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Socialist Economies Reform

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Economic Consequences of German Reunification

12 Months After the Big Bang

Gerhard Pohl

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Did the "big bang" approach work or would gradual change have been more appropriate? Which measures have worked and which have not?

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Policy Research

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Socialist Economies Reform

WPS 816

This paper — a product of the Geneva Office — is part of a larger effort in the Bank to analyze the changes in the formerly centrally planned economies. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433, or from the Geneva Office. Please contact CECSE, room N6-037, extension 37188 (47 pages). December 1991.

Pohl discusses how East Germany is faring 12 months after big bang unification with West Germany. Were there better alternative courses of action on key economic issues? Among Pohl's conclusions:

• The "big bang" approach has worked. In Germany's special situation, more gradual approaches would not have worked because it was politically unthinkable to restrict east-west migration.

• The 1:1 conversion of GDR marks into Deutschemarks was essential to keep migration within reasonable bounds. Using a lower exchange rate (such as 2:1) would have implied a gross salary difference between west and east Germany of 6:1 and a net (after-tax) difference of 4:1. With those ratios, migration would have been heavy, creating a brain drain on east Germany and a housing shortage in west Germany.

• The 1:1 currency conversion is not to blame for the present high wages in east Germany (about 50 percent of west Germany's); rather, the 1991 collective bargaining agreements set the pace. The high wages are only sustainable with massive financial assistance.

• More gradual unification would not have been an advantage; lower wages would have been desirable only if migration could have been held in check. But the decay of the GDR state and institutions was so advanced that wage restraint would have been impossible.

• Unification has meant importing the Federal Republic's entire economic and legal system to east Germany — and this complex system has not been ideal for solving the problems of a sudden transition from a command to a market economy. Some temporary exemptions and transitional measures were introduced from the start and others were added later, as some provisions proved unworkable (particularly the preference given to reprivatization, or restitution, which was softened in 1991). Similar legal and logistical problems have been encountered with such major public investment projects as highways, rail links, and airports. But the advantages of importing a proven legal system far outweigh the inevitable transition costs.

• Some transition measures — especially labor market adjustment measures and incentives to attract private investment — were insufficient or had to be extended. Some economists have argued that general employment subsidies would have been better than partial unemployment benefits. But Pohl argues that general employment subsidies would have been applied indiscriminately and would have perpetuated old inefficient structures. The investment incentives are far more effective in creating high-productivity jobs rapidly. In the interim, targeted employment programs are a useful transition measure.

• Investment subsidies have been criticized on the grounds that they tend to distort allocation decisions and lead to uneconomically capital-intensive investments. Although possible in theory, Pohl finds this argument doubtful in practice. Investment costs per job are not particularly high in manufacturing, and the design of the assistance program excludes support of inefficient investments.

• Were government spending and private incentives geared to productive rather than social purposes? In the first year of the union, probably not — mostly because of administrative friction in getting investments going. More could perhaps have been done to get infrastructure investments going, which would have improved employment earlier on.

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Economic Consequences of German Unification:

Twelve Months after the Big Bang

by Gerhard Pohl

Introduction

Over the past two years, a political revolution has swept through eastern Europe. One country after another has taken advantage of the changes in the Soviet Union to sweep away communist regimes, to introduce democracy and civil liberties, and to restructure their economies into market economies. While political changes have been rapid, the economic restructuring promises to be a long and painful process. The German unification provides an opportunity to learn a few lessons about the immensity of this task in the best of all circumstances: the take-over by a "big brother" who is ready to lend a hand in the reconstruction task, and willing to foot most of the bill.

There are, of course, important differences between the situation of east Germany and its former Comecon partners. They mostly relate to the fact that east Germany[1] has become an integral part of a larger, and much richer, country. In east Germany, external factor mobility (both labor and capital) plays an important role. In eastern Europe, there will be little external labor mobility, and even capital flows will only play a secondary role. The adjustment mechanism will be primarily through an exchange rate adjustment, to generate exports to pay for imported investment goods. Most of the investment needed to adapt the outdated human and physical capital stock will have to be generated by domestic saving. East Germans, by contrast, are experiencing an immediate increase in living standards and consumption, financed by large fiscal transfers from west Germany.

Despite these obvious differences, there remain important common factors. East Germany shares with other eastern European economies a common legacy of socialism and

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[1] The term east Germany is used to denote the area of the former German Democratic Republic (GDR) after the unification (October 3, 1990). For earlier dates, the terms "GDR" and "East Germany" are used.

central planning that has led to similarly low productivity, similar poor integration into the world economy, similar technological backwardness, and a consequent need to restructure the economy from the basement to the roof. Eastern European countries also share the common aspiration to become full members of the European Community. Since the macro-economic adjustments are different, transferrable lessons are mostly in the micro-economics of structural change in east Germany. They relate both to the past--a more realistic assessment of the backwardness of socialist economies--and the future, for example, the extent of restructuring required in industry, or lessons about the privatization process.

A. The Legacy of the Past

If there ever was a "model" socialist economy, it had to be the German Democratic Republic. It boasted the highest living standards among socialist countries and had implemented Stalin's model of "democratic centralism" (and its application to economic organization) most rigorously. The private sector accounted for only 4% of economic activity in 1989. Like in Czechoslovakia, the government maintained tight control over enterprises, and avoided large macro-economic imbalances or excessive external borrowing that plagued Poland, Yugoslavia or Hungary.

The main shortcomings of the GDR economy were the common, systemic weaknesses of command economies: centralization and bureaucratization, excessive information requirements, poor incentives and lack of individual initiative[2]. Together, they resulted in slow innovation and productivity growth. In order to manage the information overload of a command economy, autarky was pursued at all levels: internationally, within sectoral and regional bureaucracies, and even at the enterprise level. Enterprises tended to be large and self-contained, producing a large share of parts and components in-house, at sub-optimal scale and often with inadequate, artisanal methods. Outdated production techniques at the plant level were

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[2] See, e.g. Hayek (1935), Granick (1975), or Hewett (1988) for theoretical and empirical discussions of the shortcomings of socialist economies.

combined with sectoral monopolies for final products, eliminating competition and stifling innovation and efficiency. Large units were created where there were no economies of scale, for example, in agriculture, but opportunities to reap economies of scale, for example, through specialization and buying-in of components in much of manufacturing were largely missed. Enterprises produced a very large range of products, as external trade was tightly circumscribed. The large range of social services provided directly by enterprises to their workers further reduced efficiency, and turned enterprises into social and political, rather than economic, organizations.

Productivity and Income Levels

Western analysts have, in the past, widely overestimated the productivity and competitiveness of socialist economies.[3] Table 1 reproduces some of the best known western estimates of income levels in eastern Europe.[4] These estimates put East German per capita income at 50-70% of US levels, and 43-86% of West German levels, depending on methodology, with purchasing power and physical indicator methods at the upper end of the range. In all estimates, the GDR is on top, followed by Czechoslovakia, Hungary, the USSR, Poland and then the poorer south-eastern European countries.

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[3] Comparing western and eastern economic statistics was difficult for a number of reasons: (a) socialist countries used different methodologies for national income statistics; (b) administratively set prices and absence of competition led to different measures of inflation and real growth; (c) limited involvement in foreign trade led to a very different economic structure; and (d) in some cases, unfavorable statistics were withheld and sometimes falsified. Western analysts have employed a number of techniques in trying to overcome these difficulties and to estimate comparable national income indicators for socialist economies. The simplest approach involved taking eastern European national income data (based on the material product system - MPS) and to adjust them to western definitions (GDP or GNP, according to the UN's system of national accounts - SNA), by adding in "non-material" services and depreciation to yield GDP in domestic currency. In the absence of market-determined exchange rates, an estimate had, however, to be made to convert GDP to a common denominator. Three approaches have been used: (a) using a purchasing power parity (PPP) exchange rate, derived from price comparisons; (c) adjusting official exchange rates or purchasing power parities to reflect market exchange rates; and (c) avoiding official national accounts data altogether, by estimating comparable income levels directly from detailed physical output data.

[4] Alton, PlanEcon and Summers/Heston used a purchasing power parity (PPP) exchange rate (derived from price comparisons) to convert domestic currency into dollars, Marer adjusted the PPP exchange rate to reflect income-related deviations between market exchange rates and purchasing power parities, observed among market economies at different levels of income. The 1982 World Bank Atlas estimate used the non-commercial official exchange rate. In view of the uncertainties involved in all available conversion methods. Fink/Havlik used regression techniques to estimate equivalent dollar incomes, based on a large number of physical indicators (e.g., steel consumption, hospital beds, etc.). An overview of past estimates of eastern European per capita income estimates is given in Lancieri (1991).

Table 1: Alternative Western Estimates of Eastern European Per Capita GNP in 1980
(in percent of US per capita GDP)

	Exchange Rate Adjusted		Purchasing Power Parity			Physical Indicators
	Marer	World Bank Atlas (1982)	Alton	PlanEcon	Summers-Heston	Fink-Havlik
East Germany	52	63	63	63	69	70
Czechoslovakia	42	51	55	55	61	66
Hungary	39	37	47	47	48	58
Poland	33	34	43	43	44	52
West Germany	120	120	-	73	83	81
USA	100	100	100	100	100	100
East Germany/West Germany (%)	(43)	(53)	-	(86)	(83)	(86)

Source: Lancieri (1991)

Binary purchasing power comparisons between East and West Germany,[5] have yielded lower estimates for East Germany than those in Table 1, pegging purchasing power GDP in East Germany at 58% of West German levels in 1983. The implied purchasing power parity exchange rate was estimated at around 1:1 (GDR Mark/DM). East German labor productivity averaged 49% of West German levels, ranging from 41% in agriculture to 51% in manufacturing and 57% in construction. Sub-sectoral estimates in manufacturing were lowest for process industries (cement--41%, food and beverages--43%) and highest for engineering goods (machinery--56%).

In retrospect, all these comparisons failed to take account of the large--and increasing--difference in product quality between market and planned economies. Despite these shortcomings, the comparisons *within* each set of countries (planned/market) are reasonably reliable. Eastern European economies had similar management systems, resulting in similarly investment and production patterns, and the same is true for most industrialized market economies. However, comparisons *across* different systems are hazardous. The planned

[5] The most comprehensive source for comparisons between the GDR and FRG is Deutscher Bundestag (1987).

economies have pursued very different policies, resulting in different, by western standards highly distorted, production and consumption patterns.

The impact of quality differentials and economically irrational trade patterns became apparent when the veil on the secrets of East German trade statistics was lifted in 1990. Until then, trade statistics were expressed in "valuta mark" (VM), whose value was a mystery.[6] It was revealed that the domestic currency costs of convertible currency exports were 4.40 M/DM in 1989 rather than 1:1 or 1.6:1 implied in trade statistics.[7] Domestic resource costs[8] of convertible currency exports had increased sharply during the 1980's (from 2.40 M/DM in 1980 to 2.90 in 1985, and 4.40 in 1989), documenting a rapid loss in external competitiveness. The "equilibrium" market exchange rate--reflecting competitiveness in the tradeable goods sector--was more than three-quarters below purchasing power parity. East Germany fairly high living standards in terms of old fashioned "material" goods (eggs, bricks, or tram tickets), but living standards were low in terms of goods and services that had elsewhere experienced large quality changes (cars, consumer electronics, prepared foods, etc.). The "Trabant", the symbol of the GDR's predicament, is a case in point: it is at best equivalent to a 1950s vintage West German car.

Growth and Investment

Official statistics continued to paint a rosy picture of growth and economic development in the GDR--right up to the collapse of the regime. According to official statistics, East German per capita income had gained 66% on West Germany over the past three decades, and continued

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[6] The fiction of 1 VM = 1 DM was maintained in economic relations with West Germany. The official value in terms of a transfer rouble was 4.67 VM/TR, and the implicit cross rate with the DM (based again on the official, but equally arbitrary, dollar/rouble exchange rate of 0.65 TR/$) was 1.62 VM/DM in 1988.

[7] The underlying market-clearing exchange rate was actually even more unfavorable, since imports were tightly controlled through administrative restrictions, and an easing of these restrictions would have required a further exchange rate adjustment.

[8] Due to domestic price distortions, exports valued at domestic prices are not strictly domestic resource costs. However, for sufficiently broad categories of goods, subsidies and levies cancel out. For all convertible currency exports, costs at (distorted) domestic prices are approximately equal to domestic resource costs (=economic costs in domestic currency).

to grow at 4% p.a. (double West German rates) throughout the 1980's. The reality was different. Western estimates--based on micro-economic data--put GDP growth at slightly less than 2% p.a. for the 1980s, somewhat higher than the neighboring socialist "reform" economies.[9] But even this is an overestimate. In reality, productivity and external competitiveness have fallen further behind, as structural change (such as a reduction in agricultural or textile industry employment) remained very limited.

Like other eastern European countries, the GDR tried to maintain flagging growth in the 1970s through increased external borrowing. Net external debt increased from negligible levels in 1970 to about US $ 11 billion in 1980 and was used primarily to maintain high levels of industrial investment. The borrowing strategy proved unsustainable: external debt increased to three times convertible currency exports by 1979. With the onset of the second oil crisis, the borrowing strategy was reversed: exports were increased at all costs to reduce the outstanding debt. One avenue was fuel substitution: wherever possible, heavily polluting solid fuels were substituted for imported Soviet oil, and the oil surplus was exported to the West.

Since income levels in the two halves of Germany were roughly the same before 1945, one can derive the growth rate, according to western definitions, by comparing present and past income levels. Table 2 gives two measures: first, using GNP estimates for 1989, resulting from the Mark/DM conversion at 1:1 (about 52% of west German levels).[10] Under this assumption, per capita GNP growth for the GDR was 1.9% p.a., roughly one-half West Germany's rate. An alternative estimate can be derived by taking the GNP for 1989, and applying the implicit Mark/DM exchange rates for GDR exports in 1990 (4.40 M/DM).[11] This yields a far lower income level (15% of West Germany's), and an implicit per capita growth rate of *minus* 1.9%

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[9] Alton (1989), Heston (1989).

[10] Derived from national accounts calculation for east Germany by the German Statistical Office for 1990, and growth rates for 1989/90, estimated by one of the leading German economic research institutes (DIW). Per capita GNP in east Germany in 1990 was 42% of west German levels. In view of the sharp decline in GNP in 1990 (-16%), the implicit value for 1989 is 52%.

[11] This exchange rate would have been unsustainable if the GDR economy had been opened to foreign competition (without massive capital inflows), as this rate reflects tight import restrictions. Moreover, the official GNP figures for 1989, released for the first time in 1990, has been revised downward by 20%.

p.a. for the past four decades. The higher estimate is based on purchasing power parities (and would not be sustainable without massive fiscal transfers), while the lower estimate reflects international competitiveness in tradeable goods, and is comparable to the situation of other eastern European countries. The achievements of forty years of socialism are, in comparable western definitions, at best sluggish growth and perhaps even sustained regression, due to economic and technological isolation.

Table 2: Germany: Official and Re-Estimated Growth Rates, 1950-1989

	GNP	GNP per Capita
Federal Republic of Germany	4.2	3.6
German Democratic Republic		
- Official Statistics (NMP)	5.6	5.9
- based on 1989 GNP, at 1:1 Mark/DM	1.6	1.9
- based on 1989 GNP, at 4.40 Mark/DM	-2.2	-1.9

Source: FRG and GDR Statistical Yearbooks, DIW

Foreign Trade

Like in other socialist countries, the external trade of East Germany was carried out exclusively through specialized foreign trade corporations that had a monopoly within their sector or product range and were the principal contact point for foreign buyers and sellers. Trade with CMEA member countries was carried out on the basis of bilateral trade agreements. While raw material prices were based on five year averages of world market prices, prices for industrial goods were essentially negotiated, since international prices for these (mostly uncompetitive) goods were hard to establish. Use of unrealistic transfer rouble/dollar exchange rates[12] made the share of CMEA trade appear far larger than its actual significance. At realistic rouble exchange rates, reflecting domestic resource costs, less than one-half of East

[12] The official cross rate was originally 0.65 TR/$. In 1989, TR/$ cross rates used in national trade statistics ranged from 0.65 in Bulgaria, to 1.74 in the GDR, 2.09 in Hungary and 2.96 in Poland. (Economic Bulletin for Europe 42/1990, Box 2.1).

German trade was with CMEA members, and the same is true for most other Eastern European economies (Table 3).[13]

Table 3: Exports of East German and Eastern Europe, 1989

	Exports per capita ($)				non-CMEA
	Total	CMEAa/	non-CMEA	EEC	% of total
GDR	990	380	610	340	62
Czechoslovakia	800	370	430	160	53
Hungary	930	370	560	230	60
Poland	400	180	220	110	56

a/ At uniform transfer rouble/dollar cross rate of 2.0 TR/$, except for the Soviet Union, where oil and gas exports to CMEA countries are priced at world market prices, and all other CMEA exports at 2.0 TR/$.

Source: IMF: Direction of Trade Statistics; CMEA trade: Economic Bulletin for Europe 42/90; EEC Trade: Moebius and Schumacher (1991)

Far more important is the low export intensity, with per capita exports of around $990 for the GDR--less than Portugal ($1,200), and one-fifths of West German levels ($5,500). Despite its orthodox command economy, total and convertible currency exports of the GDR were higher than elsewhere in eastern Europe (on a per capita basis), reflecting the inherited industrial know-how and the special relationship with West Germany. Intra-German trade was treated in West Germany as domestic trade, with no tariff or other barriers applying to imports from East Germany. Not surprisingly, two-thirds of East German exports to the European Community were to West Germany (although some may have been re-exported to the rest of the EC, after entering duty free via West Germany). Despite this favorable treatment, the share of East Germany in West Germany's imports declined from 1.6% in 1980 to 1.4% in 1989.

[13] Table 3 uses per capita exports and common TR/$ cross rates and takes trade data from western trade partner sources where possible. In view of the unreliable national accounts data, and different progress in exchange rate adjustment toward market fundamentals, more familiar export/GDP ratios could be highly unreliable, and misleading.

The Past Legacy: Summary

Within the group of CMEA countries, the GDR maintained its position as the most developed and industrialized socialist economy. Compared to the "reform" economies, the preservation of orthodox Stalinist economic policies was not a major disadvantage. On two essential counts, growth and hard currency exports, the GDR continued to perform better than Hungary, Poland or Yugoslavia. Compared to West Germany and other European market economies, the conclusion is very different: as elsewhere in eastern Europe, the shortcomings of command economies led to inadequate incentives, inefficient organizational patterns, isolation from world markets and a divorce from the international division of labor and the diffusion of technological progress. The production of increasingly outdated and unwanted products increased at a moderate rate, but in terms of comparable measures of economic growth and welfare, the GDR experienced four decades of virtual stagnation. However, as in other eastern European countries, living standards and productive potential are significantly higher than suggested by per capita incomes at market clearing exchange rates, which reflect the distortions of the past, and the high demand for imported investment goods after the sudden opening of these economies.

B. Unification: The Evolving Policy Framework

Chancellor Kohl's proposal for a currency union, made in early February 1990, was essentially a political decision. Until then, virtually all proposals made by the economics profession envisaged a gradual transition of the GDR towards a market economy, including a step-by-step move towards convertibility, supported by a flexible exchange rate policy.[14] The offer for monetary union was made conditional on the GDR "creating simultaneously the legal prerequisites for introducing a social market economy".

[14] The Council of Economic Advisors of the Federal Republic did not even mention the possibility of a monetary union in its advisory report on economic reform options for the GDR just two weeks before the proposal was made. However, a few prominent West German economists and politicians of both colors had advocated a rapid monetary union, and the advisory council of the Ministry of Economics had envisaged such an option in December as part of an alternative scenario that would lead to rapid political unification.

Monetary and Economic Union

The principal features of the "monetary, economic and social union," negotiated in May 1990 included:

- Conversion of all current payments at an exchange rate of 1:1 (M/DM), roughly maintaining past purchasing power.

- Conversion of all outstanding monetary claims and liabilities at 2:1, except for a per capita quota of savings, converted at 1:1.

- Adoption, by the GDR, of a market economy, based on private property.

- Introduction of a common legal and regulatory environment, based on the laws of the Federal Republic.

- Introduction of the main features of West German social policies, including free collective bargaining, comprehensive retirement, medical and unemployment insurance, and worker participation in company organs.

The question of the appropriate conversion from Marks to DM created the most heated controversy in the discussions leading to the monetary union. In recent years, the implicit exchange rate for convertible currency exports had deteriorated to 4.4 M/DM (see above) and free market rates (outside the GDR) had been around 12:1. A majority of economists and commentators in West Germany (including the Bundesbank) argued for a 2:1 rate as the maximum feasible, while public opinion in East Germany was strongly in favor of a 1:1 conversion (implying pre-tax wages of about one-third West German levels). The arguments for a 1:1 conversion were based on past purchasing power and productivity comparisons (see above). They also reflected political and social concerns. It was difficult to "sell" re-unification

to GDR citizens, if that involved perceived large cuts in living standards, while much better-off west Germans would not have to share much of their income and wealth.

This still left the question of what to do with outstanding assets and liabilities of enterprises and households. Imported equipment had generally been sold to enterprises at the implicit exchange rate (recently 4.40 M/DM) and was financed by channeling household savings and deposits through the state bank to enterprises. A 1:1 conversion would have burdened enterprises with debt up to four times the actual value of imported plant and equipment. The approach finally adopted was currency conversion cum monetary reform, not unlike the 1948 currency reform in West Germany: wages, pensions, stipends, rentals and other current payments were converted at 1:1; all past claims were converted at 2:1.[15] The resulting conversion was 1:1 for current payments, and an average of around 1.8:1 for the consolidated balance sheet of the banking system. From a monetary perspective, the conversion was not too different from the Bundesbank proposal of 2:1 that also included an (unspecified) adjustment of wages to compensate for losses in purchasing power arising from price adjustments. The currency reform had dramatic consequences for the balance sheets of financial institutions: a substantial part of their liabilities was converted at 1:1, while almost all assets were converted at 2:1, leaving large negative net worth. An "equalization fund" was set up to cover valuation losses arising from the currency conversion, plus any shortfalls to meet West German capital adequacy rules for banks. These assets are interest bearing and will be amortized over a period of 40 years.

Privatization issues were, together with the "appropriate" exchange rate, among the most contested issues in the discussions on economic union. There was little disagreement about the switch to a market economy, based on private ownership and the legal and regulatory framework of the FRG. There was, however, disagreement on the scope and means of privatization, and the extent of reprivatization (restitution) to former owners. As discussed further below,

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[15] Except for a per capita quota for savings accounts, converted at 1:1 up to a maximum of M 4,000 per adult (equivalent to about four months pre-union wages), M 2,000 for children, and M 6,000 for retired persons. The average conversion rate for savings accounts was about 1.4:1.

misperceptions in East Germany about the value of "productive" assets of the GDR explain most of these differences. The monetary union treaty left many details to be resolved later. In the months before the economic union, a number of legal changes had already been introduced to permit private sector activities, to reprivatize small and medium enterprises nationalized in 1972 and to convert state enterprises into independent entities, vested into a state property fund, the Treuhandanstalt. The law on privatization and reorganization of state property, enacted at the same time as the monetary union treaty, provided for the privatization of all state enterprises and most other state property.

A number of **transitional measures** were agreed in the treaty to assist enterprises to adjust. These included: temporary quantitative restrictions on imports of agricultural products; temporary import duties on certain consumer durables; investment subsidies of 12% for the first year and 8% for the second year of the economic union; and a reduction of the value-added tax in the Federal Republic for GDR imports. In the event, the temporary import restrictions and import duties proved unenforceable, once border controls were eliminated, and were abolished in the first weeks of the economic union.

Financing. The adoption of the West German tax system had the effect of dramatically reducing government revenues, previously based on high levies on enterprises. The resulting deficit was projected to reach about DM 52 billion (20% of GNP) for the first full year after the economic union. Two-thirds of the projected deficit were to be financed by budgetary transfers from the Federal Republic and one-third through borrowing of the GDR government. Most of the financing of the FRG portion was to be carried out through a "German Unity Fund" of DM 115 billion, covering expenditures during 1990-94. The increase in public sector borrowing for the economic union (the German Unity Fund plus the borrowing by the GDR government in its own name) was estimated at slightly over 2% of West German GNP in 1991, and was projected to decline rapidly thereafter.

Political Unification

Once the desolate status of the East Germany economy became evident with the implementation of the monetary and economic union on July 1, 1990, political pressures to accelerate the unification multiplied. The unification treaty was negotiated in less than two months and signed on August 31, and went into effect on October 3, 1990. It was complemented by a treaty with the former Allied Powers, settling the external aspects of German unification and reestablishing full sovereignty. The treaty included only a few substantive changes in the laws and institutions of the Federal Republic, but many changes had to be made to legal texts to reflect transitional provisions and extensions of authority to the new territories. Rather than designing entirely new policies and institutions for the transition of eastern Germany to a market economy, special support measures have generally been designed through simple amendments of long standing FRG policies.[16] The unification treaty accelerated the process of economic integration and provided additional financial assistance. The "German Unity Fund" was to remain the principal source for financial assistance to east Germany, but in addition, federal expenditure programs were now extended to east Germany and the social security systems were merged, providing an open-ended commitment to bear the social costs of economic adjustments.

Public Administration. The unification treaty extended the restructuring process to the public sector. Public administration in east Germany was remodeled according to the west German federal system, leading to an entirely new government structure. Existing administrative units were transferred to federal, state and local levels in accordance with west German practice. Qualified personnel was retained only according to needs. Civil service positions are now open to all Germans and appointments are to be made on merit. Since salary scales are lower in the new territories, western states have made available qualified personnel

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[16] The measures agreed to under the union and unification treaties had also to be consistent with European Community laws and regulations. Temporary derogations were granted by the EC for some transitional measures.

on a secondment basis. East German government employees will have to pass civil service examinations to obtain tenure.

Property and Privatization. The unification treaty provided further clarification of property and ownership issues. The general principle adopted was that all expropriated property should be restituted to previous owners, whenever possible. Several exceptions were made from this principle, including (a) exclusion of property expropriated by Soviet occupation forces during 1945-49 from restitution (including agricultural estates, expropriated during the 1949 land "reform"); (b) compensation, in lieu of restitution, whenever property had been substantially changed (e.g., built up), or had been acquired by private citizens *in good faith*; and (c) compensation, in lieu of restitution, whenever property is needed for "essential investments" (business, public, housing), as certified by property restitution agencies.

State property of the GDR has been assigned to various public bodies of the Federal Republic, according to their function. Ownership rights over state enterprises had already been assigned to the privatization agency (Treuhandanstalt). The postal and telecommunications services have been merged, but the railways (Reichsbahn) will be merged into the Federal Railways only at a later date, after restructuring (and lay-offs).[17] State-owned housing (excluding housing cooperatives) has been transferred to local governments for eventual privatization. Assets that are required for administrative tasks of various government levels have been assigned to them, all other state property (e.g., natural parks, forests) became federal property. Property previously owned by state and local governments is to be returned. All liabilities of the GDR have been transferred into a special fund of the federal government. Privatization proceeds are to be used to reduce these liabilities, with any residual liabilities shared equally between the federal and the new state governments. An eventual positive residual from privatization proceeds (after amortization of past GDR state debts) is to be distributed to residents of eastern Germany (e.g., in form of shares in former state enterprises). It is,

[17] The government wants to combine the merger of the railways with a conversion of the Federal Railways into company status, and termination of civil service status for railway employees. This requires, however, an amendment of the constitution.

however, very unlikely that the privatization of state enterprises will leave a positive residual (see below).

Public Finance. The financing of the costs of unification was to be raised through borrowing and expenditure reductions in other programs, rather than a tax increase, on the theory that these are exceptional, one-time costs. In view of the DM 115 billion made available through the German Unity Fund, the western states (Länder) refused at first to have the new states participate on equal terms in revenue equalization, but full participation was agreed to after the elections.[18] All federal expenditure programs have been expanded to the new, eastern half of the country. In addition, a number of special assistance programs for the new territories have been agreed (or have been carried over from the first treaty). These include: a temporary subsidy for all equipment investments (12% in 1991, 8% in 1992), temporary special depreciation allowances, inclusion in regional support programs for industrial and high-tech service sector investments (up to 23% of investment costs, but limited by budgetary allocations);[19] subsidies of up to 90% for local government investments in business infrastructure; low interest credit programs for other local infrastructure investments; low interest credit programs for housing modernization; and financing for start-up assistance for small- and medium enterprises. One of the largest items is the open-ended coverage of social security expenditures through the merged social security funds. An additional federal infrastructure investment and assistance program for eastern Germany was approved after the elections in March 1991. The annual financing requirements for east Germany are now estimated at around 4% of west German GNP for the next several years, twice the amount projected before the union.

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[18] Most German taxes are being shared according to pre-set formulas between the federal, state and local governments. In addition, a revenue equalization fund redistributes tax revenues among states according to population and "needs". The result is a rather homogeneous distribution of tax revenue to state and local governments, on a per capita basis.

[19] These programs have to meet European Community competition policy guidelines, limiting the extent of investment subsidies for regional development programs.

Social Issues. The unification treaty accelerates and concludes the "social union" that had already partly been established with the economic union treaty. The national pension systems are being merged in 1991. Similarly, the health and accident insurance systems (a mixture of compulsory public and alternative private insurance) is being extended to the east during 1991, with lower service fees for a transitional period. Special provisions have been made for partial lay-offs and early retirement. Until the end of 1991, enterprises can partially lay-off workers (who then receive partial unemployment benefits) to avoid terminations and unemployment.[20] But protection against termination, included in several collective bargaining agreements, has been voided and elapsed in mid-1991. Special pre-retirement provisions entail a transitional payment of 65% of net salaries for a period of up to three years for employees over 57 years of age (now reduced to 55 years).

C. Macro-Economic Consequences of Unification

Political Choices

In the discussion of the German unification, its most important features have sometimes been overlooked, particularly in comments made by economists. These essential features are political: the relations between east and west Germany are not any more relations among nations. The citizens of the former GDR have become full and *voting* citizens of an enlarged Federal Republic. With one-fifth of the voters, they have a considerable weight in elections, and politicians who want to stay in power better listen to their concerns.

The key example in this regard is the discussion on the "appropriate" exchange rate at the time of the monetary union. The 1:1 conversion for current payments, roughly equivalent to a maintenance of purchasing power, has been widely criticized as a mistake. Indeed, it was a mistake, if the standard of judgement is one of self-help and zero solidarity. With a recent

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[20] This was again done through a simple (but very liberal) amendment of a long-standing provision of the FRG unemployment insurance, that provides partial unemployment compensation for temporary partial layoffs ("short-time work"). As opposed to west Germany, east German enterprises do not have to guarantee that the reduction in working hours is only temporary.

effective exchange rate of 4.40 M/DM, the monetary union represents an appreciation of 340%. Left to its own devices, east Germany could never hope to compete and maintain macroeconomic stability at a 1:1 exchange rate (and wages one-third of west Germany's). On the other hand, east Germans are fairly well educated and trained, particularly in technical fields. Many east German scientist, engineers, technicians and craftsmen have skills equivalent to their west German counterparts, or need only limited additional training. Taken individually, and transferred to west German firms, many are just as productive as their west German counterparts. The low productivity and competitiveness of the GDR economy was a consequence of the *system*. A radical change in that system can be expected to raise productivity rapidly, but even the most hurried implementation will take 2-3 years before results will be tangible.

During this transition, the concept of average productivity is virtually meaningless. Some activities and firms are approaching west German productivity levels very rapidly, others will take years. The essence is that labor (and capital) is extremely heterogeneous during the period of transition. For example, east German workers along the former border are readily finding work in west Germany, at west German wages (half a million are now commuting to the west). For others, the commuting would take too long. Some have skills that can be readily used (e.g. engineers and technicians), others do not have marketable skills, and need to be retrained (e.g., administrative and commercial personnel, lawyers, party functionaries, state security employees, and so on). Moreover, productivity changes will not happen smoothly. Productivity will probably take a leap in 2-3 years when the initial batch of investment projects will come to fruition.

Lower wages would have saved many old, low productivity jobs, but would have also slowed economic change in east Germany, and would have led to substantial outmigration of those with readily marketable skills. These are exactly the people who are essential for a rapid transformation of the east German economy. The present "high" wages (roughly 50% of west German wages, after large wage increases in 1990 and 1991) will eliminate many low

productivity jobs, increase adjustment pressures on firms and the labor market, and are only feasible with large fiscal transfers to finance adjustment costs, and to provide incentives to the private sector to switch investments eastward. The low income and the small size of east Germany (relative to west Germany) makes this possible.[21]

Two other political factors must be kept in mind in discussing the consequences of the unification. First, the monetary union and political unification treaties--both very complex legal, political and economic agreements--were negotiated under enormous time pres[illegible] in each case in about six weeks. Compromises were made in some respects in the full knowledge that those were not durable solutions to the problems, and that corrective action would be needed later. Second, politicians inside and outside government realized keenly that one cannot win elections with promises of hardship[22] or tax increases. The severity of the adjustment problems in east Germany were thus glossed over before the elections. Realism and plans for tax increases were on the table immediately after the elections.

Macro-Economic Developments

The economic consequences of the sudden switch to a market economy were more severe than expected. Actual developments deviated from earlier expectations in three major ways:

(a) East German consumers switched to a far larger extent than expected to imported (west German) goods, "abandoning themselves" as producers.

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[21] A simple back-of-the-envelope calculation makes the point: at a 1:1 conversion of past net wages into DM (equivalent to 40% of west German net wages), the cost of the total east German wage bill is about 100 DM billion, or 4.8% of west German GNP. A fiscal transfer of that magnitude, while large, is economically feasible, and it would thus be possible to put the entire east German labor force out of work, at 100% unemployment compensation.

[22] Except, perhaps, in the case of external aggression. See Churchill's promise of "blood, sweat and te[illegible]s".

(b) Wage settlements, resulting from collective bargaining agreements, increased wages by one-third during 1990, and another third during 1991, raising pre-tax wages to about one-half west German levels by mid-1991.

(c) Exports to the Soviet Union, which had been counted upon to maintain employment during the transition, sharply declined with the switch to convertible currency trade in early 1991, and the economic dislocation within the Soviet Union.

The first two of these factors were internal to the unification process, and could perhaps have been anticipated. But they were not. The third factor is an unexpected external shock that is increasing adjustment costs, directly through reduction in export earnings, plant closures and increased unemployment; and indirectly, through sharply lowered expectations about the future of the Soviet market and, consequently, reduced attractiveness of east German enterprises for west German and foreign investors. These unexpected developments have, in turn, affected other variables. The most important was the drastic decline in manufacturing output, which slumped by half immediately after the economic union, and by another third at the end of 1990, when export commitments to the Soviet Union expired.

Shifting Demand. The sharp decline in manufacturing output was the combined effect of the sudden opening to external trade, which made many east German products uncompetitive, and the pent-up demand of east German residents for western goods. Sometimes, quality differences were only perceived, and attributed to the packaging and brand names of western products,[23] but often, they were real. It had also to do with rapidly shifting demand patterns: people reduced consumption of formerly subsidized items (e.g., restaurants) to buy previously unavailable, or high priced, western consumer durables (audio-visual equipment, cars, furniture, appliances, etc.). The number of registered cars increased by nearly one million (23%) in the first six months of the union. Consumers also made a large part of their purchases on weekly

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[23] East German citizens had been watching West German TV, including advertising, for decades.

shopping trips to the west as east German retailers were not yet competitive on choice and price. Finally, the switch to modern marketing techniques and western quality standards led to some temporary adjustment problems.[24] Gradually, these problems are being overcome, and manufacturing output has increased for the first time in June 1991. Surveys of manufacturers indicate a 30% increase in turnover for the second half of 1991.

Table 4: East Germany: Manufacturing Output

1989:		100.0
1990:	June	85.7
	July	55.8
	December	49.2
1991:	January	35.1
	June	32.7

Sources: Bundesbank - Monatsberichte; Joint Statistical Office, Berlin.

Wages. The effect of the high wage settlements resulting from the first "free" collective bargaining round is more difficult to assess since it happened simultaneously with the monetary union, and its incremental impact is thus hard to assess. At the margin, it has made more jobs redundant, thus increasing unemployment. It may also have reduced inflows of private capital and investment. But the extent is difficult to gauge. The higher purchasing power of east German consumers is also increasing consumer spending and tax revenues, creating additional business opportunities and attracting additional investment. The main effect has been to take purchasing power from the pockets of well heeled west Germans, and put it into the pockets of their poorer eastern brethren.

Long-term collective bargaining agreements, concluded in the spring of 1991, provide for an increase of east German wages to about 60% of west German *contract* wages in mid-1991, rising to 100% of west German contract wages by 1994. However, average *effective* wages average only 47% of west German levels in 1991, and are expected to reach 80% by

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[24] For example, supermarkets simply did not order products without bar-coded product numbers (facilitating automatic check-out and inventory management).

1991, as bonuses and benefits will reach full parity with west Germany only after 1994 (Table 5). The difference in part also reflects job grading, with a larger percentage of east German employees rated in more junior job categories.[25]

Table 5: East Germany: Contract and Effective Wages, 1990-94

(percent of west German wages)

	Year	Contract Wage a/	Effective Wage
Actual:	1989	-	33
	1990 - 2nd half	50	41
	1991	60	47
Projected:	1992	70	55
	1993	80	65
	1994	100	80

a/ Approximate average of sectoral collective bargaining agreements. Only the (pace-setting) metal industry and the textile industry agreements cover the entire four year period 1991-94. Agreements are different in some sectors or regions, for example, the construction industry in east Berlin (70-75% in 1991).

Source: German Federation of Employers.

The effects of collective bargaining agreements since the monetary union have been far more important determinants of present wage levels in east Germany than the 1:1 currency conversion: wages in mid-1991 are 75% higher than a year earlier. While it could be argued that the 1990 collective bargaining agreements reflected negotiations between the unions and "agents without principals", that is, managers of state enterprises with nobody fulfilling the role of owners; this cannot be said for the 1991 bargaining round: important segments of the east German economy were already privatized (commerce, banking, utilities, some manufacturing) and the ownership function for state enterprises had been clearly lodged in the Treuhandanstalt. Employer associations either believe that the agreed wages are feasible, or are behaving irresponsibly.

[25] The collective bargaining agreements can be terminated by both sides with three months notice and could, in theory, be revised downward, if the agreed wages have unacceptable consequences on employment.

Comecon Trade. The external shock of reduced Soviet demand hit east Germany in January 1991. Until then, export commitments under the annual bilateral trade agreement with the Soviet Union were honored, albeit at the cost of large subsidies (totalling DM 4 billion for the second half of 1990). The termination of CMEA barter agreements at the end of 1990 led to a further sizeable decline in industrial output (Table 4), mostly due to the economic dislocations and uncertainty in the Soviet Union. East German imports from Comecon countries had declined already immediately after the monetary union as demand for domestic goods (using Comecon inputs) collapsed. The Federal Republic has offered to compensate Comecon trade partners for canceled contracts. The effect of the unification on other eastern European countries has been far less than has been feared. Total (west and east) German imports from eastern Europe in the second half of 1990 were already substantially higher than in 1989 (+5%), reflecting both a switch to west German distribution channels and buoyant west German import demand in the wake of unification.[26] Early reformers benefitted most: German imports from Poland increased by 46% in 1990, equivalent to 200% of past Polish exports to the GDR.[27] Strong double-digit growth of imports from eastern Europe has continued in 1991.

Changing Economic Forecasts

The press and some of the outside observers have characterized the aftermath of the unification as a "disaster"[28] and some have even likened developments in east Germany to the depression of the 1930s.[29] The latter misses the point that only the production of shoddy and unwanted goods is declining, while consumption is leaping at totally unprecedented rates. A better picture of the expected and unexpected consequences can be obtained by comparing successive forecasts of economic developments prepared by one of the "Big Five" German

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[26] Valuing past CMEA imports into the GDR at the effective exchange rate of 4.4 Mark/DM.

[27] At the TR/$ crossrate used in Polish trade statistics (2.96 TR/$), presumably reflecting Polish costs.

[28] For example, Mr. Pöhl, the President of the Bundersbank (in trying to argue against rapid European monetary union).

[29] For example, Akerlof et al. (1991).

economic research institutes, DIW (Table 6).[30] Successive DIW forecasts show which consequences of the unification had been correctly forecast, and where errors were made. They also show a swing to pessimism during the winter, when most of the unification news seemed to be bad, and a correction towards more optimistic views, once investment intentions became clearer, and unification was put on sounder fiscal feet after the elections. Actual outcomes in 1991 are now likely to be somewhat more favorable than in the June 1991 forecast.

On the employment front, the extent of overmanning has been underestimated. Early projections forecast the maintenance of artificially high labor force participation, particularly among women. This proved wrong. Total labor force participation has rapidly declined to west German levels. The loss of jobs was concentrated in the manufacturing sector, where about one-half of all jobs will be lost by the end of 1991. Total working hours have declined even more rapidly than output, yielding considerable productivity gains in 1991, and reveal the extent of hidden unemployment in past work practices. Earlier fears that the large number of terminations at the end of June 1991 (half a million) would lead to further large increases in unemployment have not materialized. Since mid-1991, open unemployment has held constant at about one million, while the number of short-time workers has continued to decline rapidly (from a peak of 2 million in April to 1.3 million in September). However, government financed retraining and employment programs account for a large part of the reduction in short time work.

[30] Fortunately, DIW staff were courageous enough to forecast full-fledged national accounts for east Germany, even before the economic union, and on the basis of rather shaky east German statistics. Other research institutes, the Ministry of Economics and the Council of Economic Advisors were more prudent and have made only very summary and qualitative forecasts.

Table 6: East Germany: DIW Projections of Key Economic Indicators 1990-1991

	1990		1991		
Projection date:	June 1990	Actual	June 1990	January 1991	June 1991
Output (% change):					
GNP (current prices)	-7	-16	-2	-16	-16
- investment	12	-3	31	15	17
- exports	-15	13	-10	-23	-9
- imports	16	70	34	34	76
Employment (% change):					
Employed	-8	-10	-16	-21	-23
Hours worked	-9	-16	-19	-30	-39
Productivity	-7	-5	-3	15	24
Employed (million)	8.6	8.8	7.2	6.9	6.8
Unemployment Rate (%) a/	6	7	22	26	24
Public Finances (DM billion) b/					
Expenditures	140	162	166	205	226
- Transfer payments c/	56	83	73	119	112
Revenues	86	87	97	107	100
Financing gap	54	75	69	98	126
(% of east German GNP)	20	31	26	50	56
(% of west German GNP)	2	3	3	4	4
Fiscal transfers	32	44	42	68	115
Other financing	22	31	27	30	11

a/ Full time equivalent of unemployed and short time workers as percent of labor force.
b/ National accounts definition (territorial authorities, special funds and social security system, but excluding government enterprises and government lending).
c/ To households and enterprises.

Sources: DIW Wochenbericht 26/90, 1-3/91, 26-27/91

Forecasters also failed to foresee the sharp decline in manufacturing output and were too optimistic about the timing of the recovery. Early forecasts have not adequately taken into account that planning and approval of most investments takes some time. Investment activity has remained flat for the first twelve months of the union, but is expected to increase by about 40% in the second half of 1991. Early infrastructure investments were concentrated in

telecommunications and railway rehabilitation where lead times were short, but large investment projects are now in advanced planning stages.

Forecasters also underestimated the fiscal consequences of the unification, but by less than has been suggested by the press. At the time of the initial forecast, unification was generally expected for sometime in 1991, and the projections were made on an economic community, rather than unified country, basis--involving a far lower extent of burden sharing. The earlier forecast included a substantial unidentified "other financing" gap that had not yet been covered by West German government commitments and would have had to be raised by borrowing in the name of the GDR, and would have eventually become a liability of the FRG. Comparisons of the financing agreed under the "German Unity Fund" (covering only part of the forecast fiscal deficit) and later estimates of the total fiscal gap are thus misleading. The main change between the early and mid-1991 forecasts is the fiscal consolidation (through tax increases) of a long forecast, but yet uncovered, financing gap.

The principal items in increased spending are higher transfer payments to unemployed and pensioners, mostly due to higher than expected wages (to which social security benefits are tied), a more pronounced decline in employment (cushioned by a number of one-time social measures, such as generous early retirement benefits), accelerated infrastructure investment programs, and expanded incentives for private investors (Table 6). Total government expenditures in 1991 are now expected to be less than forecast in mid-1991, because infrastructure investment have taken more time to plan, and labor market developments are somewhat more favorable. The public sector borrowing requirement has also been revised downward, as government revenues have been more buoyant than expected.

The Costs of Unification

A lot of confusion has arisen about the "costs" of the German unification, and costs and benefits are often liberally confused, or even added up. Strictly speaking, the costs of

unification are only what economists would call deadweight losses, such as transitional unemployment arising from a rapid change in economic policies and signals. Alternatively, one could take into account all costs (expenditures), but then also needs to take into account all benefits as well. Different approaches to economic reforms will involve different time paths of cost and benefit streams. Rapid reforms are likely to create larger costs early on, but earlier and larger benefits. More gradual reforms may involve lower costs up-front, but also lower and later benefits. An obvious strategy is to try to minimize deadweight losses, such as transitional unemployment. But even this should be done only to the extent to which it does not reduce benefits, or increase other costs, by a larger margin. A strategy entailing higher transitional unemployment may thus be preferable, if it leads to more rapid restructuring of the economy and higher productivity earlier on[31].

A lower conversion rate at the time of monetary union, and lower subsequent wage settlements, would have clearly involved lower costs for west Germans (and concomitantly lower benefits for east Germans). But the adopted "high cost" solution may yet turn out to be beneficial to west Germans too, if the costs are made up by more rapid productivity growth in west Germany, resulting, for example, from economies of scale in an enlarged domestic market, from a reduction in uneconomic expenditures (e.g., coal mining subsidies or defense expenditures), or from further deregulation (for example, in telecommunications, labor markets, or transport). There are some signs that the large costs of the unification for west German tax payers may yet lead to a political consensus to tackle longstanding, but politically seemingly immovable, waste and inefficiencies. If it happens, the net benefits from unification may yet be positive for west Germans too.

D. Micro-Economic Consequences of Unification

[31] Conceptually, this could be measured as discounted incremental national income, resulting from such a strategy. In view of the uniqueness of the reforms, costs and benefits are impossible to quantify accurately.

The most important lessons from a micro-economic perspective are that the productivity and competitiveness of state enterprises has turned out to be far worse than expected, and that the restructuring process is taking longer. In the discussions before the monetary union, some economists and policy-makers had likened the situation to the 1948 monetary reform in the Federal Republic, and expected a rapid increase in production and investment, once the "magic of the market" was permitted to work. That was a misplaced analogy. In 1948, the German economy was a potentially functioning market economy--despite the intervening war years and war-related economic controls, and had already recovered from the collapse at the end of the war. Most importantly, entrepreneurs and managers, fully conversant with market practices, were still in place. Technological progress had continued in the interim, albeit for the wrong purposes. Even the productive capital stock corresponded approximately to 1939 levels, despite war-related damage, due to the massive investments during the war years.[32] A more appropriate comparison is thus 1945-46, but reliable data are not available for West Germany for the immediate post-war period. In the United States, industrial production declined by 55% in late 1945.[33] In this perspective, the slump of east German industrial production (by 65%) does not look all that exceptional. The recovery will, of course, take longer since it involves not only retooling from wartime to civil production, but the introduction of an entirely new system.

Forty years of command economy has led to a totally ill-adapted and inadequate capital stock, and to totally different management and work practices, and entrepreneurs have virtually disappeared. East Germany has the advantage that the legal bases were introduced overnight (property rights, civil and commercial codes, company law, etc.). Moreover, these legal institutions are beginning to function properly within a year or two, due to massive help and training provided by west German professionals (civil servants, accountants, lawyers, judges, etc.). After a chaotic start in 1990, considerable progress has also been made in establishing a functioning public administration. This is not only demonstrated by the breathtaking speed of

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[32] Abelshauser (1991).

[33] See Schatz and Schmidt (1991).

privatization transactions (see below), but across the whole range of government services. Western managers and investors have generally high praise for the training and skills of technical personnel, and the dedication and quick learning of middle-level managers. The most difficult problem is to find competent and experienced top managers.

Industry

The desolate status of industry is only now being fully appreciated. Earlier expectations, particularly among east German officials, were that the privatization of industry would yield considerable sales revenues, and clauses were inserted into the union and unification treaties, granting east German citizens the residual from the sales bonanza, once enterprise and state debts had been paid off. That residual is probably going to be a negative number. At one-half west German wages, almost all east German industrial state enterprises are making losses. The key element in the restructuring of nearly all firms is a reduction in the labor force. As elsewhere in eastern Europe, early expectations were that one-third of the enterprises could become competitive without much restructuring, another third needed extensive rehabilitation, and another third would have to be closed. This has proven wrong. Most manufacturing firms need to lay-off around one-half of their labor force, with relatively little variation. In a survey of enterprises in mid-1991, expected lay-offs due to restructuring ranged from 65% in the steel and textile industries, to "only" 30% in printing and woodworking, with most subsectors in the 40-60% range. On the other hand, fewer enterprises will need to be entirely liquidated, but lay-offs may be as much as 80-90% of the labor force in some cases.

The lay-offs are in about equal parts due to true overstaffing, in the sense that the same amount can be readily produced with fewer people, and the far flung role of socialist firms, catering for many worker needs that can be delivered more efficiently by small and specialized firms. The low level of productivity is not primarily due to low levels of skills and training of the work force (as in poor countries), but due to inadequate incentives, inappropriate organization and irrational work practices, fostered by a utopian ideology.

The reduction in employment is particularly dramatic in sectors where autarky and autonomous technology development has been pursued, for example, in much of the chemical and steel industries, or microelectronics, and in labor-intensive industries which should have been gradually phased-out years ago, for example, shipbuilding or textiles. Some of these industries are geographically concentrated and their closure or restructuring will have important consequences for the local labor market: unemployment is likely to be concentrated in a few depressed areas that were until now the pillars of industrial development. Short-term employment prospects are best in construction related branches (metal and woodworking, cement, etc.) and in industries producing for local markets (food industry, printing). Skill-intensive sectors (machinery, automobiles, electrical, some chemicals) have good longer-term prospects, but need new technology and products.

Agriculture

The above characterization of the industrial sector applies fully to the agricultural sector as well. It is simply one of the labor-intensive sectors that should have been restructured years ago. Even at the high European agricultural prices, east Germany's agriculture is not competitive with other European producers. At present, about 60% of the agricultural cooperatives are operating at a loss (around 30% were operating at a loss already before the economic union). The reason is simple: overstaffing. Agricultural employment in East Germany was 14 per hundred hectare, compared to 2 in West Germany, and this despite the fact that 93% of the agricultural land was farmed by huge cooperatives and state farms, rather than by too many small family farms--West Germany's agricultural dilemma. Most of the former agricultural production cooperatives have converted to a new legal form, and 10-15% are presently being dissolved.

Property issues do not seem to be the major problem. One half of the agricultural land is again private property of cooperative members, another fifth belongs to other private persons and one quarter is under administration of the privatization agency. As of mid-1991, property

title remains uncertain for only 6% of the agricultural land area. The principal problem is that few cooperative members are willing to take the plunge and become agro-entrepreneurs. Most were agricultural workers, and do not have the confidence that they can survive in a competitive market place. Only 3,500 family farms had been created by mid-1991.

The restructuring of agricultural cooperatives will need to be as extensive as for industrial enterprises. The separation of plant and animal production will need to be reversed, the huge production units (up to 5,000 hectare) need to be broken apart, and many non-agricultural units need to be split off from the basic business. Agricultural employment has already been reduced by 30%, and one-half of the remaining agricultural labor force is on partial unemployment. The agricultural labor force needs to be reduced by at least another 40% before farming can become profitable. Fortunately, only one-fifth of the cooperative members are land owners. This should help to ease the required reduction in the labor force. A number of west German farmers have taken advantage of the large tracts of land that are becoming available, and have moved their business east.

Services

The brightest short-term prospects are in commerce and services. The privatization of commerce and service establishments is practically completed (see below), employment in banking and insurance is already growing, and a large number of new businesses are being created (about 400,000 by mid-1991), mostly concentrated in commerce, services and crafts. The privatization of the health sector is also progressing faster than expected: half of all doctors have already established a private practice, and another third have applied for a license. But most of these services are local services, and depend on other economic activities for their survival. For business services that could become part of the "economic base", the situation is not much better than in industry or agriculture: they also need a considerable infusion of up-to-date technology and management skills.

Housing reform is not yet underway. Rent controls remain the most important exception from the rapid switch to market principles. As a first measure, maintenance and heating costs have been increased to full cost recovery in October 1991. This will raise housing cost by about 250%, and will increase the share of household income devoted to housing from 2.4% in mid-1991 to about 8%--still less than half the west German average. Ownership for most of the public housing stock has been transferred to local governments for eventual privatization. As long as rents remain far below market values, the incentive to buy is not very strong. Mortgage debt is about DM 50 billion (DM 10,000 per apartment) and could be easily assumed by the future owners. The costs of required renovations to meet western housing standards are more substantial (DM 40,000 per unit), but far less than the costs of new apartments (around DM 150,000).

Privatization

Privatization requires both, a clear attribution of ownership rights and the creation of a competitive environment to ensure that the new owners and managers behave in a socially desirable manner. In east Germany, this task has been made easier by the wholesale importation of the west German legal and institutional framework. Privatization can thus focus on the more immediate task of bringing-in competent management and up-to-date technology. The preferred option is thus the sale of state enterprises to successful west German and foreign firms. However, other privatization techniques are also considered, where appropriate, including management and employee buy-outs, particularly for smaller enterprises. Maximizing sales is not the principal or overriding objective. The speed of transition and rapid gains in employment are essential. The quality of the business plan proposed by potential acquirers is thus of overriding importance.

After some initial difficulties, the privatization of state enterprises in east Germany has moved into full gear in early 1991. Since the beginning of 1991, about 300 larger enterprises are being sold by the privatization agency (Treuhandanstalt) *every month*. About one-third of

the 8,000 state enterprises have been privatized in the first twelve months. An additional 15,000 commercial and service establishments have also been privatized--mostly under leasehold arrangement.

Organization. While Treuhandanstalt had existed for a few months as a state property agency, it was given a clear privatization mandate and organizational structure only in June 1990. The head office in Berlin has direct responsibility for the largest 3,600 enterprises--those with more than 1,500 employees, plus subsidiaries of large firms and enterprises in special sectors (utilities, financial institutions, state farms, department stores). All other enterprises report to 15 regional offices. Managers of the regional offices have full ownership responsibilities for the enterprises under their control and can negotiate sales with acquirers. Only large transactions require approval by the head office. The same principle applies in the head office: some transactions can be approved by department directors, some require approval of one or two executive board members, and only a few large transactions require approval by the full executive board, and some by the supervisory board. Special subsidiaries have been created for the privatization of commercial and service establishments and for real estate marketing.

Initial Difficulties. The monetary reform and the unexpectedly large shift of consumers to imported west German goods created severe liquidity squeeze for enterprises. Treuhandanstalt had to provide liquidity credits (actually, credit guarantees) to give enterprise managements some breathing space until conditions had settled. Since the old enterprise supervision and control mechanisms had collapsed in the months before the union, Treuhandanstalt had extremely little information on the enterprises under its control. One of the first tasks was to establish a management information system. In the interim, some privatization transactions were concluded, but mostly in reaction to acquisition proposals made by investors. Property restitution claims by former owners also created problems, particularly as long as claims had not yet been filed and registered. Finally, the initial lack of a functioning public administration and the shortcomings of east German infrastructure (such as the telephone system) hampered privatization for much of the first year.

Enterprise Management and Control. One of the first tasks was to convert all state enterprises to company status ("commercialization"). This happened automatically on July 1, 1990, when the economic laws of the Federal Republic were extended to the GDR. However, since state enterprises did not fulfil registration requirements under FRG company law, they remained in a provisional status, until they met these requirements (in particular, approved financial statements, minimum capital, functioning management and board). A special "opening balance sheet law" was enacted to facilitate the transition to FRG accounting standards and other requirements of FRG company law. Treuhand has appointed chairmen for the supervisory boards of the 500 largest companies, who have, in turn, be asked to appoint the other members (in large companies, part of the supervisory board members are elected by employees). The existing management has in most cases remained in place, but on short term contracts, to permit rapid management transfers at the time of privatization.

To give the larger enterprises and conglomerates an incentive to divest unessential businesses, the "opening balance sheet law" included a number of provisions that require more equity capital for conglomerates than for independent companies. Financial incentives have also been built-in to release valuable land that is not required for productive purpose. However, few managers responded to these incentives to restructure and spin-off unessential activities. Since many enterprises and conglomerates are heavily indebted, most need some debt relief, and this gave Treuhand an opportunity to restructure large companies or holdings under its powers as *creditor*. Since sales transactions for parts of enterprises (as opposed to subsidiaries with separate legal personality) are legally quite cumbersome, a special law has been introduced to facilitate splitting former state enterprises into a number of separate companies.

Privatization Experience. While privatization transactions have started immediately after the economic union, the normal legal, economic and financial preconditions for merger and acquisition activities have been missing for most of the first year. Accounting systems had to be established, financial statements had to be prepared and audited, property rights needed to be clarified, and so on. Moreover, the unsettled economic conditions rendered valuation

questions difficult. Real estate markets with settled prices did not yet exist, the future profitability of most enterprises was highly uncertain, and external events, such as the collapse of Comecon trade, quickly turned business plans into useless paper. Since speed was essential, quite a number of corners had to be cut without, however, jeopardizing the legal validity of transactions or the transparency of the process.

Priority was initially given to a few key sectors, such as energy utilities, and to respond to concrete acquisition proposals made by investors, usually on the basis of direct contacts with enterprise managers, while at the same time preparing the information basis for "normal" privatization transactions later on. "First come, first served" was, by necessity, the initial sales strategy. While "large" privatization transactions averaged "only" seventy per months during the second half of 1990, they accelerated to 300-400 per months during 1991 (Table 7), or about ten times the level of merger and acquisition activity in west Germany.

Table 7: "Large" Privatization Transactions, 1990 and 1991 (to July)

	Number	Sales Proceeds (DM billion)	Employment Commitment (thousand)	Investment Commitment (DM billion)
1990	408	2.9	200	43 a/
1991 (to July)	2,578	8.6	350	25
Total	2,986	11.5	550	68
of which:				
Central office	833	9.5	415	63
Regional offices	2,153	2.0	135	5

a/ including DM 30 billion for the electric power sector.

Source: Treuhandanstalt

Privatization Techniques. All possible privatization techniques are being considered with the overriding objective to ensure a rapid transformation of the economy by fostering individual responsibility and initiative, and bringing in capital, technology and management and marketing know-how. Most large transactions to date have been **negotiated sales** to west German or foreign firms. A large number of management or employee buy-outs have de-facto already taken place in the privatization of the commercial sector, and **management buy-outs**

are also pursued for smaller industrial firms. However, previous managers often cannot cope with the new competitive market environment. **Public share offerings** are not possible for the time being, as none of the firms under Treuhand's control can fulfil the requirements for a stock exchange listing (including audited and approved financial statements for at least three business years). The possibility of future stock market flotations is not excluded, but these will probably be very few. Private placements are, however, possible, for example, in the context of management/employee buy-outs.

Valuation. While homogeneous assets, such as land, commercial real estate, or "good will" of shop locations, can be sold through competitive bidding procedures, this is typically not the case with industrial firms. In view of the required deep restructuring, a valuation on the basis of expected future profits is in most cases meaningless. The value of the firm "as is" is in most cases simple the liquidation value of the firms assets (reflected in the "opening DM balance sheets"), minus the social costs of job redundancies, and is often a negative value. Potential acquirers usually propose rather different business plans, involving different strategies, with different implicit levels of investment and employment. Comparing alternative proposals thus requires an evaluation. The liquidation value (minus costs of lay-offs) represents a lower bound of the purchase price. The most useful approach is often a "partial reconstruction" value, i.e. comparing the required incremental investment costs with the costs of an expansion or "green-field" investment elsewhere. This gives a rough estimate of the opportunity costs to the investor that may be the best indicator of the value of the firm to the investor. The value of alternative business plans to Treuhandanstalt (and the government) is reflected by making appropriate allowances for the number of jobs saved and the volume of investment to be undertaken.

Enforcing commitments. To ensure that business plans are not merely on paper, sales contracts usually contain a few contingency clauses that allow for later adjustments in the purchase price, if the investor does not meet his promises. These usually include the volume of investment to be implemented and the number of jobs created or preserved. For example,

contracts may include a penalty clause, increasing the sales price by an amount equivalent to 1-2 years of salary per job, if employment does not reach the levels promised by the acquirer, and similar clauses are being used to enforce investment commitments. Revaluation clauses for land have also frequently been used, particularly if an enterprise had a lot of inner-city land. However, since land prices have now become more settled, land revaluation clauses are employed less often. On the other hand, Treuhand usually retains a considerable part of past liabilities, such as excessive debt burden, or costs of reducing overmanning. While the contract usually stipulates a positive price, this may, economically speaking, quite often entail a negative price. Contingent liabilities from environmental risks, such as soil contamination, are also mostly retained by Treuhand, but usually with a small participation ("coinsurance") of the acquirer to keep some incentive to minimize clean-up costs. Beyond this, sales are on a as "seen and inspected" basis, to limit future litigation.

Foreign Investors. While it is a declared objective of the government to attract as many foreign investors as possible, it has not been very successful. Only 5% of the sales transactions (but involving 10% of the privatized jobs) have been to foreign investors. Part of the reason has been that Treuhand had initially no other choice than to pursue a "first come, first served" policy, and west German investors had a practical advantage in scouting potential deals at the grass roots level. It also reflects language and cultural barriers, as fully one-third of all sales to foreign firms involve Austrian and Swiss firms. Foreign investors also tend to be more cautious. In many cases, restructuring will take several years before the companies will be profitable, and investors from some countries have a rather short-term perspective.

Investment Requirements

The economic success of the German unification depends to a large extent on whether or not a large number of high productivity jobs can be created within a short period of 2-3 years. Investment in new equipment and facilities is an important element in raising the productivity of the east German economy, but other elements are just as important, such as

better incentives, better organization and management, and selective retraining of the labor force. As discussed earlier, hopes of a quick recovery, similar to the aftermath of the 1948 currency reform, were exaggerated. The east German economy requires far more extensive restructuring, both physically and organizationally. On the other hand, a number of authors have overestimated the investment needed to bring productivity closer in line with west German levels by applying economy-wide capital-output ratios.[34] These authors have overlooked an important characteristic of the capital stock: productivity depends essentially on a relatively small part of the physical capital stock. A large part of the capital stock serves mostly consumptive purposes, not only housing, but a good part of urban, transport and other infrastructure as well.

Table 8 shows the value and composition of the west German capital stock at replacement costs (expressed as percent of GDP) to make the point. Fixed assets of the industrial sector (excluding energy utilities) are only about 11% of the net fixed capital stock (but 20% of new investment). The reason is the large share of (short-lived) machinery and equipment in the capital stock of the industrial sector. Other sectors are more capital-intensive than manufacturing because of the importance of (long-lived) buildings in their capital stock. This has two consequences for the privatization and restructuring of the east German economy that were not always fully understood. First, the value of the "productive" capital stock is actually rather small. Second, a considerable amount of investment can be postponed to later years (without much effect on productivity), as demand for infrastructure services is to a considerable degree determined by income and wealth (e.g., the number of private cars and urban traffic congestion).

In the negotiations leading to the unification, the GDR negotiators and public opinion did not want to give away the productive capital stock of east Germany, and a clause was inserted in the treaty, granting the east German population a share in the national wealth, once past debt obligations had been met. These demands were in part prompted by GDR statistics, showing

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[34] For example, McDonald, Donogh and Thumann (1990).

the value of the industrial capital stock as GDR Mark 800 billion, or 50,000 per capita.[35] However, this was the gross (undepreciated) value, the net value (using GDR depreciation schedules) was only 365 billion. Its market value in DM is far less since GDR depreciation rates were too low, many capital-intensive facilities were uneconomic and obsolete, and imported equipment had been accounted at the implicit exchange rate (4.4 M/DM in 1989). Using west German net capital/GDP relations, one would expect the industrial capital stock to be worth around DM 120 billion. As enterprise debt, after conversion at 2:1, is also around DM 100 billion, the net value of industrial enterprises is rather close to zero, with the actual sign depending on the sharing of past liabilities (enterprise debt, compensation for lay-offs, environmental cleanup) between the privatization agency and the purchasers.

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[35] See GDR Statistical Yearbook, 1990, p.118.

Table 8: West Germany: Net (Depreciated) Value of the Capital Stock, 1988

	Net Replacement Value (% of GDP)	Share of Equipment (%)
Agriculture	6	40
Industry a/	34	61
Manufacturing	30	
Services	72	21
Commerce	10	
Business and Personal Services	40	
Public Administration	22	
Infrastructure b/	63	16
Electricity, Gas, Water	13	
Transport	29	
Communications	6	
Urban and other	15	
Housing	132	-
Total Fixed Capital	311	16
Land	115	
Urban	92	
Agricultural	23	

a/ Excluding electricity, gas and water (included under infrastructure)
b/ Including the net value of civil works for roads and urban infrastructure (excluded in the detailed national accounts tables) and assuming the same rate of depreciation as for "other buildings".

Source: German Statistical Office: National Accounts, Statistical Yearbook.

Table 8 also shows that the bulk of valuable assets is the other categories, in particular, housing, other real estate, infrastructure and urban land. Most of these assets are not under the control of the privatization agency and will either stay in public hands (infrastructure, hospitals, public buildings), or have been transferred to local governments for eventual privatization (housing), or can be privatized only gradually (urban and agricultural land). While much of the non-industrial capital stock in east Germany is in poor conditions by western standards, it is nevertheless a valuable asset. Despite its poor conditions, the housing stock (without land) may be worth DM 200 billion, and schools, hospitals and office buildings fulfill their basic functions, and can be upgraded with modest rehabilitation and equipment investments. The same applies to a good part of infrastructure. Insufficient, yes, but far better than none at all. The obsolete

telephone system is a case in point: after only nine months and an investment of DM 7 billion, mostly for a digital overlay system, long-distance capacity has increased ten-fold, and endless busy signals vanished. In the transport sector, the predominantly north-south railway traffic has been replaced by east-west road transport, adapting rapidly to the totally different post-unification transport requirements. Some roads are heavily congested, but rehabilitation and upgrading of existing facilities will give several years of breathing space, until new road and rail projects will come to fruition. The m ,re limited private motorization makes more of the transport capacity available for productive uses, and trucks are fortunately mobile.

In terms of investment, creating high productivity jobs is primarily a question of replacing and upgrading much of the machinery and equipment in the manufacturing sector, selective upgrading of infrastructure, and adding (rather inexpensive) productivity tools for office workers: computers, telephones, fax machines, automated check-out and inventory controls, cash dispensers, and so on. Most of the latter are closely related to the telephone system, and Telekom's DM 55 billion investment program in east Germany will create in a few years the most modern telephone system in Europe. Investments of DM 50 billion are planned for the railways and another DM 60 billion for highways. As approval procedures are to be cut drastically by legislating major projects in all their details, with recourse limited to constitutional issues, construction can begin soon, but completion of major new projects will take at least until 1995. Nevertheless, short-term improvements are possible through removing selected bottlenecks, and incremental improvements (e.g., computerized signalling).

In the industrial sector, only one-half of the existing jobs are likely to be saved through privatization transactions, the rest will be lost to restructuring measures. The investment commitments by acquirers in privatization transactions (Table 7) provide probably the most reliable guide to investment requirements in the industrial sector. Excluding the energy sector, investment commitments average about DM 70,000 per job saved, about the same as the net (depreciated) capital stock per employee in west German industry. Similarly, a survey of firms with investment projects in east Germany indicated that these firms intended to invest about DM

70 billion by the mid-1990s, creating some 400,000 jobs. Excluding utilities, investment costs per job were given at about DM 100,000 per job[36] by surveyed firms. Two-thirds of these firms were in the manufacturing sector, a quarter in services, and the remainder in commerce and construction. The investment plans of these new ventures are about equivalent to those agreed so far under privatization transactions (Table 7) although there may be some overlap between the two categories, notably in energy and automobiles.

The salvageable 1.5 million industrial jobs may thus require modernization investments of DM 100 billion, while creating another one million industrial jobs would require another DM 100 billion, for a total of DM 200 billion. Infrastructure investments programs under preparation add up to another DM 250 billion.[37] These are large, but not unmanageable amounts, if compared to the fiscal transfer of DM 100 billion per year for 1991 and 1992. While investments in the manufacturing sector are estimated at only DM 16 billion in 1991, large increases can be expected for 1992, as projects move beyond the planning stage. If investment continues to increase at 30% per year for the next three years, before levelling off, (an optimistic but not unfeasible assumption), total investments in 1991-95 would total around DM 580 billion, including all of the above, and leaving another DM 25 billion per year for investments in housing, and private and public services. Most likely, the infrastructure investment programs will take longer than five years to implement, leaving a larger share for housing and service sector investments. The macro-consequences would be an unusually high share of investment in GDP, in the 35-40% range, and investment in east Germany would be one-fifth of the German total.

Creating a productive capital stock, functionally equivalent to that of west Germany, over a period of five years is thus economically feasible. East Germany would still look much poorer, particularly as housing and urban amenities are concerned, but equipment at the place

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[36] This is about midway between the net (depreciated) value of manufacturing capital per employee in west Germany (DM 70,000) at replacement costs and the gross (undepreciated) value (DM 140,000).

[37] Including: Electric power DM 50 billion, gas 20, railways 50, roads 60, urban transport 12, telephone 55.

of work is not the problem. The question is, rather, whether the work force will be able to adapt so rapidly to changing demand patterns and job requirements. This could come about either by lowering social protection, to enhance labor market mobility, or by a larger role for government-directed training and employment programs. Given the political constraints, the latter appears more likely, and has already started in 1991 through creation of rather large training and employment programs, administered by the national employment agency.

E. Assessment and Conclusions

The experience with the German unification to date raises the question whether there would have been alternative, and better, courses of action. Such options can be considered in three broad areas: (a) the initial conversion rate and, closely connected, wage policies; (b) the wisdom of transferring the economic and legal system of the FRG in its entirety; and (c) the desirability of the adopted mix of adjustment measures, in particular the trade-off between social assistance, public investment spending, and incentives for private investment.

Exchange Rate and Wage Policy. If large-scale financial assistance from west Germany were not available, the currency conversion would have been a severe mistake. But such help is available, and unrestricted migration is a political reality. Using a lower exchange rate (such as 2:1), without further adjustment in wages, would have implied a gross salary difference of 6:1, and a net (after tax) difference of 4:1. With such differentials, strong migration would have been likely, depriving eastern Germany of its most productive and entrepreneurial people, and creating a large housing shortage in the west. This does not make economic sense, quite apart from the personal and social dislocation of such large-scale migration. Since investment costs for such a large number of new jobs would have been roughly the same in east and west, the migration option imposes additional costs, as housing would have to be built in west Germany. It should be noted again that the 1:1 currency conversion was not the determining factor for the present high wages. Rather it is the 1991 collective bargaining agreements which are setting the pace.

It is unlikely that a more gradual unification process would have been an advantage: lower wages would have been desirable only if migration could have been held in check. But the decay of the GDR state and institutions was already so advanced before the economic union that wage restraint would have been difficult, if not impossible, to implement. If migration is not an option (as is the case elsewhere) the argument is exactly the opposite, and the same applies to the wage increases granted on top of the conversion arrangements. In the case of Germany, these large increases have to be seen as part of the costs of moving to a free market overnight. The only alternative would be government imposed wage restraint. This would go against the very foundations of the German social market economy.

Big Bang versus Gradual Change. Unification has meant importing the entire economic and legal system of the Federal Republic. In many respects, this rather complex system has proved less than optimal for solving the problems of a sudden transition from a command to a market economy. Some temporary exemptions and transitional measures have been introduced right from the start, others were added later, as some provisions proved unworkable, in particular the preference given to reprivatization (restitution) which has been softened in 1991, by giving the privatization agency considerable powers to sell enterprises to external investors, even if restitution claims were pending. Similar adverse experiences have been made with the complex and lengthy planning procedures for major public investment projects, such as new highways, rail links, or airports. Legal action is in preparation to shorten the lead times for such projects drastically. These excessively complicated regulatory procedures are one aspect of what has become known as "eurosclerosis." Many of these special procedures for east Germany deserve close consideration for introduction on both sides of the former iron curtain. Beyond the unfinished agenda of deregulation, however, the use of transitional regimes should probably be minimized. Yes, there are very considerable learning costs involved in the adoption of an entire legal system, but any transitional regime would create too much uncertainty, and learning cost on both sides.

Adjustment Measures. The question then remains whether the special incentives have been sufficient and whether the right measures have been introduced. To some extent the

answer has already been given: some measures, in particular trade measures, protecting the east German market, have proved unworkable and were dropped after a few weeks. Other transition measures proved insufficient, or had to be extended. Indeed, it is quite possible that some of the transitional measures will again be prolonged beyond their present terminal date. Apart from public investment programs in infrastructure, most of these measures are either labor market adjustment measures or incentives to attract private investment. Some economists (e.g., Akerlof et al., 1991) have argued that general employment subsidies would have been superior. That conclusion, however, rests entirely on highly stylized assumptions that are convenient for economic modelling, but very far from reality.[38] Most importantly, labor is not homogeneous during this wrenching transition. Labor subsidies would be spread indiscriminately over sectors and firms with and without adjustment problems. The much-criticized partial unemployment benefits provide much more targeted help to firms with severe adjustment problems and still unclear business prospects. The easier eligibility rules have now been extended to the end of 1991, giving firms some time to decide on their business strategies and manpower requirements. Labor subsidies, by contrast, would simply perpetuate past inefficient structures. In view of the large needs to improve infrastructure and urban amenities, employment programs are a useful alternative to unemployment payments.

Investment subsidies have also been criticized on the grounds that they would tend to distort allocation decisions, leading to uneconomically capital-intensive investments. While this may be true in theory, it is doubtful in practice. Investment costs per job are not particularly high in manufacturing, except in a few process industries in chemicals and basic metals. General investment subsidies that have been granted are fairly low (12%), and the additional special subsidies under regional assistance programs are given only for selected purposes, and eligibility criteria (and expenditure ceilings) exclude uneconomically capital-intensive activities.

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[38] See Burda and Wyplosz (1991) for some of the theoretical points, and Schatz and Schmidt (1991) and Deutsche Bank (1991) for some of the empirical shortcomings of these conclusions.

The question then remains whether a sufficient share of direct government expenditures and private sector incentives have been geared to productive, rather than social, purposes. For the first year of the union, the answer is probably negative, but mostly due to the administrative friction in getting investments going. More could have been done early on to get transport and other public infrastructure improvements going, and this would have improved employment earlier on. While this may have been a valid point during the first six months of the union, it has now been overtaken by events. Perhaps the best that can be done at present is to sit back and watch the implementation of the "Big Bang" under the present policy framework.

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