



26

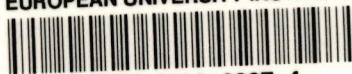
EUROPEAN UNIVERSITY INSTITUTE
The Robert Schuman Centre

**Eastern Germany in the Fifth Year
Investment Hammering
in the Basement?**

HORST SIEBERT

JEAN MONNET CHAIR PAPERS

EUROPEAN UNIVERSITY INSTITUTE



3 0001 0026 6937 4

Jean Monnet Chair Papers

**Siebert: *Eastern Germany in the Fifth Year*
*Investment Hammering in the Basement?***



Jean Monnet Chair Papers

26

The Jean Monnet Chair

The Jean Monnet Chair was created in 1988 by decision of the Academic Council of the European University Institute, with the financial support of the European Community. The aim of this initiative was to promote studies and discussion on the problems, internal and external, of European Union following the Single European Act, by associating renowned academics and personalities from the political and economic world to the teaching and research activities of the Institute in Florence.

Jean Monnet Chair Papers

Eastern Germany in the Fifth Year Investment Hammering in the Basement?

HORST SIEBERT

1995

**The Robert Schuman Centre at the
European University Institute**

All rights reserved.
No part of this paper may be reproduced in any form
without permission of the author.

© Horst Siebert
Printed in Italy in September 1995
European University Institute
Badia Fiesolana
I-50016 San Domenico (FI)
Italy

Table of Contents

I. Transition as a Shock to a Socialist Economy	p. 7
II. The Adjustment Process	p. 10
<i>Adjustment in Production</i>	p. 10
<i>Adjustment in Employment</i>	p. 17
<i>Adjustments of the Capital Stock</i>	p. 20
III. Speculating on the Catching Up Process	p. 24
IV. Returning to Normality in Economic Policy	p. 31
V. Fading Impact to Germany's European Neighbors	p. 38
Appendix	p. 39
References	p. 43
Biographical Note	p. 45

Eastern Germany in the Fifth Year Investment Hammering in the Basement?*

In this paper, the adjustment process of the eastern German economy is studied. Theoretical analysis of the transformation process suggests a J-curve of adjustment in production and in the capital stock and a u-curve of adjustment in employment (Section I). The empirical data correspond to these hypotheses (Section II). A fascinating question is how the adjustment process will proceed in the future (Section III). Here, investment and the built-up of a new capital stock will play a crucial role. As in the Hicksian theory of the business cycle where autonomous investment hammering in the basement will eventually move an economy out of recession (Hicks 1950, p. 105) capital accumulation in eastern Germany must play the decisive role in the adjustment process. With investment coming along, the issue arises when economic policy for eastern Germany can return to normality (Section IV). Meanwhile, the economic shock that German unification caused to its European neighbors can be interpreted as a bygone (Sector V).

I. Transition as a Shock to a Socialist Economy

In the economics of transition, eastern Germany is a special case among the post-socialist economies. Monetary stabilization was achieved instantaneously by extending the currency area of the D-mark to eastern Germany in the monetary union of July 1, 1990. The institutional infrastructure was, in principle, introduced with one stroke when eastern Germany joined western Germany, according to Article 23 of the German constitution, on October 3, 1990. Thus, the approach to transformation was a big bang: Of the three major areas of economic reforms in the process of transformation (Siebert 1994b), only the third major area of reform remained to be solved, namely, the real adjustment in the economy, especially in the previously state-owned firms. Here transfers from western Germany eased the transformation process so that the eastern German case can be interpreted as a big bang with the big brother (Siebert 1993c).

* Paper presented at the European University Institute in Florence, March 16, 1995. This paper is a sequel to my previous Kiel Discussion Papers: "The Economic Integration of Germany" (No. 160, May 1990), "The Economic Integration of Germany – An Update" (No. 160a, September 1990), "Five Traps for German Economic Policy" (No. 185, April 1992), "The Big Bang with the Big Brother. German Unification in its Third Year" (No. 211, May 1993), "German Unification and Its Impact on Net Savings" (No. 216, April 1993), and "Integrating the Eastern Länder. How Long a Transition?" (No. 229, April 1994). I appreciate comments from Alfred Boss, Axel Schimmelpfennig, Klaus-Dieter Schmidt and Ingo Thomas.

The transition from central planning to a market economy can be interpreted as a shock to the economic system. Whereas in eastern Germany an institutional void, characteristic for the transformation in Eastern Europe, was prevented, the economic environment was completely changed for the existing firms. In the tradeables sector they were exposed to international competition. In the nontradeables sector the splitting up of firms into smaller units implied that firms lost their monopolistic position. Moreover, a new price vector prevailed to which firms had to adopt. As a rule, relative prices for tradeables goods fell, because of the intensification of competition, because of a redefinition of scarcities and because of the abolition or reduction of subsidies. Whereas producer's prices for tradeables products went down, prices for inputs, for instance, for foreign intermediate products, labor, energy and for the use of the environment increased. What is of particular importance is that firms had to bear the costs of financial capital that had previously been provided free of charge.

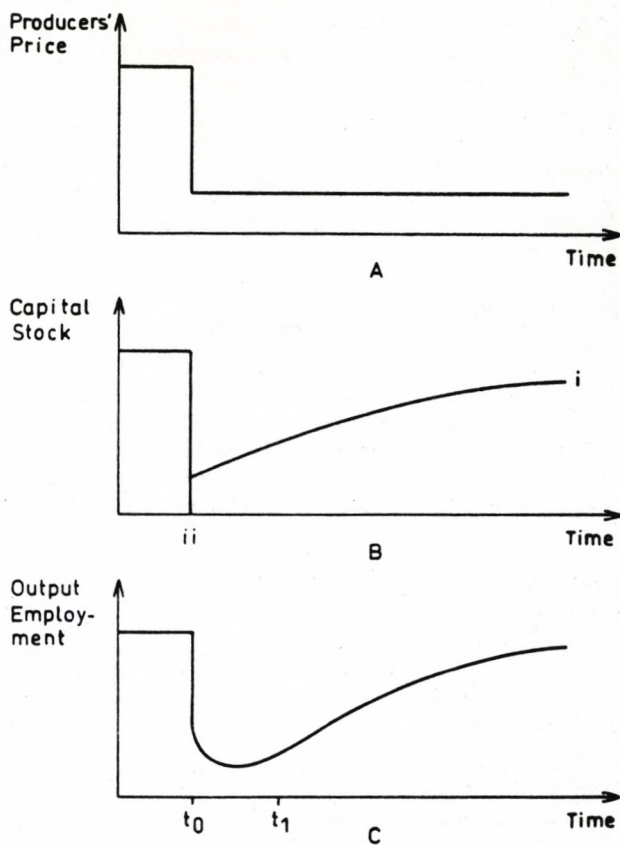
The competitiveness of a representative firm was not only determined by the pressures of decreasing product prices and increasing factor prices, but additionally, by the product quality, to which the new competition also pertained. Thus, the transition to the market economy confronted firms with a completely different set of restrictions in their profit calculations – they faced a real shock. The sudden change of the economic setting entailed a massive devaluation of the firms' assets, which became partially or completely obsolete.¹

Using the simplifying representation of the shock as an abrupt decrease of the producer's price and assuming a given technology and capital stock, it can be shown that the present value of profits, i.e. the value of the firm, will decrease (Van Long and Siebert 1992). For most eastern German firms, this shock has proven to imply negative profits; that is, without thorough restructuring and an injection of new capital and new technology, most of the firms were not viable.

The above analysis suggests a typical adjustment path for the representative firm and – aggregating over all the firms – for the economy as a whole. The price shock leads to the devaluation of the existing capital stock. If the firm can sustain production at all (path i in Figure 1b), investments will build up a new capital stock. Depending on the lags resulting from planning investment projects, from administrative procedures, and from construction, the increase in the capital stock will take time. That is, after the downward jump, the time profile will show a smooth increase in the new capital stock.

¹ A similar, albeit less fundamental, devaluation of the capital stock had been observed as a consequence of the oil crises (Berndt and Wood 1986). The unexpected increase of the oil price reduced the marginal efficiency of the existing capital stock, and part of the existing plants, which had been installed expecting the low energy prices of the past, became obsolete. Comparable processes relating to many factors of production characterize the transition from a centrally planned economy to a market economy.

Figure 1 – Time Profile of Adjustment



The time profile of production corresponds to the time profile of the capital stock. Output decreases in the investment phase and with the closing of firms. That is, both capital stock and production follow a J-shaped path, with an immediate drop after the shock, and a gradual recovery (Figure 1c). The drop in production will be accompanied by a drop in employment. The sudden reduction in the value of the capital stock will force a fall in employment, as the firm will become unable to earn the labor costs with the initial capital equipment. Consequently, labor demand will be rapidly reduced, and will only increase with investment, in most cases to a level lower than the original level, because the initial level of employment was distorted. Thus, a u-curve of employment corresponds to the J-curve of production, with the ultimate peak falling short of the initial employment level.

II. The Adjustment Process

In the following, adjustment in production, in employment and in the capital stock are discussed.

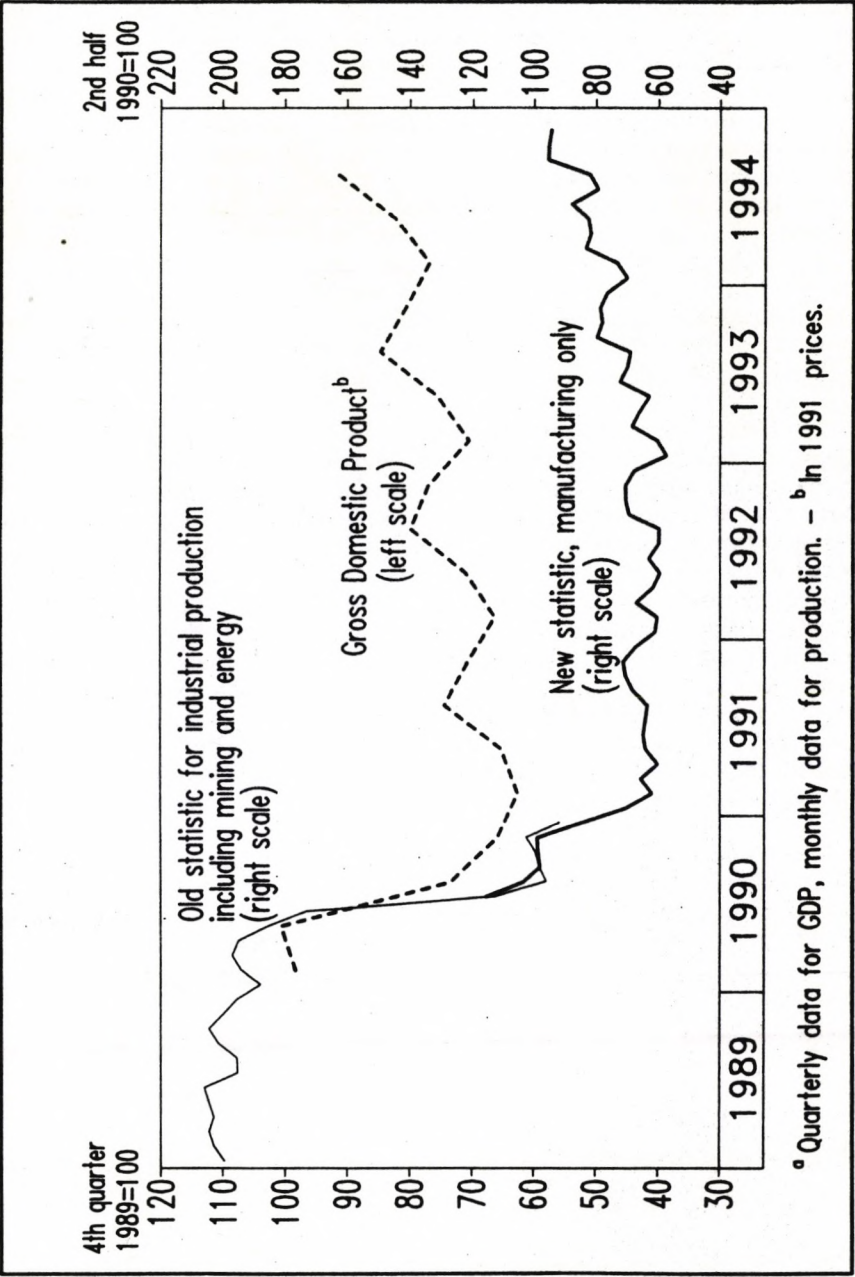
Adjustment in Production

The J-curve of the real adjustment process has different shapes for different young market economies. The most pervasive fall in production has been observed in eastern Germany. There, the industrial production decreased to a third of its 1989 level in 1991 (Figure 2)² whereas in Poland, in the Czech Republic and in Hungary the decline was much smaller. This is not surprising because eastern Germany did not have the exchange rate and the wage rate as shock absorbers.

Establishing private ownership of firms and real estate – an important precondition for adjustment to take place – required time. Meanwhile the Treuhand Agency has privatized the whole enterprise sector of the eastern German economy within four years with only 65 firms out of 13,800 still to be privatized (December 1994). Only 20,000 employees of originally 4 million in the

- 2 The empirical measurement of the J-curve is fraught with considerable difficulties because production indices have been distorted. The transition implies a sizable change in the price system, and indices of production use the obsolete price weights of the pre-reform period. For instance, data on eastern Germany's industrial output were based on the 1985 price weights up to the end of 1990. Of course, quantities are themselves distorted because of false prices. As a result, the initial distortion of the output structure is transferred into the volume index. All this amounts to an overrepresentation of old, obsolete products and an underrepresentation of new, innovative output. Moreover, statistics from the time of central planning may have been deliberately beautified, and gross and net values of production may have been falsely specified. Consequently, the drop of production as an immediate result of the adjustment shock may easily be exaggerated. A third statistical misrepresentation of production follows from the fact that the output of small, newly established firms is often not recorded.

Figure 2 – Industrial Production and GDP in eastern Germany^a



Treuhand firms remain. In the restitution of private property, such as houses and lots, roughly 50 percent of the 2.3 million applications (out of which 2.1 million relating to houses and lots) have been resolved (end of 1994). In the last two years, property rights problems were not an issue in the privatization of firms. But they are still relevant in the housing sector, and consequently for the development of the inner cities.

The adjustment process in eastern Germany is characterized by a relatively strong expansion of the nontradeables sector. In the production of local and regional goods the adjustment process is proceeding smoothly. This holds for construction and for the construction-related industries, for the crafts, and for the service sector. The contribution of these sectors to GDP is rising (Figure 3).³ In the sector of nontradeables, the index for net production has surpassed the level of the second half of 1990 considerably (Table 1), for instance in structural metal products which are construction related (184.5 percent), metal products (136.9 percent), printing (145.4 percent) and in the construction industry (177.4 percent).

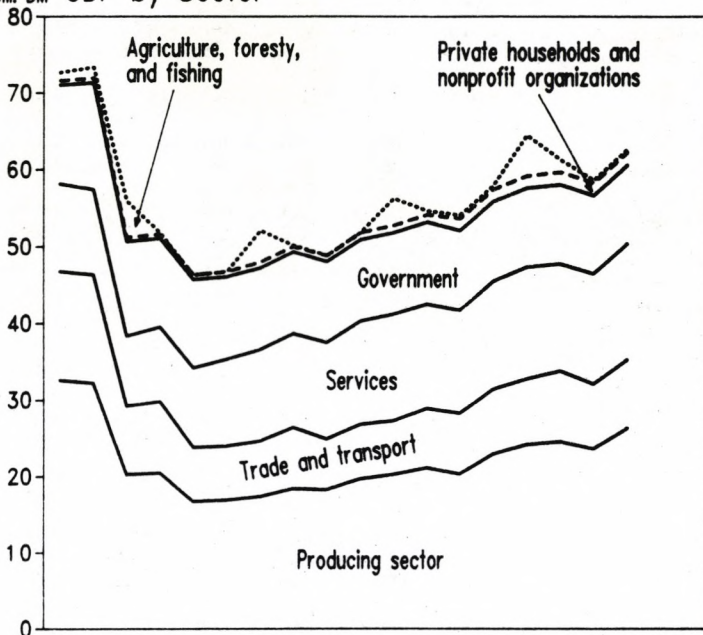
The reason why the nontradeables sector adjusted more quickly in eastern Germany is that nontradeables were not exposed to international competition in the product markets and that new firms could establish themselves with less difficulty. Moreover, local markets represented a nice target for direct investment from outside. In addition, a Dutch-disease phenomenon was superimposed on the adjustment process in the *new Länder* due to the transfers from western Germany to households (Siebert 1993a; Greiner et al. 1994). These transfers have stimulated consumption demand for nontradeables; the nontradeables sector has attracted capital and qualified labor and has driven up factor costs including wages in the tradeables sector. It should be noted, however, that not the whole gap between eastern German aggregate demand and GDP (in 1994 466.8 Mill. DM versus 255.9 Mill. DM in 1991 prices) is relevant for the Dutch disease phenomenon since the trade deficit (of 210.9 Mill. DM in 1994) partly is the counterposition to external direct investment.

In the tradeables sector, however, especially in the capital goods sector, things do not look so bright. It has been extremely difficult for eastern German firms to establish themselves in western German and international markets, to develop the right product for a market niche, and to break into existing relations between buyers and sellers. An export base is not yet clearly established.

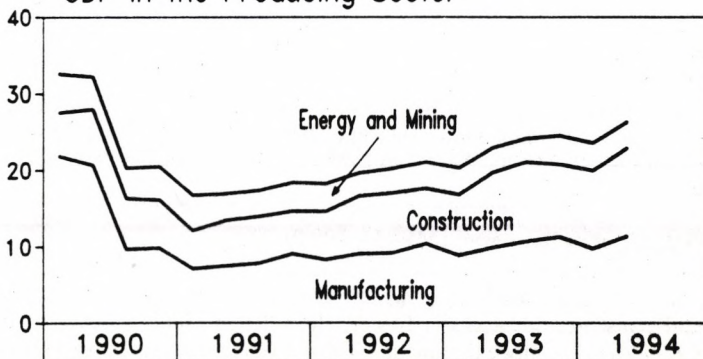
³ Note that for reasons for comparability GDP in Figure 3 is in constant 1991 prices. Since in 1991 prices in eastern Germany were still partially distorted, Figure 3 does not fully reflect the sectorial change.

Figure 3 – GDP^a in eastern Germany by Sectors

Bil. DM GDP by Sector



GDP in the Producing Sector



^a In 1991 prices, quarterly data.

Table 1 – Net Production^a of Production Industries in eastern Germany^b

	IV 1990	1991	1992	1993	1994 ^c	Note	
						Weight for 1990 ^d	Weight ^{c,e} for IV 93
Total production industries	97.4	77.2	78.7	86.9	101.0	100.0	100.0
Energy	103.1	103.2	96.7	103.2	108.0	12.42	13.3
Mining	108.9	70.3	50.4	39.1	33.0	9.56	3.1
Total Manufacturing	94.1	66.1	64.3	70.1	84.2	59.95	50.0
Manufacture of basic goods	92.3	75.9	78.5	85.5	110.6	11.51	12.6
of which:							
Oil refineries	91.9	124.3	131.9	133.3	144.4	1.27	1.8
Stone, sand, and clay industries	76.2	62.1	96.6	136.4	211.3	2.51	5.3
Iron and steel industry	80.5	66.2	60.2	59.7	74.4	0.79	0.6
Foundries	90.2	55.5	42.6	36.4	44.7	1.07	0.5
Chemical industry	106.2	78.1	65.8	57.6	68.3	4.04	2.7
Manufacture of capital goods	93.1	56.2	50.7	55.5	64.7	32.90	21.1
of which:							
Manufacture of structural metal products	100.0	109.4	140.3	163.1	187.1	2.93	5.4
Mechanical engineering	92.2	51.6	32.6	31.8	32.2	15.24	4.9
Road vehicle construction ^f	91.8	49.1	54.9	83.6	113.2	2.71	3.0
Electrical engineering ^f	92.7	47.7	47.8	50.0	61.3	8.51	5.2
Precision engineering, optics, watches	116.0	23.6	29.1	20.9	24.8	1.09	0.3
Metal products	85.9	33.9	20.2	20.7	140.8	0.88	1.5
Manufacture of consumer goods	96.0	69.1	71.4	80.2	98.7	7.22	7.1
of which:							
Wood processing	103.9	75.6	79.0	96.1	105.1	1.53	1.6
Printing	94.4	113.6	128.9	126.3	149.6	1.33	2.0
Textiles	90.9	43.0	32.1	31.0	37.1	1.69	0.6
Manufacture of food, beverages, and tobacco	99.6	90.7	94.3	99.6	114.7	8.32	9.4
of which:							
Food and beverages	95.0	85.2	95.2	103.1	117.3	6.90	8.0
Tobacco	120.2	115.4	90.8	83.9	103.1	1.42	1.4
Building industry	98.3	99.7	128.7	156.4	187.2	18.07	33.5
Building construction	96.7	104.2	123.3	148.1	187.9	8.79	16.4
Civil engineering	99.8	95.4	133.8	164.2	186.5	9.28	17.1

^aIndex of net production, adjusted by working days, 2nd half 1990=100. – ^bIncluding eastern Berlin. – ^cJan.–Nov. – ^dWeight for second half of 1990. – ^eCalculated using the index of net production adjusted by working days, multiplied by weights according to the index base. – ^fIncluding repair.

Source: Statistisches Bundesamt [1993a, 1994b].

In 1994, the producing sector, which comprises energy, mining, manufacturing, and construction, actually has reached the production level of the second half of 1990 (for more details see Table 1). The output index in manufacturing stood at 84.2 percent of the level in the second half of 1990. In the

Order Inflow in Eastern Germany¹

2nd half
1990=100

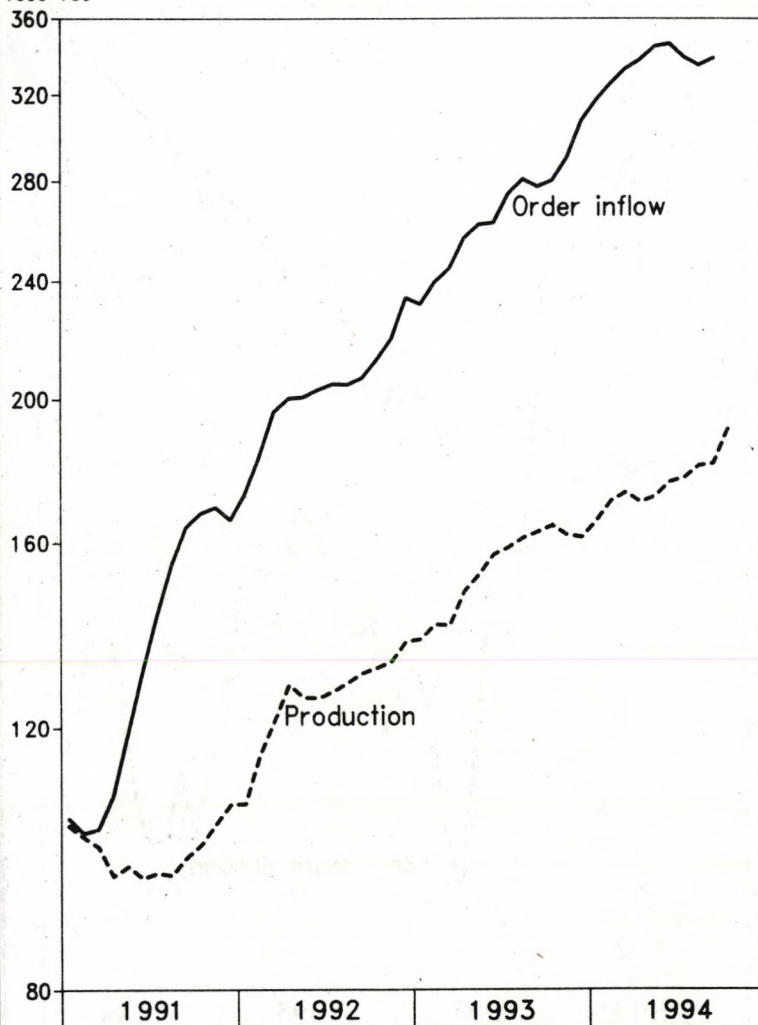
Manufacturing



¹ Seasonally adjusted, 3-month moving average.

Construction Industry in Eastern Germany¹

2nd half
1990=100



¹ Seasonally adjusted, 3-month moving average.

capital goods industry, the output index only reached 64.7 percent of its original level. In the electrical engineering industry, the output index was at 67.3 percent. The mechanical engineering industry (32.2) and the optical industry (including precision engineering and watches) (24.8) had even lower output levels. These data clearly indicate a deindustrialization of the eastern German economy. The deindustrialization of eastern Germany, having at its root the inefficiency and obsolescence of the capital stock inherited from the socialist planning system, was aggravated by the conversion rate of 1:1 between the ostmark and the D-mark, which represented an appreciation of the ostmark of about 400 percent, and by wage policy (see below).

Adjustment in Employment

There is still a large gap between labor productivity and wages in eastern Germany. In the third quarter of 1994, labor productivity (output per person employed (including self-employed)) was at 46 percent of the western German level when constant prices of 1991 are used and at 55.2 percent in current prices⁴ (Figure 4), gross wages (Bruttolohn- und Gehaltssumme) were at 78.4 percent. Nominal wages in eastern Germany were at roughly 84 percent of the western German level at the end of 1994 (although the working hours in eastern Germany are longer and the vacation is shorter). Construction-related sectors and some sectors in eastern Berlin reached the western German wage level. Most sectors were in the upper 80 percent range, such as construction (90 percent), banking (88.5 percent) and insurance, but also retail trade and government (84 percent). Even the sectors with tremendous economic difficulties, the metal and electrical engineering industries and iron and steel paid more than 80 percent. In the eastern German economy unit labor costs reached 130 percent of the western German level in 1994, indicating that this region is still not competitive in terms of labor costs (Sachverständigenrat 1994, p. 113). Labor's share in national income (including calculated entrepreneurial wages) – which was 78.5 percent in western Germany – amounted to 97 percent in 1994 [Sachverständigenrat 1994, p. 114].

Adjustment in the labor market shows part of the expected u-curve (Figure 5). Employment in the eastern German economy excluding labor-market schemes had already a turning point in 1991; employment (including short-time workers and governmental employment schemes) had its turning point in 1994. Whereas the number of persons in explicit labor market schemes (ABM)

⁴ Comparisons of economic data of eastern and western Germany are confronted with a dilemma. For an analysis of a development over time, for instance of productivity, one wants to exclude price effects and consequently uses constant prices. In the official statistics, 1991 prices are applied. Unfortunately, prices were still distorted in eastern Germany in 1991 so that the data for following years are also distorted. Therefore, if one is not interested developments of the past but in determining the actual relative position of eastern Germany, for instance as a starting point for the future, current prices should be used.

has not been reduced drastically, short-time work arrangements (which once amounted to 2 million) have been cut down considerably.

Figure 4 – Eastern and western German Wages and Productivity Ratios^a

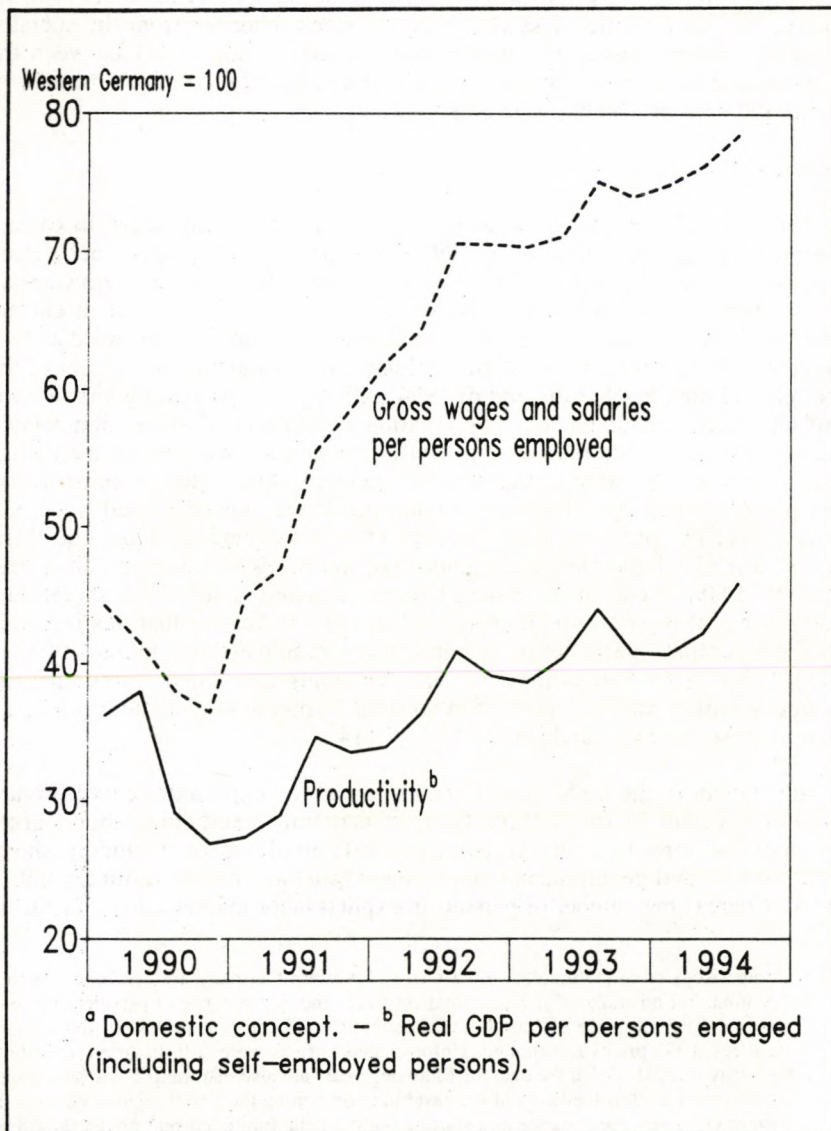
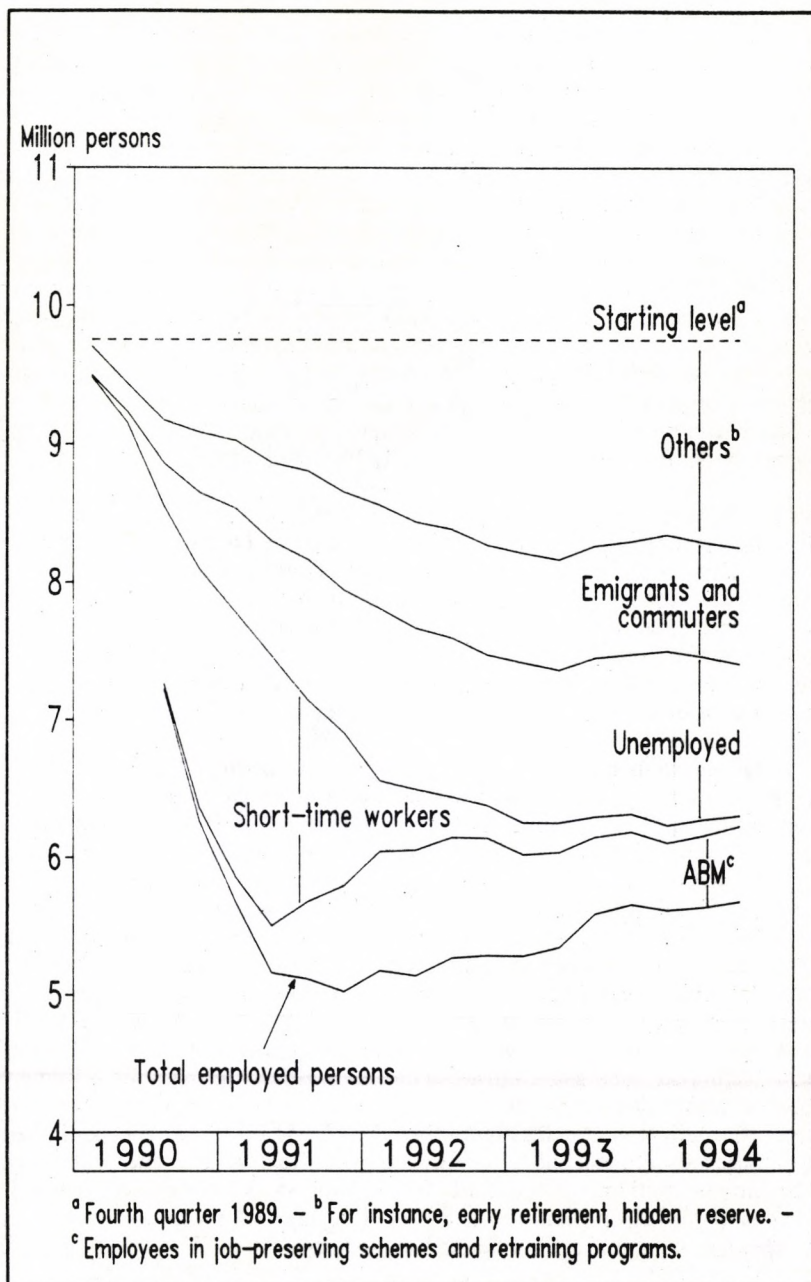


Figure 5 – Employment in eastern Germany, 1990–1994



Adjustment of the Capital Stock

It will be a fascinating query for economic historians to what extent the capital stock of eastern Germany has become obsolete in the moment when the new economic system started. It is extremely difficult to specify what the market value of the existing capital stock was for the old and for the new price vector prior and after German unification. In this question, the capital stock of infrastructure, housing and enterprises in the tradeables and non-tradeables sector must be distinguished. It can be expected that the capital stock of the tradeables sector had an extremely low value and that it will require a relatively high investment. An extremely crude approach would be to use the eastern German productivity in relation to western Germany as a proxy for the value of the eastern German capital stock. Productivity (and the value of the capital stock) were estimated very early in the transformation process at one third of the western German level (Siebert 1990) coming close to the productivity per capita of 27 percent which was eventually measured statistically for the fourth quarter of 1990. This implies that more than 70 percent of the capital stock of eastern Germany would have to be written off.

Alternatively, one would have to scrutinize the vector of capital goods and to evaluate which specific capital goods should be deleted from the capital inventory. This would be equivalent to an immediate write-off of 100 percent. Besides this category of capital goods with a value of zero in 1990, a second category of capital goods could still be used, but only partly, so that its value has to be scaled down instantaneously to a considerable extent. The remaining value would have to be written off over some years. A third category may be written off with a more or less normal rate of depreciation.

Capital requirements of eastern Germany can be estimated by a very simple formula (Siebert 1993c). It is assumed that eastern Germany will have the same capital stock per capita as western Germany after the transformation process eventually will have ended; the western German capital stock is assumed to grow with 2.5 percent. Considering a fifteen-year period of adjustment, the capital stock of the enterprise sector in eastern Germany would be DM 1,750 billion in the year 2005. This is a back-of-the-envelope calculation for accumulated investment which assumes that the existing capital stock is completely obsolete. Assuming that one-third of the capital stock is usable, and considering again a fifteen-year period of adjustment, a rough calculation shows that the enterprise sector would need private investment of DM 80 billion in each year. Using the infrastructure of western Germany as a frame of reference, infrastructure capital in eastern Germany would amount to DM 730 billion after adjustment. This figure includes public buildings and equipment, roads, railroads, postal and communications infrastructure, and waterways. Under the assumption that one third of the capital stock can be used, public investment of DM 50 billion per year would be needed. Of course, recreating the capital stock in infrastructure will require more time. The calculations do

not include the housing sector which will again require more time for rebuilding (Table 2).

Table 2 – Capital Stock and Investment in eastern Germany and western Germany, bill. DM

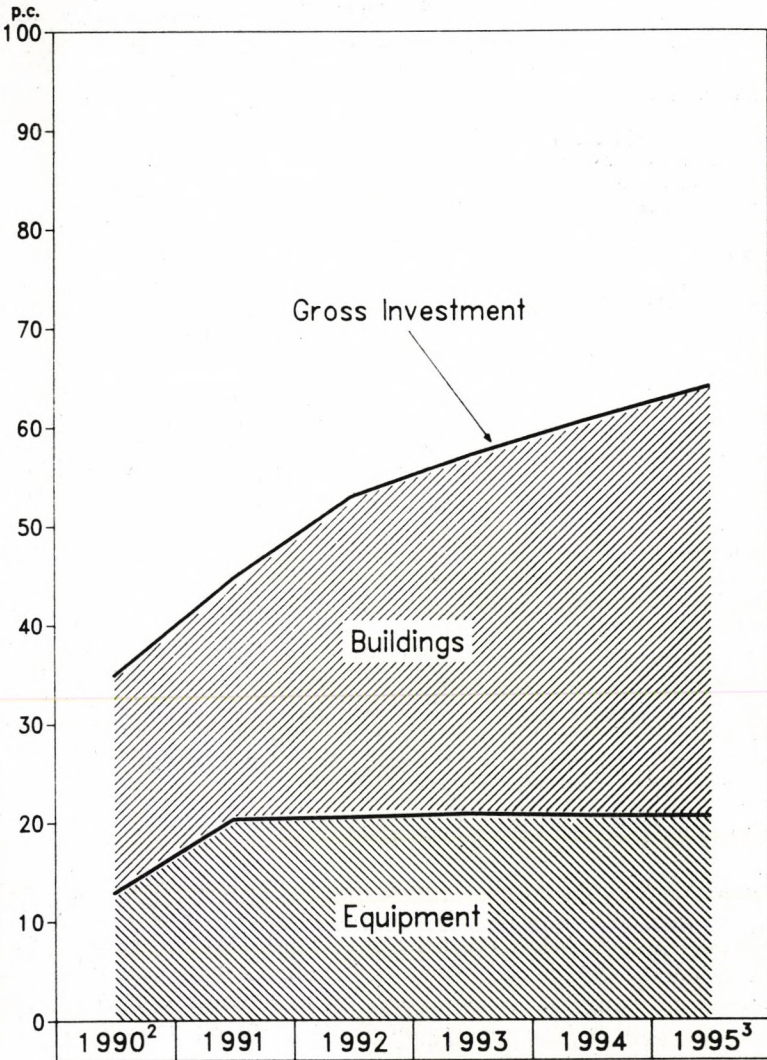
	Western Germany		Eastern Germany	Eastern German capital stock after adjustment ^b	
	1990	2005 ^a	1988	1990	2005
1. Gross domestic product					
Total	2,426		346		
Enterprises (without housing)	1,932		–		
Goods-producing sectors (mining, manufacturing, construction, electricity, gas, and water)	968		200 ^c		
2. Gross investment					
Total	519		95		
Enterprises (without housing)	333		68		
Goods-producing sectors	136		46		
Housing	124		12 ^d		
3. Gross capital stock					
Total	11,663 ^e	16,891	1,635 ^e	2,916	4,223
Enterprises (without housing)	4,815 ^{d,e}	6,974	1,300 ^f	1,204	1,743
Goods-producing sectors	2,056 ^{d,e}	2,977	780 ^e	514	744
Housing	4,635 ^{d,e}	6,712	–	1,159	1,678
For information: Public infrastructure	2,011 ^g	2,913		503	728
4. Capital-output ratio					
Total	4.8		5.2		
Enterprises (without housing)	2.5		–		
Goods-producing sectors	2.2		3.9		

^aAssuming a growth rate of the western German capital stock of 2.5 percent. – ^bCalculated as 25 percent of the west German capital stock in 2005. – ^cIncluding goods-producing crafts. – ^dNew construction and modernization. – ^eEvaluated at replacement costs; yearly averages; excluding roads, waterways and underground workings (öffentlicher Tiefbau), including rail and postal services. – ^fCapital stock at 1986 prices. – ^gIncluding roads, waterways, sewage systems, and rail and telecommunications systems; for 1988.

Source: Data for 1990 and 1988 Siebert 1993.

Investment will be the decisive variable for the growth process in eastern Germany. It increased from DM 92,1 billion in 1991 to DM 157 billion in 1994 (in 1991 prices). It is estimated that 180 bill. DM will be invested in 1995 (all figures in 1991 prices) (Table 3). Investment in the enterprise sector including housing, railroads, postal services and telecommunications accounted for the larger part of total investment, roughly for 85 percent. In 1994, investment amounted to 60 percent of GDP.

Investment in p.c. of GDP in Eastern Germany¹



¹ In 1991 prices. – ² 2nd half of 1990. – ³ Estimate.

Investment is heavily concentrated in buildings, only one third of the investment outlays are in equipment. In the enterprise sector (94.5 bill. DM in 1993), the bulk of investment outlays goes to retail and transportation (35.3 bill. DM) and services (10.6 bill. DM) as well as mining (10.9 bill. DM); manufacturing accounts for 27.3 bill. DM (Deutsches Institut für Wirtschaftsforschung and Institut für Weltwirtschaft, 1995, Table 1).

Table 3 – Gross Investment in eastern Germany (billions of Deutsche marks)^a

	1990	1991	1992	1993	1994	1995 ^b	Accumulated investment 1991–1995
Total	34.4 ^c	92.1	117.7	134.2	157.0	180	680
Equipment		41.8	45.6	48.4	53.0	57.7	246
Buildings		50.3	72.1	85.4	104.0	122.5	433.8
Enterprise sector (including housing)		77.6	97.3	113.1	132.5	.	
Government		14.5	20.3	21.1	24.5	.	

^aIn 1991 prices; including railroads, postal services, and telecommunications. – ^bEstimate. –

^cHalf of 1990 in current 1990 prices.

Source: Sachverständigenrat [1994, Tables 10, 43], Statistisches Bundesamt [1994c].

Calculations of the eastern German capital stock are still preliminary. In the year 1991 and 1992 the statistical scrapping of capital goods exceeded the renovations. It is estimated that in 1994 accruals are larger than scrapings by 2 to 1 (Deutsches Institut für Wirtschaftsforschung and Institut für Weltwirtschaft 1995). The capital stock in eastern Germany still is small relative to the western German capital stock amounting to one tenth of the German capital stock whereas it should account for one fifth if population size is used (Table 4).

Table 4 – Gross Capital Stock and in eastern and western Germany, enterprise sector,^a 1991–1994

	Eastern Germany		Western Germany	
	1991	1994	1991	1994
Gross capital stock ^b (bill. DM)	478	526	5,254	5,733
Potential capital productivity ^c (DM)	0.57	0.50	0.42	0.42
Production potential (bill. DM)	270	262	2,180	2,395

^aWithout housing. – ^bIn 1991 prices. – ^cProduction potential to gross capital stock (yearly averages).

Source: Deutsches Institut für Wirtschaftsforschung und Institut für Weltwirtschaft, 1995, Table 12.

III. Speculating on the Catching Up Process

The Barro rule postulates that income differences between regions and between countries are reduced with a relatively low rate of 2 percent. This iron law of catching up is based on an empirical cross-region and cross-country analysis of catching-up-processes in industrial and industrializing countries (Barro and Sala-i-Martin 1991, 1992). According to these studies, it takes decades to close a growth gap.⁵ For instance, eastern Germany would need 22 years to halve the difference in income per capita and attain 74 percent of the western German level (Table 5).

In order to forecast the catching up process one would need a complex model of the supply side of the eastern German economy with a macroeconomic production function and with submodels explaining the aggregate demand of firms for capital and labor and a submodel on technical progress. Quite a few variables would have to be considered exogenously such as the level of transfers from western Germany, the built-up-of infrastructure, and the wage path, among others.

In evaluating potential scenarios of the adjustment process in such a context it is important to distinguish between different types of capital since the time required to rebuild the capital stock will differ for them. Capital in the non-tradeables sector has been installed very quickly. A large part of this capital stock is already in place. However, in the tradeables sector, this will take a much longer time. Part of this investment, for instance, direct investment of western German and newly founded eastern German firms, has been undertaken where profit opportunities are expected; this type of investment will be associated with a negative cash flow initially – a cash-sink hole – which can be

- 5 The convergence rate, i.e. the rate with which the distance between the per capita income of two countries is reduced, is equal to the difference in real growth rates. Using the same notations as in equations 1 and 2 and letting B denote population size, the relative income position in period t , y_t , is defined as

$$y_t = \frac{Y_t^E}{B_t^E} \bigg/ \frac{Y_t^W}{B_t^W} = \frac{1}{\beta} \frac{Y_t^E}{Y_t^W} \text{ with } \beta = B_t^E / B_t^W \quad (\text{i})$$

GDP in period t is given by

$$Y_t^E = Y_o^E e^{r^E t} \quad (\text{ii})$$

$$Y_t^W = Y_o^W e^{r^W t} \quad (\text{iii})$$

The convergence rate \hat{y} is

$$\hat{y}_t = \dot{y}_t / y_t = r^E - r^W \quad (\text{iv})$$

incurred because of high expected profits in the future. Other investments will have to be financed through retained earnings requiring that profits are made.

Table 5 – Catching-up in eastern Germany under Alternative Growth Differentials^a (percent)

	Growth differential (percentage points)								
	2	3	4	5	6	7	8	9	10
1994	47.88	47.88	47.88	47.88	47.88	47.88	47.88	47.88	47.88
1995	48.84	49.33	49.83	50.33	50.84	51.35	51.86	52.38	52.91
1996	49.83	50.84	51.86	52.91	53.98	55.07	56.18	57.32	58.47
1997	50.84	52.38	53.98	55.62	57.32	59.06	60.86	62.71	64.62
1998	51.86	53.98	56.18	58.47	60.86	63.35	65.93	68.62	71.42
1999	52.91	55.62	58.47	61.47	64.62	67.94	71.42	75.08	78.93
2000	53.98	57.32	60.86	64.62	68.62	72.86	77.37	82.15	87.23
2001	55.07	59.06	63.35	67.94	72.86	78.15	83.81		
2002	56.18	60.86	65.93	71.42	77.37	83.81		(5.70)	(5.13)
2003	57.32	62.71	68.62	75.08	82.15		(6.42)		
2004	58.47	64.62	71.42	78.93		(7.33)			
2005	59.66	66.59	74.34	82.98	(8.56)				
2006	60.86	68.62	77.37						
2007	62.09	70.71	80.53	(10.7)					
2008	63.35	72.86							
2009	64.62	75.08	(12.4)						
2010	65.93	77.37							
2011	67.26	79.73							
2012	68.62	82.15							
2013	70.01								
2014	71.42	(17.1)							
2015	72.86								
2016	74.34								
2017	75.84								
2018	77.37								
2019	78.93								
2020	80.53								
	(25.7)								

^aThe figures in parentheses show the number of years needed to reach 80 percent of western Germany's level. 1994 GDP in current prices as starting values. Population ratio 0,239.

Source: Statistisches Bundesamt [1994b]; own calculations.

This type of investment will only come about over time. Financing investment through retained earnings is especially relevant for the newly founded small firms that must be at the heart of a Schumpeterian growth process of firms in eastern Germany. The bulk of infrastructure (roads, telecommunications) will be created quickly, but mega-projects, such as a new airport for Berlin, may only be started at the end of the first decade of the next century or later and would need another ten years to be completed. Also new transportation axes require time. Interpreting the spatial structure as a stock variable, adjustment will depend on such mega-projects. Finally, rebuilding the housing stock will take two or three decades.

Another aspect of the potential scenarios is what level of adjustment is aimed at. It would not be correct to go for the 100-percent solution, because gross domestic product per head varies considerably from region to region in western Germany. Some *Länder* in western Germany only reach a good 80 percent of the western German average. Thus, it makes sense to consider a situation where eastern Germany eventually reaches 80 percent of the western German level of GDP per capita.

So far, the catching-up process that has taken place is not negligible. GDP per capita (in current prices) rose from 31 percent of the western German level in 1991 to 47.9 percent in 1994 (38.5 percent in 1992, 44.8 in 1993). This implies a convergence rate of roughly 6–7 percent per year which is by far higher than the Barro rule of 2 percent.

A simple formula tells us how much time is needed for eastern Germany to catch up. Let Y_{94}^E and Y_{94}^W be the initial GDP in western and eastern Germany, let a be the level to be reached, let β indicate the size of the eastern German population relative to western Germany, and let r^W and r^E denote the real growth rates, then

$$\alpha\beta Y_{94}^W e^{tr^W} = Y_{94}^E e^{tr^E} \quad (1)$$

and thus

$$t = \frac{\ln(Y^E/Y^W) - \ln\alpha\beta}{r^W - r^E}. \quad (2)$$

For a given starting level of GDP in both parts of Germany, the time needed for catching up depends on the difference in the real growth rates between eastern and western Germany. If the difference in growth rates between east and west were only 2 percent, it would take 26 years to reach an adjustment of 80 percent. With a 3-percent differential, the catching up would require 17 years (13 years with a 4-percent differential). Table 5 illustrates the potential paths of catching up under different growth differentials between eastern and western Germany. GDP in current 1994 prices has been used as a starting point.

Figure 6 shows the closing of the growth gap when alternative growth differences prevail between eastern and western Germany. It has been assumed that western Germany will grow at a potential rate of 2.5 percent. The eastern German growth potential has been estimated by correcting the western German growth potential for the size of eastern German population. For the period 1990–1994, actual GDP data have been transformed into 1994 prices in order to make figures comparable. If the difference in the growth rates were 5

percent, eastern Germany would reach 80 percent of the western German level in GDP per capita in 2004; if the difference were 10 percent, the catching-up would occur in the year 2000. Figure 6 also illustrates the valley of the J-curve in the transformation of a socialist economy which is a reflection of the existing capital stock becoming obsolete.

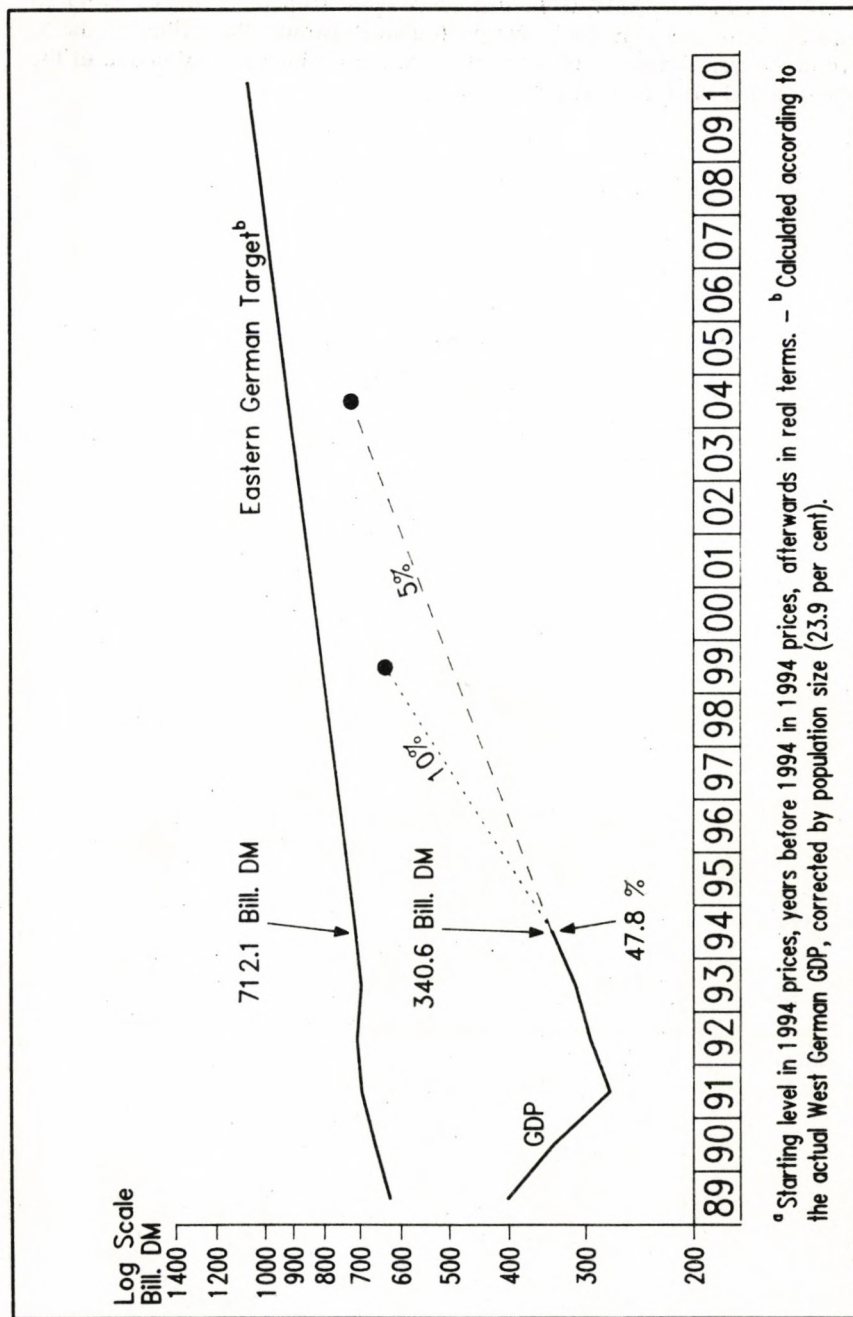
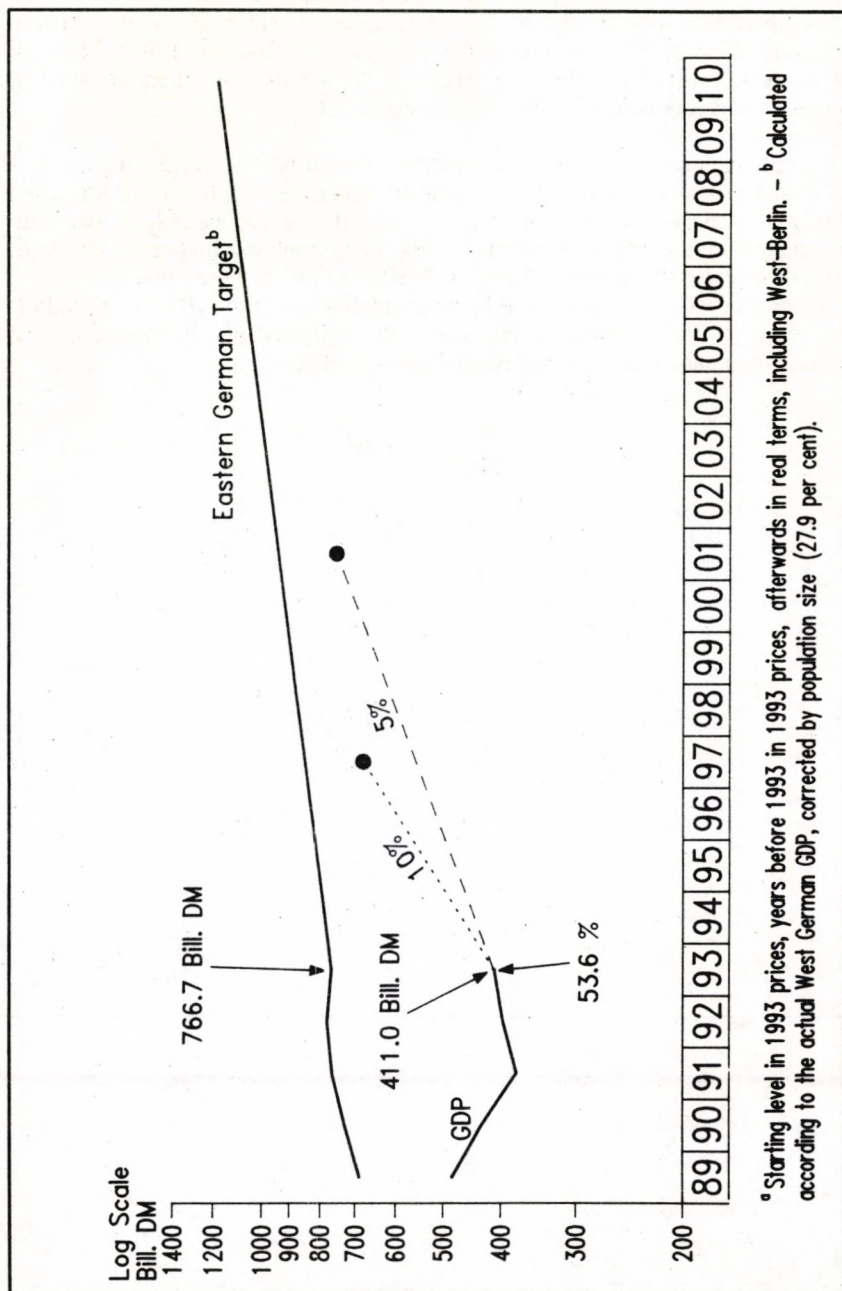
Figure 6 – The Growth Gap of eastern Germany^a

Figure 7 – Growth Gap including west Berlin



In the analysis of the adjustment process it does not make sense to exclude west Berlin since it is geographically and economically part of eastern Germany. Including west Berlin in the eastern German region means that eastern Germany starts at 53.6 percent of the west German level in 1993 – date for 1994 are not yet available. The target of 80 percent can then be reached roughly two years earlier (Figure 7; Appendix A1).

Of course, such mechanistic calculations should not be overestimated. It is realistic to expect that the time profile of investment will not be stretched evenly over the years. There are some reasons that it may be bell-shaped with the greatest momentum in the period 1994–1996 implying higher growth rates of GDP in these years or shortly after. It also should be noted that the growth in the process of catching-up will become smaller over time (Barro and Sala-i-Martin) since the economy moves down the marginal productivity curve of capital when capital is to be interpreted in a broad concept.

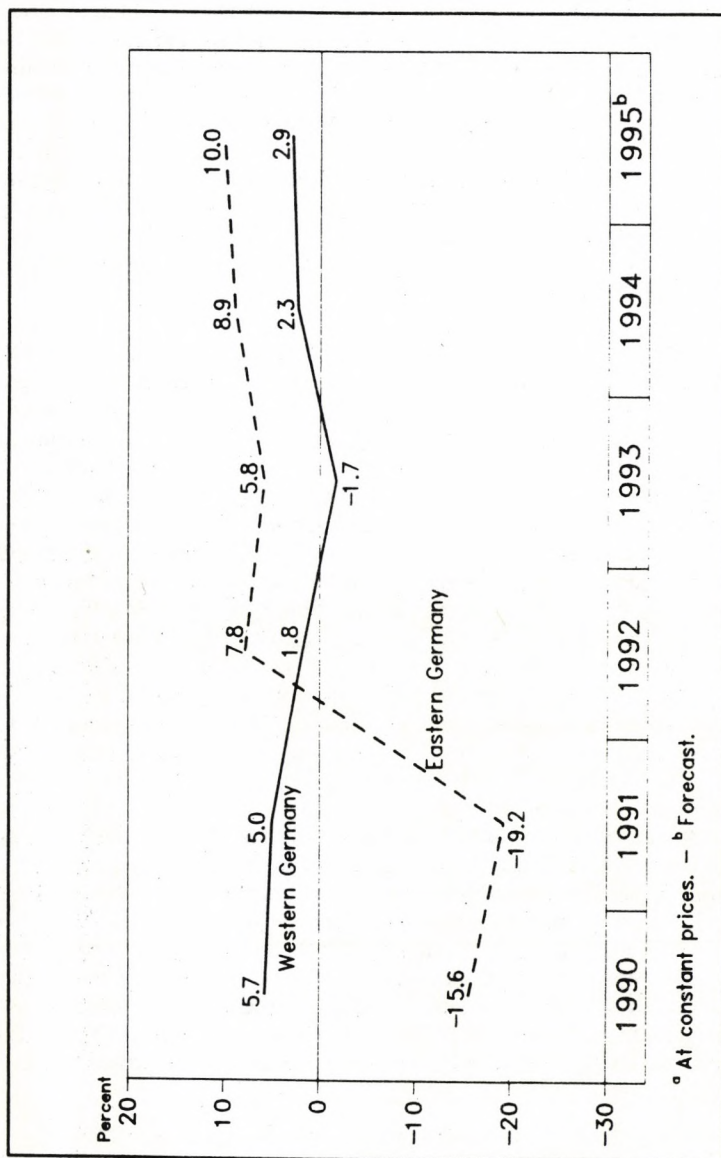
IV. Returning to Normality in Economic Policy

German unification can be interpreted as a massive structural change or as an economic shock to Germany as a whole. The shock has created a temporary excess supply of labor and a temporary excess demand for capital to rebuild eastern Germany, both in public infrastructure and in the enterprise sector. Such a structural change requires a shift in relative factor prices, which implies that the relative position of labor has become less favorable. It also implies a relocation of private capital from western to eastern Germany in the transition period. And it mandates governmental transfers for financing investments in infrastructure, for subsidies to industry in eastern Germany and as transfers to households (unemployment insurance, retirement), thus representing a shock to the German macro economic policy mix between fiscal policy, wage policy and monetary policy.

The need to finance annual public transfers amounting to 5 percent of GDP has changed the structural characteristics of western Germany. The budget deficit in 1994 was 3.8 percent of GDP including the federal level, the *Länder*, the municipalities, the Treuhand and the social security system. Government debt has doubled within five years, climbing from 41 percent to 60 percent of GDP. The tax burden has been increased; and the government share in GDP has risen from 45 to 50 percent. Germany has become a little less of a market economy and a little more of a state economy. The government's increased demand for resources has created a severe burden for the private sector, indicating that the long-term environment for economic growth in western Germany has become less favorable. The potential growth rate of western Germany has been reduced for the interim period; it is now estimated at 2 percent instead of 3 percent for the period from 1993 to 1995. The growth rate of the capital stock is below its long-run average. The recession in 1993 (Figure 8) is partly home made and has been caused by Germany attempting to find a new policy mix.

This situation can only be improved if fiscal policymakers succeed in consolidating the budget situation, in reducing the budget deficit relative to GDP, and in bringing down the tax burden over the coming years. In the medium and in the long run, this question will be influenced by how quickly eastern Germany will catch up. This will determine the extent of transfers needed and, consequently, Germany's fiscal policy stance, which, in turn, will determine the economic conditions for wage policy and for monetary policy and which influence the growth potential in western Germany via taxation. Thus, the catching-up process defines the core of the German economic policy situation.

Figure 8 – Gross Domestic Product^a in eastern and western Germany, 1990–1994 (change in percent)



Source: Statistisches Bundesamt [1994a], 1995 Kiel Forecast.

Germany's fiscal federal system has the principal merit of allowing a decentralization of political decision making and of giving room to regional preferences, but this same system makes a reorientation of fiscal policy in western Germany rather difficult. The *Länder* and municipalities in the west have larger expenditures than the federal government, but the larger part of the burden of adjustment arising from German reunification has been put on the federal government. The *Länder* and the municipalities in the west have taken only a smaller share in expenditure cuts than the federal government. This is a structural reason why, on the whole, fiscal policy has not reacted with sufficient expenditure cuts or caps on expenditure increases. The federal government therefore took refuge to resort to tax increases. With the given allocation of tax revenues and burden sharing between the federal government and the *Länder*, it can be expected that the *Länder* will increase their expenditure in the upswing not contributing to the necessary reduction of government spending.

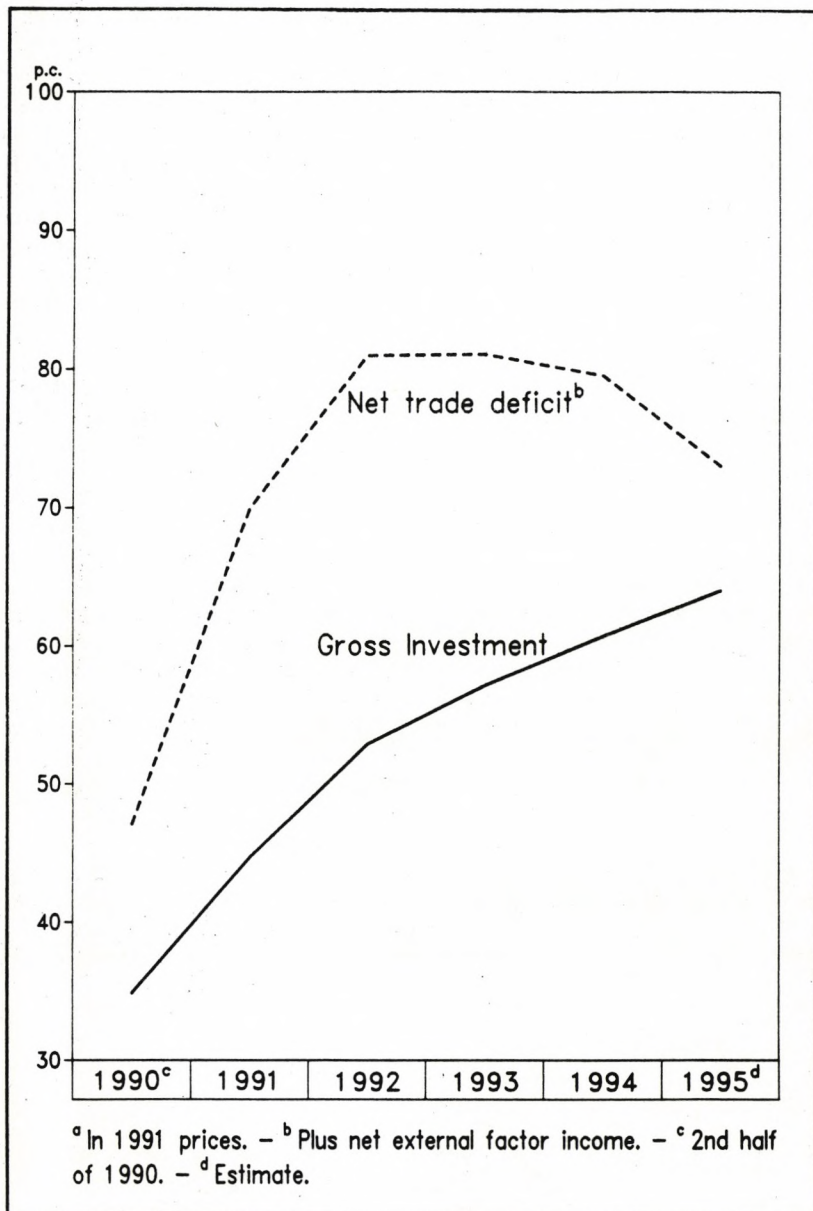
Governmental transfers to eastern Germany will have to be reduced over time, both in relation to GDP and in absolute terms. Unfortunately, it is not easy to calculate net transfers for a number of reasons: In an integrated economic area it is extremely difficult to determine what part of non-area specific spending of the federal government should be attributed to eastern Germany. General outlays are statistically allocated to eastern Germany in proportion to population. A similar problem holds to some extent for public investment. In addition, it becomes more and more difficult to determine trade flows in an integrated economy and to delineate private investment activity in both parts of the country. An indicator of transfers is the wedge between aggregate demand and aggregate production or the trade account. With 65 percent of GDP the deficit in the trade and service account still is extremely high. The trade deficit indicates the gap between production and absorption. From the macroeconomic accounting identity we have

$$Y = C + I + G + X - M \quad (3)$$

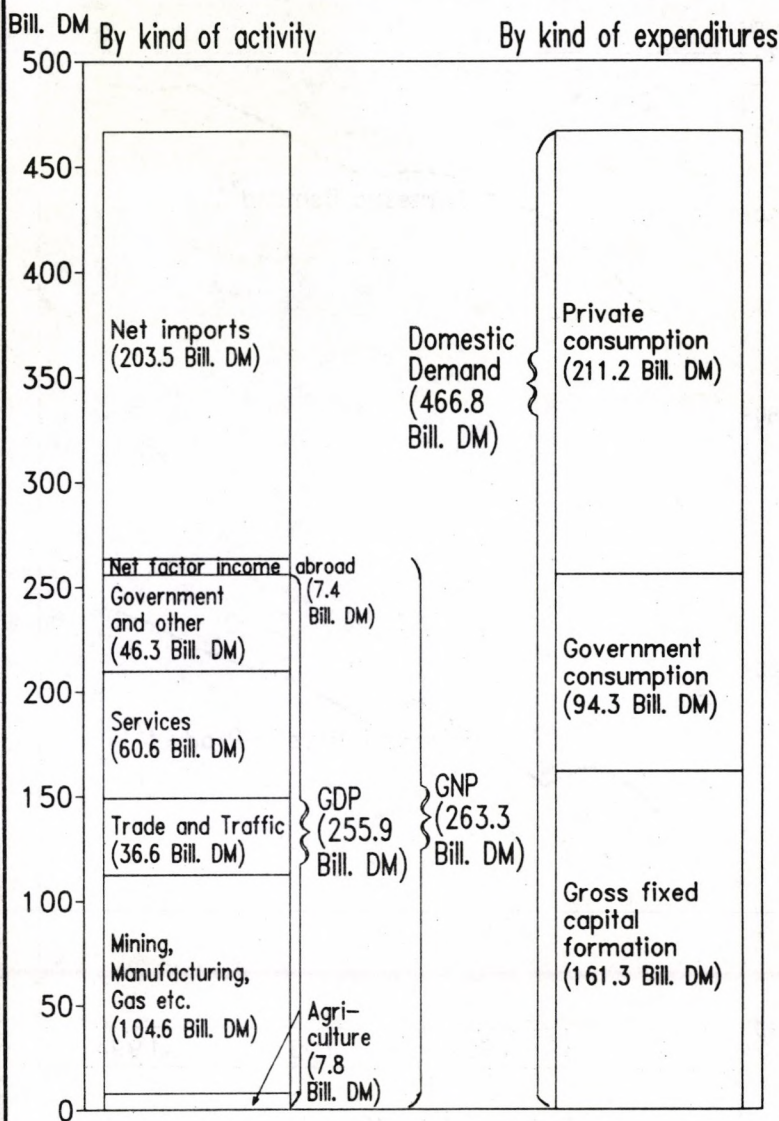
where Y denotes GDP, C private consumption, I gross investment, G government spending, X exports and M imports. Let A stand for absorption with $A = C + I + G$ and let A_c be consumptive absorption with $A_c = C + G$. Then, we have

$$Y - A = Y - A_c - I = X - M \quad (4)$$

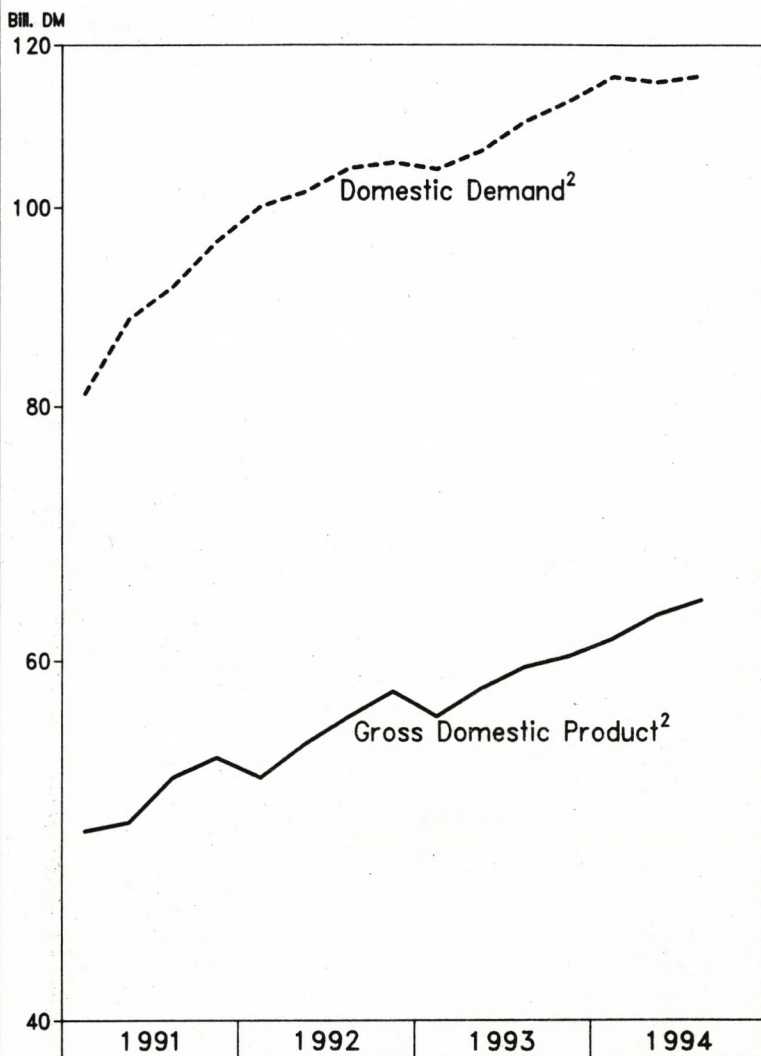
Figure 9 – Gross Investment and Net Trade Deficit in Percent of GDP in eastern Germany^a



Gross Domestic Product, Gross National Product and Total Domestic Demand in Eastern Germany 1994



GDP and Domestic Demand in Eastern Germany¹



¹ Seasonally adjusted. – ² In 1991 prices.

There is still an excess of consumptive absorption over production in eastern Germany; it amounted to 12 percent in 1994, but the gap is becoming smaller over time (Table 6). Instead of GDP, one could consider GNP data in equation 4 which include net external factor income of eastern German factors of production, mostly income of communities to western German. In Figure 9, gross investment and the net trade deficit plus external factor income in percentage of GDP are illustrated. Whereas the net trade deficit relative to GDP is falling, gross investment relative to GDP is rising. This indicates that consumptive absorption is being reduced over time in constant 1991 prices.⁶ Consumptive absorption still exceeds production. Eastern Germany is not able to produce enough for its own consumption. Consumption in eastern Germany is financed by funds from "abroad".

Table 6 – Excess Consumptive Absorption and Trade Balance, bill. DM, in Current Prices

	GDP	Consumptive Absorption ^a	Investment	Net Trade and Service Balance	Net External Factor Income	Unilateral Transfer ^b	Current Account ^b
1991	206.0	-267.3	-91	-152.3	8.0	114.6	29.7
1992	262.6	-328.4	-128.9	-194.8	10.8	131.9	52.1
1993	305.4	-357.8	-154.3	-206.7	9.4	134.6	62.7
1994	340.6	-381.3	-181.6	-221.8	3.7	59.3 ^c	43.4 ^c

^aPrivate Consumption plus government spending excluding governmental investment; Source: Statistical office, erste Ergebnisse der Inlandsproduktsberechnung 1994. – ^bNational Income Accounting Concept; Deutsches Institut für Wirtschaftsforschung, 1994. – ^cFirst half of 1994.

Another approach to the external position of eastern Germany is to look at the external budget constraint of eastern Germany. Rearranging equation 3 we have

$$S - I + (T - G) = N + Se + Y_{EX} + Tr = CA \quad (5)$$

where S denotes savings, I investment (plus change of inventories), T tax revenues of government, N trade account, Se service account, Y_{EX} net external factor income, Tr unilateral transfers and CA the current account. Splitting up savings into savings of households (S_H) and of the enterprise sector (S_E) and splitting up investment into private (I_E) and public investment (I_G), we have for 1993 data

$$S_H + S_E - I_E - I_G + (T - G) = N + Se + Y_{EX} + Tr = CA$$

$$33.6 + 57.3 - 130.3 - 24.0 + (302.0 - 301.4) = -176.9 - 29.8 + 9.4 + 134.6 = -62.7 \quad (6)$$

⁶ As in other comparisons, the statement depends on whether constant or current prices are used. Even with current prices, consumptive absorption is still positive.

Savings are not sufficient to finance investment. Investment is also financed by a negative current account of 62.7 bill. DM. This figure indicates private capital inflows. External funds flowing to eastern Germany include unilateral transfers to eastern Germany of 134.6 mill. DM so that total inflows account for 197.3 bill. DM. Note that unilateral transfers enter into revenues of the sector „government in eastern Germany“ which in equation 6 includes the social security system (unemployment, health and old age insurance).

Rearranging equation 5 we have with 1994 data in brackets

$$I = -N - Se - Tr + S + (T - G) \\ (167.5) = (210.9) - 43.4 \quad (7)$$

where 43.4 bill. DM stand for the term $-Se - Tr + S + (T - G)$. This is yet another way of expressing that the net trade and service balance does not have a counterposition in investment. Taking into account that $T - G = S_G$ is savings of the government sector, equation (7) says that savings (of the private and the government sector) do not cover the deficit in the service account and unilateral transfers.

V. Fading Impact to Germany's European Neighbors

German unification was not only a shock to Germany, but also to its European neighbors pushing up demand for goods by a strong German import demand (raising exports to Germany in some European countries by 20 percent) and stimulating economic growth by at least half a percentage point in the European Union. The new frontier opening up in eastern Germany also was reflected in a higher rate of return for capital and higher real interest rates suppressing aggregate domestic demand in the partner countries. Thus, it was an asymmetric shock to the European Monetary System and putting pressure on some currencies. This eventually led to its collapse in 1992 and 1993 (Siebert 1993c). The bulk of the repercussions could have been circumvented by an appreciation of the D-Mark in 1990 or 1991, allowing other countries a lower interest rate. Moreover, the recession in Europe in 1993 could have been softened considerably. But such a realignment was not politically acceptable. In the long run, eastern Germany will represent a growth region in the European Union and will be an albeit small growth stimulus from the supply side. In the meantime, the asymmetric shock has worked its way out.

Appendix

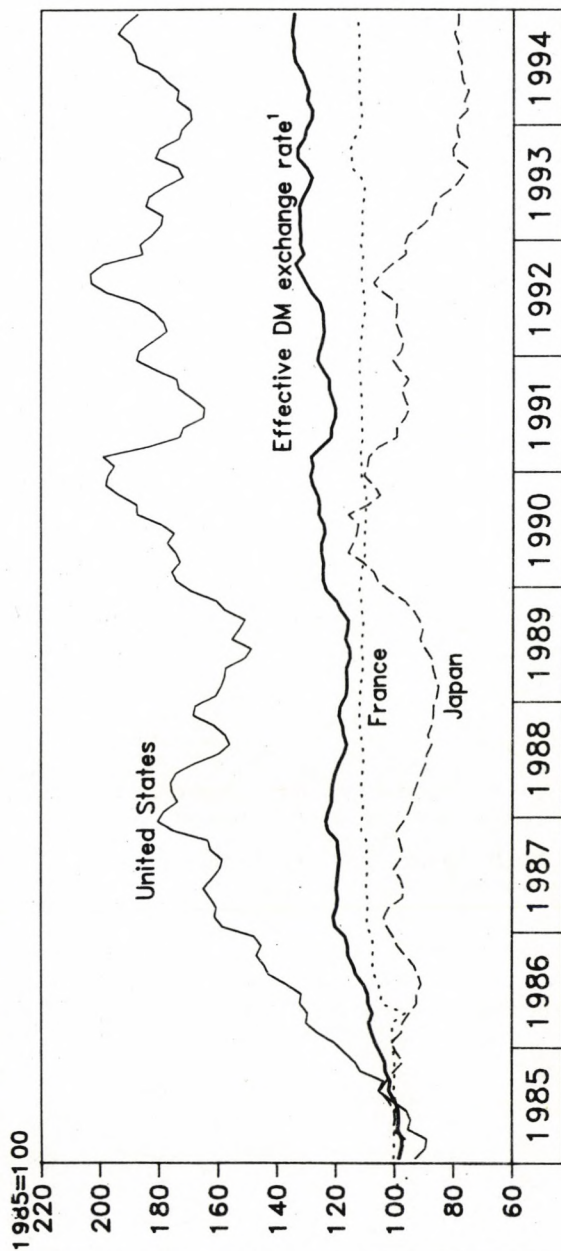
Table A1 – Catching-up in eastern Germany under Alternative Growth Differentials^a including west Berlin (percent)

	Growth differential (percentage points)								
	2	3	4	5	6	7	8	9	10
1993	53.58	53.58	53.58	53.58	53.58	53.58	53.58	53.58	53.58
1994	54.66	55.21	55.76	56.32	56.89	57.46	58.04	58.62	59.21
1995	55.76	56.89	58.04	59.21	60.41	61.63	62.87	64.14	65.44
1996	56.89	58.62	60.41	62.25	64.14	66.10	68.11	70.18	72.32
1997	58.04	60.41	62.87	65.44	68.11	70.89	73.78	76.79	79.93
1998	59.21	62.25	65.44	68.79	72.32	76.03	79.93	84.02	88.33
1999	60.41	64.14	68.11	72.32	76.79	81.54	86.58		
2000	61.63	66.10	70.89	76.03	81.54			4.45	4.01
2001	62.87	68.11	73.78	79.93		5.73	5.01		
2002	64.14	70.18	76.79	84.02	6.68				
2003	65.44	72.32	79.93						
2004	66.76	74.52	83.19	8.02					
2005	68.11	76.79							
2006	69.48	79.13	10.02						
2007	70.89	81.54							
2008	72.32								
2009	73.78	13.36							
2010	75.27								
2011	76.79								
2012	78.34								
2013	79.93								
2014	81.54								
	20.05								

^aThe figures in parentheses show the number of years needed to reach 80 percent of western Germany's level. West Berlin is taken as part of eastern Germany, not western Germany. 1993 GDP in current prices as starting values. Population ratio 0,239.

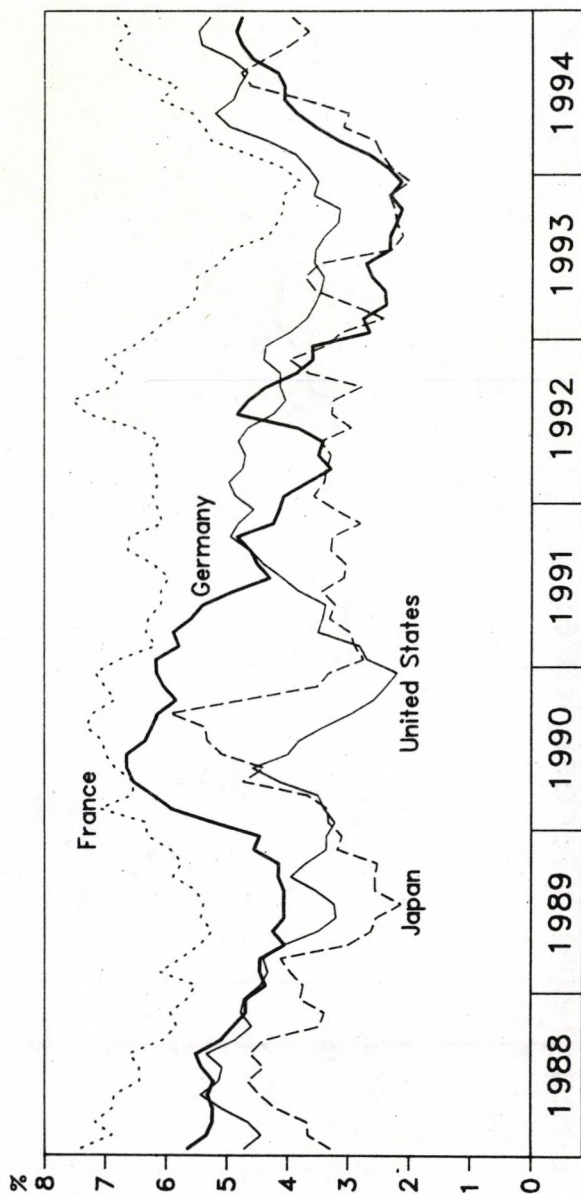
Source: Statistisches Bundesamt [1994b]; own calculations.

Exchange Rates



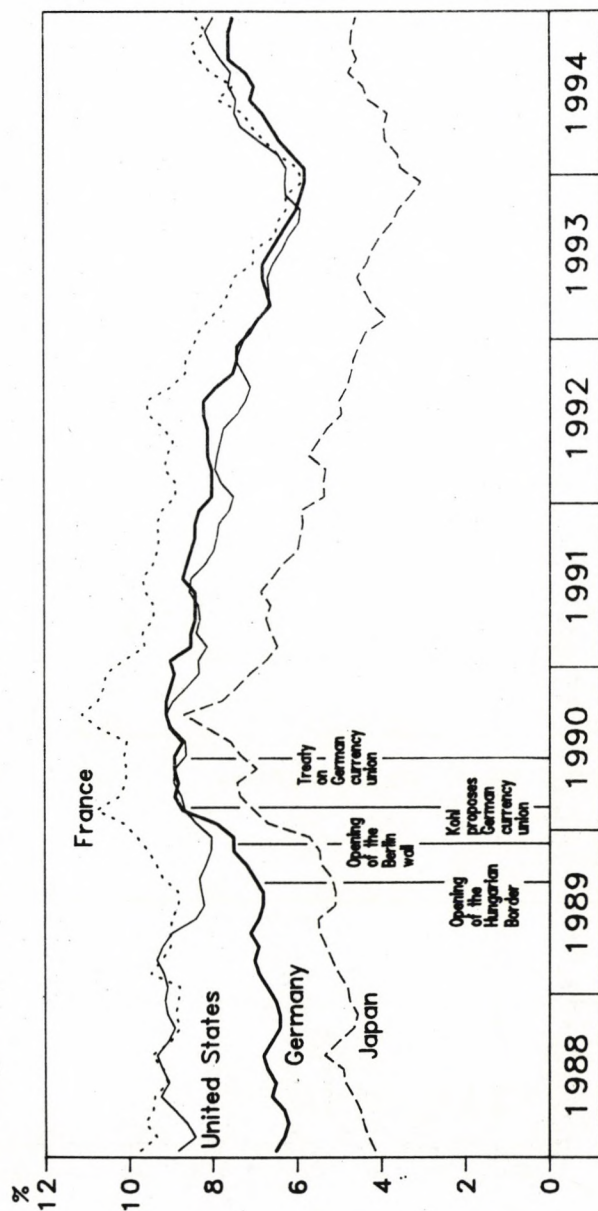
¹ Against 17 industrial countries (United States, Canada, Japan, France, Italy, United Kingdom, Spain, Netherlands, Belgium, Denmark, Portugal, Ireland, Switzerland, Sweden, Austria, Finland, Norway), weighted with West German export shares (1984 - 1986).

Long-term Real Interest Rates¹



¹ Long-term interest rates, nominal adjusted for changes in consumer prices.

Long-term Interest Rates



References

- Barro, R.J., and X. Sala-I-Martin (1991), "Convergence across States and Regions", *Brookings Papers on Economic Activity*, No. 1, 107–158.
- Barro, R.J., and X. Sala-I-Martin (1992), "Convergence". *Journal of Political Economy*, Vol. 100, 223–251.
- Berndt, E.R., and D.O. Wood (1986), "Energy Price Shocks and Productivity Growth in US and UK Manufacturing", *Oxford Review of Economic Policy*, Vol. 2, 1–31.
- Deutsches Institut für Wirtschaftsforschung (1994), *Sozialprodukt und Einkommenskreislauf. Vierteljährliche volkswirtschaftliche Gesamtrechnung für Ostdeutschland*. Berlin, recurrent publication.
- Deutsches Institut für Wirtschaftsforschung and Institut für Weltwirtschaft under the cooperation of Deutsches Institut für Wirtschaftsforschung Halle (1991–1994), "Gesamtwirtschaftliche und unternehmerische Anpassungsschritte in Ostdeutschland. Zwölf Berichte". Various Kiel Discussion Papers 168, 169, 176, 178, 183, 190/191, 198/199, 205/206, 218/219, 231 and 236/237.
- Görtzig, B. (1994), *Auslastung des Produktionspotentials weiter auf niedrigem Niveau*. DIW-Wochenbericht Nr. 44/94.
- Greiner, U., H. Maaß and F.L. Sell (1994), "'The East-German Disease': Volkswirtschaftliche Anpassungsprozesse nach der Deutschen Einheit". *Zeitschrift für Wirtschaftspolitik*, Jg. 43, 271–299.
- Hillman, A.L. (1994), "The Transition from Socialism: An Overview from a Political Economy Perspective". *European Journal of Political Economy*, Vol. 10, 191–225.
- Hicks, J.R. (1950), *A Contribution to the Theory of the Trade Cycle*. Oxford.
- Paqué, K.-H. (1994), *Structural Unemployment and Real Wage Rigidity in Germany*. Kieler Habilitationsschrift.
- Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (1994), "Aufschwung sichern – Arbeitsplätze schaffen", *Jahresgutachten 1994/95*. Stuttgart.
- Siebert, H. (1990), "Bei einer für die DDR-Bürger zu günstigen Umstellung der Löhne besteht die Gefahr von strukturellen Krisen", *Handelsblatt*, March 21.

Siebert, H. (1993a), *Das Wagnis der Einheit – Eine wirtschaftspolitische Therapie*. New edition, Stuttgart.

Siebert, H. (1993b), "German Unification and Its Impact on Net Savings", Institut für Weltwirtschaft, Kiel Discussion Paper No. 216, Kiel.

Siebert, H. (1993c), "The Big Bang with the Big Brother. German Unification in its Third Year", Kiel Discussion Paper No. 211, Kiel.

Siebert, H. (1994a), *Geht den Deutschen die Arbeit aus? Wege zu mehr Beschäftigung*, München.

Siebert, H. (1994b), "Transforming a Socialist Economy: The Case of eastern Germany". In: Y. Shionoya and M. Perlman (eds.), *Innovation in Technology, Industries and Institutions. Studies in Schumpeterian Perspectives*, Ann Arbor, 311–358.

Statistisches Bundesamt (1994), *Fachserie 4, Produzierendes Gewerbe. Reihe 2.1, Indizes der Produktion und der Arbeitsproduktivität, Produktion ausgewählter Erzeugnisse im produzierenden Gewerbe*. Stuttgart.

Statistisches Bundesamt (1994a), "Bruttoinlandsprodukt 1993", *Wirtschaft und Statistik*, No. 1, Stuttgart.

Statistisches Bundesamt (1994b), *Fachserie 18, Reihe 3*, Stuttgart.

Statistisches Bundesamt (1994c), *Zur wirtschaftlichen und sozialen Lage in den neuen Bundesländern*. Dezember 1994.

Van Long N., and H. Siebert (1992), "A Model of the Socialist Firm in Transition to a Market Economy". *Journal of Economics*, Vol. 56, 1992, 1–21.

Biographical Note

Prof. Dr HORST SIEBERT, born 20/3/1938, received his PhD 1965 at the University of Münster. From 1967 to 1968 Prof. Siebert held the position of Assistant Professor at Texas A&M University. He was Visiting Professor at MIT, Harvard, New York University, Resources for the Future (Washington), University of New Mexico (Albuquerque), University of California (Riverside), Australian National University (Canberra), and Rijksuniversiteit (Gent). Since 1989 Professor Siebert is President of the Institute of World Economics and holds the Chair of Theoretical Economics at the Kiel University. He is a member of the German Council of Economic Advisors.

He has published widely in English and German. His latest major publications are:

Economics of the Environment. Theory and Policy, fourth revised edition, Springer-Verlag, Heidelberg 1955;

Das Wagnis der Einheit. Eine wirtschaftspolitische Therapie, revised edition, Deutsche Verlags-Anstalt, Stuttgart 1993;

Geht den Deutschen die Arbeit aus? Wege zu mehr Beschäftigung, revised edition, C. Bertelsmann, Munich 1995.

Jean Monnet Chair Papers

European University Institute, Florence

CHRISTOPH BERTRAM/Sir
JULIAN BULLARD/
LORD COCKFIELD/ Sir DAVID
HANNAY/MICHAEL PALMER
Power and Plenty? From the
Internal Market to Political and
Security Cooperation in Europe,
April 1991, pp. 73

ROBERT GILPIN
The Transformation of the
International Political Economy,
April 1991, pp. 27

EDMOND MALINVAUD
Macroeconomic Research and
European Policy Formation
April 1991, pp. 58

SERGIO ROMANO
Soviet Policy and Europe Since
Gorbachev,
April 1991, pp. 25

BERNT VON STADEN
The Politics of European
Integration,
April 1991, pp. 33

HELGA HAFTENDORN
European Security Cooperation
and the Atlantic Alliance,
July 1991, pp. 42

THOMAS ANDERSSON/STAFFAN
BURENSTAM LINDER
Europe and the East Asian
Agenda,
October 1991, pp. 87

ROGER G. NOLL
The Economics and Politics of
Deregulation,
October 1991, pp. 89

ROBERT TRIFFIN
IMS International Monetary
System - or Scandal?,
March 1992, pp. 49

EGON BAHR
From Western Europe to Europe,
June 1992, pp. 42

HELGE HVEEM
The European Economic Area
and the Nordic Countries - End
Station or Transition to EC
Membership?,
June 1992, pp. 21

ERIC STEIN
Post-communist Constitution-
making: Confessions of a
Comparatist (Part I),
August 1992, pp. 63

CAROLE FINK
1922/23 From Illusion to
Disillusion,
October 1992, pp. 19

LOUIS H. ORZACK
International Authority and
Professions. The State Beyond
The Nation-State,
November 1992, pp. 47

VLADIMIR M. KOLLONTAI
Economic Reform in Russia
November 1992, pp. 43

RYUTARO KOMIYA
Japan's Comparative Advantage
in the Machinery Industry:
Industrial Organization and
Technological Progress,
October 1993, pp. 60

GIULIANO AMATO
Problems of Governance - Italy
and Europe: A Personal
Perspective,
October 1994, pp. 39

JEREMY RICHARDSON
The Market for Political
Activism: Interest Groups as a
Challenge to Political Parties,
November 1994, pp. 37

RICHARD B. STEWART
Markets versus Environment?,
January 1995, pp. 53

JOHN GERARD RUGGIE
At Home Abroad, Abroad at
Home: International Liberaliza-
tion and Domestic Stability in the
New World Economy,
February 1995, pp. 64

DAVID VOGEL
The Relationship Between Envi-
ronmental and Consumer Regu-
lation and International Trade,
February 1995, pp. 44

JOHN WILLIAMSON
Proto-EMU as an Alternative to
Maastricht
March 1995, pp. 20

THOMAS C. HELLER
Joint Implementation and the
Path to a Climate Change
Regime
March 1995, pp. 49

NORMAN SCHOFIELD
Modelling Political Order in
Representative Democracies
June 1995, pp. 38

VOJIN DIMITRIJEVIC
The Fate of Non-Members of
Dominant Nations in Post-
Communist European Countries
June 1995, pp. 34

HORST SIEBERT
Eastern Germany in the Fifth
Year. Investment Hammering in
the Basement?
September 1995, pp. 45

