Teil I – Ergebnis der Einkommens- und Verbrauchsstichprobe für das erste Halbjahr 1998*, *Wirtschaft und Statistik, No.9/2000*.
- Münnich, Margot and Monika Ilgen (2000), *Einkommen und Einnahmen privater Haushalte in Deutschland – Ergebnisse der Einkommens- und Verbrauchsstichprobe für das erste Halbjahr 1998*, *Wirtschaft und Statistik, No.2/2000*.
- Nierhaus, Wolfgang, Wolfgang Meister (2000) *Ostdeutschland zehn Jahre nach der Vereinigung – Kommt der Aufholprozess wieder in Gang?* Ifo Dresden berichtet 5/2000.
- OECD (1991), *OECD Economic Survey Germany*.
- OECD (1994), *The OECD Jobs Study -- Evidence and Explanations*.

OECD (1999), *OECD Economic Survey Germany*.

OECD (2001), *OECD Economic Survey Germany*.

Pannenberg, M. (1996), "Zur Evaluation staatlicher Qualifizierungsmassnahmen in Ostdeutschland: Das Instrument Fortbildung und Umschulung (FuU), IWH-Diskussionspapiere No.38, Halle.

Paquè, Karl-Heinz (2000), "Zehn Jahre Aufbau Ost: eine Zwischenbilanz", *ifo Schnelldienst No.34*.

Ragnitz, Joachim (1997) Zur Produktivitätslücke in Ostdeutschland, *Wirtschaft im Wandel 7/1997*.

Ragnitz, Joachim (2000a), Die Zukunft der Ostförderung, *Wirtschaftsdienst*, No.4.

Ragnitz, Joachim (2000b), Kapitalausstattung ostdeutscher Arbeitsplätze: Rückstand nicht überbewerten, *Wirtschaft im Wandel*, 9/2000.

Ragnitz, Joachim (2001a), Produktivitätsrückstand der ostdeutschen Wirtschaft: eine zusammenfassende Bewertung, *Wirtschaft im Wandel*, 7-8/2001.

Ragnitz, Joachim (2001b), "Solidarpakt II": Die ostdeutschen Länder in der Verantwortung, *Wirtschaft im Wandel*, 10/2001.

Ragnitz, Joachim, Jacqueline Rothfels and Anita Wöfl (1998), "Determinanten der Produktivitätslücke in Ostdeutschland", Ergebnisse einer Tagung am IWH-Teil 1, *Wirtschaft im Wandel*, 1/1998.

Rothfels, Jaqueline and Anita Wöfl (1998) Determinanten der Produktivitätslücke in Ostdeutschland – Ergebnisse einer Tagung am IWH, *Wirtschaft im Wandel 1/1998*.

Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (1999), Jahresgutachten 1999/2000.

Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (2000), Jahresgutachten 2000/2001.

Schäfer, Reinhard and Jürgen Wahse (2000), Konsolidierung der Wirtschaft bei weiterhin angespanntem Arbeitsmarkt, *IAB Werkstattbericht*, 6/2000.

Schäfer, Reinhard and Jürgen Wahse (2001), Beschäftigung, Fachkräfte und Produktivität - Differenzierte Problemlagen auf dem ostdeutschen Arbeitsmarkt, *IAB Werkstattbericht*, 8/2001.

Schneider, Hilmar, Anette Bergemann, Olaf Fuchs, Wolfram Kempe, Jürgen Kolb, Martin Rosenfeld, Birgit Schulz, Lioba Trabert (2000) Die Effizienz der Arbeitsmarktpolitik in den neuen Bundesländern, Institut für Wirtschaftsforschung Halle, Halle.

Schulz, Birgit (1998), "Hohe Verfestigung der Arbeitslosigkeit in Ostdeutschland", in *Wirtschaft im Wandel*, No.16/1998.

Seidel, Bernhard and Dieter Vesper (2000), "Infrastrukturausstattung und Nachholbedarf in Ostdeutschland – Gutachten im Auftrag des Sächsischen Finanzministeriums", Deutsches Institut für Wirtschaftsforschung, Berlin.

- Seidel, Bernhard and Dieter Vesper (2001), Einige Ergänzungen zur Berechnung des staatlichen Anlagevermögens in Ost- und Westdeutschland, Expertise im Auftrag des Bundesfinanzministeriums, Deutsches Institut für Wirtschaftsforschung, Berlin.
- Seitz, Helmut (1999), "Where have all the flowers gone? – Die öffentlichen Finanzen in den neuen Ländern", *ifo Schelldienst* 32-33/1999.
- Seitz, Helmut (2000a) Finanzierung und Finanzprobleme der neuen Länder, forthcoming in: Informationen zur Raumentwicklung.
- Seitz, Helmut (2000b), Der Einfluss der Bevölkerungsdichte auf die Kosten der öffentlichen Leistungserstellung - Gutachten im Auftrag der Länder Mecklenburg-Vorpommern und Brandenburg, Frankfurt an der Oder.
- Sinn, H.-W. (1995), Staggering along: wages policy and investment support, *Economics of transition* 3.
- Sinn, H.-W. (2000), Germany's economic unification – an assessment ten years after, National Bureau of Economic Research, Working paper 7586.
- Sinn, Hans-Werner, and Sinn G., Kaltstart (1991), Volkswirtschaftliche Aspekte der deutschen Vereinigung, Tübingen, 1991.
- Sinn, Hans-Werner and Frank Westermann (2001), "Two Mezzogiornos", *NBER Working Paper* 8125.
- Snelling, M., C. Schumacher, W. Komar and P. Franz (1998), "Stand und Entwicklung der kommunalen Investitionshaushalte in den neuen Bundesländern unter besonderer Berücksichtigung der wirtschaftsnahen Infrastruktur", Institut für Wirtschaftsforschung Halle, IWH-Sonderheft 3/98.
- Söllner, Fritz (2001), "Die Einwohnerveredelung im Länderfinanzausgleich", *ifo Schelldienst* 3/2001.
- Staat, M. (1997), *Empirische Evaluation von Fortbildung und Umschulung*, Zentrum für Europäische Wirtschaftsforschung, Nomos, Baden-Baden.
- Stammer, Manfred (1998), "Interrelations between subsidies, structural Change and economic growth in Germany – A vector auto-regressive analysis", *Konjunkturpolitik* No.44.
- Steiner, V. and F. Kraus (1995), "Haben Teilnehmer an Arbeitsbeschaffungsmassnahmen in Ostdeutschland bessere Wiederbeschäftigungschancen als Arbeitslose?" in Steiner, V. and L. Bellmann, *Mikroökonomik des Arbeitsmarktes, Beiträge aus der Arbeitsmarkt- und Berufsforschung*, No.192, Nürnberg.
- Wurzel, Eckhard (1993), "An econometric analysis of individual unemployment duration in West Germany, *Physica*, Heidelberg.
- Wurzel, Eckhard (1999), "Towards more efficient government: reforming federal fiscal relations in Germany, *OECD Economics Department Working Paper* No.209.

ECONOMICS DEPARTMENT

WORKING PAPERS

306. *Standard Shocks in the OECD Interlink Model*
(September 2001) Thomas Dalsgaard, Christophe André and Pete Richardson
305. *Fiscal Implications of Ageing: Projections of Age-related Spending*
(September 2001) Thai Thanh Dang, Pablo Antolin and Howard Oxley
304. *The Width of the Intra-European Economic Borders*
(August 2001) Alain de Serres, Peter Hoeller and Christine de la Maisonneuve
303. *Surveillance of Tax Policies: a Synthesis of Findings in Economic Surveys*
(July 2001) Paul van den Noord and Christopher Heady
302. *Reforming the Tax System in Portugal*
(July 2001) Chiara Bronchi, José C. Gomes-Santos
301. *Tax Systems in European Union Countries*
(June 2001) Isabelle Joumard
300. *Encouraging Environmentally Sustainable Growth in Belgium*
(June 2001) Paul O'Brien, David Carey, Jens Høj, Andreas Woergoetter
299. *Encouraging Environmentally Sustainable Growth in Poland*
(June 2001) Grzegorz Peszko, Patrick Lenain
298. *Tracking the Euro*
(June 2001) Vincent Koen, Laurence Boone, Alain de Serres, Nicola Fuchs
297. *Firm Dynamics and Productivity Growth: A Review of Micro-evidence from OECD Countries*
(June 2001) Sanghoon Ahn
296. *How should Norway Respond to Ageing?*
(May 2001) Pablo Antolín and Wim Suyker
295. *How will Ageing Affect Finland?*
(May 2001) Pablo Antolín, Howard Oxley and Wim Suyker
294. *Sectoral Regulatory Reforms in Italy: Framework and Implications*
(May 2001) Alessandro Goglio
293. *Encouraging Environmentally Sustainable Growth: Experience in OECD Countries*
(May 2001) Paul O'Brien and Ann Vourc'h
292. *Increasing Simplicity, Neutrality and Sustainability: A Basis for Tax Reform in Iceland*
(May 2001) Richard Herd and Thorsteinn Thorgeirsson
291. *Options for Reforming the Tax System in Greece*
(April 2001) Chiara Bronchi
290. *Encouraging Environmentally Sustainable Growth in Canada*
(March 2001) Ann Vourc'h

289. *Encouraging Environmentally Sustainable Growth in Sweden*
(March 2001) Deborah Roseveare
288. *Public Spending in Mexico: How to Enhance its Effectiveness*
(March 2001) Bénédicte Larre and Marcos Bonturi
287. *Regulation in Services: OECD Patterns and Economic Implications*
(February 2001) Giuseppe Nicoletti
286. *A Small Global Forecasting Model*
(February 2001) David Rae and David Turner
285. *Managing Public Expenditure: Some Emerging Policy Issues and a Framework for Analysis*
(February 2001) Paul Atkinson and Paul van den Noord
284. *Trends in Immigration and Economic Consequences*
(February 2001) Jonathan Coppel, Jean-Christophe Dumont and Ignazio Visco
283. *Economic Growth: The Role of Policies and Institutions. Panel Data Evidence from OECD Countries*
(January 2001) Andrea Bassanini, Stefano Scarpetta and Philip Hemmings
282. *Does Human Capital Matter for Growth in OECD Countries? Evidence from Pooled Mean-Group Estimates*
(January 2001) Andrea Bassanini and Stefano Scarpetta
281. *The Tax System in New Zealand: An Appraisal and Options for Change*
(January 2001) Thomas Dalsgaard
280. *Contributions of Financial Systems to Growth in OECD Countries*
(January 2001) Michael Leahy, Sebastian Schich, Gert Wehinger, Florian Pelgrin and Thorsteinn Thorgeirsson
279. *House Prices and Economic Activity*
(January 2001) Nathalie Girouard and Sveinbjörn Blöndal
278. *Encouraging Environmentally Sustainable Growth in the United States*
(January 2001) Paul O'Brien
277. *Encouraging Environmentally Sustainable Growth in Denmark*
(January 2001) Paul O'Brien and Jens Høj
276. *Making Growth more Environmentally Sustainable in Germany*
(January 2001) Grant Kirkpatrick, Gernot Klepper and Robert Price
275. *Central Control of Regional Budgets : Theory with Applications to Russia*
(January 2001) John M. Litwack
274. *A Post-Mortem on Economic Outlook Projections*
(December 2000) Vassiliki Koutsogeorgopoulou
273. *Fixed Cost, Imperfect Competition and Bias in Technology Measurement: Japan and the United States*
(December 2000) Kiyohiko G. Nishimura and Masato Shirai
272. *Entry, Exit, and Aggregate Productivity Growth: Micro Evidence on Korean Manufacturing*
(December 2000) Chin-Hee Hahn