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Germany: Selected Issues and Statistical Appendix

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INTERNATIONAL MONETARY FUND

GERMANY

Selected Issues and Statistical Appendix

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Approved by European I Department

October 5, 1999

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Germany: Basic Data

Total area	357,041 square kilometers
Total population (1998)	82.0 million
GNP per capita (1998)	US$ 26,189

	1996	1997	1998	1999 1/	2000 1/
	(Percentage change at 1995 prices)				
Demand and supply					
Private consumption	0.8	0.7	2.3	2.1	2.4
Public consumption	2.1	-1.1	0.5	0.9	0.5
Gross fixed investment	-1.1	0.5	1.4	2.9	3.4
Construction	-2.9	-1.4	-3.9	-1.6	1.1
Machinery and equipment	1.2	3.4	9.2	8.0	5.6
Final domestic demand	0.6	0.3	1.7	2.1	2.2
Inventory accumulation 2/	-0.4	0.4	0.7	-0.1	0.0
Total domestic demand	0.3	0.7	2.5	2.0	2.2
Exports of goods and nonfactor services	5.1	10.9	7.0	2.2	7.4
Imports of goods and nonfactor services	3.2	8.3	8.5	4.6	6.3
Foreign balance 2/	0.5	0.8	-0.3	-0.6	0.4
GDP	0.8	1.5	2.2	1.4	2.5
	(In millions, unless otherwise indicated)				
Employment and unemployment					
Labor force	39.6	39.7	39.6	39.5	39.4
Employment 3/	36.1	35.8	35.9	36.0	36.1
Unemployed 4/	3.5	3.9	3.7	3.5	3.3
Standardized unemployment rate	8.8	9.8	9.4	8.9	8.5
Registered unemployment rate	10.4	11.4	11.1	10.5	10.0
Western Germany	9.1	9.8	9.4	...	...
Eastern Germany	15.7	18.1	18.2	...	...
	(Percentage change)				
Prices and incomes					
GDP deflator	1.0	0.8	1.0	1.0	1.2
Consumer price index (national definition)	1.4	1.9	1.0	0.6	1.0
Consumer price index (harmonized)	1.2	1.5	0.6	0.4	0.8
Average hourly earnings (industry)	4.3	1.1	1.7	...	...
Unit labor cost (total economy)	0.6	-0.8	-0.4	...	...
Real disposable income 5/	1.8	0.1	1.9	2.4	2.9
Personal saving ratio (in percent)	11.1	10.5	10.2	10.4	10.8

1/ Staff projections.
2/ Change as percent of previous year's GDP.
3/ According to place of residence.
4/ On national accounts basis (ESA95); Unemployment as defined by the international labor organization (ILO).
5/ Deflated by the national accounts deflator for private consumption.

APPENDIX I

Germany: Basic Data (concluded)

	1996	1997	1998	1999 1/	2000 1/
Public finances 2/		(In billions of deutsche marks)			
General government					
Expenditure	1,804	1,805	1,829	1,896	1,928
(In percent of GDP)	50.3	49.2	48.3	49.0	48.0
Revenue	1,683	1,709	1,765	1,823	1,884
(In percent of GDP)	46.9	46.6	46.6	47.1	46.9
Financial balance	-121	-97	-65	-73	-44
(In percent of GDP)	-3.4	-2.6	-1.7	-1.9	-1.1
Federal government					
Financial balance	-78.5	-63.5	-56.4	-53.5	-49.5
(In percent of GDP)	-2.2	-1.7	-1.5	-1.4	-1.2
General government debt	2,180	2,255	2,312	2,347	2,391
(In percent of GDP)	60.8	61.5	61.1	60.6	59.5
Balance of payments					
Trade balance 3/	94.3	110.3	123.8	110.1	123.0
Services balance	-53.1	-56.9	-61.8	-65.4	-65.6
Net private transfers	-16.0	-16.0	-15.9	...	...
Net official transfers	-35.3	-36.8	-37.4	...	...
Current account	-8.4	-2.4	-7.4	-3.8	8.3
(In percent of GDP)	-0.2	-0.1	-0.2	-0.1	0.2
Foreign exchange reserves (e. o. p.)	119.5	126.9	134.0	...	...
Monetary data		(Percentage changes, end of period)			
Money and quasi-money (M3)	7.9	4.6	5.9	...	...
Domestic bank lending	7.6	6.0	6.4	...	...
Of which lending to:					
Public authorities	7.7	5.4	2.3	...	...
Private nonbanks	7.6	6.2	7.6	...	...
Interest rates		(Period averages in percent)			
Three-month interbank rate 4/	3.3	3.3	3.5	2.7	...
Yield on ten-year government bonds 4/	6.2	5.7	4.6	5.1	...
Exchange rates		(Levels)			
DM per US$ (end of period)	1.55	1.79	1.67	...	...
DM per US$ (annual average)	1.50	1.73	1.76	...	...
Euro per US$ (annual average)	0.79	0.88	0.89	0.96	...
Nominal effective rate (1990=100) 5/	108.9	103.9	104.1	101.9	...
Real effective rate (1990=100) 5/	117.0	108.7	105.7	101.3	...

1/ Staff projections.
2/ Data for federal government are on an administrative basis.
Data for the general government are on a national accounts basis. Debt data are end-of-year data for the general government in accord with Maastricht definitions.
3/ Including supplementary trade items.
4/ Data for 1999 refer to September 13, 1999.
5/ Data for 1999 refer to August 1999.

I. Institutional Change and Economic Performance: A Fifty-Year Perspective [1]

A. Introduction and Summary

1. This chapter discusses the link between Germany's economic performance and institutions, taking a long-term perspective and focusing on the labor market.[2] Germany's postwar institutional arrangements feature a clear division of responsibilities among the key economic players (fiscal authorities, trade unions, employers' associations, and (until end-1998) the Bundesbank). Moreover, Germany's institutions seek to combine social solidarity and protection with strong market incentives, a combination that has come to be known as the "social market economy." The thesis of the chapter is that Germany's institutional arrangements worked exceptionally well during the *Wirtschaftswunder* era of rapid catchup growth, resulting in an economic performance that was envied by much of the world. However, as the impetus behind catchup growth and some of the special circumstances surrounding the *Wirtschaftswunder* era faded away, a large segment of Germany's labor market, mainly comprising the lower-skilled/lower-paid, faced increasing difficulties in an environment of rapid economic and technological change. Furthermore, the labor market problems were echoed by financial policy reactions—including a strongly procyclical fiscal stance— that added strains to the economy's demand side. To back up this diagnosis, the chapter necessarily uses a broad-brush approach, omitting many of the details of Germany's postwar economic developments.[3]

2. With regard to the labor market, the chapter focuses on the main institutions that influence labor costs and work incentives—collective bargaining on wage and other work conditions between trade unions and employers' associations or companies; the large-scale and publicly managed social insurance system; and the social safety net, which provides benefits to the long-term unemployed (unemployment assistance) and persons with low incomes (social assistance). Germany's collective bargaining and social insurance systems are premised on the two principles of income solidarity and contribution-benefit parity. The income solidarity principle means that increases in labor compensation and improvements in nonwage benefits should apply at roughly similar rates across different types of workers. The contribution-benefit parity principle in social insurance says that contribution rates should be

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[1] Prepared by Albert Jaeger.

[2] The term "institution" denotes here the "rules of the game" (formal and informal) in a society. A more detailed definition is provided in footnote 9.

[3] As sources on Germany's postwar developments this chapter draws inter alia on Giersch, Paqué, and Schmieding (1992), Deutsche Bundesbank (1999), and the consecutive annual reports (starting in 1964/65) of the German Council of Economic Experts.

levied proportionally across the wage distribution and that social insurance benefits should be linked tightly to contributions.[4]

3. During Germany's *Wirtschaftswunder* era, the labor market institutions combined with an auspicious economic environment to underpin a smoothly working labor market both for lower- and better-skilled workers. However, the same institutional arrangements proved less well-adapted to the different economic environments of the 1980s and 1990s, which were inter alia characterized by skill-biased technological progress, globalization, immigration of less-skilled ethnic Germans from eastern Europe, and increased labor force participation of workers with less job attachment. In addition, the system was buffeted by a series of large adverse shocks including the relative shrinking of employment opportunities in Germany's large industrial sector and German unification.

4. The fallout from institutional inertia in a changing economic environment was concentrated at the lower end of the labor market, while much of the remainder of Germany's labor market continued to function reasonably well. Skill-biased technological progress and globalization shifted labor demand in favor of higher-skilled/better-paid workers (the "highsiders"). Immigration, new patterns of labor force participation, and, in particular, German unification added to the pool of potential lower-skilled/lower-paid workers (the "lowsiders"). With collective bargaining wedded to the principle of income solidarity and with social contributions rising proportionally across the wage distribution, lowsiders found it more and more difficult to clear the labor productivity hurdles standing in their way, which, at least in the medium run, tended to be raised more in line with the highsiders' productivity performance. In the short run, collective bargaining responded sensitively to the state of the labor market, as witnessed by a distinct pattern of alternating periods of across-the-board wage moderation (following labor shakeouts and rising unemployment) and across-the-board wage push (during cyclical upturns and following prolonged episodes of wage moderation).

5. As already noted, the problems at the lower end of the labor market were echoed by financial policy responses, which added demand side strains to an already difficult situation. In the 1980s and 1990s, fiscal policy at the federal government level, driven by a natural (and constitutionally mandated) urge to "restore order to the public finances," adopted a pronounced procyclical fiscal stance.[5] The federal government's procyclical fiscal stance came on top of the traditionally procyclical fiscal orientation at lower government levels. And monetary policy, in turn guided by a clear legal mandate "to safeguard the currency,"

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[4] As discussed further in paragraphs 15 and 16, there are important exceptions to these "rules of the game" related primarily to small-time jobs ("DM 630 jobs") and some social insurance benefits that are not tied to previous contributions.

[5] Two exceptional historical events, German unification and the run-up to Stage 3 of EMU, have also contributed to the procyclicality of fiscal policy during this period.

responded determinedly with what some observers considered prolonged episodes of monetary tightening to blunt the inflationary potential of across-the-board wage push attempts inherent in the highsider-lowsider structure of the labor market and procyclical fiscal policies.

6. The chapter draws five main conclusions:

- It is unlikely that there will be a return to the special circumstances of the *Wirtschaftswunder* era that would revalidate Germany's postwar institutional arrangements. To the contrary, the advent of European Monetary Union (EMU) and the seemingly unrelenting pace of economic and technological change are likely to raise the social cost of inaction. This general diagnosis appears to be widely shared among policymakers and analysts.[6]

- The more pointed diagnosis elaborated in this chapter suggests that in an environment that favors skilled labor, collective bargaining based on income solidarity and a large-scale social insurance system based on contribution-benefit parity will conflict with the objective of matching labor demand and supply at the lower end of the labor market. Almost experimental evidence in support of this diagnosis is provided, on the one hand, by the mushrooming number of small-time or DM 630 jobs (a relatively unregulated niche at the lower end of the labor market) and, on the other hand, by the massive labor market difficulties in eastern Germany (following the wholesale transfer of western Germany's labor market institutions to the new Länder).

- The two standard policy responses to Germany's highsider-lowsider dilemma in the labor market—across-the-board wage restraint and determined fiscal consolidation efforts to "put the fiscal house back in order"—are generalized and natural policy responses, but they do not and cannot address the roots of Germany's labor market problem.

- The accumulated experiences of several other continental European economies—including Denmark, the Netherlands, and Switzerland—suggest that markedly different institutional labor market arrangements are available that can achieve most of the equity goals motivating the present German arrangements, but at a significantly lower efficiency cost to the economy.

- Overcoming institutional inertia in the labor market area is also important for enhancing macroeconomic stability. In particular, under EMU and with monetary

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[6] For example, the proposal by Prime Minister Blair and Chancellor Schröder (1999, p. 6) (at http://www.labour.org.uk/views/index.htm) called for "...a re-evaluation of old ideas and the development of new concepts" as "...national economies and global economic relationships have undergone profound change."

policy levers centralized at the European Central Bank (ECB), the need to safeguard the operation of automatic fiscal stabilizers in Germany has taken on an added urgency.

7. The remainder of the chapter is organized as follows. Section B briefly surveys stylized facts on growth and labor market performance. Section C provides some background on labor market institutions. Section D links the institutions and economic environment to account for the economic performance during the *Wirtschaftswunder* era of the 1950s and 1960s as well as the "fading miracle era" since the 1970s. Section E extends the discussion to the interaction between labor market institutions and financial stabilization policies. Section F briefly discusses possible remedies, a topic pursued in more detail in Chapters III and IV.

B. Stylized Facts: Growth and Unemployment

8. Germany's real economic performance in the 1950s and 1960s was characterized by rapid catchup growth in output (Figure I-1), while the initially high postwar unemployment rate fell precipitously (Figure I-2).[7] Besides receiving a strong impetus from the large productivity gap vis-à-vis the "leader country" (the United States), the *Wirtschaftswunder* growth machinery was also powered by an auspicious external environment including a revival of liberalism in international trade, with Germany as one of a pacemakers; a buoyant world demand for capital goods, a traditional strength of German manufacturing; and a competitive exchange rate that boosted exports. In the labor markets, the 1960s constituted a period of acute worker shortages, only partly relieved by inflows of mostly unskilled migrant labor. Throughout the 1960s, Germany's unemployment rate remained below 1 percent, apart from the years straddling the sharp but short-lived 1966-67 recession, and was well below the (weighted) average unemployment rate for industrial countries.

9. When the pull of rapid catchup growth faded away in the 1970s, Germany's average output growth rate leveled off at about 2 percent per annum. At the same time, labor market performance—in terms of both unemployment and employment rates—began to deteriorate markedly. Starting from the very low level in the early-1970s, unemployment ratcheted upward in several spurts, first in the mid-1970s and then again at the beginning of the 1980s. Following German unification, a more drawn-out but once again a marked increase in unemployment ensued. While there is little doubt that some of Germany's current unemployment is cyclical, most of the rise since the 1970s has been noncyclical. Put differently, the structural rate of unemployment has drifted upward over time. This is suggested inter alia by the relentless upward shifts in the relationship between the unemployment rate and capacity utilization (Okun curve) since 1960 (Figure I-3).

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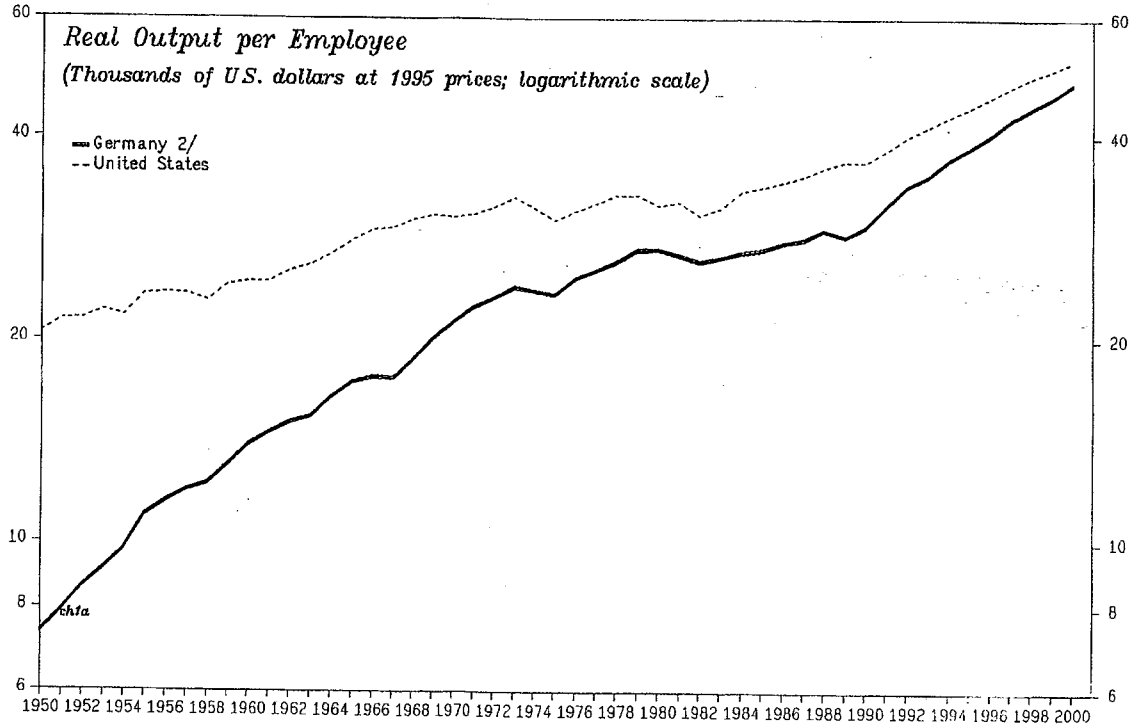
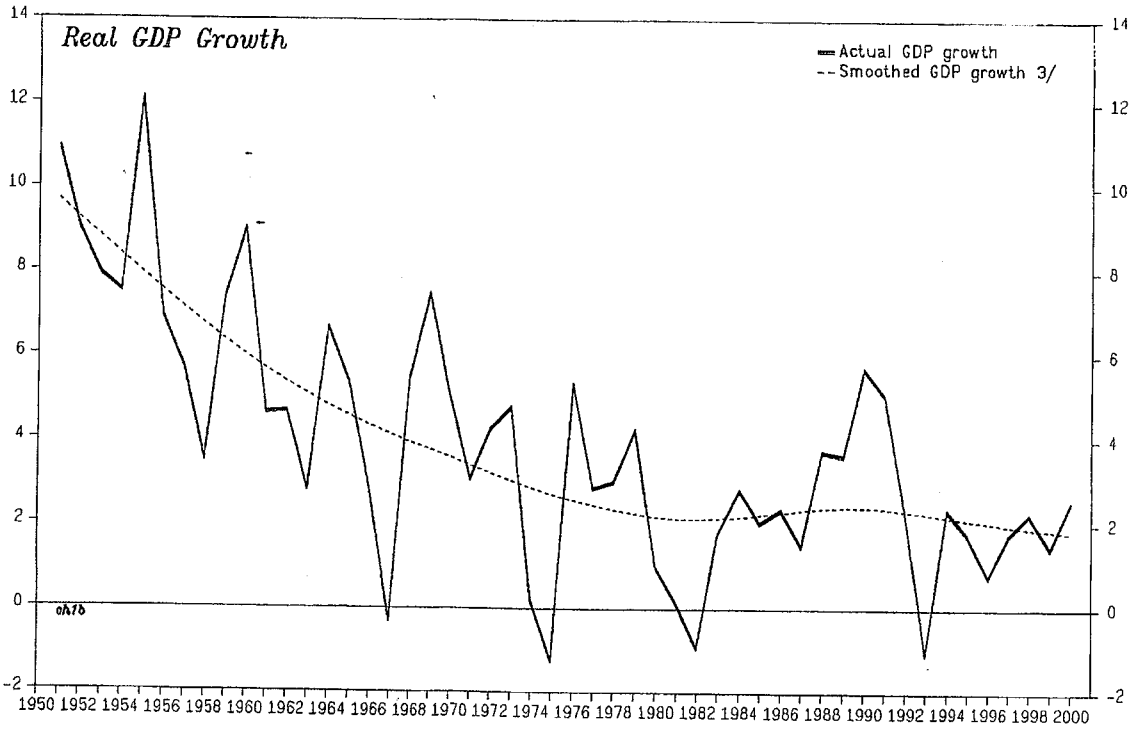
[7] There was an even more exceptional growth episode in 1948-50 following the currency reform of June 1948; real GDP growth during this episode averaged more than 15 percent per annum.

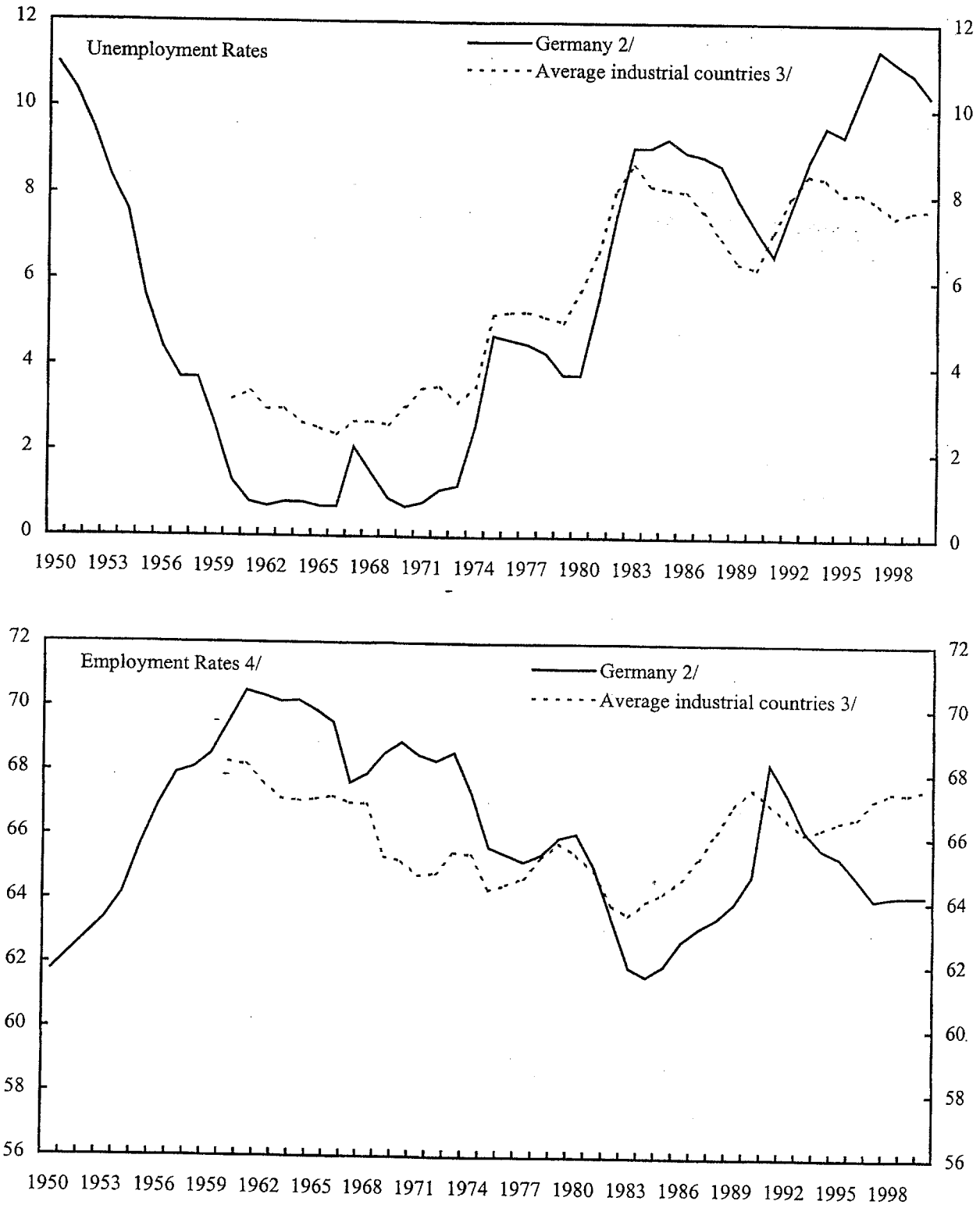
Figure I-1. Germany: Output Performance, 1950-2000 1/





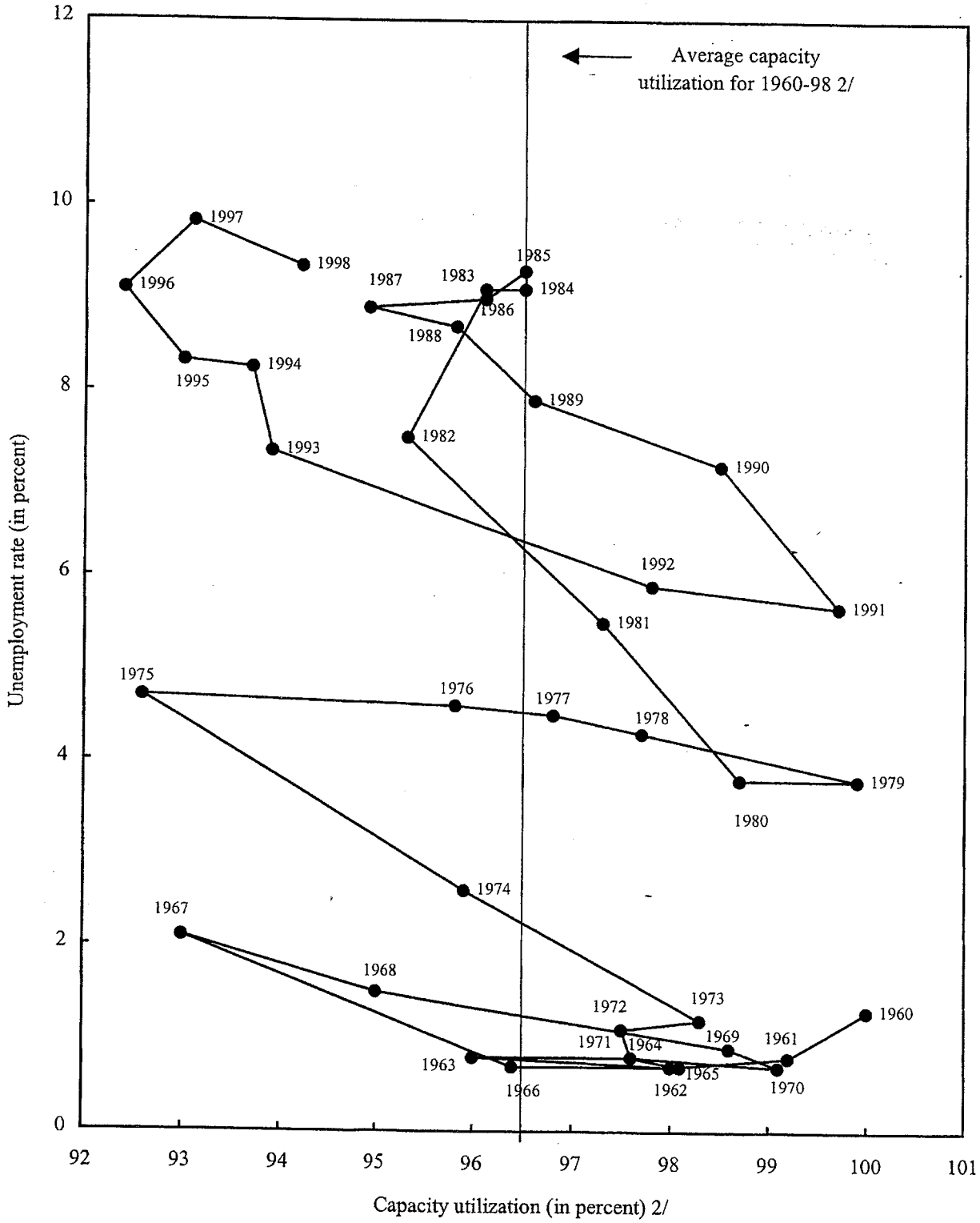
Sources: World Economic Outlook database; Deutsche Bundesbank; Penn World Tables 5.6; and staff estimates and projections.
1/ Data for 1999-2000 are staff projections.
2/ Data for 1991-2000 refer to western Germany.
3/ Hodrick-Prescott filter estimates.

Figure I-2. Germany: Labor Market Performance, 1950-2000 1/



Sources: OECD Economic Outlook database; Deutsche Bundesbank; and staff calculations.
1/ Data for 1999-2000 are OECD projections.
2/ Data for 1991-2000 refer to united Germany.
3/ Weighted average.
4/ Employment as a percent of working age population.

Figure I-3. Germany: Unemployment and Capacity Utilization, 1960-98 1/



Source: German Council of Economic Advisors.

1/ Data refer to western Germany.

2/ Capacity utilization as estimated by German Council of Economic Advisors.

10. A sole focus on aggregate labor market trends since the early 1970s masks a striking disparity in disaggregated unemployment and employment developments by skills: the labor market problem has been overwhelmingly concentrated in the lower portion of the skill distribution, where "skills" are defined on the basis of schooling characteristics (Figure I-4). For example, the unemployment rate for lower-skilled workers in western Germany has risen to a multiple of its level in the mid-1970s, with a particularly sharp increase after unification; in 1997, it stood at 26.9 percent, compared with an aggregate unemployment rate of 9.8 percent. Employment of lower-skilled workers fell almost by half during the same period.[8]

11. While the data in Figure I-4 depict only the situation in western Germany, the adverse labor market trends for the lower-skilled workers in eastern Germany were even more pronounced. For example, the unemployment rate of workers with lower skills rose to 55 percent in 1997, relative to an aggregate unemployment rate of 18.2 percent in the same year.

C. Labor Market Institutions[9]

12. This section briefly describes the main "rules of the game" (institutional arrangements) in the labor market: the collective bargaining framework between trade unions and employers' associations; the large-scale and publicly managed social insurance system; and the social safety net for the long-term unemployed (unemployment assistance) and persons with low incomes (social assistance).

13. The autonomy of collective bargaining is enshrined in the German Constitution and in the wage contract law of 1949, with the partners to the negotiations consisting of the trade unions (organized along sectoral lines) on the one hand and the employers' associations or

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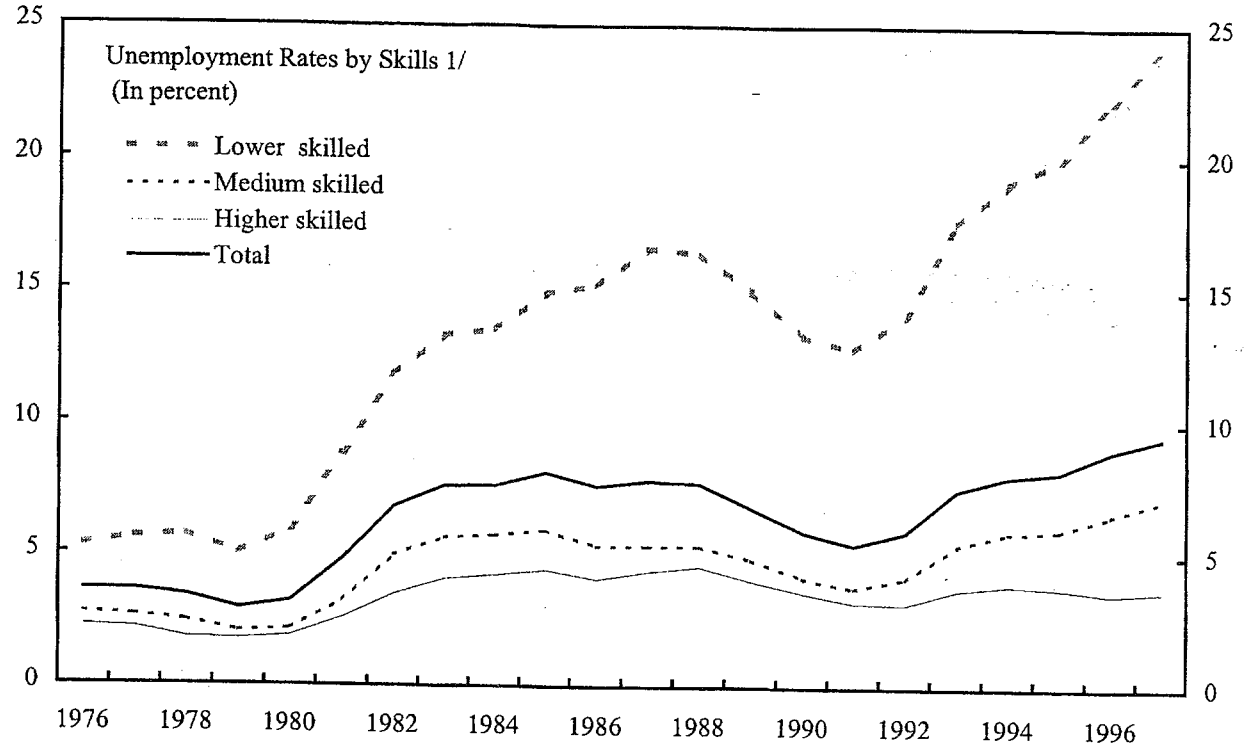
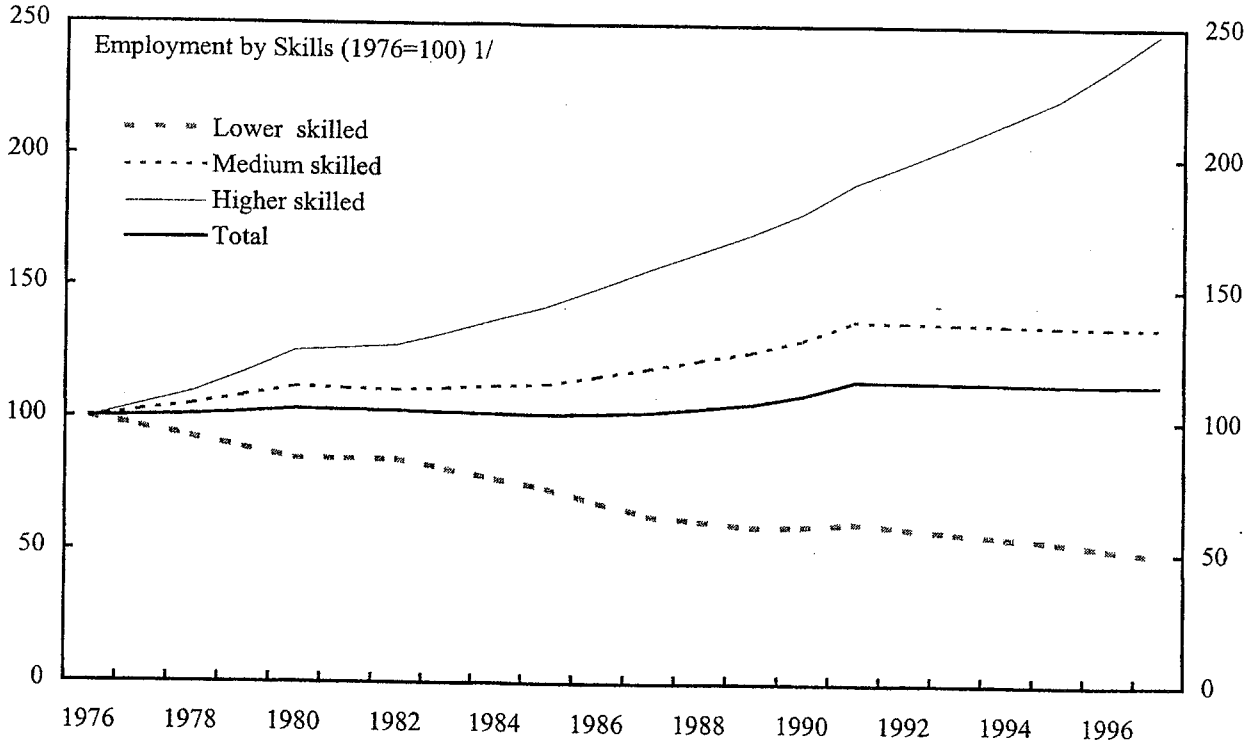
[8] The skill-specific unemployment data are taken from Reinberg and Rauch (1998). A cross-country comparison of available skill-specific unemployment data in Manacorda and Petrongolo (1999) suggests that unemployment rates of the unskilled in industrial countries are generally above those of the skilled (with Italy being a notable exception in Manacorda's and Petrongolo's data set). Moreover, the relative trends in aggregate and unskilled unemployment rates since the 1970s differ significantly across countries, with Germany experiencing one of the most marked relative increases in unskilled unemployment.

[9] The term "institution" is used here in the sense of North (1990): institutions are defined as the formal and informal constraints or "rules of the game" in a society; institutions may change, usually gradually, in response to fundamental changes in relative prices (brought about inter alia by changes in the relative scarcity of factors of production, in the cost of information, or in technology) or changes in society's preferences.

Figure I-4. Germany: Labor Market Trends by Skills, 1976-97





Sources: Reinberg and Rauch (1998); and staff estimates.
1/ Data refer to western Germany only.

individual companies on the other hand.[10] Postwar data on wages and labor productivity suggest that collective bargaining has been aimed at preserving a stable relative wage structure, while being mindful of the need to assure overall profitability in the economy. In this connection, three observations can be made: (i) increases in tariff wages preserved relative wage ratios between high- and low-skilled workers, as illustrated by the almost constant wage ratios between the highest and lowest tariff wage groups in selected sectors during the period 1959-89 (first panel, Figure I-5); (ii) although some wage drift, i.e. a markup of effective wages over tariff wages can be observed during the labor shortage period of the 1960s, wage drift has been small since the beginning of the 1970s (second panel, Figure I-5);[11] and (iii) aggregate real wages followed closely aggregate real labor productivity, although persistent periods of wage moderation were punctuated by short periods when average wage increases markedly outpaced productivity increases (third panel, Figure I-5). Observations (i) and (ii) suggest a high degree of "income solidarity" across different types of workers, in particular since the early 1980s, while observation (iii) suggests that there is not much evidence supporting the view that aggregate wage increases have been excessive relative to aggregate productivity increases.[12]

14. The principle of income solidarity also shaped collective bargaining on nonwage work conditions, including workhours per week, number of vacation days, and nonwage benefits (e.g., vacation bonuses and sick pay).[13] In 1998, average nonwage costs (excluding social insurance contributions of some 42 percent) in western Germany's industrial sector amounted to about 52 percent of gross wages (excluding nonwage benefits). In eastern Germany, average nonwage costs excluding social insurance, while lower than in western Germany, still represented a markup of some 38 percent on gross wages (excluding nonwage benefits).[14]

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[10] Van der Willigen (1995) provides a concise description of the collective bargaining system.

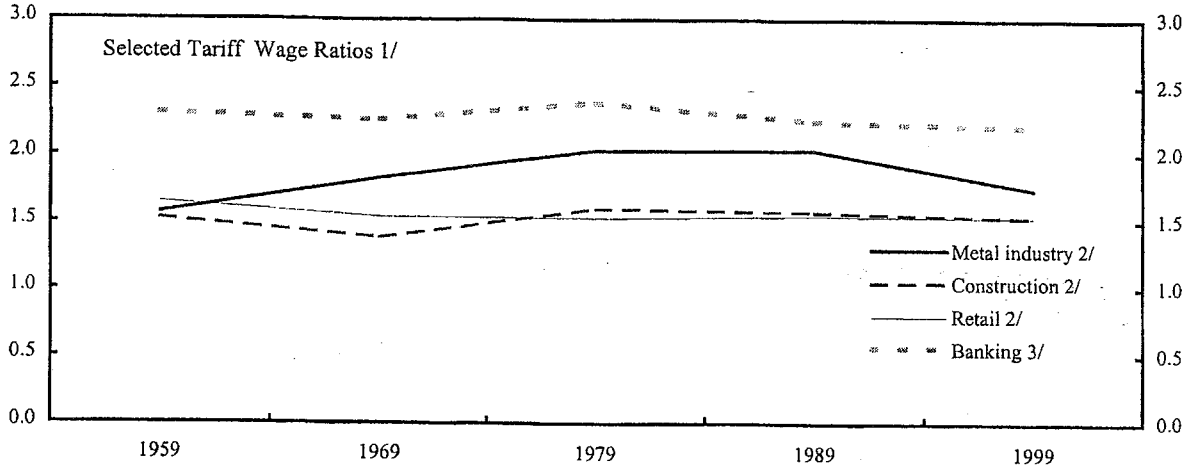
[11] The cumulative wage drift during the period 1981-98 in industry (western Germany) amounted to 3 percent.

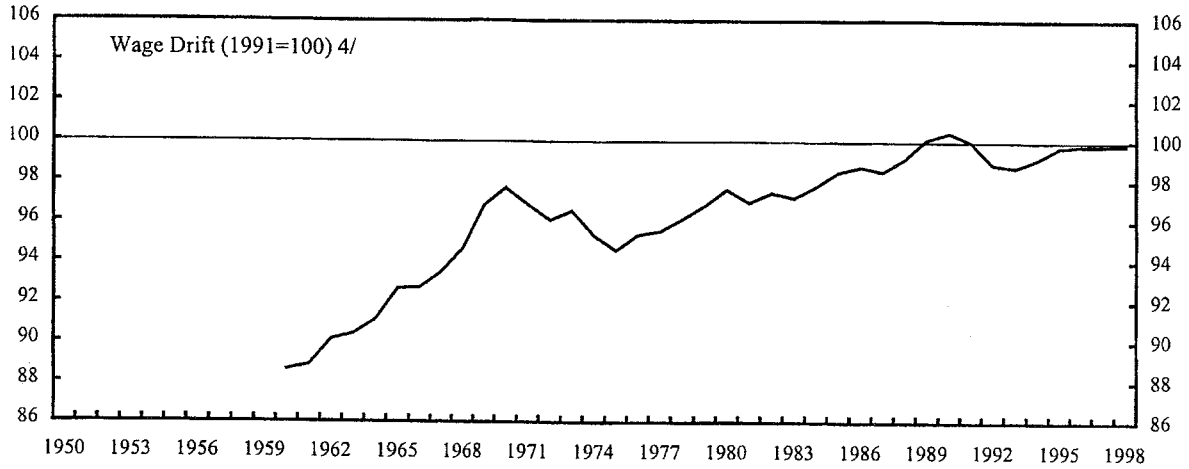
[12] For additional and more detailed evidence on relative wage developments, see Chapter III.

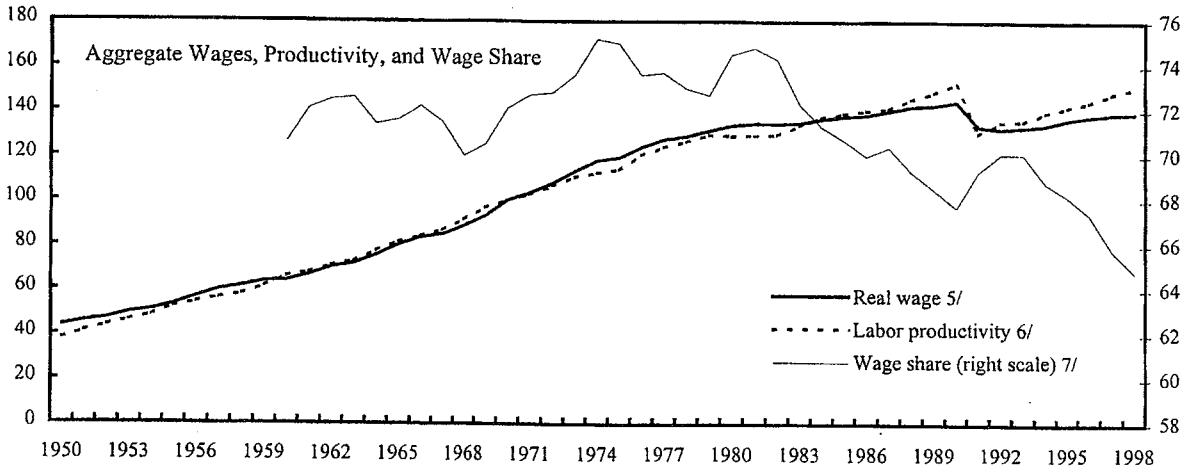
[13] For example, in 1949 the metal industry tariff agreements stipulated 48 hours work per week, 12-18 week days of vacation (depending on seniority), and no supplementary wage payments. By 1999, weekly work hours had been reduced to 35 hours, days of vacation had increased to 30 work days (independent of seniority), and a wage supplement (vacation bonus) amounting to 75-105 percent of monthly pay (depending on seniority) had been introduced.

[14] See Hemmer (1999).

Figure I-5. Germany: Wage Setting







Sources: WSI-Tarifarchiv; Statistisches Bundesamt; and staff calculations.
1/ Ratio between highest and lowest tariff wages in selected sectors (data for 1959, 1969, 1979, 1989, and 1999).
2/ Blue collar workers.
3/ White collar workers.
4/ Ratio between effective and tariff wages in industry (western Germany).
5/ Gross income from dependent employment per employee (divided by GDP deflator); 1991-98 united Germany.
6/ GDP per employed person (in 1991 prices); 1991-98 united Germany.
7/ Adjusted for relative shifts in dependent and self-employed work force.

15. A large-scale and publicly managed social insurance system covers risks related to old age, health, long-term care, and unemployment. This social insurance system is run on a pay-as-you-go basis (PAYG) and largely financed by social contributions, with budget transfers (mainly from the Federal budget) covering the balance. Social contribution rates have increased sharply over time, rising from some 24 percent in 1957 to more than 41 percent in 1999 (first panel, Figure I-6). As from April 1, 1999, the full insurance contribution rate of about 41 percent (split equally between employee and employer) applies to gross wage earnings across the board, except for a reduced lump-sum rate of 22 percent that applies to small-time jobs (providing earnings of less than DM 630 per month) and subject to upper monthly earnings ceilings of DM 6,375 (health, long-term care) and of DM 8,500 (pensions, unemployment) (second panel, Figure I-6). As the full contribution rate of about 41 percent applies to earnings exceeding the small-time job limit of DM 630, additional earnings of DM 1 above the DM 630 ceiling increase labor costs by about DM 130 (hence equivalent to a marginal contribution rate of some 13,000 percent).

16. As regards the link between contributions and benefits, the design of Germany's social insurance system aims to observe the principle of contribution-benefit parity. In particular, public pension benefits are closely linked to previous pension contributions. Nonetheless, a significant portion of pension spending (estimated at some 30 percent of total spending) goes to benefits that are unrelated to previous contributions related to imputed contribution periods (World War II service periods; early retirement; time spent unemployed or sick; time spent in education; and time spent raising children). Budget transfers to the social insurance funds are supposed to cover spending unrelated to previous contributions.

17. Finally, a comprehensive social safety net provides means-tested benefits with basically unlimited duration: the long-term unemployed are eligible for unemployment assistance; and persons with low incomes are eligible for social assistance. The level of social assistance is often held to define a lower floor below which net wage earnings cannot be reduced. Social assistance benefits for recipients with dependents expressed as a percent of average wages have increased substantially since the 1960s (Figure I-7).

D. Accounting for Postwar Labor Market Developments

18. This section uses a dual (skilled-unskilled; highsider-lowsider) labor market framework to account for the broad features of the markedly different labor market outcomes of Germany's *Wirtschaftswunder* era and the period since the 1970s. The elements of this labor market framework are labor demand schedules for skilled and unskilled labor and labor supply (wage setting) schedules for the two types of labor.[15] Labor market outcomes depend on the shifts as well as slopes of these four schedules, which in turn are determined by institutional arrangements and changes in the environment.

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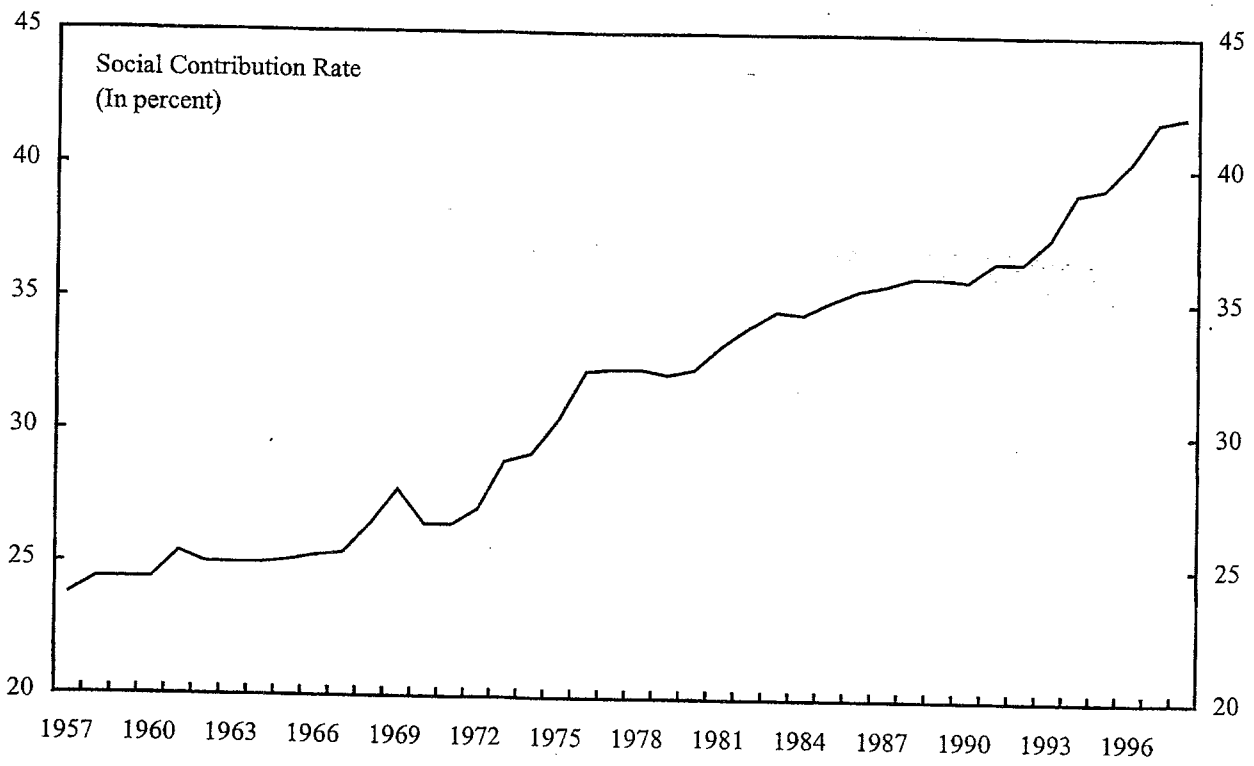
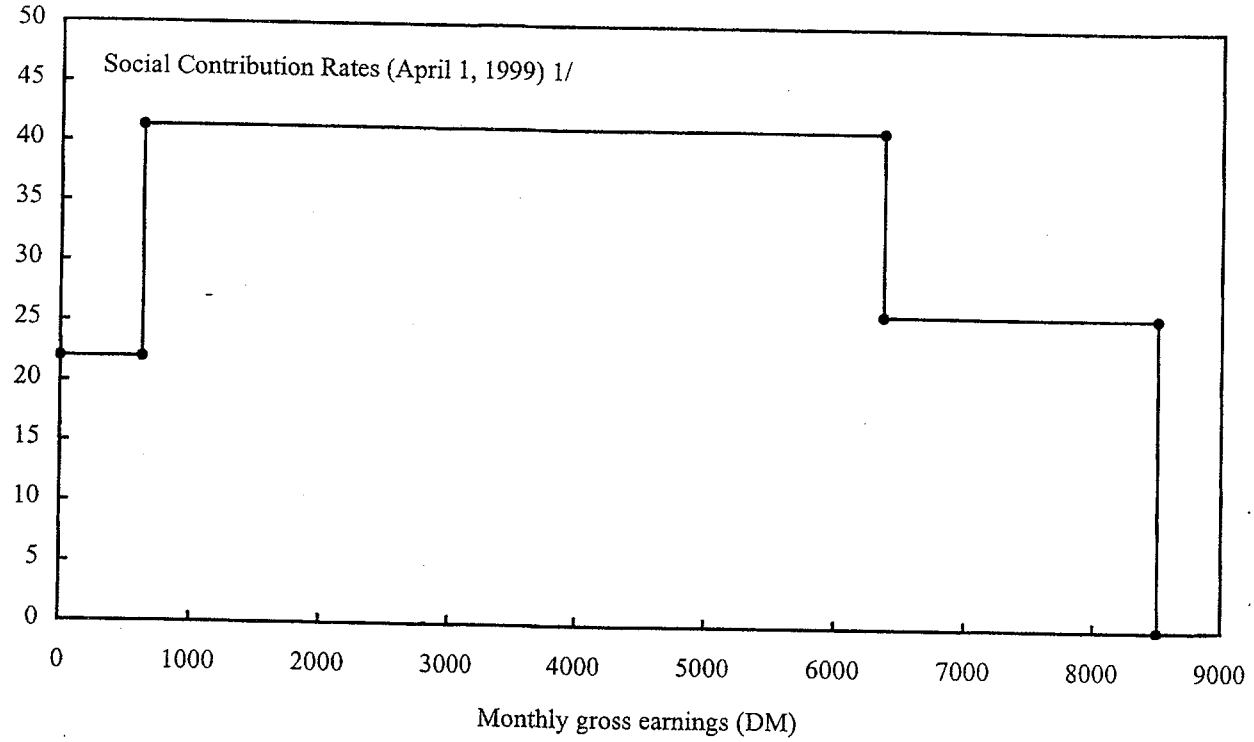
[15] This framework is developed in Nickell and Bell (1995). Chapter IV uses a formal version of this model to study tax-transfer solutions to the low-skilled labor problem.

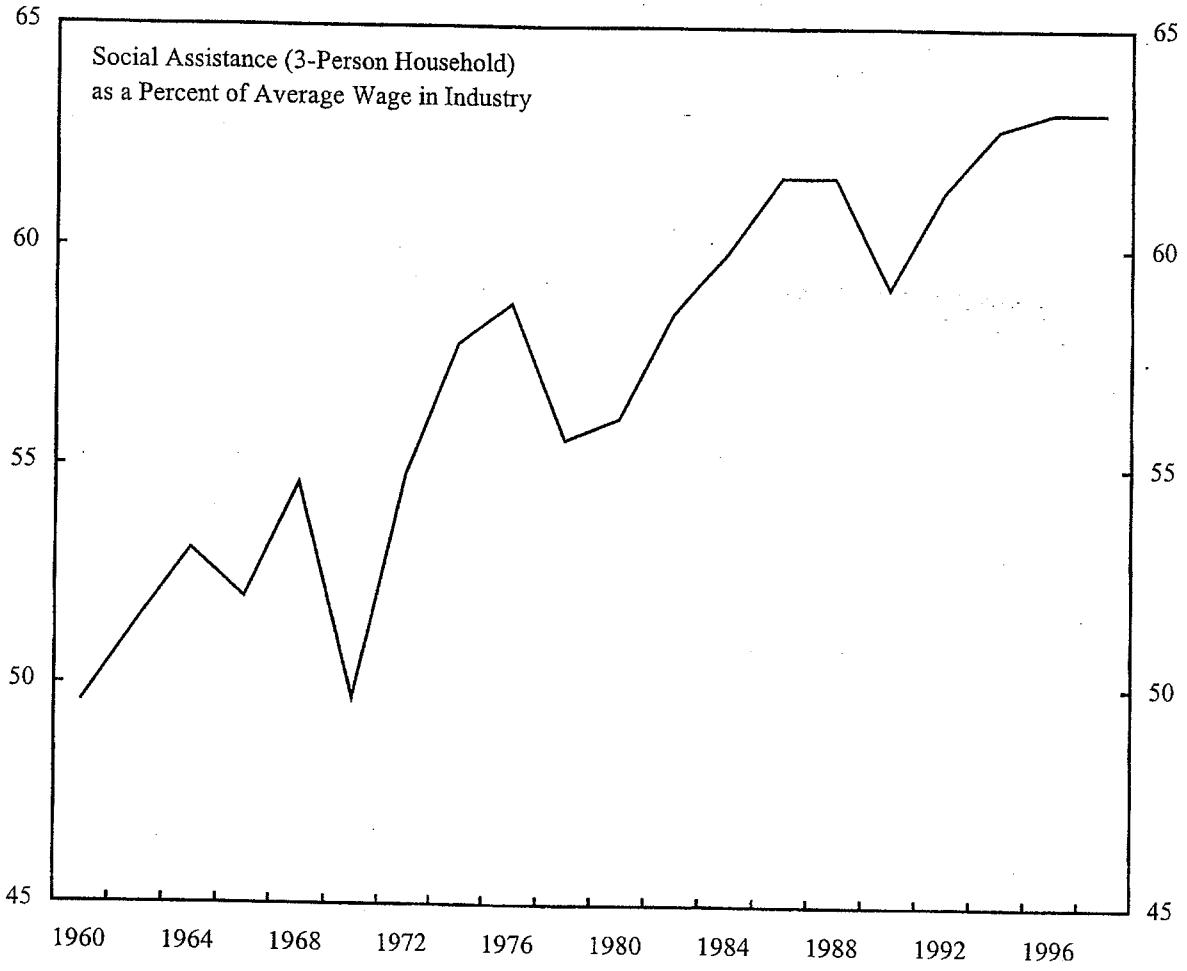
Figure I-6. Germany: Social Contribution Rates





Source: Ministry of Labor.

Figure I-7. Germany: Social Assistance



Sources: Boss (1999), Kiel Working Paper No. 912.

19. The *Wirtschaftswunder* era provided an auspicious environment for the operation of both the skilled and unskilled labor markets: a period of rapid catchup growth; technological change that increased labor productivity of workers across the skill distribution at broadly similar rates; strong demand for unskilled labor in some labor-intensive sectors, in particular construction; ongoing improvements in the skill composition of the labor force, shrinking the supply of unskilled labor; and an auspicious external environment favoring skill-intensive manufacturing. Moreover, jobs were usually full-time and job attachment of workers was relatively steady.

20. In this auspicious environment, Germany's labor market institutions worked well in both the skilled and the unskilled segments. Overall labor market conditions were tight, as reflected in record levels of vacancies and large influxes of (mostly lower-skilled) foreign workers, the latter suggesting that conditions at the lower end were characterized by labor shortages. The one-size-fits-all approach to collective bargaining on wages and work conditions may even have helped to dampen excessive demand pressures; the generous social safety with benefits of essentially unlimited duration and relatively weak work requirements remained untested; and the large and comprehensive social insurance system, with the level of social contributions at about 25 percent, was in tune with the aspirations of full-time (mostly male) breadwinners. Thus, the experience of the *Wirtschaftswunder* era appeared to validate resoundingly Germany's institutional arrangements in the labor market.

21. Since the 1970s, changes in the economic environment included the end of catchup growth, deindustrialization, skill-biased technological progress, a further pickup in the pace of globalization, and growing labor force participation of workers with less job attachment. Moreover, increased immigration of ethnic Germans from eastern Europe and the Former Soviet Union during the second half of the 1980s and the early 1990s and, above all, German unification at the beginning of the 1990s added in relative terms to the unskilled labor supply. Deindustrialization, skill-biased technological progress, and increased globalization are all likely to have shifted labor demand in favor of skilled labor, while greater immigration and German unification are likely to have at least slowed the ongoing improvements in the skill composition of the labor force.

22. This relatively unfavorable environment for unskilled labor was met by institutional arrangements that largely precluded relative wage adjustments via collective bargaining. With collective bargaining wedded to the principle of income solidarity, the labor market lowsiders found it more and more difficult to clear the labor productivity hurdles standing in their way, which, at least in the medium run, tended to be raised in line according to the highsiders' superior productivity performance. At the same time, the social safety net's benefits tended to rise in line with, or even faster than, average wages (Figure I-7), raising reservation wages and undermining labor supply incentives, at least at the very low end of the labor market.

23. The design of the social insurance system and the PAYG requirement to finance rising levels of social insurance spending by higher social contributions added two vicious circle elements to the lowsiders' already difficult situation. First, the de facto indexation of

most social benefits to average wage growth meant that average growth of social benefits was also boosted by the fact that labor shakeouts fell overproportionally on low-wage earners.[16] This indexation effect raised the required PAYG social contribution rate, raising labor cost across-the-board, and, because of labor market adjustments falling mainly on lowsiders, further spurred (average measured) wage growth. And second, labor shakeouts led to across-the-board increases in social contribution rates, thereby boosting labor costs of lowsiders, and the ensuing labor shakeout added to social spending requirements, putting further pressure on social contribution rates.

24. It is noteworthy that in the short run, collective bargaining responded quite sensitively to the state of the labor market, as witnessed by a distinct pattern of alternating periods of across-the-board wage moderation (following labor shakeouts and rising unemployment) and across-the-board wage push (during cyclical upturns and following prolonged wage moderation) (Figure I-8):

- At the beginning of the 1970s, with the economy heating up, average wage growth surged ahead of average productivity growth, indicating wage push behavior; this was followed by Germany's first massive labor shakeout episode during the recession of the mid-1970s.

- A period of relative wage moderation after the mid-1970s shakeout was followed by another period of more aggressive wage setting; a second labor shakeout took place at the time of the cyclical recession at the beginning of the 1980s.

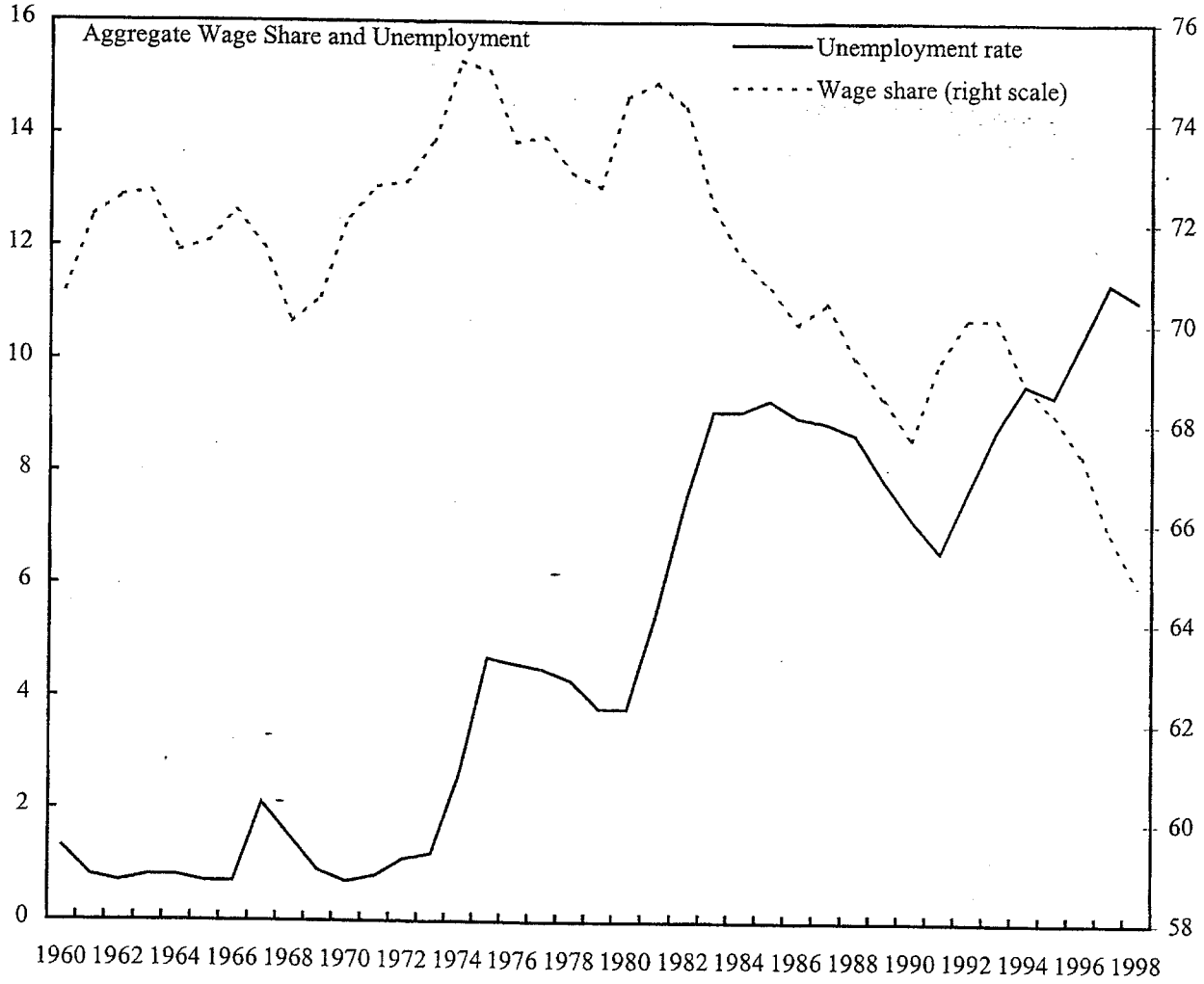
- The 1980s saw a long stretch of wage moderation behavior, which, however, came to an abrupt end with German unification (wage setting in eastern Germany being an extreme example of "income solidarity" behavior); as the economy went into recession at the beginning of the 1990s, the third major labor shake out ensued.

- A new phase of wage moderation behavior began in 1993; however, this time wage moderation was partly offset by the political decision to finance unification through the social insurance system, reflected in the significant hike in social contributions; the 1994-98 period was marked by a drawn-out phase of weak labor market performance.

25. The apparent "rocking chair pattern" of wage setting that emerges from this stylized description points to a highsider-lowsider dilemma inherent in the present institutional arrangements: on the one hand, across-the-board wage setting consistent with average or above-average labor productivity increases in the economy appears to have undermined the employment opportunities at the lower end of the labor market in the economic environments

[16] This effect was reinforced by underestimation of the rapid growth of small-time jobs (DM 630 jobs) in the official employment statistics.

Figure I-8. Germany: Aggregate Wage Share and Unemployment, 1960-98



Sources: Deutsche Bundesbank; and staff estimates.
1/ For 1960-90 data refer to western Germany; for 1991-98 data refer to united Germany.

of the 1980s and 1990s; on the other hand, across-the-board wage moderation, while perhaps consistent with productivity developments at the lower end of the labor market, would imply diverging wage and productivity developments in the upper part of the wage distribution, leading to pressures to end wage moderation. The fact that labor shakeouts tend to take place during recessions should not divert attention from the fact that the buildup of disequilibria between labor cost and productivity at the lower end of the labor market is likely to begin some time before the recession and the actual labor shakeout occur.[17]

26. Two particular labor market niches—i.e. segments of the labor market that are in part exempted from the current rules of the game—provide an (almost) experimental setup to explore the employment effects of alternative labor market institutions:

- Until April 1, 1999, workers holding small-time or minor jobs (working less than 15 hours work time per week and earning less than DM 620 per month) were exempted from paying social contributions; although accurate statistics on the number of small-time jobs are not available, there is evidence that the number of small-time jobs may have risen sharply, to some 5.6 million by 1997 (or well above 10 percent of the official labor force).[18]

- Younger workers in Germany are typically employed in apprenticeship schemes that are also not subject to the full gamut of labor market rules. Although more recently there have been difficulties in providing sufficient numbers of apprenticeship posts for young workers, Germany's youth unemployment rate still remains among the lowest rates in the OECD.[19]

27. The labor market experience of eastern Germany since unification, on the other hand, provides a regional example illustrating the adverse employment impact of Germany's labor market institutions in a particularly difficult environment.[20] The stylized facts on eastern

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[17] The highsider-lowsider perspective contrasts with the traditional insider-outsider view of the German labor market. The basic insider-outsider view assumes that the average wage is set to achieve the highest wage increase consistent with continued employment of insiders, ignoring the employment interests of the outsiders. The highsider-lowsider perspective suggests that across-the-board wage increases are benchmarked on the productivity performance of the highsiders, ignoring the (possibly) lagging productivity performance of the lowsiders.

[18] Based on Ochs (1999); see also Chapter IV, Box IV-3.

[19] For example, for persons aged 15-24, unemployment rates in Germany and France in 1997 amounted to 10 percent and 28.1 percent, respectively. The average rate for OECD Europe in 1997 was 19.0 percent.

[20] This paragraph draws on Chapter III, IMF Staff Country Report No. 97/101 for Germany.

Germany's labor market experience including the marked rise in lower-skilled unemployment were reviewed in Section B. Following the wholesale transfer of western Germany's institutions to eastern Germany coupled with an agreement to quickly raise tariff wages in the east to west German levels, some optimistic observers hoped initially for a repeat of the *Wirtschaftswunder* performance. But despite large-scale active labor market policy initiatives and massive investment incentives, the task to raise labor productivity of east German workers quickly close to west German levels proved to be more difficult and time-consuming than most observers had expected. Adding a drag from the labor supply side, social benefits in eastern Germany in the meantime rose to levels close to western levels, substantially boosting reservation wages relative to workers' take-home pay.

E. Financial Policy Reactions

28. Institutional inertia in a rapidly changing environment may also have encumbered the cyclical settings of fiscal and monetary policies, adding strains to the demand side of the economy.[21] As regards fiscal policy, the long-run interplay between poor labor market performance and rising social spending and contributions was already highlighted in previous sections. The present section focuses only on the stabilization function of fiscal policy.

29. Comparing the movements of actual and structural general government balances provides a visual impression of the behavior of fiscal policy over time (Figure I-9).[22] In the absence of procyclical fiscal policies, the structural fiscal balance would be represented by a smoothed version of the actual budget balance. However, over the last 20 years or so, the structural balance of the general government has been strikingly more variable than the actual balance, reflecting pronounced procyclical swings of the structural balance. Moreover, regression estimates indicate that these procyclical swings in the structural balance offset roughly the automatic fiscal stabilizers. In view of the decentralized nature of Germany's fiscal system, it is of some interest to trace procyclical fiscal behavior to the different levels of government, in Figure I-9 represented by the central government (federal government and social insurance sector) and the lower government levels (states and municipalities). Empirical estimates of their respective core budget balances indicate that the fiscal behavior

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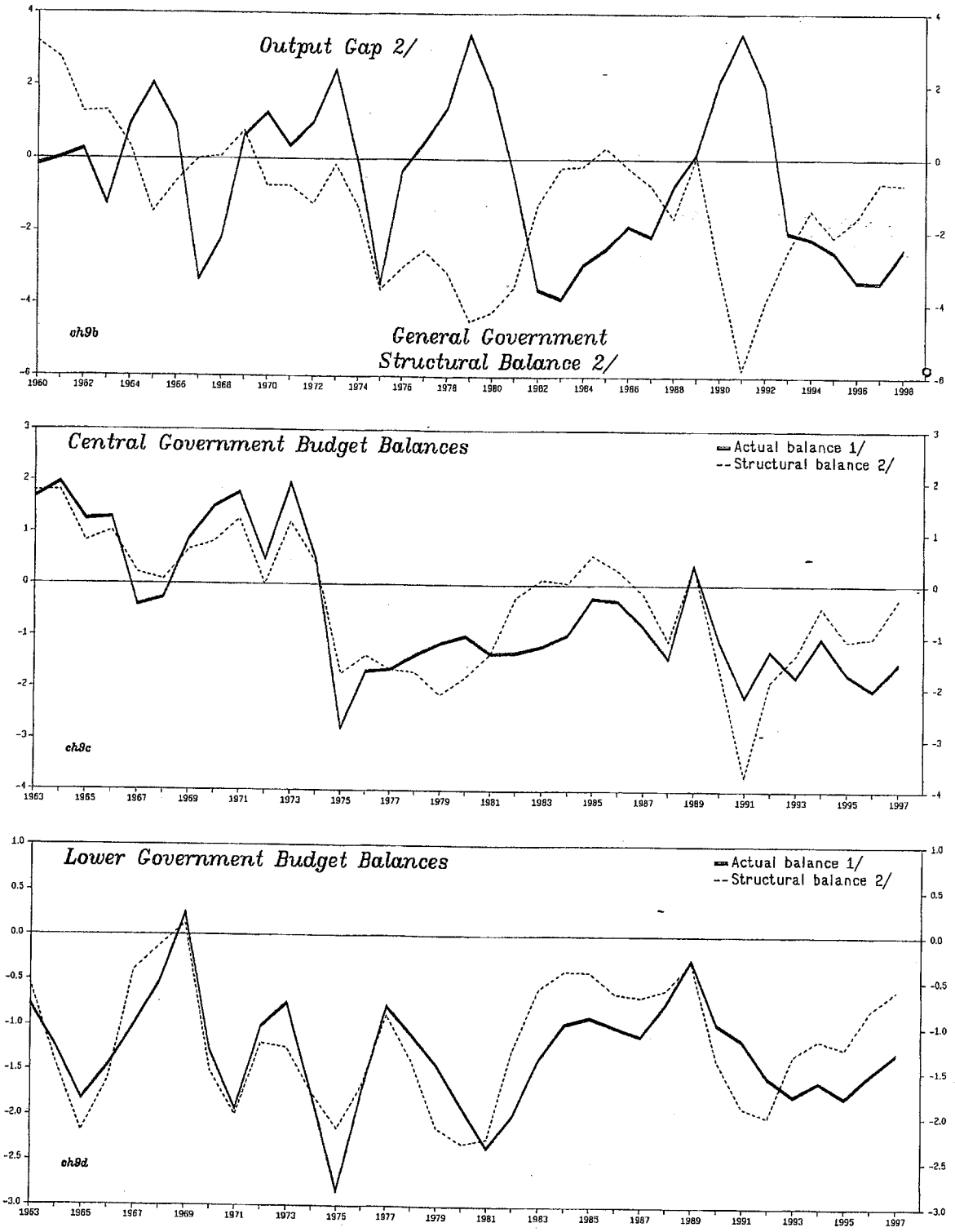
[21] The Federal government's *Annual Report 1999*, signed by the previous Minister of Finance Lafontaine, argued forcefully that lack of coordination between wage, monetary, and fiscal policies was a key element in explaining Germany's labor market malaise. The report, however, stopped short of broaching the need for institutional reforms in the labor market.

[22] This discussion draws on Chapter I of the IMF Staff Country Report No. 98/111 for Germany.

Figure I-9. Germany: Fiscal Policy Behavior, 1960-98



Source: IMF, World Economic Outlook; and staff estimates.
1/ In percent of GDP.
2/ In percent of potential GDP.

of the central government turned procyclical at the beginning of the 1980s, while the lower government levels behaved procyclically throughout the period 1960–98.[23]

30. Procyclical behavior of fiscal policy is more likely to occur under a fiscal system with any of the following three characteristics: (i) the fiscal system includes a large PAYG social insurance system, where the PAYG principle enforces approximate budget balance in the large social insurance spending portion of the budget; (ii) the containment of high deficits and debt in the nonsocial insurance part of the budget is enforced by binding (constitutional) rules, or debt and deficits are so high that free operation of the automatic stabilizers is considered too costly; and, (iii) the fiscal system has a significant decentralized component and at least some of the units at the lower government levels follow balanced budget rules that offset the operation of their automatic fiscal stabilizers.

31. In the particular case of Germany, all three characteristics appear to be relevant. But the problems in the labor market since the early 1970s are likely to have aggravated existing procyclical fiscal tendencies through two channels: (i) the upward ratcheting in the unemployment rate puts pressure on the finances of the PAYG insurance system and social spending more generally; and (ii) persistent wage moderation that typically follows labor market shakeouts tends to undermine revenue during recessionary periods.

32. The analysis of the factors behind the observed procyclical stance suggests that restoring more scope to the operation of automatic fiscal stabilizers would need to be underpinned by institutional reforms in the labor market. Moreover, in the new EMU environment, a revitalization of automatic fiscal stabilizers could at least partly compensate for the loss of monetary policy autonomy, and, in view of Germany's relative size, also improve EMU's overall capacity to absorb macroeconomic shocks.

33. The setting of monetary policy by the Bundesbank (until end-1998) was guided by a clear legal mandate to preserve medium-term price stability. While the Bundesbank often followed a pragmatic course influenced by historical circumstances, it always remained focused on maintaining Germany's "stability culture."[24] From the point of view of monetary policy, the wage push phase inherent in the highsider-lowsider structure of the labor market contained the seeds of an inflationary boom, as wage increases would outpace productivity increases, and particularly so at the lower end of the labor market. In addition, these inflationary pressures were likely to be reinforced by a procyclical stance of fiscal policy.

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[23] German unification and the runup to Stage 3 of EMU, both exceptional historical events, also contributed to observed procyclicality of fiscal policy during this period.

[24] See the various chapters in Bundesbank (1999) for in-depth treatments of Germany's postwar domestic and external monetary policies. This discussion also draws on Carlin and Soskice (1997).

34. The Bundesbank's main instrument to stem the perceived inflationary pressures—raising interest rates—had its limitations as the employment prospects of skilled workers (the chief proponents of wage push episodes) were relatively immune to tighter monetary conditions. As a consequence, monetary policy tended to meet perceived inflationary pressures promptly and decisively by tightening the monetary stance (Figure I-10). By contrast, and perhaps also reflecting an attempt to encourage prolonged across-the-board wage moderation, periods of economic slack were characterized by more gradual, and what some observers considered a somewhat asymmetric, relaxation of the monetary policy stance.

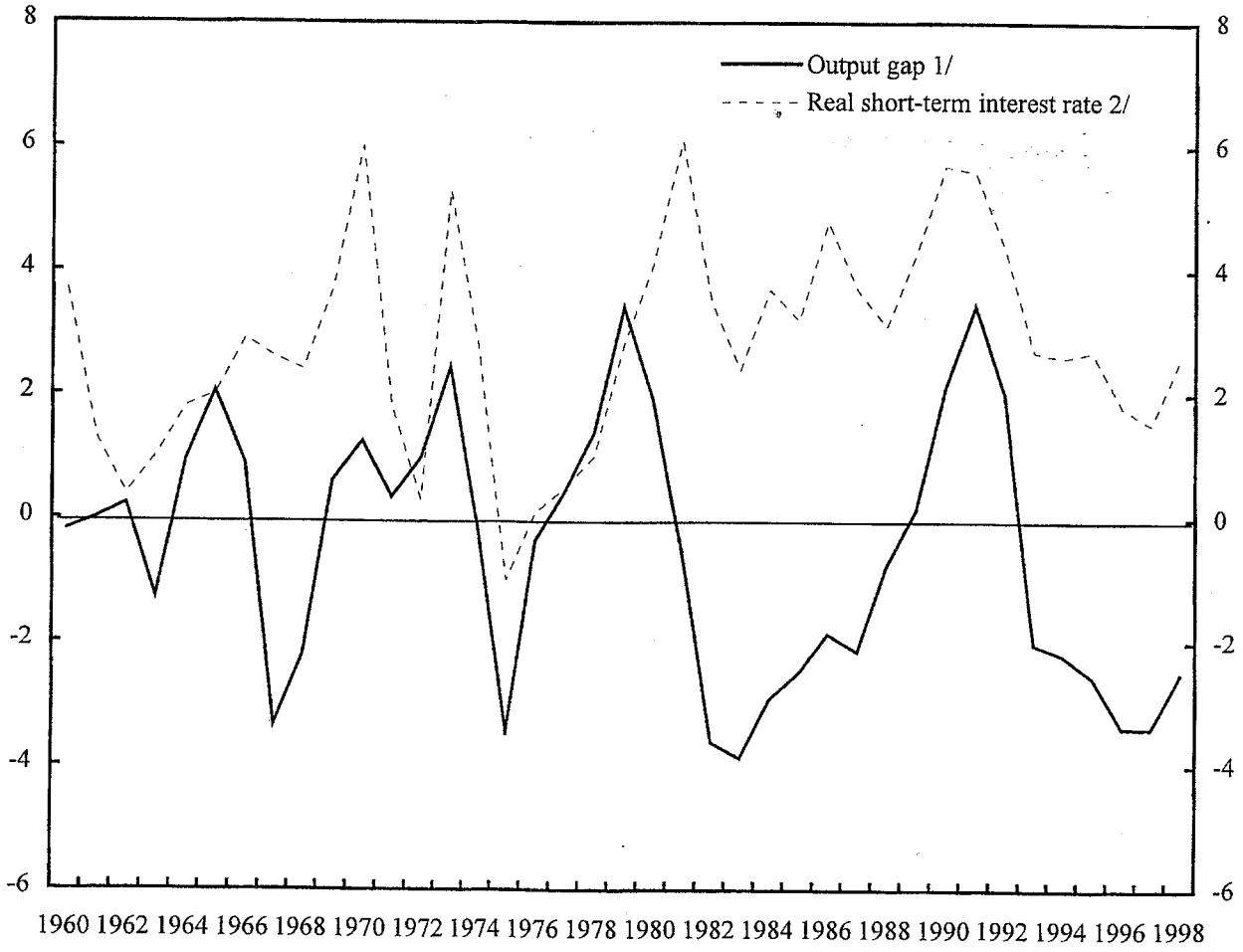
F. Remedies

35. Two standard policy responses to the recurrent labor shakeouts, across-the-board wage restraint and putting the "fiscal house" back in order, are natural and to a large extent unavoidable in the present institutional setting. Given the constraints of the solidarity principle, however, collective bargaining outcomes are likely to alternate between generalized wage moderation and generalized wage push, where generalized wage moderation builds up the momentum for the next wage push. On the fiscal side, the wage base for the social security system is permanently weakened by labor shakeouts and the upward ratcheting in the unemployment rate, and fiscal consolidation efforts typically result in a new and higher plateau of social contributions. These generalized policy responses are built into the current system but are essentially passive and unlikely to prevent the recurrence of labor shakeouts in the medium term.

36. The standard list of broad-brush institutional remedies is, by now, well known and needs only a brief summary here (Chapters III and IV expand further on remedies): collective bargaining institutions that are more cognizant of the need to match labor cost and productivity of the lower skilled; a multipillar social insurance system that would avoid charging very high social contributions at the lower end of the labor market; and stronger work incentives for the lower paid. In view of society's equity objectives, income safeguards in the form of in-work benefits for lower-paid workers through the tax-transfer system would likely be needed, for example, through graduated withdrawal of benefits or earned income tax credits.

37. In the absence of meaningful institutional reforms, workers and firms are likely to continue to search for opportunities to avoid the strictures of the present collective bargaining and social insurance frameworks. Examples of "endogenous adjustments" include the proliferation of DM 630 jobs and self-employment schemes that avoid paying social contributions; the declining shares of companies and employment that are parties to area-wide collective bargaining agreements; the increased use of opt-out clauses from collective bargaining agreements, in particular in eastern Germany; and there appear to be an increasing number of cases where firms that are members of employers' associations pay below-tariff wages with the tacit agreement of their workforce.

Figure I-10. Germany: Monetary Policy Behavior, 1960-98



Sources: World Economic Outlook database; and staff estimates.

1/ In percent of potential GDP.

2/ Defined as a difference between 3-month deposit rate and annual CPI inflation rate.

38. The experiences with labor market policies in several continental European countries may offer useful benchmarks for Germany's reform agenda. Three cases—the Netherlands, Denmark, and Switzerland—are of particular interest, as a common thread of these cases is that policies are mutually complementary, rooted in social consensus, and consistent with equity aims that are broadly similar to Germany's own. When the Netherlands faced crisis conditions in the early 1980s, the authorities and social partners agreed on wide-ranging labor market measures that relied on a two-pronged approach: (i) strong complementarity of the reform measures, i.e., benefit reform contributed to spending restraint, facilitating fiscal consolidation and cuts in the tax wedge; tax cuts and benefit reforms favored wage moderation that helped strengthen labor demand; buoyant employment boosted the tax base, setting in motion a virtuous circle in the labor market and public finances; and (ii) social consensus fostered by the authorities' consultative style and the new "rules of the game" implied by the tax and labor market reforms. The new rules then delivered growth, jobs, and core social protection, cementing popular support.[25]

39. Denmark's labor market policies have focused on improving employability of workers and on strengthening incentives and making job search and matching more efficient.[26] With radical reductions in benefit rates and minimum wages not considered feasible politically, policy measures have focused on tightening of eligibility and activation requirements and reducing the duration of benefits. There are clear indications that the measures to strengthen work incentives affected behavior and improved the functioning of the labor market.

40. The case of Switzerland's labor market institutions is of particular interest. Apart from the obvious disparity in size, the Swiss and German economies share a number of common features: large, export-oriented, high-wage manufacturing sectors; high saving rates and similar education and training systems; similar exposure to demand and technology shocks; and highly decentralized political systems that require broad consensus on the need to implement reforms. However, the key institutional differences that appear to support Switzerland's relatively favorable labor market performance are: (i) a decentralized wage bargaining system that sets wages in accordance to conditions at the firm level; (ii) a multi-pillar social insurance system that permits significantly lower contribution rates, with the public pillar providing mandatory basic insurance and private pillars offering supplementary coverage; (iii) limits on duration of unemployment benefits coupled with a requirement to participate in active labor market programs; and (iv) lower employment protection and less generous nonwage benefits. At the same time, and reflecting a strongly held social consensus, social benefit replacement rates are, as in Germany, relatively high.

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[25] The Dutch experience is discussed in more detail in Watson and others (1999).

[26] For more details, see the IMF Staff Country Report No. 99/88 for Denmark.

41. As in these other continental European countries, institutional reforms in Germany would likely require the assent of all the main players and necessitate abandoning entrenched positions all around. The *Alliance for Jobs, Education, and Competitiveness*—a forum initiated by the new coalition government and comprising the government, employers, and the trade unions—represents a potential framework for taking stock and finding home-grown solutions to Germany's labor market malaise.

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II. Fiscal Consolidation and Tax Reform Proposals[27]

A. Introduction

42. Fiscal policies in Germany have been dominated in recent years by determined consolidation efforts to observe the Maastricht criteria. The general government deficit was reduced to 2.6 percent of GDP in 1997, well below the 3 percent limit. Owing to the massive build up of unification-related debts, however, the debt/GDP ratio remained slightly above the 60 percent reference value. The fiscal position improved further in 1998, with the general government deficit declining to 1.7 percent of GDP, as lower government levels stepped up their consolidation efforts.

43. Nevertheless, the new coalition government that assumed office following the September 1998 elections was faced with several difficult challenges: at the federal level, the constitutional "golden rule" requirement—ex ante new borrowing can not exceed public investment spending—mandated a marked reduction in the level of the federal deficit from 2000 onwards; the general government's projected fiscal position (assuming no policy change) fell short of the undertakings of the Stability and Growth Pact (SGP); Germany's income tax system needed a long-delayed overhaul, in particular business income taxation; and, above all, the authorities recognized the need to tackle Germany's labor market malaise while respecting the fiscal strictures of the golden rule and the SGP.

44. Germany's Fiscal Stability Program, submitted to the EU Council of Ministers and the European Commission in January 1999, provided a first broad sketch of the new coalition government's fiscal policy objectives and priorities: to bring down the general government deficit to 1 percent of GDP, with most of the fiscal adjustment effort occurring at the federal level; to propose a comprehensive reform of income taxation, to be phased in during 1999-02; to initiate an ecological tax reform, with an aim to use additional ecotax revenue to lower the pension contribution rate; to achieve meaningful progress on tax harmonization at the EU level; to effect a health care reform to stabilize the health care contribution rate; and to use tight spending policies as a means to achieve the Stability Program's fiscal targets.

45. By April 1999, a first package of income tax reforms combining cuts in marginal tax rates and base broadening had been adopted by parliament. A first installment of the ecological tax reform was in place and financed a cut in the pension contribution rate by 0.8 percent. To shore up the contribution base of the social insurance system, the full exemption from social contributions of the so-called DM 630 jobs was rescinded, and new regulations were introduced to stem the increase in (social contribution exempt) self-employment jobs that in fact represented hidden dependent employment jobs.

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[27] Prepared by Caroline Kollau.

46. On June 23, 1999 the federal government submitted the Fiscal Program for the Year 2000 and Beyond, proposing a comprehensive fiscal package to meet the fiscal targets set out in the Stability Program, continue the overhaul of the income tax system, and provide new initiatives to reform the social insurance system.

47. The purpose of this chapter is to review and assess the new coalition government's fiscal objectives and plans. Section B provides some relevant background information on longer term fiscal trends and institutions. Section C describes the initial fiscal conditions at the time of the new government's assumption of office and lays out the objectives and priorities of the Stability Program. Section D reviews tax and spending decisions taken during the first half of 1999. Sections E, the bulk of the chapter, discusses the main elements of the proposed fiscal package, highlighting important spending cuts, the proposed business income tax reform, and the preliminary plans for systemic pension reforms. Finally, Section F concludes with an assessment of the program's effects on the medium-term fiscal outlook.

B. Background[28]

48. Germany's fiscal structure assigns government tasks and responsibilities to three levels of government; the federal, the state and the local level. Fiscal deficits and debt accumulation are subject to two important constraints. The first, the golden rule provision of Germany's constitution requires that federal borrowing should not exceed (ex ante) the projected outlays for public investment, unless there are severe disturbances to the general economic equilibrium. Most of the states have similar golden rule provisions in their basic laws; the finances of local governments are subject to state control. A second important constraint is provided by the Stability and Growth Pact, which contains the Maastricht limits on general government deficit (3 percent of GDP) and gross debt levels (60 percent of GDP) and requires members to achieve (at least) a medium-term fiscal position that is consistent with the normal operation of automatic fiscal stabilizers. Moreover, members are required to submit to the EU commission an updated national Stability Program each year, which describes the country's short-, and medium-term fiscal policy goals and plans.

49. Germany's fiscal performance during 1960-98 underwent large variations (Figure II-1). During the 1960s, the rapid growth of the *Wirtschaftswunder* era was accompanied by balanced budgets (averaged over the business cycle) and low levels of debt. The fiscal position deteriorated markedly in the early 1970s as a result of the first oil price shock and the slowdown in catch up growth. Both the federal and state governments started to run large deficits, while local governments and the social insurance sector remained roughly in balance. After the second oil price shock, a long fiscal consolidation period

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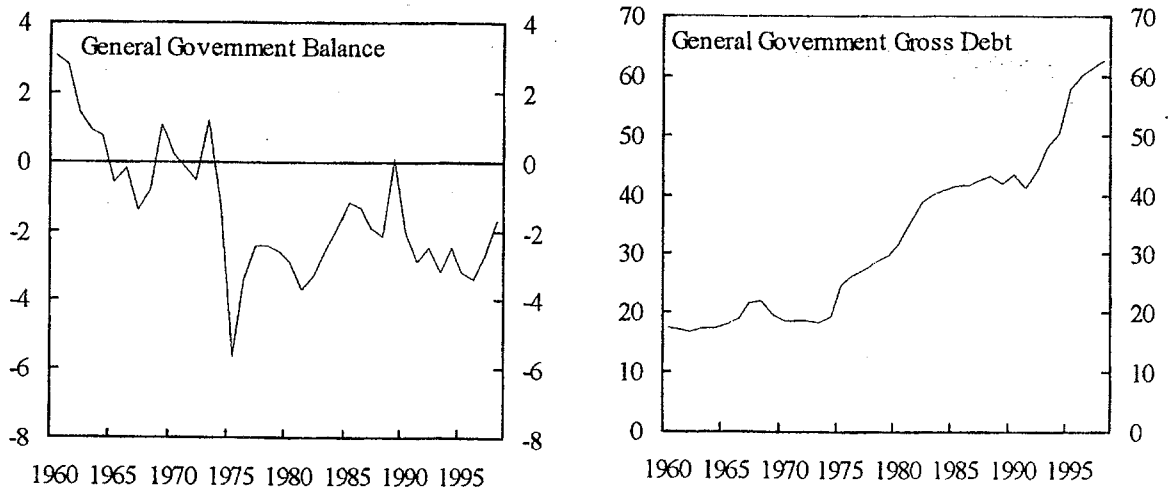
[28] This section draws on Owen (1994); see also Chapter I "Fiscal Stabilization Policy Under EMU" in the IMF Staff Country Report No. 98/111 for Germany.

arrested the upward drift in indebtedness. But the historical event of German unification ushered in another period of protracted fiscal deficits and a sharp rise in the level of debt.

Figure II-1. Germany: General Government Finances, 1960-1998
(In percent of GDP)



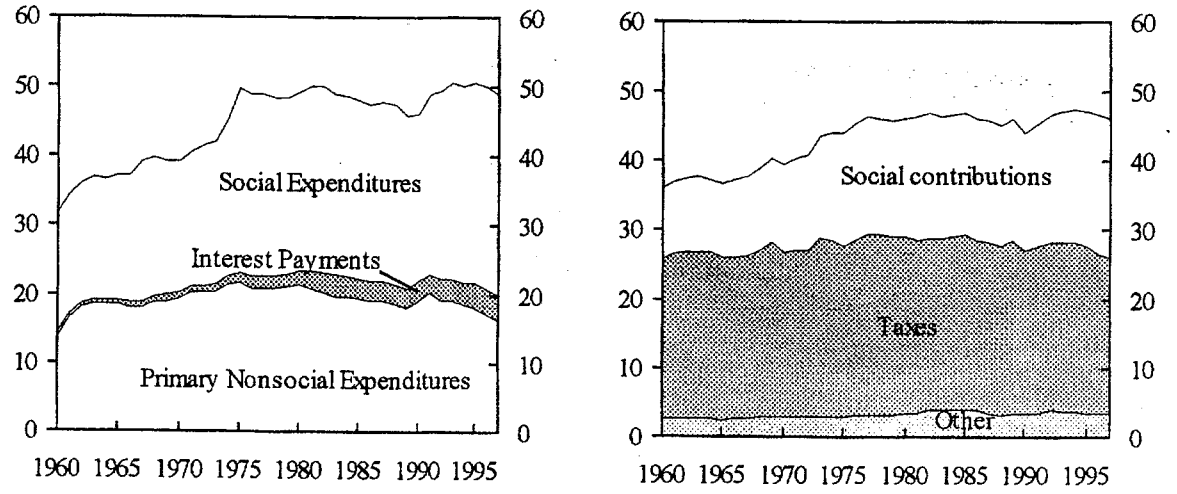
Source: IMF, World Economic Outlook database.

50. Social spending has been the major driving force behind Germany's fiscal dynamics. Germany's "social market economy" seeks to provide a comprehensive social insurance and safety net, with some of its elements established as early as the 1880s when Bismarck's social reforms established the world's first modern social insurance system. Since the early 1960s, social spending has risen sharply, partly related to adverse labor market developments (see Chapter I). But measures that further expanded Germany's social security system and the internal dynamics of the system (e.g., an aging population; high income elasticity of demand for health care) also played a role in the seemingly inexorable upward trend in social spending. While primary non-social spending as a percent of GDP hardly increased between 1960 and 1997, social spending rose from 17 to 29 percent (Figure II-2). Social contribution rates had to be raised sharply to finance the upward trend in social spending, as required by the pay-as-you-go (PAYG) financing structure of the system. The central role of social contributions in accounting for the long-term trend in general government revenue is underscored by the fact that the tax-GDP ratio has remained stable since 1960 (at about 23 percent of GDP).

51. Turning to background for income tax reform, Germany's past income tax reforms have been driven by two main forces: one, the absence of formal indexation requires periodic discretionary adjustments of deductions, tax brackets, and/or tax rates to neutralize the impact of inflation; and two, large spreads between top marginal (around 55-60 percent including surcharges and local taxes) and effective average income tax rates on labor and capital (around 15-20 percent), are indicative of relatively narrow tax bases. Most of

Germany's past income tax reforms are best interpreted as discretionary attempts to mimic the adjustments implied by a formally indexed income tax system.

Figure II-2. Germany: General Government Spending and Revenue, 1960-1997
(In percent of GDP)



Source: IMF, World Economic Outlook database; and Ministry of Labor.

52. Germany's present income tax system has high marginal tax rates on business incomes, and both high top and bottom rates on personal income, specifically when compared to most other countries in Europe (Table II-1). However, average effective tax rates are lower, due to a multitude of tax allowances and deductions that narrow the tax base.[29] For businesses, for instance, special or accelerated depreciation schedules are available to promote the growth of small and medium-sized enterprises, and specific tax advantages encourage investments in shipbuilding, housing, and aircraft. Shortly after unification, Germany temporarily offered extra incentives for investment in eastern Germany, including a special depreciation allowance of 50 percent for investment projects. German companies also appear to have ample opportunities to create hidden reserves.[30]

[29] The magnitude of the spread between the statutory and the effective tax rate on corporate incomes has been a topic of research, but results tend to differ depending on the exact method of investigation. A report commissioned by the Dutch Ministry of Finance (Buijink, Janssen, and Schols, 1999) uses a sample of firms to assess the average effective rates in EU countries. The study shows considerable differences between statutory and average effective corporate tax rates in most EU countries. In an international comparison of the filtered median results, a sample of 419 German firms reveals a statutory rate of 50.1 and an average effective rate of 38.5 percent. Both of these rank at the top of all EU countries considered.

[30] See Chapter IV on "Tax Reform in Germany" in IMF Staff Country Report No. 97/101 for Germany.

Table II-1. Marginal Tax Rates on Personal Income and Retained Corporate Earnings in the EU (Including Local Taxes)

Rates for 1998	Personal income tax rate 1/		Corporate income tax rate on retained earnings 2/
	Bottom rate	Top rate	
Austria	10.0	50.0	34.0
Belgium 3/	27.6	60.8	40.2
Denmark	39.0	58.0	34.0
Finland	23.5	55.5	28.0
France 4/	18.1	61.6	41.7
Germany 5/	25.9	55.9	47.5 (56.2)
Greece 6/	5.0	45.0	35.0
Ireland 7/ 8/	24.0	46.0	32.0
Italy 9/	19.0	46.0	41.3
Luxembourg 7/ 10/	6.2	47.2	31.2
The Netherlands	34.6	60.0	35.0
Portugal 11/	15.0	40.0	34.0
Spain	20.0	56.0	35.0
Sweden	31.0	56.0	28.0
United Kingdom 7/	20.0	40.0	31.0
Average	21.3	51.9	35.2

Sources: Buijink, Janssen and Schols (1999); Boss (1999); Ministry of Finance (March 1999); and staff calculations.

1/ The personal income tax rate on non business incomes.

2/ Distributed profits are taxed according to the personal income tax, with country-specific arrangements regarding credit towards the corporate tax that was already paid

3/ The corporate rate includes a crisis-contribution of 3 percent of the tax.

4/ This includes a temporary tax of 15 percent on businesses with an annual turnover of more than 50 million Francs. The corporate rate is 36.7 percent for businesses with less than 50 million Francs annual turnover.

5/ Both the personal income tax rate and the corporate rate include a solidarity surcharge (currently 5.5 percent of the tax, and charged temporarily to help cover unification related expenditures). The rate in parentheses also includes the local trading tax (set here at 16.7 percent).

6/ The corporate rate is 40 percent for banks and domestic companies with non-public shares.

7/ The corporate rate is lower for small profits.

8/ The corporate rate is only 10 percent for manufacturing and certain international financial services.

9/ The corporate rate includes a local tax of 4.25 percent for which the measurement base is creation of value

10/ The corporate rate includes a contribution to the unemployment fund of 4 percent of the tax.

11/ The corporate rate includes a local surcharge of up to 10 percent.

53. In the context of the EU, incentives to reduce the statutory tax rates on business incomes have increased because of the signal function that these rates have for the attractiveness of Germany as a business location, and the enhanced capital mobility that was brought about by the advent of monetary union. Germany has lagged behind several other

countries in its reform of the business income tax,[31] and at a total marginal tax rate of 56 percent (including local trading tax[32]), it tops the list as regards the taxation of retained corporate earnings.

54. Germany's relatively slow pace in adapting its income tax system may in part reflect the decentralized nature of legal decision making—income tax legislation requires the approval of the lower and the upper house of parliament (Bundesrat), where the latter represents the interests of the Länder governments. Moreover, the constitutional court has made a number of rulings that questioned the constitutional basis of income tax legislation, typically appealing to violations of equity principles.

C. Initial Fiscal Conditions and Germany's Stability Program

55. In 1997, in a push to meet the Maastricht fiscal criteria, fiscal consolidation efforts reduced the general government deficit to 2.6 percent of GDP, from 3.4 percent of GDP in 1996 and notwithstanding below-potential real GDP growth of 1.5 percent. (Table II-2). The implied (negative) fiscal impulse was equivalent to some 1 percent of GDP. However, gross public debt rose further to 61.5 percent of GDP, above the relevant Maastricht reference value of 60 percent, reflecting unification-related build up of debt. Fiscal policy stayed on a consolidation course in 1998. The general government deficit declined to 1.7 percent of GDP, on account of further spending-oriented consolidation efforts at the lower levels of government (Länder and communes).

56. For 1999, the currently projected outcome is a general government deficit of 1.9 percent of GDP, close to the budgeted deficit. While economic activity was hard hit by the emerging market crisis, the deterioration in the fiscal position was kept in check by interest savings and a composition of the shortfall in aggregate demand that favored more highly-taxed components. Moreover, the labor market was resilient in the face of the external shock. Overall, staff estimates suggest a neutral fiscal stance in 1999.

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[31] The corporate tax rates in France, the United Kingdom, and the United States, for instance, were all cut in the early- to mid-1980s. The German tax rate not only exceeded these countries' rates but also did not decline until the early 1990s (See Rimbaux, 1996, p. 93).

[32] The local trading tax is levied on almost any type of business and can run up to some 18 percent. Modification of this tax is on the tax reform agenda but represents a difficult issue, as it is the most important source of income for local governments. The trading tax is deductible so that corporations pay a corporate tax over the earnings net of local trading tax.

Table II-2. General Government Finances, 1994-1999 1/
(In percent of GDP)

	1994	1995	1996	1997	1998	1999 Proj.
Revenue	46.5	46.3	46.9	46.6	46.6	47.1
Expenditure	49.0	49.5	50.3	49.2	48.3	49.0
Interest payments	3.4	3.7	3.7	3.7	3.6	3.5
Balance	-2.5	-3.2	-3.4	-2.6	-1.7	-1.9
Federal government	-1.2	-1.5	-1.9	-1.7	-1.8	...
States and communes	-1.4	-1.3	-1.1	-1.1	-0.1	...
Social insurance system	0.1	-0.4	-0.3	0.1	0.2	...
Gross debt 2/	50.2	58.3	60.8	61.5	61.1	60.6
Memorandum items:						
Primary structural balance 3/	1.0	0.7	1.3	2.5	3.2	3.1
Structural balance 3/	-2.3	-2.9	-2.3	-1.1	-0.3	-0.3
Interest payments 3/	3.4	3.7	3.6	3.6	3.5	3.4
Fiscal impulse 4/	-0.7	0.3	-0.6	-1.1	-0.7	0.0
Output gap 3/	0.0	-0.3	-1.7	-2.3	-2.2	-3.0
Real GDP growth (in percent)	2.3	1.7	0.8	1.5	2.2	1.4

Sources: Ministry of Finance; and staff calculations.

1/ Data are based on the new European System of Integrated Economic Accounts 1995 (ESA95).

2/ Beginning in 1995, the debt and debt-service obligations of the Treuhandanstalt (and various other agencies) were taken over by the general government.

3/ In percent of potential GDP.

4/ Change in primary structural balance; minus sign indicates withdrawal of stimulus.

57. The German Stability Program was presented by the coalition government in January 1999, specifying the fiscal policy goals up to 2002. The deficit targets were set at 2 percent for 1999, with a further decline towards 1 percent in 2002 (Table II-3). Public debt was set to remain at 61 percent of GDP for 1999 and 2000, fall to 60½ percent in 2001 and decline to 59½ percent in 2002. The 1999 targets are projected to be observed, while the medium-term goals will be the point of reference for the effectiveness of the fiscal program discussed in section E.

Table II-3. General Government Deficit and Public Debt
as Defined in the Stability Program

	1999	2000	2001	2002
Deficit	-2	-2	-1½	-1
Public Debt	61	61	60½	59½

Source: *Deutsches Stabilitätsprogramm*, January 1999. All entries are as a percentage of GDP.

58. The Stability Program also presented a broad overview of the coalition's policy guidelines for the near future, listing a reduction in the unemployment rate as the number one priority, and also laying out specific tax reform measures and spending decisions. Included in these were; a reform of the personal and business income tax; an ecotax reform for environmental purposes as well as to lower wage costs; a solid fiscal policy with a continuation of public investment; savings in the government wage bill; increased government transparency; and, an enhanced coordination of macroeconomic policies within Europe. Finally, the program highlighted preliminary proposals for a reform of health insurance.

D. Tax and Spending Decisions in the First Half of 1999

59. The coalition's first income tax reform package was legislated in March 1999. It focused mainly on lowering the personal income tax (including tax relief for families with children), but also reduced the marginal rates on business incomes. From 1999 to 2001, the budgetary costs of the reform are largely offset by base broadening measures, but in 2002 the personal income tax relief is expected to exceed the revenues from base-broadening by about ½ percent of GDP (Box II-1).

60. The ecotax reform (or green tax swap) was part of the coalition agreement between the SPD and Greens. It involves a phased-in increase in several ecotaxes to finance a reduction in social contribution rates (Box II-2). The first phase of the ecotax reform went into effect in April with the proceeds of an estimated DM 8 billion designated to lower social contribution rates from 20.3 to 19.5 percent of gross monthly income. The second phase of the reform will be initiated in April 2000 and will again be used to reduce contribution rates. The ecotax is levied on intermediate inputs and consumer goods, financing part of the costs of social insurance through indirect, rather than direct taxes. The scope for a large-scale green tax swap (combining significant increases in indirect taxes with an offsetting reduction in direct taxes) is limited, however, given that international differences in consumer taxes can cause distortions in border areas, thus requiring coordination in the EU.

61. Other decisions with an effect on spending and revenues, that were taken almost directly after the new coalition came to power, concern the government's action against the exemption from social insurance for those holding DM 630 jobs and for the pseudo-self employed, as well as the coalition's emphasis on active labor market policy. The DM 630 jobs are jobs of 15 hours per week or less which, until April 1999, were exempt from social insurance contributions. To eliminate unequal tax treatment between those holding DM 630 jobs as a second job, and those working overtime, the DM 630 jobs were subjected to social insurance contributions, which automatically also revealed the holders of multiple DM 630 jobs whose total income had exceeded the basic tax exemption. The pseudo-self employed were also made subject to social insurance contributions, and the self employed who resemble the status of employee are now subject to pension insurance contributions. On the spending side, the government made a deliberate choice to spend on active labor market policies such as the provision of jobs and training for 100,000 youth, lowering youth unemployment relative to 1998 by some 13 percent.

Box II-1. March 1999 Income Tax Legislation

(In percent of GDP)

	1999	2000	2001	2002
Tax reductions and allowances:	-0.3	-0.6	0.6	-1.3
• Increase in monthly child allowances from DM 220 to DM 250 in 1999, and DM 260 in 2002.				
• Increase in the standard deduction from personal income from DM 12,360 to DM 13,067 in 1999, DM 13,499 in 2000, and DM 14,000 in 2002.				
• Reduction in the entry rate from 25.9 to 23.9 percent in 1999, 22.9 percent in 2000, and 19.9 percent in 2002.				
• Reduction in the top marginal income tax rate from 53 to 51 percent in 2000, to 48.5 percent in 2002.				
• Reduction in the income tax progression (largely in 2002)				
• Reduction in the top rate on non-incorporated business income from 47 to 45 percent in 1999, and 43 percent in 2000.				
• Reduction in the corporate rate on retained earnings from 45 to 40 percent in 1999.				
Base broadening measures	0.3	0.6	0.7	0.9
Including:				
• Stricter regulations for the determination of profits for tax-purposes				
• Stricter regulations for the creation and valuation of reserves				
• Elimination of special depreciations				
• A 50 percent reduction in the tax-free savings allowance (in 2000)				
Division of Tax Measures between Households and Businesses: 1/				
• Tax reductions and allowances falling on private households				-0.9
• Base broadening measures falling on private households				0.4
• Net effect (-relief/+ extra burden)				-0.5
• Tax reductions and allowances falling on businesses				-0.4
• Base broadening measures falling on businesses				0.5
• Net effect (-relief/+ extra burden)				0.1

Sources: *DIW Wochenbericht* 34-35/99; *Ifo Schnelldienst* 5/99; Ministry of Finance, *Entwurf eines Steuerentlastungsgesetzes 1999/2000/2002* (11/1998); and staff calculations.

1/ The numbers describe a full-year effect (*Entstehungsjahr*), which is close to the effect in 2002.

Box II-2. The Ecotax Reform

Phase I—legislated April 1999:
Introduction of an electricity tax of 2 *pfennig* per kWh.
Increase in mineral oil taxes on gasoline by 6 *pfennig* per liter, gas by 0.32 *pfennig* per kWh, and heating oil by 4 *pfennig* per liter.

Subsequent phases, planned for 2000 to 2003:
A further annual increase in the electricity tax by 0.5 *pfennig* per kWh and mineral oil taxes by 6 *pfennig*.

Reduction in social contribution rates:
Contribution rates fall from 20.3 to 19.5 percent of gross monthly income in 1999, financed by the proceeds of phase I of the ecotax, and further to 18.5 percent in 2003 financed by the proceeds of subsequent phases.

62. Further in the social insurance sector, the coalition made some important changes to the reform initiatives of the previous government. It froze the deterioration in the invalidity pensions and the implementation of the demographic factor that was planned to be incorporated into the pension formula, starting in 1999. The factor would take account of the increased longevity of pensioners, and would gradually reduce the replacement ratio from a current 70 percent to 64 percent by 2030. Both measures were put on hold for 1999 and 2000, during which time alternative solutions need to be found. On health insurance, finally, the coalition reversed the implementation of co-payments on the health expenses of the insured.

E. The Fiscal Program for the Year 2000 and Beyond

63. On June 23, 1999, the federal government submitted the "fiscal program for the year 2000 and beyond," containing its budget plan for the short and medium-term. This package proposes to reduce federal spending in 2000 by DM 30 billion (¾ percent of GDP), and up to 1 percent of GDP in 2003. The proposed consolidation was triggered by the fact that, without action, the federal deficit for 2000 would be higher than originally anticipated, breaching both the golden rule constraint and the limits of the Stability Program.[33] The fiscal package is proposed in order to guarantee the implementation of the Stability Program goals, to further emphasize the need to restore order to public finances, and to halt the accumulation of government debt. The spending cuts also make room for new income tax reforms, concerning a constitutionally required tax relief for families with children (starting in 2000) and a large-scale business income tax reform, that is planned for 2001. The second phase of the ecotax reform is also part of the tax measures. The budget plan for 2000 is currently being discussed in parliament.

[33] The increase in the deficit is largely affiliated with a loss of about DM 20 billion in privatization revenues for 2000, relative to 1999. The revenues had, thus far, covered a part of federal spending, thus keeping the federal deficit within the golden rule requirements.

64. The June 1999 fiscal package distinguishes itself from earlier consolidation efforts, in that it encompasses tax reductions rather than tax increases, and achieves consolidation through targeted spending cuts rather than savings across the board. As detailed below, the cuts aim specifically at stabilizing the social welfare state, further reducing subsidies, and economizing the public sector.

65. Table II-4 shows preliminary staff calculations of how the fiscal package can be disseminated over the main economic categories. For the purpose of the classification it was assumed that all unspecified (but designated) measures generate savings in public consumption. Measures for which the description is not necessarily conclusive, furthermore, are classified under the category where savings are most likely to accrue. Savings in absolute terms are concentrated on social transfers, public consumption (including the government wage bill), and subsidies, while cuts in investments are relatively small. As a percent of total federal outlays for each of these categories and relative to a baseline of no policy change, the 2000 reduction in both social transfers and public consumption is estimated at around 7 percent, subsidies would fall by about 5 percent, while investments decline by just under 5 percent. The progression over time is most prominent for public consumption (around 14 percent in 2003), and subsidies (about 13 percent in 2003).

Fiscal consolidation measures of the fiscal program 2000

66. Among the largest and most controversial measures in the category of **social transfers** is the indexation of pensions in the next two years to the rate of inflation rather than to net wage growth.[34] The measure was prompted in part by the fact that tax reductions for purposes completely unrelated to pensions (e.g., tax relief for families with children) tended to drive up net wages and thus pensions.[35] From 2002 onward, pension increases will again be linked to net wages, but the two-year restriction would generate permanent savings through its effects on the standard pension level. The measure will lower the replacement rate for new and existing pensioners from about 70 to 67 percent. As regards the country's estimated implicit pension liability of some 110 percent, preliminary staff calculations suggest that this measure could reduce the liability by about one quarter. To ensure consistent

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[34] The pension scheme is based on a "contract between generations," introduced with the pension reform of 1957, and relying on a wage-related system that ensures that pensioners will also benefit from the progress in productivity and income. As of 1992, pension increases are, de facto, linked to net wage increases, with the objective of maintaining a replacement rate (standard pension over net wage) of around 70 percent. With the changing demographic structure, the pension financing on a PAYG basis will soon become unaffordable. Already the ratio of contributors to pensioners is about 5 to 2, so that less than 3 contributors finance a single pension

[35] The reduced social contribution rates that are brought about by the ecotax reform would have a similar effect.

treatment of all groups in society, the increases in unemployment insurance, unemployment assistance, and other social transfers, will also be temporarily indexed to the rate of inflation.[36]

Table II-4. The Fiscal Program by Economic Category

(In billions of DM)

	2000	2001	2002	2003
Fiscal Consolidation Package 1/ 2/	30.1	39.7	43.1	50.1
Social transfers	14.1	18.2	18.0	16.0
Public consumption	7.1	10.1	12.4	14.7
Of which wages	3.1	4.3	5.5	6.7
Subsidies	1.5	2.8	3.2	4.4
Investments	0.7	0.8	0.8	0.8
Other transfers 3/	1.7	2.0	2.2	2.0
Global spending reductions 4/	5.0	5.8	6.5	12.2
Tax Reforms 2/	-3.1	-17.4	-15.4	-7.9
Tax reform (budget 2000): 5/				
Family tax allowances	-3.8	-5.2	-5.3	-5.5
Reduction in tax subsidies, i.e. Change in depreciation schedules	0.9	2.3	4.8	7.4
Reduced tax burden on businesses; Revision of March 1999 measure	-0.2	-1.2	-2.1	-1.6
Ecotax—revenue neutral	5.1	10.5	15.8	21.2
Part of budget plan 2001:				
Business Income Tax Reform 6/		-13.3	-12.8	-8.2

Sources: Ministry of Finance; and staff estimates.

1/ Apart from federal consolidation, the package also includes small changes indicated for lower levels of government; DM -0.2 billion in 2000, DM 1.1 billion in 2001, DM 1.0 billion in 2002, and DM 0.5 billion in 2003.

2/ Data refer to the decisions in Cabinet on August 25, 1999.

3/ The category incorporates the changes mentioned in footnote 1/.

4/ For 2003 this category includes DM 5.3 billion of expenditure cuts at the Ministry of Labor, that remain to be defined further in compliance with the medium-term budget plan.

5/ The revenue reduction from the tax reforms falls on the federal budget *and* on lower levels of government. The numbers provided here constitute both.

6/ Data are from the tax reform-tables available as part of the *Zukunftsprogramm*, entitled: *Finanzielle Auswirkungen der Neuordnung der Familienbesteuerung, einer Reform der Unternehmensbesteuerung sowie der 2. Stufe der Ökosteuerreform,* June 1999.

[36] Apart from savings for the federal budget, the limited pension increase in 2000 and 2001 will also help to contain the rise in contribution rates.

67. The government has put forward plans for a structural reform of the pension system, proposing the introduction of a privately funded pillar to support the system, as well as a minimum pension (Box II-3). This proposal would yield a more permanent financing solution; downgrade the dominance of the PAYG financing of the system; and reduce the system's sensitivity to the changing age structure in the economy. The proposal encountered opposition because of the 'forced savings' component, so that the options for reform are currently being re-assessed. A revised proposal is expected towards the end of 1999.

Box II-3. Pension Reform Measures

Ecotax reform—phase I implemented:
Revenues from a phased in ecotax reform are used to finance pensions and lower contribution rates by a total of 1.8 percentage points between 1998 and 2003.

Inflation indexation—part of budget plan 2000:
Pensions in 2000 and 2001 will be indexed to the rate of inflation, which is projected by the authorities at 0.7 percent in 2000 and 1.6 percent in 2001 (compared to projected increases in net wages of 3.7 and 3.4 percent respectively). The indexation will permanently lower the standard pension replacement rate, and will help to contain the rise in contribution rates.

Plans for a structural reform of the pension system—under revision:

- Funded pension scheme; in an initial scheme for a structural reform of the pension system, the Ministry of Labor proposed the formation of a third pillar of mandatory savings (with the first and second pillar being the statutory pension fund, and the private company funds, respectively). Mandatory contributions to the private fund would be measured as a percent of gross wages and would be increased over time to reach 2.5 percent. Apart from securing additional finances for future pensions, a construct of this kind will also suppress net wage growth (and thus pension increases) since a part of the gross wage goes to the pension account.
- Minimum pension; the ministry proposed to introduce a minimum pension to prevent 'old age poverty.'

68. Measures related to the social insurance sector also incorporate a proposal for health reform in 2000. In light of the large increases in hospital related expenses and medications, it is proposed that the rise in healthcare contribution rates be contained by aiming at high quality, but cost-efficient health care provisions. The coalition has proposed nominal ceilings on health care expenditures with excessive costs to be reduced by efficiency gains (e.g., by avoiding duplicative tests and check-ups due to a lack of integration between out-, and in-patient care, or through sharing of expensive technical equipment), and greater cost awareness of health suppliers. Expenses on medications would be kept under control via a positive list of those prescription drugs that are financially acceptable.

69. Some of the federal savings in social spending will constitute a shift in the burden to lower levels of government, or to the social insurance sector. One of these measures concerns the federal government's proposal to lower the contributions it pays to the federal institute of labor (*Bundesanstalt für Arbeit*) for the pension, and long-term care insurance of those who receive unemployment assistance. Future contributions should be based on the amount of unemployment assistance, rather than on the basis of 80 percent of the last earned gross wage. Another measure is the proposed federal reduction in the payment of housing subsidies. It was proposed that housing subsidies for those who receive social assistance

should in the future be paid by the responsible local governments, rather than the federal government.

70. For the government sector per se, the fiscal consolidation plan features large cuts in **public consumption**, including in the government **wage bill**. The reduction in non-wage public consumption is obtained through a variety of measures distributed over all ministries. The decline in the wage bill is achieved through a temporary cap on wage increases for civil servants[37] (in line with the provision for pension increases), and by a zero-wage-round for ministers, state secretaries and members of parliament. Federal wage costs will further be condensed through a reimbursement by the German railway company (*Deutsche Bahn)* for wages paid to the railway police, and through an extensive restructuring of arrangements for conscripts engaged in civilian service. Relative to a baseline of no policy change, the measures will reduce the federal wage bill (currently DM 53 billion, or 1¼ percent of GDP) by about 6 percent in 2000 and over 10 percent in 2003. The streamlining of employment at all levels of government will also continue to compress the wage bill.

71. Proposals for a further reduction in **subsidies**, are initially quite modest, but are proposed to increase over time. Consolidation measures would, inter alia, affect financial assistance to gas-oil companies, low-rent housing construction, and agricultural and coastline protection.

72. The three final spending categories listed in the table are **investment spending, other transfers** and a category labeled **global spending reductions**. The reductions in investment spending are relatively small and over time roughly maintain a constant share of total outlays for this category. The global spending reductions refer to budget reductions at a number of ministries that still need further specification.

Tax reform measures of the fiscal program 2000

73. The tax reform plans in the June 1999 package entail a constitutionally required tax relief for families with children, the implementation of the second phase of the ecotax (see Box II-2), and an extensive reform of the business income tax.

74. The family income tax reform comes on top of the tax relief that was provided as part of the March package (see Box II-1). The new relief for families was mandated by the Constitutional Court so as to eliminate differential treatment of families with children and single parents. The new reform will, in 2000, raise child allowance to DM 270 per month or

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[37] Only about half of all employees in the public sector are civil servants. The government can determine wage increases for these employees but has no say in the negotiated wages for other public sector workers. It is possible that the limited wage increase for civil servants will have a positive spillover effect on the wage negotiations for the other workers. If this is the case, the additional savings will arise at lower levels of government, which employ most of the civil servants (thus making spillovers more likely).

increase the annual deduction to DM 10,000[38] and, in 2002, further increase the annual child deduction to DM 12,000 and extend part of it to children over the age of sixteen.

75. The reduction in tax subsidies (see Table II-4) reflects a substantial change in the depreciation schedules, adjusting them to more realistic product lives. The reduced tax burden on businesses is a revision of the March 1999 package and will slightly reduce the weight that the base broadening measures of the March package have on businesses.

76. Finally, a comprehensive reform of the business income tax is planned for 2001. The proposal would reduce the tax on retained earnings of corporate and non-incorporated businesses to 25 percent, which—together with the local trading tax and the solidarity surcharge—would result in a top rate of 35-38 percent. The reform will also replace the system's full imputation system for distributed profits by a partial imputation system that is more common internationally and that would reduce the differential treatment of domestic versus foreign shareholders. Although the impact of the reduced tax rates is partially offset by base broadening measures, the reform would still yield a net tax relief to businesses of about ¼ percent of GDP in 2002 (Box II-4).

Box II-4. Business Income Tax Reform, Proposed to Begin in 2001
(In percent of GDP)

	2001	2002	2003
Tax rates and tax rate reduction:	-0.5	-0.7	-0.7
• Reduction in the tax rate on retained corporate earnings from 40 to 25 percent.			
• Reduction in the tax rate on retained earnings in non-incorporated businesses from 43 percent (in 2000) to 25 percent.			
• Taxation of distributed profits at 25 percent, plus the shareholder's personal income tax that is levied on ½ of the distributed profits ('half-income' or schedular system)			
• A presently unchanged local trading tax that is applicable to all business incomes (except professions). The marginal tax rate on retained earning is the sum of the local trading tax and the corporate tax levied on earnings net of trading tax. This is 35-38 percent, depending on the local rate.			
Base broadening measures	0.2	0.4	0.5
Including:			
• Reduction in the accelerated (declining balance) depreciation rate for machinery and equipment from 30 to 20 percent.			
• Reduction in the linear depreciation rate for buildings from 4 to 3 percent			

Sources: Ministry of Finance, June 1999, *Deutschland Erneuern: Zukunftsprogramm zur Sicherung von Arbeit, Wachstum und Sozialer Stabilität;* and *Finanzielle Auswirkungen der Neuordnung der Familienbesteuerung, einer Reform der Unternehmensbesteuerung sowie der 2. Stufe der Ökosteuerreform.*

[38] The annual deduction and the child allowance are not complements: families can select either the annual deduction or the child allowance.

77. One salient difference between the March reform and the proposed business income tax reform stands out: while the March legislation rendered similar—across the board—reductions in marginal tax rates, the current proposal specifically aims at lowering rates on retained corporate earnings. Thus, where the March package would render relatively small deviations between the top marginal rates on different types of income, the business income tax reform would produce much larger discrepancies: after the business income tax reform, the marginal tax rate on distributed profits will be about 40 percent, while the rate on retained earnings will only be 25 percent. These rates rise to about 50 percent and 38 percent when including the local trading tax. The unequal treatment of retained versus distributed profits creates a potential lock-in of profits, providing a tax-based incentive to keep profits within the firm rather than distribute them for possible intermediation through the capital markets.

78. The spread between distributed and retained earnings is driven by the partial imputation system as well as by a relatively high tax rate on personal income (still 48.5 percent in 2002), relative to the new rates on business income. The spread between the personal income tax and the tax on business incomes is, however, not specific to Germany. Table II-1 in section B shows that many EU countries apparently tolerate a large discrepancy between the tax rates on these types of income.

79. Several studies have suggested that both size and composition matter for the longevity of a fiscal adjustment and its effects on the rest of the economy.[39] These studies have shown that cases of successful and persistent fiscal tightening in OECD countries have relied heavily on the expenditure side, as well as on categories other than public investment, with an emphasis on transfers and the public wage bill. Packages that focus on cuts in transfers and public wages (and tax increases that do not fall on households, or those that rely on base-broadening measures) are referred to as type 1 adjustments,[40] while increases in the taxation of households, higher social contributions, and cuts in investment spending are type 2. Successful tightening is of type 1, generating a persistent consolidation and positive, confidence inducing, effects on the economy. Type 2 adjustments, on the other hand, tend to be of a temporary and less successful nature.[41] Germany's fiscal program, with its emphasis

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[39] See, for instance, Giavazzi and Pagano (1996), Bertola and Drazen (1993), Alesina and Perotti (1995a, 1995b, 1997) and Perotti (1996).

[40] Alesina and Perotti (1997), page 210-211.

[41] The observed differences in success are explained by the expectation-cum-wealth effect of a fiscal consolidation, which occurs because consumers expect lower future taxation from consolidations that are perceived to be permanent. Reductions in social transfers and the government wage bill signal a more permanent consolidation than cuts in investment spending, which may reflect a temporary delay of necessary maintenance. A reduction in the government wage bill may have an additional effect through the downward pressure it puts on wages (particularly when labor markets are unionized). A cut in transfers can reduce wage

(continued...)

on reducing current spending and taxation, is clearly of type 1: as detailed below, revenues are projected by staff to fall from 47.1 percent of GDP in 1999 to 46.2 percent in 2003, while the spending ratio would decline from 49 to 46.4 percent.[42]

F. Impact of the Fiscal Program on the Medium-Term Fiscal Outlook

80. The official fiscal targets as well as the staff estimates on the medium-term fiscal outlook are depicted in Table II-5. The medium-term projections are based on specific macroeconomic assumptions and incorporate the estimated effects on the general government budget of the fiscal consolidation and tax reform package for the year 2000 and beyond. Particularly relevant is the impact of the package on the general government budget. In this respect, the medium-term goals of the Stability Program provide a point of reference for the effectiveness of the fiscal program.

81. The federal consolidation measures for 2000 must be set against a new baseline that exceeds the original estimation, as well as against the revenue-reducing effects of the income tax reforms. Regarding the effect on general government, staff estimates suggest that the fiscal package will improve the general government primary structural surplus in 2000 by about 0.4 percent of GDP, raising it from 3.1 to 3.5 percent of GDP.

82. The impact on the general government budget between 2001 and 2003 is largely determined by the expected implementation of the business income tax reform in 2001, and the final phase of the March 1999 income tax reform package in 2002. The costs of the business income tax reform lower the primary structural balance by 0.3 percent of GDP. In 2002 the estimated costs of the March package kick in. In 2003, finally, the primary structural balance is set to increase by 0.2 percent, driven by a further elimination of tax subsidies and the base broadening measures of the business income tax reform.

83. The general government's overall structural position is at or near balance throughout the medium-term. The fiscal deficit (1.1 percent in 2000, down to 0.2 percent in 2003) stays well within the limits of the Stability Program. The balanced structural position creates room for the operation of automatic stabilizers; staff calculations suggest that even on the unlikely assumption of no growth for the remainder of 1999 and the year 2000, the general government deficit would still remain well within the 3 percent limit of the Stability and Growth Pact.

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costs through lower contribution rates, while a reduction in unemployment benefits will lower the reservation wage. Increases in taxes and transfers would do the opposite.

[42] The 1999 Economic Report of the Ministry of Economics, notes that it is the intention to eventually reach a government spending level of only 40 percent of GDP.

Table II-5. Medium-Term Projections of General Government Finances, 1999-2003 1/

	1999 Proj.	2000 Proj.	2001 Proj.	2002 Proj.	2003 Proj.
Official fiscal targets 2/					
Balance	-2	-2	-1½	-1	...
Federal government	-2	-1½	-1	-1	...
States and communes	-½	-½	-½	0	...
Social insurance system	½	0	0	0	...
Gross debt	61	61	60½	59½	...
Staff projections					
Revenue	47.1	46.9	46.5	46.1	46.2
Expenditure	49.0	48.0	47.3	46.6	46.4
Interest payments	3.5	3.4	3.2	3.1	3.1
Balance	-1.9	-1.1	-0.8	-0.5	-0.2
Gross debt	60.6	59.5	57.7	55.6	53.8
Memorandum items:					
Primary structural balance 3/	3.1	3.5	3.2	2.8	3.0
Structural balance 3/	-0.3	0.2	0.1	-0.2	-0.1
Interest payments 3/	3.4	3.3	3.2	3.1	3.1
Fiscal impulse 4/	0.0	-0.4	0.3	0.4	-0.1
Output gap 3/	-3.0	-2.6	-1.7	-0.6	-0.2
Real GDP growth (in percent)	1.4	2.5	3.0	3.2	2.5

Sources: Ministry of Finance; and staff projections.

1/ Based on the new European System of Integrated Economic Accounts 1995 (ESA95).

2/ Based on Germany's Stability Program as submitted to the Council of Ministers and the European Commission in January 1999.

3/ In percent of potential GDP.

4/ Change in primary structural balance; minus sign indicates withdrawal of stimulus.

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III. The Wage Structure and Reservation Wages: Accounting for Rising Unemployment Among Low-Skill Workers in Germany[43]

A. Introduction

84. Continuing a pattern set in the 1980s, the German labor market has continued to perform poorly during the recent recovery. A particularly troubling aspect is the high and rising rate of nonemployment among workers with low skill levels. This paper examines certain important features of the German labor market in an attempt to understand the possible reasons for the disparities in labor market outcomes across different skill groups.

85. First, data from the German Socio-Economic Panel (GSOEP) for west German workers for the years 1984-97 are used to characterize the key features of and changes in the wage structure. Over this period, the wage structure in Germany has remained remarkably stable, with little change in inequality within or between groups. Returns to observed skill attributes such as education and experience have remained essentially unchanged and, if anything, declined marginally during the 1980s.

86. In the second part of the paper, a number of factors that could explain the stability of the wage structure are examined. These include shifts in the relative supplies of skilled and unskilled workers and changes in the sectoral composition of employment. Certain unique features of the GSOEP dataset are also exploited to control for the effects of nonwage compensation, as well as selection and cohort effects. None of these "market factors" appears capable of explaining developments in the wage structure.

87. That leaves "institutional factors" as the residual claimant. Indeed, for Germany, anecdotal and more formal evidence abounds that the wage bargaining system is the proximate cause for the rigidity of relative wages. Unions have traditionally set effective wage floors (there is no legislated minimum wage in Germany) and have negotiated uniform relative wage increases for workers of all skill levels, thereby constraining the flexibility of the wage structure. While these "solidaristic" policies may have served Germany well in previous decades, they have had a deleterious effect on labor market performance over the last 15 years, a period during which the economy has been buffeted by a number of shocks.[44]

88. As has been well documented for many other industrial economies, it is plausible and likely that there has been a substantial shift in the relative demand for skilled workers in Germany. Factors that have accentuated this demand shift in other countries include skill-biased technological change, increased openness to international trade and

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[43] Prepared by Eswar Prasad, Research Department. A substantially revised and extended version of this chapter will be published as an IMF Working Paper.

[44] See van der Willigen (1995) for a description of the wage bargaining structure and Chapter I of this paper for a discussion of how it may have been well suited to the *Wirtschaftswunder* era of the 1960s and 1970s.

de-industrialization, all of which are forces that appear to operate in Germany as well. For instance, Machin and Reenen (1998), using an industry-level database that is comparable across countries, provide persuasive evidence that skill-biased technological change has resulted in relative demand shifts favoring skilled workers in a number of OECD industrial countries including Germany.

89. The interaction of the rigid wage structure, relative demand shifts favoring skilled workers, and a series of adverse macroeconomic shocks has resulted in marked increases in unemployment rates and a deterioration of employment prospects for unskilled workers.[45] In other words, given the inflexibility of the relative prices of skills in response to market forces, employers are forced to adjust the relative quantities of skilled and unskilled labor that they employ, to the detriment of unskilled workers. Indeed, employment and retention rates for unskilled workers have continued to fall during the recent recovery, in sharp contrast to the rising employment rate for skilled workers.

90. The penultimate section of the paper provides some interesting evidence that labor supply rigidities might also have contributed to the observed labor market outcomes for unskilled workers. Using data on stated reservation wages among the unemployed, certain aspects of labor supply disincentives at the low end of the skill distribution are highlighted.

91. Thus, the main conclusion of this paper is that comprehensive reforms that influence both the demand for and supply of labor are crucial for improving labor market performance at the low end of the skill/wage distribution. This could involve changes in the wage bargaining structure to allow wages to be more differentiated by skill level. Further, the disincentive effects of the tax and transfer system on labor supply need to be addressed. A discussion of these policy implications constitutes the concluding section of the paper.

B. The Wage Structure

The dataset

92. The data used in this paper are drawn from the public use version of the German Socio-Economic Panel (GSOEP) for the years 1984-97. This is a representative sample of German households and individuals, including immigrants without German citizenship. The sample was expanded to cover unified Germany in the 1990s. The dataset includes details on individual workers' net and gross wages; hours of work; educational and demographic characteristics; sector and category of occupation; and numerous other individual-specific variables.

93. One of the features of the dataset is that it has a large and relatively stable panel. Nevertheless, the non-response rate for repeat interviews is large enough that attrition bias is a serious concern. To correct for sample attrition, new individuals are added to the survey in a manner that attempts to maintain the representativeness of the sample. To ensure that the

[45] See Chapter I for a description of the possible mechanics of this interaction.

results in this paper are representative of the population, the dataset is treated here as a set of repeated cross-sections rather than as a longitudinal survey. This also has the virtues of yielding a larger sample size and keeping the sample size relatively stable over time.

94. To maintain a uniform sample and to minimize distortions from sample selection, much of the analysis below, except where explicitly noted otherwise, is limited to full-time male workers from the west German sample. This also facilitates comparisons with studies for industrial countries that have focused on samples based on similar selection criteria.[46] Some summary statistics for the final sample used to analyze the wage structure are shown in Table III-1.

Table III-1. Summary Statistics

Variable	Mean	Standard Deviation
Log hourly wage (gross)	3.02	0.47
Log hourly wage (net)	2.64	0.46
Age	39.69	11.31
Education (in years)	11.30	2.53
Experience (in years)	22.39	11.49
Citizenship dummy	0.71	0.46
Weekly hours worked in survey month	43.19	8.72

Notes: The summary statistics reported here are for west German workers with full-time employment and for whom data on all of the variables listed above are available. The total number of observations over the period 1984-1997 is 36,603 (average of 2,600 per year).

95. The wage variable used in this paper is the real gross hourly wage, constructed using reported gross monthly earnings and "usual number of weekly hours" worked, and using the consumer price index for west Germany (1991=100) as the price deflator. The GSOEP also provides data on the number of contracted weekly hours and overtime hours for the month of the survey. There were some discrepancies between the sums of these two variables and the usual weekly hours variable. This latter variable is interpretable as actual hours worked per week in the survey month and is the variable used in this paper. Sensitivity tests indicated that none of the results reported below were much affected by the choice of the hours

[46] Part-time workers and apprentices account for a relatively small fraction of the sample and including them did not have much affect on any of the results discussed below. Results for the sample including part-time workers and apprentices are available from the author. An analysis of wage growth in east Germany following unification constitutes an interesting topic in its own right (see Hunt, 1999b).

variable.[47] The sample was restricted to persons between the ages of 17 and 65 and excluded workers who report less than 30 or more than 55 hours of work.

96. The education variable also deserves some attention. The GSOEP contains a generated variable on years of education for individuals in the west German sample. This variable is constructed based on information about educational attainment and is the one used in this paper since it greatly facilitates the presentation and discussion of the results. Using dummy variables for highest degree obtained would constitute an alternative and, in some respects, cleaner approach to estimating education premia. Since the focus of this paper is on changes over time in skill premia rather than their levels, this choice turned out not to matter for any of the results reported below. In particular, the time profiles of the skill premia were virtually identical when the education dummies were used. Nevertheless, this discussion should be kept in mind should the results from this paper be used for cross-country comparisons of the *levels* of skill premia.[48] Labor market experience, which is to be interpreted as potential rather than actual labor market experience, is defined as age minus years of education minus 6.

97. Finally, it should be noted that non-citizens are over-represented in the GSOEP sample relative to their share of the west German population. Where appropriate, this feature of the sample is controlled for; for instance, by including controls for citizenship in the wage regressions. In general, using the GSOEP cross-sectional weights that are intended to correct for the non-representativeness of the sample had little effect on the results reported below.

The overall wage structure

98. Figure III-1 displays some summary statistics for real wages for all full-time workers, including women. The top panels show that the median wage has increased by a total of about 20 percent over the period 1984-97. Although a significant gender gap remains, the relative female-male wage differential has narrowed significantly during this period. The bottom panels show that the dispersion of wages, which has historically been smaller than in the United States, declined even further during the latter half of the 1980s. The declines in wage inequality during the 1980s appear to be similar for men and women.

99. Which part of the wage distribution has accounted for the apparent mild compression of the overall distribution? Figure III-2 shows cumulative changes in real wages over the period 1984-97 at different percentile points of the wage distribution. Interestingly, it appears

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[47] As noted by Hunt (1999a), using the sum of the contracted weekly hours and overtime hours variables is problematic. This sum would not capture "under-time" since only positive overtime hours are reported in the survey.

[48] DeNew (1996, pp. 110-111) has an extensive discussion of the mapping between educational attainment and years of schooling for this dataset and notes that, regardless of the mapping used, when estimating wage equations "...the differences are typically minor, and the results for education and experience remain very robust."

Figure III-1. Germany: Median and Dispersion Measures for Log Hourly Wage

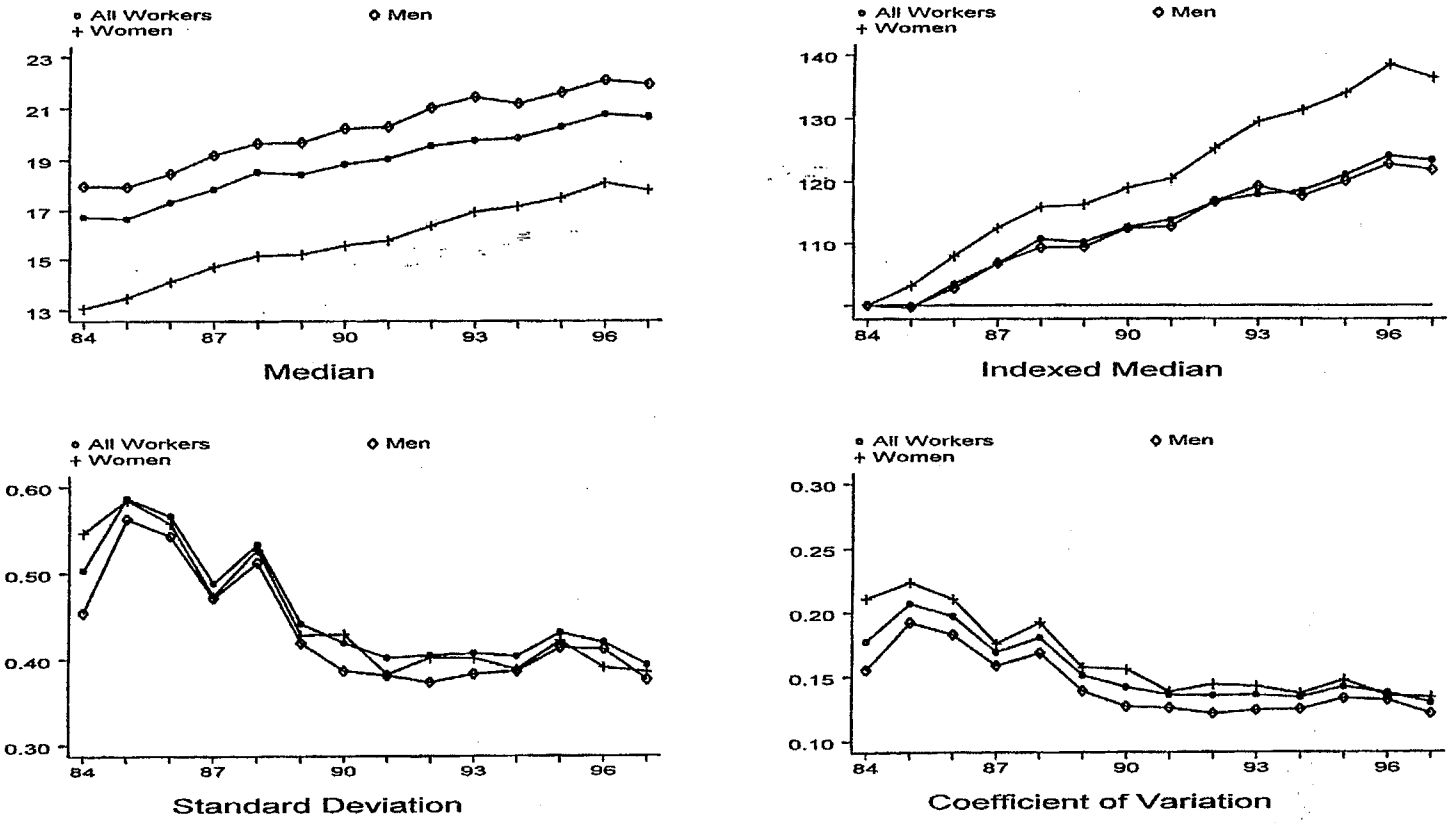
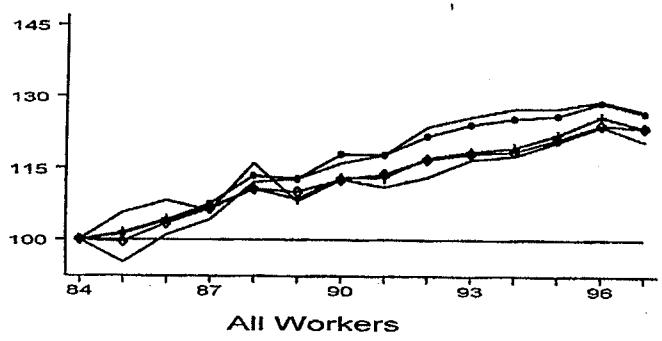
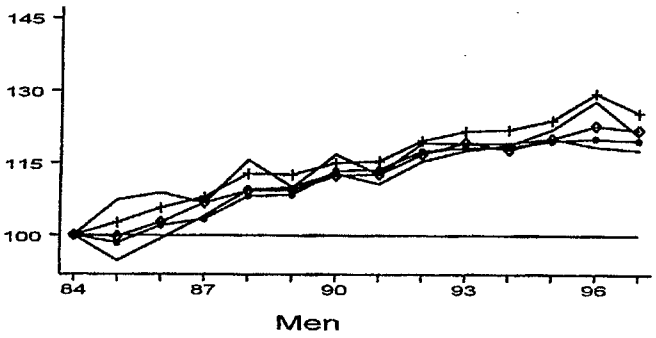
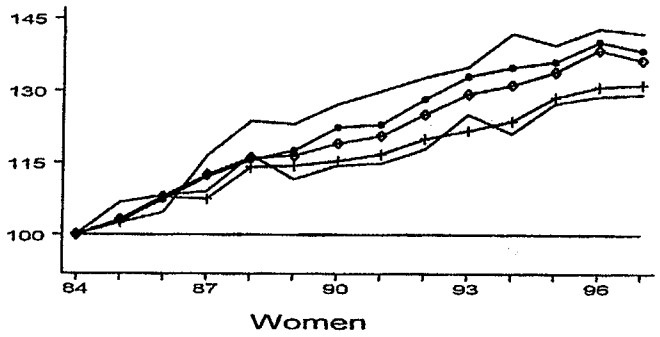


Figure III-2. Germany: Wage Growth at Different Points of Wage Distribution







Percentiles: 10,25,50,75,90

that absolute wage growth has been quite similar at different percentiles of the wage distribution, resulting in the slight narrowing of wage differentials.

100. Another way to approach this issue, following Juhn, Murphy and Pierce (1993; henceforth referred to as JMP), is to examine the cumulative change in real wages across the entire distribution. The first (top left) panel of Figure III-3 shows the change in real wages from 1984-97 at each percentile point of the aggregate wage distribution for all full-time workers (men and women). A striking result is that wage growth in fact appears to have been higher at the lower end of the wage distribution than at the upper end. This is in stark contrast to recent patterns of wage growth across the distribution in other industrialized countries that are viewed as having more "flexible" labor markets, such as the United Kingdom and the United States. In the United States, for example, a similar plot for the 1980s would have a steep positive slope, with cumulative *negative* real wage increases over this period at the low end of the distribution.

101. The remaining panels of this chart break down the total change over the period 1984-97 into three sub-periods. The mild compression appears to have occurred largely during the late 1980s, continued until about 1992, but then appears to have been reversed during the 1992-97 period, resulting in little net change in inequality over the full sample period.

102. Figures III-4 and III-5 show that, for men, there is some evidence that the wage distribution did grow slightly more unequal over the 1984-97 period while it grew less unequal for women. For both groups, there is clear evidence of compression at the top part of the wage distribution over the full sample and a slight increase in the dispersion of wages since 1992.

103. Panel A of Table III-2 shows a number of percentile differentials for full-time male workers in the sample. The 90-10 percentile differential appears to have declined marginally during the 1980s, before returning to its earlier levels by the mid-1990s. This pattern occurs at both the lower and upper parts of the distribution, as evidenced by the 90-50 and 50-10 percentile differentials. The 75-25 percentile differentials are essentially flat, indicating the stability of the middle part of the wage distribution.

104. Overall, these figures yield a picture of relative stability in the aggregate German wage structure over the last 15 years. There is no evidence of increases in wage inequality, let alone increases in inequality of the magnitude seen in the United Kingdom and the United States. Since the evolution of wage inequality appears to have been broadly similar for men and women, and in order to maintain a consistent sample as noted earlier, the remainder of the analysis in this paper is limited to full-time male workers.[49]

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[49] Restricting the sample to German citizens made no difference to these results.

Figure III-3. Germany: Changes in Log Wages Across Distribution, All Workers

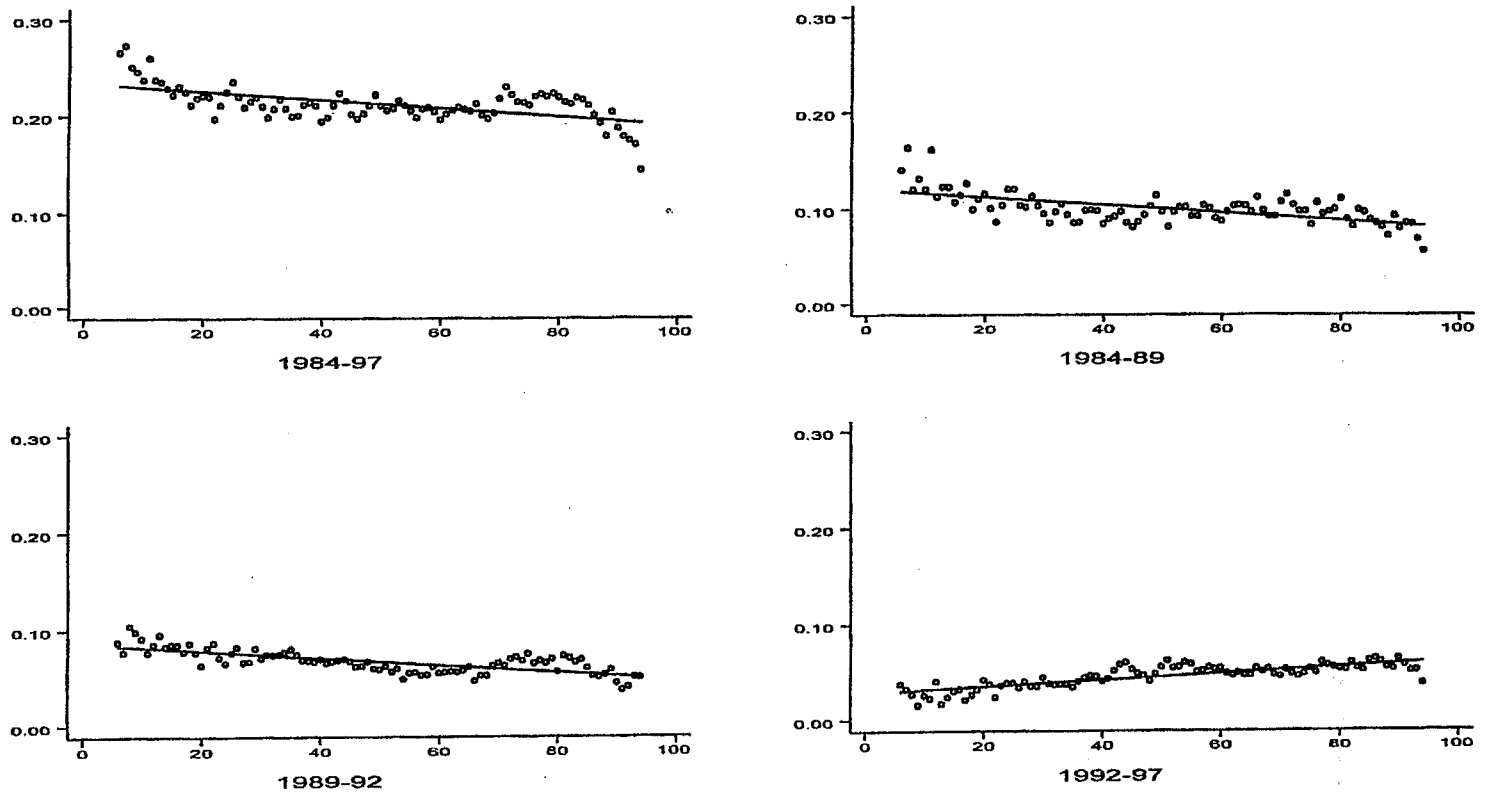


Figure III-4. Germany: Changes in Log Wages Across Distribution, Men

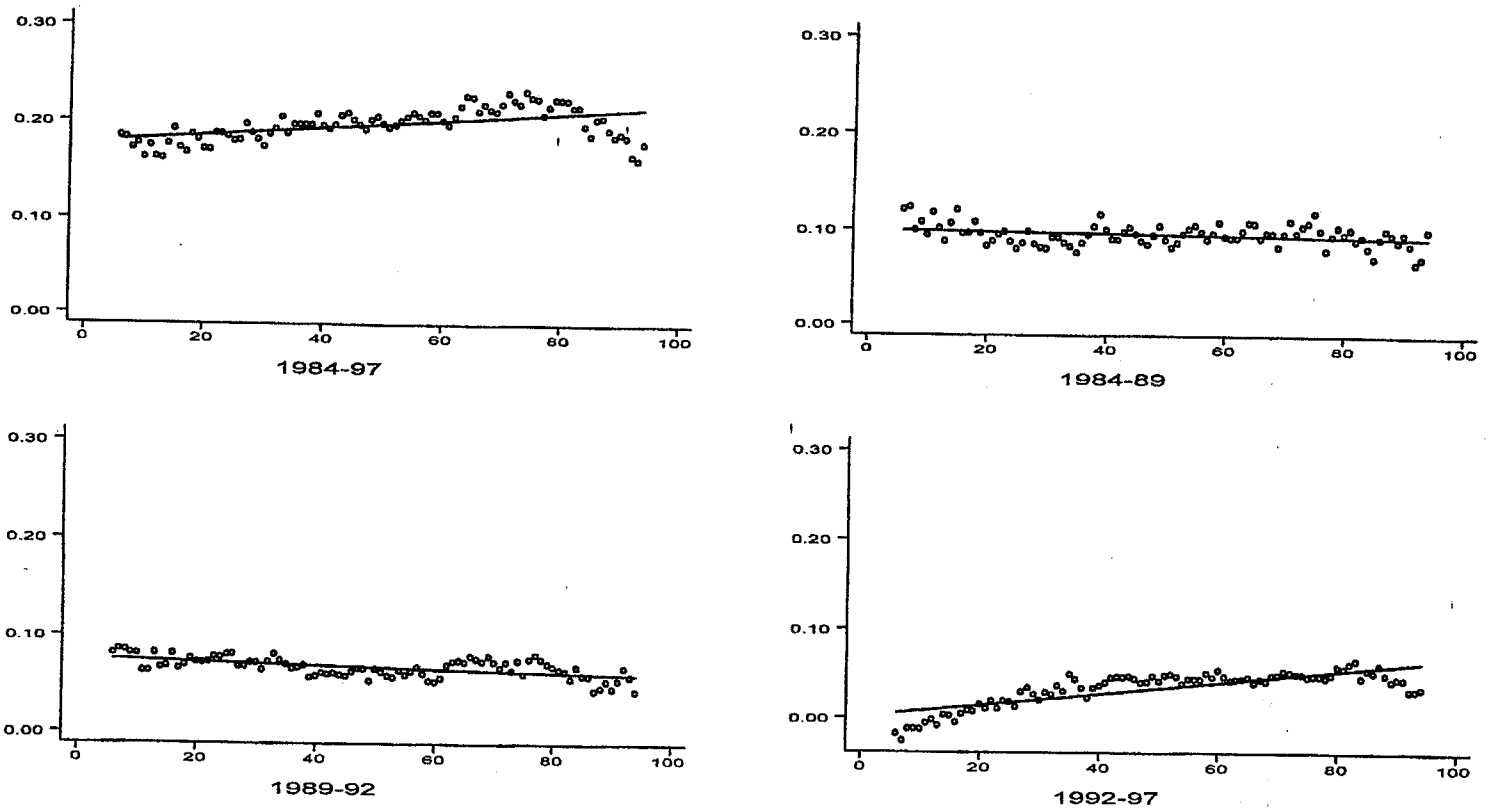
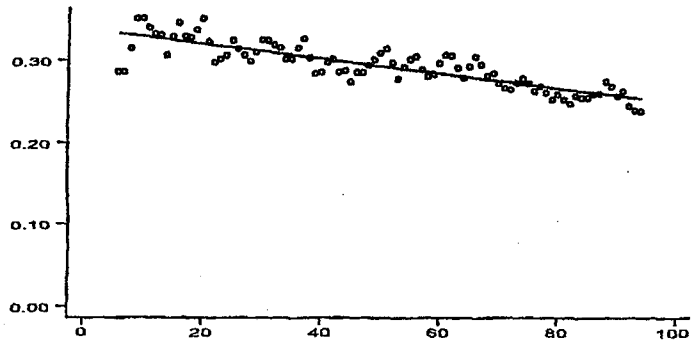
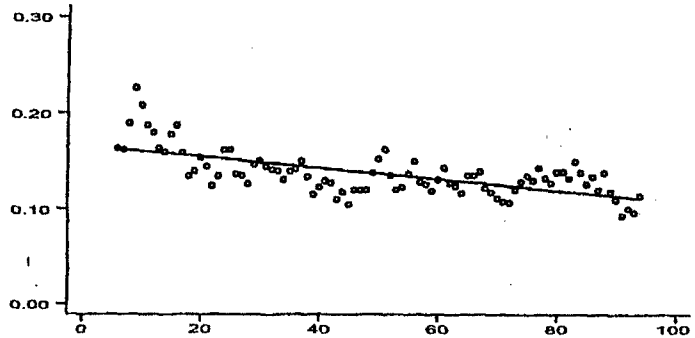


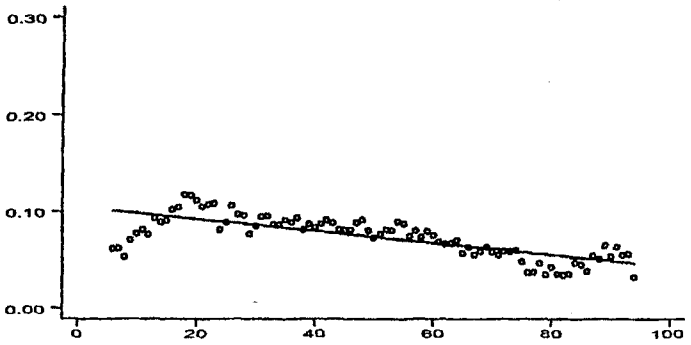
Figure III-5. Germany: Changes in Log Wages Across Distribution, Women



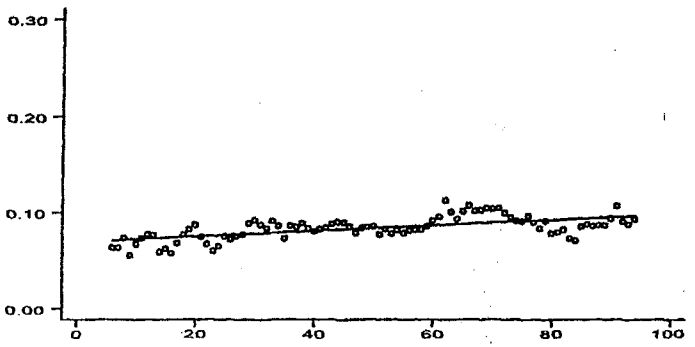
1984-97



1984-89



1989-92



1992-97

Table III-2. Measures of Wage Inequality

Percentile Differential:	90-10	90-50	50-10	75-25	75-50	50-25
			A. Log Hourly Wage			
1985	0.93	0.52	0.41	0.40	0.21	0.19
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
1989	0.86	0.49	0.36	0.41	0.22	0.19
	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
1992	0.83	0.46	0.37	0.40	0.22	0.18
	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
1996	0.89	0.49	0.40	0.43	0.23	0.20
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
			B. Wage Residuals			
1985	0.75	0.38	0.37	0.35	0.17	0.18
	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
1989	0.69	0.36	0.33	0.33	0.17	0.16
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
1992	0.67	0.34	0.33	0.33	0.17	0.17
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
1996	0.72	0.36	0.36	0.34	0.18	0.17
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)

Notes: The reported differentials are three-year averages centered on the years shown above. Standard errors are in parentheses. The sample includes west German males with full-time jobs. Panel B reports differentials based on residuals from annual regressions of log hourly wages on a constant, education, experience and with education, experience and squared experience.

Within-group inequality

105. It is interesting to examine the evolution of wage inequality within skill groups in order to understand the effects of within- and between-group wage dynamics on overall inequality. In the United States, for instance, JMP have documented that the rise in wage inequality in recent decades has been as dramatic within narrowly-defined skill groups as it has been in terms of increases in inequality between these groups.

106. One way to control for between-group effects is to regress wages on observed skill attributes and to examine the dispersion of the wage residuals. Inequality measures based on

wage residuals from simple human capital wage equations are reported in Panel B of Table III-2.[50] The percentile differentials based on wage residuals are smaller than those based on actual wages but are still quite large, indicating that unobserved attributes constitute an important determinant of the wage distribution. The time profiles of the percentile differentials in this panel are, however, very similar to those in the top panel, indicating that within-group inequality has also been quite stable over the last 15 years. Figure III-6, which shows cumulative wage changes at different percentiles of the residual wage distribution, confirms that inequality within narrowly defined skill groups has evolved in a manner very similar to that of overall wage inequality.

107. Figure III-7, which plots cumulative wage changes at different ventiles for specific skill groups, confirms this pattern. It is interesting to note that, while inequality stays rather flat across the distribution within most skill groups, there appears to be a distinct compression of wages among college-educated workers.

108. A different perspective on the wage distribution is provided in Figure III-8, which shows the evolution of median real wages across different occupational groups. The top left panel shows that, except for trainees, the median wage across different occupational categories is clustered around the overall median and, further, that this clustering has become relatively tighter over the last decade and a half. The remaining panels of this chart show that, within these broadly-defined occupational categories, there is a fairly substantial dispersion of incomes across finer job classifications. This suggests that occupational categories could be inappropriate for understanding changes in the distribution of skill prices.

Relative prices of skills

109. This sub-section turns to an examination of changes in between-group inequality, based on changes in prices for observed skill attributes. The evolution of skill prices has important implications for labor market and, more generally, for macroeconomic outcomes. The incentives for acquisition of human capital are determined by the returns to that capital. The general equilibrium effects of inadequate wage differentiation, which typically implies smaller returns to skill attributes, could be quite large. Furthermore, from the perspective of labor demand, a wage structure that is compressed due to institutional factors could affect the demand for different types of labor.

110. Given the potential problems in using indicators such as job categories as measures of skill, the evolution of skill prices is now analyzed based on estimates of standard human capital wage regressions. The results reported below are based on annual ordinary least squares (OLS) regressions of log hourly wages on education (in years), labor market

[50] Log hourly real wages were regressed separately for each year on a constant, education, experience and its squared, a dummy for German citizenship and interactions of this dummy with education, experience and squared experience.

Figure III-6. Germany: Within-Group Wage Changes at Different Ventile Points

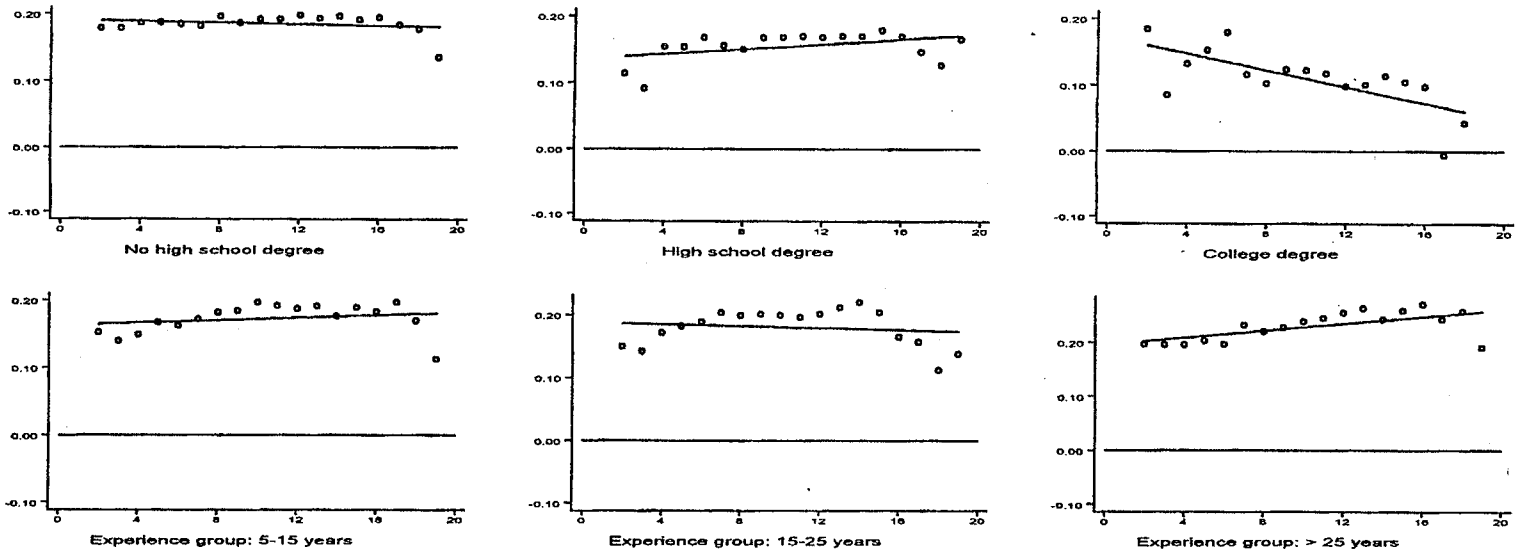


Figure III-7. Germany: Changes in Log Wage Residuals Across Distribution

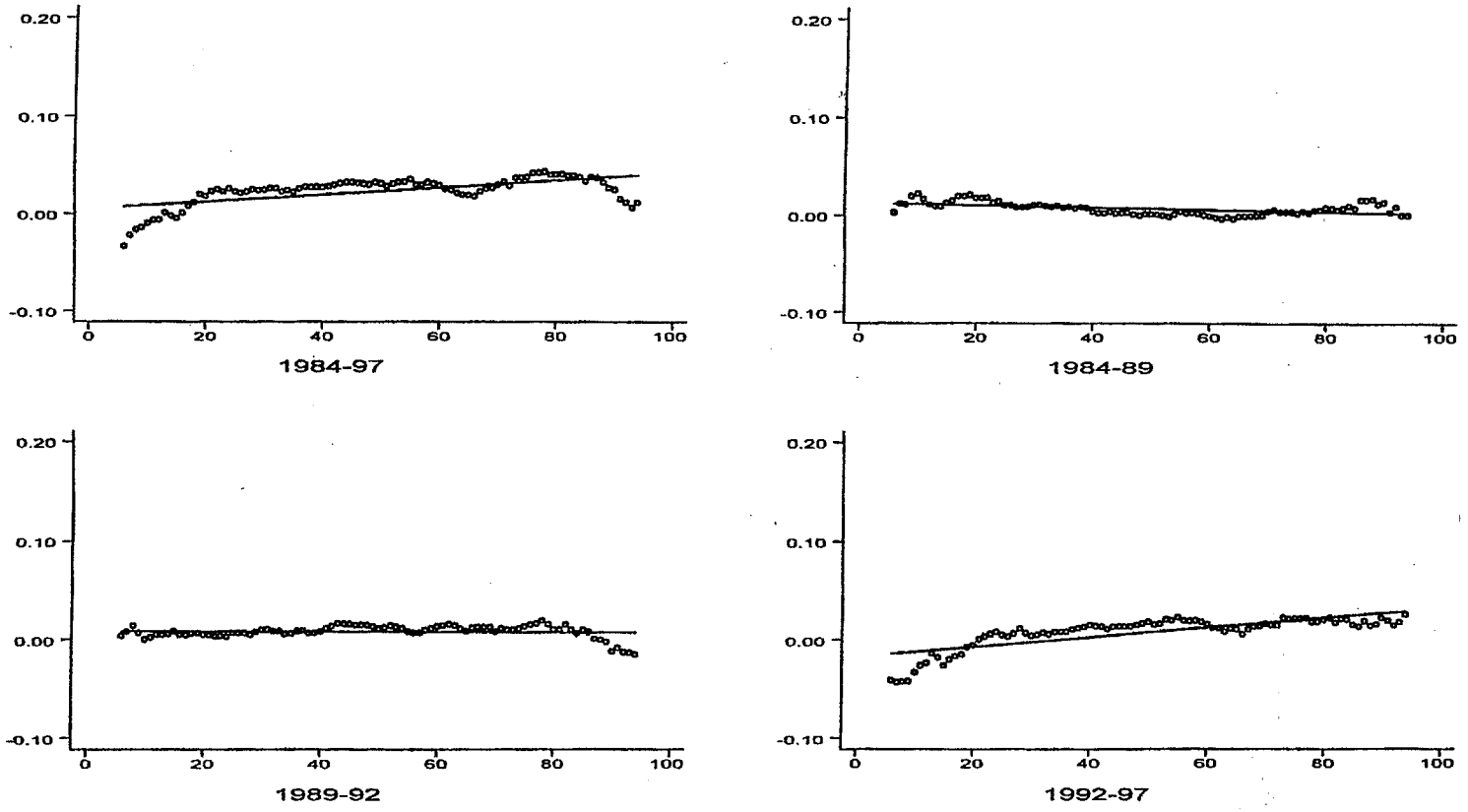
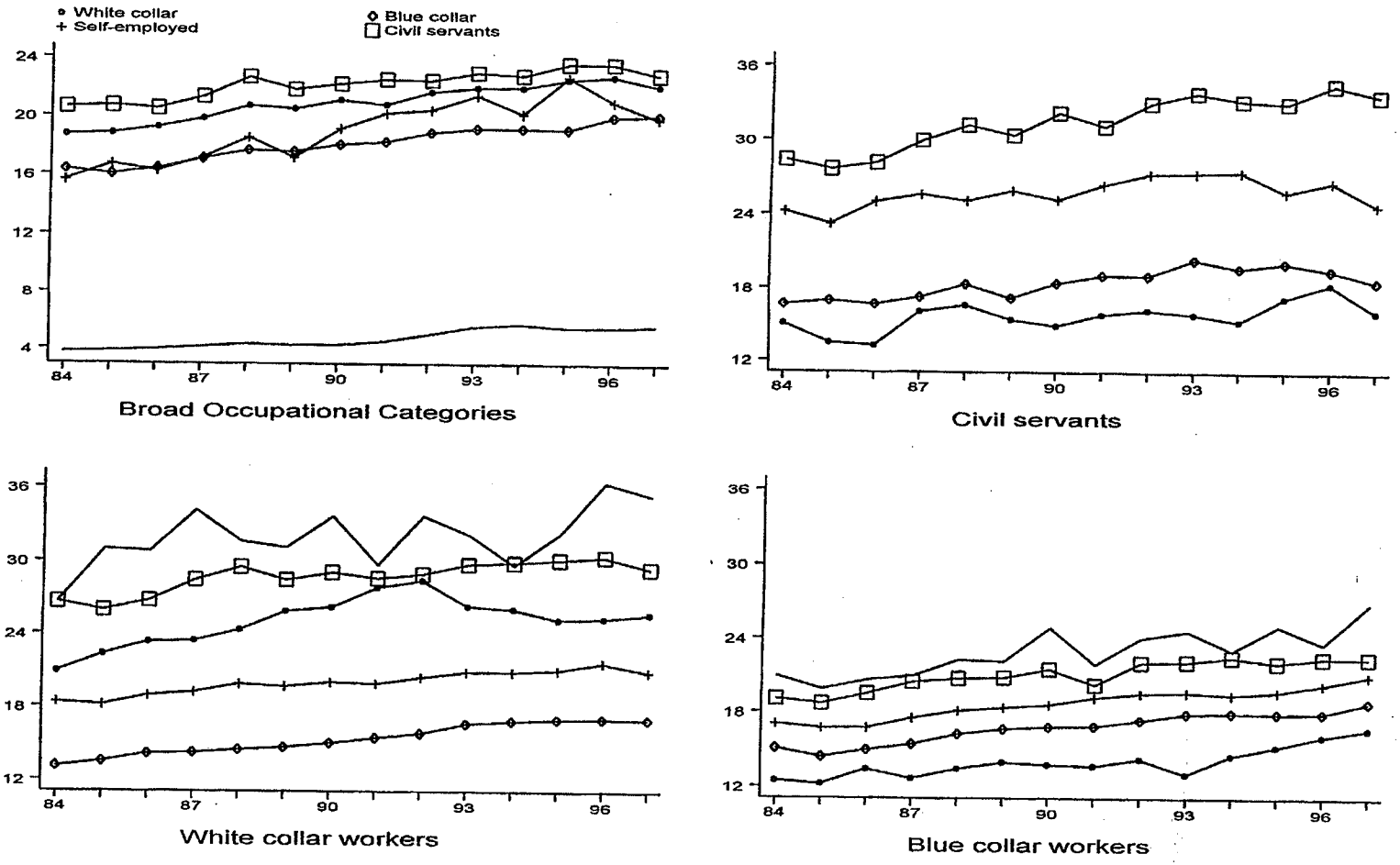


Figure III-8. Germany: Median Hourly Wages Between and Within Occupational Groups



experience, the square of labor market experience, a dummy variable for German citizenship and interactions of this dummy with education, experience and squared experience.[51]

111. The first panel of Figure III-9 shows the evolution of the estimated (conditional) return to a year of education, along with the 95% confidence intervals. Coefficient estimates are reported in the first column of Table III-3.The estimated coefficients suggest, for instance, that a college-educated worker (with a four-year college degree), would expect to earn an hourly wage that is about 25 percent higher (4 years * approx. 6 percent) than the wage for a worker with similar labor market experience but only a high school education.

112. Two points are worthy of note here. The first is that the estimated wage premia for education are substantially lower than those found in the United Kingdom and the United States. More importantly, the estimated education premium has actually declined marginally in the late 1990s relative to the mid-1980s, exactly the reverse of the trend in the countries mentioned above. In the United States, for instance, the college-high school differential has risen from about 25 percent in 1980 to over 50 percent by 1995.[52]

113. The second panel of Figure III-9 (and columns 2-4 of Table III-3) shows the returns to labor market experience. Since experience enters the wage regressions as a quadratic, the marginal return to an additional year of experience needs to be evaluated at particular levels of experience. The returns to experience are shown here at 5, 15 and 25 years of experience. As in other industrial countries, the marginal returns to experience tend to be lower at higher levels of experience. The interesting finding again is that, compared to other industrial countries for which good estimates from micro data are available, experience premia are lower in Germany at all experience levels. For the United States, for instance, Buchinsky (1994) reports average returns to experience of about 5 percent and 3 percent when evaluated at 5 and 15 years of experience, respectively. Returns to experience appear to have been lower but also relatively more stable in Germany over the last 15 years.

114. How have skill prices changed at different parts of the wage distribution? The OLS regressions provided estimates of the marginal returns to human capital attributes at the conditional mean of the data. One would also like to know how these premia have evolved at other parts of the distribution. The answer to this question could have important analytical as well as policy implications.

115. Quantile regressions can be used to provide a parsimonious characterization of the entire conditional wage distribution. This technique can be used to estimate the marginal return to a human capital variable at any specific quantile point of the aggregate distribution. A set of quantile wage regressions were estimated, keeping the independent variable and the dependent variables the same as in the OLS regressions discussed above.

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[51] The inclusion of higher order polynomials of experience did not change any of the results.

[52] As noted earlier, the *levels* of these premia must be interpreted with caution since the education variable might have different connotations in different countries.

Figure III-9. Germany: Estimated Returns to Education and Experience

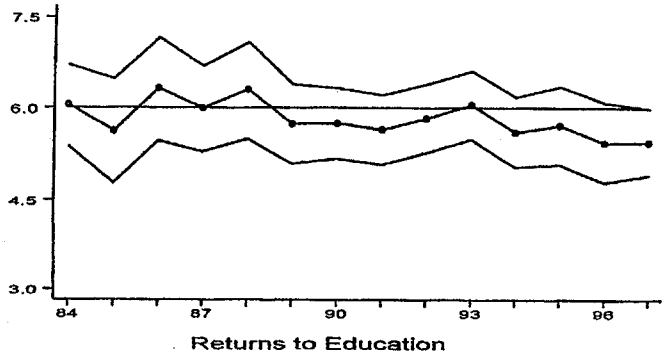

Table III-3. Skill Premia: OLS Results

	Education	Experience			Adjusted R-squared	Nobs.
		5 years	15 years	25 years		
1984	6.04	3.03	1.83	0.63	0.188	3238
	(0.36)	(0.26)	(0.12)	(0.07)		
1985	5.63	4.34	2.57	0.79	0.168	2941
	(0.39)	(0.33)	(0.17)	(0.09)		
1986	6.31	3.39	2.09	0.79	0.157	2837
	(0.44)	(0.31)	(0.16)	(0.10)		
1987	5.99	3.31	1.95	0.59	0.210	2865
	(0.36)	(0.24)	(0.12)	(0.07)		
1988	6.29	2.90	1.76	0.62	0.161	2718
	(0.40)	(0.32)	(0.16)	(0.08)		
1989	5.74	3.06	1.84	0.61	0.220	2700
	(0.31)	(0.22)	(0.11)	(0.06)		
1990	5.75	2.78	1.65	0.51	0.266	2599
	(0.30)	(0.20)	(0.10)	(0.06)		
1991	5.64	3.13	1.86	0.60	0.285	2544
	(0.30)	(0.21)	(0.11)	(0.05)		
1992	5.83	2.77	1.68	0.60	0.285	2427
	(0.28)	(0.21)	(0.10)	(0.06)		
1993	6.04	3.17	1.88	0.60	0.289	2435
	(0.28)	(0.21)	(0.11)	(0.06)		
1994	5.60	3.57	2.09	0.61	0.282	2361
	(0.30)	(0.23)	(0.11)	(0.06)		
1995	5.71	3.56	2.10	0.63	0.236	2296
	(0.33)	(0.25)	(0.13)	(0.07)		
1996	5.43	3.56	2.15	0.74	0.229	2209
	(0.34)	(0.27)	(0.13)	(0.07)		
1997	5.44	3.60	2.15	0.71	0.242	2433
	(0.27)	(0.27)	(0.13)	(0.07)		

Notes: The results reported in this table are from OLS regressions of log hourly wages on a constant, years of education, experience and its square, a dummy for German citizenship, and interactions of this dummy with education, experience and squared experience. Since experience enters the specification as a quadratic, the returns to experience are evaluated at specific experience levels. All coefficients were multiplied by 100. Robust standard errors are reported in parentheses.

116. Figure III-10 plots the estimated returns to education and experience at the 10th, 25th, 75th and 90th percentile points of the distribution. As in other industrial countries, the returns to education are higher at the upper quantiles of the distribution. Interestingly, the differences in returns to education between the lower and upper quantile points are quite small and appear to have decreased slightly over the sample. Thus, inequality both within and between educational groups appears to have fallen over time in Germany. The returns to experience at different quantile points are also clustered fairly close together for each set of experience levels examined here and appear quite stable over time.

117. Tables III-4 and III-5 provide more detailed results on the returns to education and experience at different points of the wage distribution. As in other countries, the returns to education are higher at the upper quantiles of the distribution but the differences are not very large. For instance, in 1997, the marginal return to an additional year of education was 5.3 percent at the 0.10 quantile and 5.9 percent at the 0.90 quantile. More interestingly, the returns to education have remained relatively stable at the lower quantiles (4.7 percent at the 0.10 quantile in 1984) but have in fact declined markedly at the higher quantiles (from 7.9 percent at the 0.90 quantile in 1984).

118. As one would expect, the returns to experience (Table III-5) are higher for recent labor market entrants (5 years of experience) compared to older workers at all quantile points. For younger workers, the marginal return to an additional year of experience is higher at the lower quantile points than at the upper quantiles of the wage distribution. For instance, for workers with 5 years of experience in 1997, the return to experience is 4.2 percent at the 0.10 quantile and 3 percent at the 0.90 quantile. There appears to be an increase across the board in returns to experience in 1985-86, which dissipates fairly quickly. Consistent with the aggregate results discussed earlier, returns to experience at all quantile points and at all levels of experience are slightly higher by 1997 than in 1990.

119. Although these results indicate some differences in the evolution of skill prices at different parts of the distribution, the overall picture is one of a relatively stable wage structure over the last 15 years, especially compared to the changes in wage structures that have been documented for other countries. For instance, Buchinsky (1994) estimates average returns to a year of education of about 7 percent in the early 1980s in the United States, rising to about 10 percent by the mid-1980s. He finds a much larger return to education at upper quantiles of the wage distribution than at the lower quantiles and also finds that this disparity has widened significantly during the 1970s and 1980s. This echoes JMP's findings that both between- and within-group wage inequality have risen in the United States in recent decades.

Figure III-10. Germany: Returns to Education and Experience at Different Quantile Points

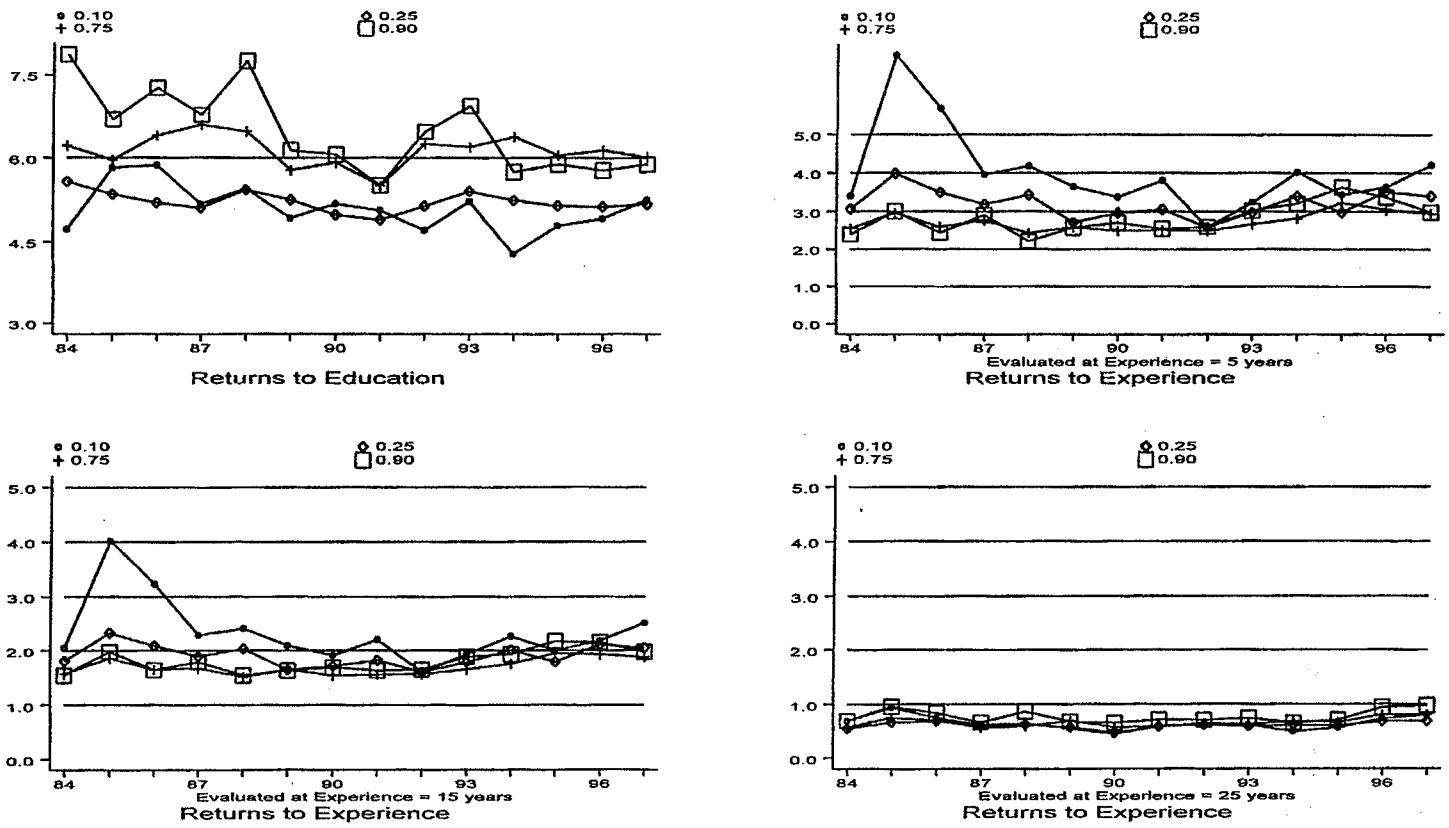

Table III-4. Returns to Education: Results from Quantile Regressions

Quantile:	0.10	0.25	0.50	0.75	0.90
1984	4.73	5.58	5.57	6.21	7.86
	(0.78)	(0.29)	(0.29)	(0.33)	(0.67)
1985	5.82	5.36	5.52	5.96	6.69
	(0.59)	(0.29)	(0.37)	(0.40)	(0.57)
1986	5.87	5.21	5.47	6.40	7.26
	(0.43)	(0.30)	(0.27)	(0.29)	(0.52)
1987	5.18	5.11	5.70	6.59	6.78
	(0.79)	(0.30)	(0.24)	(0.28)	(0.44)
1988	5.45	5.43	6.03	6.47	7.74
	(0.49)	(0.29)	(0.18)	(0.27)	(0.80)
1989	4.93	2.70	5.68	5.78	6.13
	(0.41)	(0.27)	(0.21)	(0.37)	(0.58)
1990	5.18	4.99	5.38	5.91	6.05
	(0.40)	(0.44)	(0.24)	(0.30)	(0.32)
1991	5.07	4.90	5.33	5.51	5.51
	(0.37)	(0.24)	(0.32)	(0.29)	(0.60)
1992	4.71	5.14	5.32	6.24	0.03
	(0.36)	(0.36)	(0.24)	(0.34)	(0.00)
1993	5.22	5.40	5.47	6.19	6.93
	(0.37)	(0.27)	(0.26)	(0.33)	(0.53)
1994	4.26	5.25	5.24	6.38	5.75
	(0.47)	(0.28)	(0.24)	(0.35)	(0.34)
1995	4.79	5.15	5.42	6.04	5.88
	(0.74)	(0.35)	(0.29)	(0.27)	(0.35)
1996	4.92	5.13	5.47	3.05	5.77
	(0.71)	(0.27)	(0.29)	(0.39)	(0.46)
1997	5.26	5.18	5.23	6.01	5.88
	(0.85)	(0.28)	(0.27)	(0.30)	(0.50)

Notes: The results in this table are from quantile regressions of log hourly wages on a constant, years of education, experience and its square, a dummy for German citizenship, and interactions of this dummy with education, experience and squared experience. All coefficients were multiplied by 100. Robust standard errors, based on bootstrap sampling techniques, are reported in parentheses.

Table III-5. Returns to Experience: Results from Quantile Regressions

Quantile Point:	0.10			0.25			0.50			0.75			0.90		
Years of Experience:	5	15	25	5	15	25	5	15	25	5	15	25	5	15	25
1984	3.40	2.04	0.68	3.06	1.80	0.54	2.79	1.65	0.51	2.55	1.56	0.56	2.39	1.54	0.69
	(0.43)	(0.22)	(0.09)	(0.23)	(0.13)	(0.08)	(0.14)	(0.08)	(0.04)	(0.23)	(0.12)	(0.05)	(0.31)	(0.16)	(0.09)
1985	7.08	4.00	0.93	3.99	2.32	0.66	3.23	1.93	0.63	2.96	1.85	0.74	3.00	1.97	0.95
	(0.76)	(0.44)	(0.19)	(0.36)	(0.18)	(0.07)	(0.18)	(0.09)	(0.07)	(0.26)	(0.14)	(0.06)	(0.34)	(0.19)	(0.12)
1986	5.69	3.22	0.75	3.49	2.09	0.68	3.15	1.87	0.59	2.59	1.64	0.70	2.43	1.63	0.83
	(0.76)	(0.40)	(0.15)	(0.20)	(0.10)	(0.08)	(0.15)	(0.07)	(0.06)	(0.27)	(0.13)	(0.08)	(0.52)	(0.26)	(0.14)
1987	3.95	2.28	0.61	3.19	1.89	0.59	2.84	1.72	0.60	2.76	1.66	0.56	2.90	1.78	0.66
	(0.61)	(0.29)	(0.12)	(0.18)	(0.08)	(0.07)	(0.20)	(0.10)	(0.05)	(0.23)	(0.12)	(0.06)	(0.44)	(0.19)	(0.13)
1988	4.17	2.40	0.64	3.43	2.03	0.62	2.67	1.62	0.57	2.43	1.51	0.58	2.21	1.53	0.86
	(0.39)	(0.19)	(0.15)	(0.24)	(0.12)	(0.07)	(0.16)	(0.08)	(0.03)	(0.23)	(0.12)	(0.07)	(0.36)	(0.19)	(0.21)
1989	3.65	2.10	0.54	2.70	1.63	0.56	2.77	1.68	0.59	2.59	1.64	0.68	2.57	1.62	0.67
	(0.43)	(0.22)	(0.15)	(0.27)	(0.13)	(0.06)	(0.16)	(0.08)	(0.04)	(0.24)	(0.12)	(0.05)	(0.40)	(0.21)	(0.09)
1990	3.37	1.90	0.44	2.95	1.71	0.46	2.27	1.37	0.46	2.48	1.53	0.57	2.71	1.68	0.65
	(0.43)	(0.17)	0.14	(0.18)	(0.10)	(0.04)	(0.12)	(0.06)	(0.05)	(0.22)	(0.10)	(0.07)	(0.38)	(0.18)	(0.07)
1991	3.80	2.19	0.58	3.05	1.81	0.58	2.70	1.61	0.53	2.51	1.55	0.58	2.54	1.62	0.71
	(0.33)	(0.17)	(0.14)	(0.28)	(0.14)	(0.07)	(0.14)	(0.08)	(0.04)	(0.16)	(0.08)	(0.06)	(0.26)	(0.14)	(0.11)
1992	2.59	1.60	0.61	2.58	1.59	0.61	2.55	1.57	0.59	2.49	1.56	0.63	2.59	1.64	0.69
	(0.39)	(0.22)	(0.10)	(0.21)	(0.10)	(0.05)	(0.16)	(0.08)	(0.04)	(0.18)	(0.10)	(0.07)	(0.32)	(0.13)	(0.12)
1993	3.23	1.92	0.61	2.97	1.78	0.59	2.68	1.61	0.54	2.66	1.65	0.63	3.02	1.88	0.74
	(0.35)	(0.16)	(0.09)	(0.16)	(0.08)	(0.08)	(0.20)	(0.11)	(0.05)	(0.24)	(0.11)	(0.08)	(0.43)	(0.18)	(0.11)
1994	4.02	2.25	0.49	3.40	2.00	0.60	3.17	1.88	0.59	2.82	1.75	0.68	3.20	1.92	0.65
	(0.48)	(0.24)	(0.12)	(0.22)	(0.11)	(0.04)	(0.16)	(0.08)	(0.07)	(0.28)	(0.14)	(0.07)	(0.45)	(0.20)	(0.08)
1995	3.44	2.00	0.56	2.98	1.79	0.59	3.09	1.87	0.64	3.23	1.94	0.66	3.63	2.17	0.70
	(0.70)	(0.38)	(0.17)	(0.31)	(0.17)	(0.07)	(0.26)	(0.13)	(0.05)	(0.26)	(0.13)	(0.05)	(0.38)	(0.23)	(0.16)
1996	3.64	2.18	0.73	3.53	2.10	0.68	2.98	1.83	0.68	3.05	1.93	0.80	3.37	2.15	0.93
	(0.38)	(0.21)	(0.21)	(0.25)	(0.13)	(0.06)	(0.15)	(0.08)	(0.06)	(0.39)	(0.19)	(0.06)	(0.39)	(0.22)	(0.09)
1997	4.20	2.50	0.80	3.40	2.04	0.68	3.07	1.86	0.65	2.94	1.87	0.81	2.97	1.97	0.97
	(0.58)	(0.31)	(0.14)	(0.29)	(0.17)	(0.09)	(0.21)	(0.12)	(0.07)	(0.24)	(0.13)	(0.09)	(0.38)	(0.19)	(0.08)

Notes: The results reported in this table are from quantile regressions of log hourly wages on a constant, years of education, experience and its square, a dummy for German citizenship, and interactions of this dummy with education, experience and squared experience. Since experience enters the specification as a quadratic, the returns to experience are evaluated at specific experience levels. All coefficients were the returns to experience are evaluated at specific experience levels. All coefficients were multiplied by 100. Robust standard errors, based on bootstrap sampling techniques, are reported in parentheses.

Effects of changes in observed and unobserved prices and quantities

120. For a more complete description of the effects of changes in skill quantities and prices, a technique developed by JMP is employed in this section of the paper. The technique permits a decomposition of changes in inequality into the components attributable to changes in observed skill quantities, observed skill prices, and unobserved quantities and prices of skills. The main advantage of this framework, compared to a variance decomposition, is that it facilitates an analysis of how composition and price changes have affected the entire wage distribution rather than just a summary measure such as the variance.

Consider a wage regression of the form:

$$w_{it} = X_{it}\beta_t + u_{it} \quad (1)$$

where w_{it} is the log wage, X_{it} is a vector of observed individual-specific characteristics, u_{it} is the regression residual, and i and t are individual and time subscripts, respectively. The residual can be viewed as being comprised of two components: an individual's percentile in the wage distribution, θ_{it}, and the distribution function of the wage residuals, $F_t(.)$. It follows that

$$u_{it} = F_t^{-1}(\theta_{it}|X_{it}) \quad (2)$$

where $F_t^{-1}(.|X_{it})$ is the inverse cumulative residual distribution for workers with characteristics X_{it} in year t. Defining $\overline{\beta}$ to be the set of average prices for observed skill attributes and $\overline{F}(.|X_{it})$ to be the average cumulative distribution, equation (2) can be rewritten as follows:

$$w_{it} = X_{it}\overline{\beta} + X_{it}(\beta_t - \overline{\beta}) + \overline{F}^{-1}(\theta_{it}|X_{it}) + [F_t^{-1}(\theta_{it}|X_{it}) - \overline{F}^{-1}(\theta_{it}|X_{it})] \quad (3)$$

Using this formulation, it is straightforward to construct conditional wage distributions that allow one component to vary while keeping the other components fixed. For instance, with fixed observable prices and a fixed residual distribution, equation (3) collapses to:

$$w_{it} = X_{it}\overline{\beta} + \overline{F}^{-1}(\theta_{it}|X_{it}) \quad (4)$$

It is then possible to construct wage distributions where the changes over time are attributable solely to changes in **observable quantities**. Similarly, holding the other components fixed in turn, one can construct wage distributions where the changes in the

distributions over time are attributable to changes in **observed prices** and to changes in **unobserved prices and quantities** (i.e., the residual), respectively.

121. Table III-6 reports results from this decomposition to examine the changes in wage inequality, based on various percentile differentials, that can be attributed to these three components. The main story here is that most of the changes in inequality appear to be attributable to changes in the residual, reflecting changes in unobserved prices and quantities, rather than to changes in observed quantities or prices. In other words, changes in within-group inequality appear to dominate the changes in overall inequality, with changes in the distribution of skills and in the relative prices of skill attributes playing only a small role.

Table III-6. Decomposition of Inequality Changes into Components Attributable to Observed and Unobserved Quantity and Price Changes

Percentile Differential	Total Change	Observed Quantities	Observed Prices	Residual
1985-96				
9010	-0.033	0.001	0.001	-0.035
9050	-0.028	0.001	0.001	-0.029
5010	-0.005	0.001	0.000	-0.006
1985-89				
9010	-0.065	-0.013	0.004	-0.057
9050	-0.022	0.002	0.003	-0.026
5010	-0.044	-0.015	0.001	-0.030
1989-92				
9010	-0.028	-0.008	0.002	-0.021
9050	-0.037	-0.014	0.001	-0.024
5010	0.009	0.005	0.001	0.003
1992-96				
9010	0.060	0.022	-0.005	0.043
9050	0.031	0.012	-0.002	0.021
5010	0.030	0.010	-0.002	0.022

Notes: The numbers reported above are 3-year averages centered on the years shown.

122. Interestingly, the relative importance of changes in the residual distribution for changes in overall inequality is similar above and below the median in the 1985-89 and 1992-96 periods, respectively. By contrast, during 1989-92, changes in unobserved quantities and prices result in a continued compression (relative to the 1980s) above the median but not below. This probably reflect the effects of German unification. Even though the influx of workers into west Germany included workers with relatively high formal educational attainment, the qualifications of these workers may have been valued relatively less in the west German labor market compared to equivalent qualifications obtained in west Germany. Further, it is likely that these workers were viewed as having less favorable work habits (and other unobserved attributes).

123. During 1992-96, the wage compression that occurred over the previous decade was largely reversed, with changes in within-group inequality accounting for much of the increase in overall inequality. This increase was spread in a relatively equal manner above and below the median. In none of the sub-periods examined here do changes in the prices of observed skill attributes affect overall inequality significantly, confirming the earlier results about the stability of skill prices.

The sectoral wage structure

124. Having examined the wage structure based on skill attributes, it is also useful to examine the sectoral wage structure for hints about the determinants of overall labor market outcomes. The top two panels of Figure III-11 plot median real wages in eight broadly defined sectors of the economy (workers in the primary sectors—agriculture, forestry, fishing and mining—are excluded).

125. The figures show a tight clustering of median hourly real wages in six of the eight sectors. However, wages in the trade and miscellaneous services sectors are much lower than in the other sectors.[53] Note that these are the two sectors where job growth has been relatively strong during the recent cyclical recovery that began in 1993.

126. The lower panels of Figure III-11 plot sectoral real wage developments relative to 1993, the year of the most recent cyclical trough. Manufacturing and construction, two sectors where the union density is relatively high, show relatively robust wage growth. Interestingly, the strongest wage growth during this recovery has been in miscellaneous services where, as noted earlier, job growth has also been strong. This indicates an outward shift in this sector's demand for labor and suggests that the secular shift in the employment share of this sector has strengthened since 1993.

127. An interesting question arises at this juncture: how much of the change in relative wages across sectors is attributable to composition effects? In other words, how much of the

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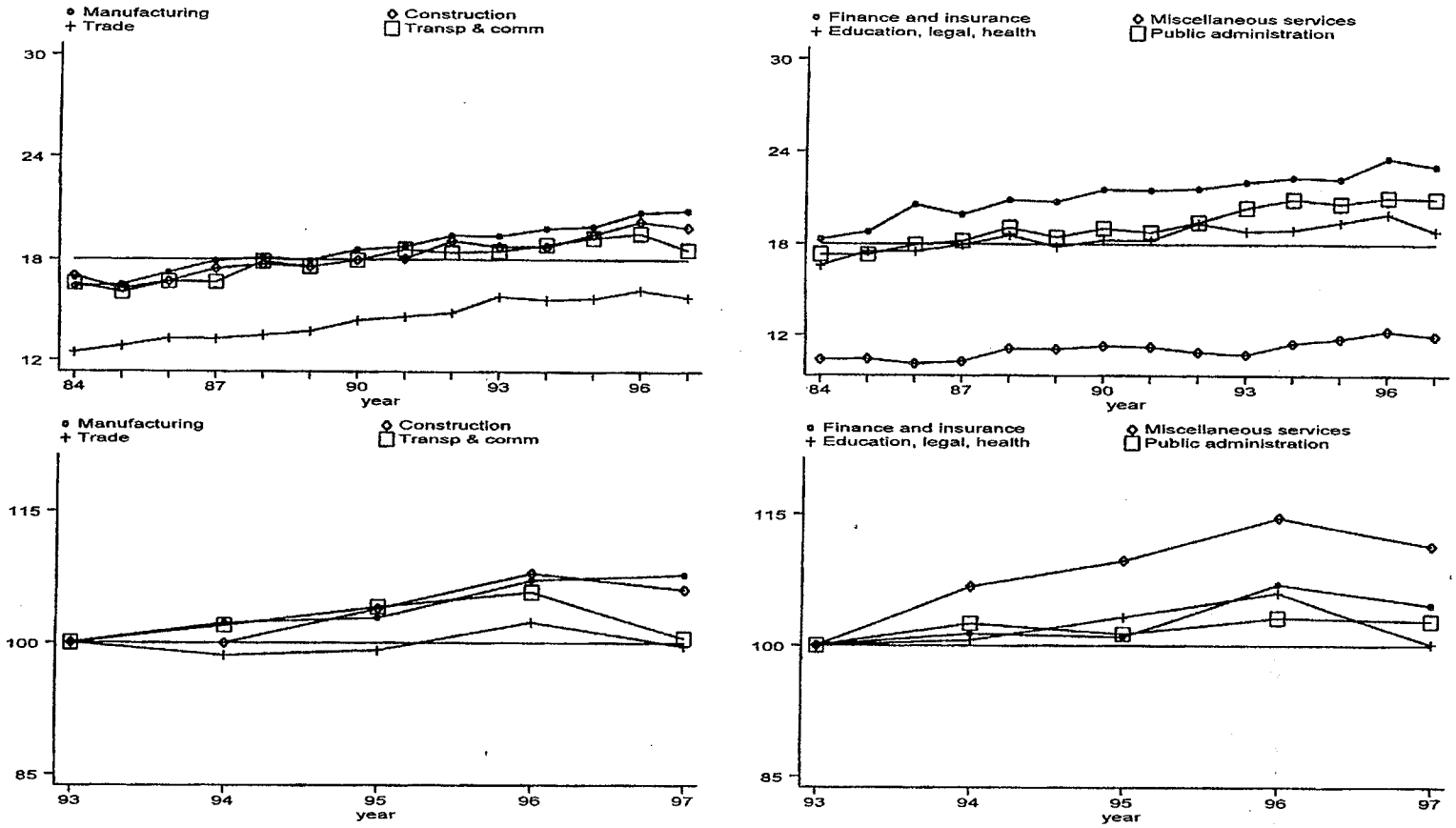
[53] Trade includes retail and wholesale trade. Miscellaneous services comprise what are typically thought of as low-end services, including restaurants and hotels, trash removal and other basic services.

Figure III-11. Germany: The Sectoral Wage Structure



changes in the sectoral wage structure can be attributed to differences in the average level of human capital of workers in each sector, which could of course change over time. One informal way to address this question is to ask how much a worker with a particular set of observed characteristics would earn in different industries. To get a handle on this, annual wage equations were estimated including workers' human capital attributes and also including industry dummies and dummies for firm size. Based on these estimates, predicted real wages in each industry were then generated using annual sample means of each of the worker characteristics.

128. The results, shown in Figure III-12, indicate that predicted real wages tend to be quite similar across sectors and have evolved in a similar pattern over the sample. What this implies, for instance, is that workers in the miscellaneous services sector tend to be relatively poorly paid largely because they have much lower relative skill levels.[54] Thus, this sector appears to have been an important source of employment for unskilled workers; job growth in this sector may have been important in moderating the increases in unemployment among unskilled workers during the 1990s.

The structure of earnings

129. The discussion thus far has focused on the distribution of hourly wages. The cross-sectional dispersion of hourly wages could differ from monthly (or annual) earnings, depending on the covariance between monthly hours and the hourly wage. For instance, it is possible that high-wage workers tend to work (and get paid for) more hours per month than low-wage workers. This would imply that wage inequality is a downward-biased measure of earnings inequality.[55] Further, measurement error in the hours variable is a potential problem, especially for salaried workers. Thus, although the hourly wage is indeed the appropriate variable for measuring skill prices, it is nevertheless useful to examine the evolution of earnings inequality as well.

130. Figure III-13 shows cumulative changes in earnings at different percentiles of the wage distribution. Unlike the marginal decline in wage inequality, there appears to have been a slight increase in earnings inequality over the period 1984-97, with much of this increase occurring after 1992. However, the basic picture of stability in the wage structure is

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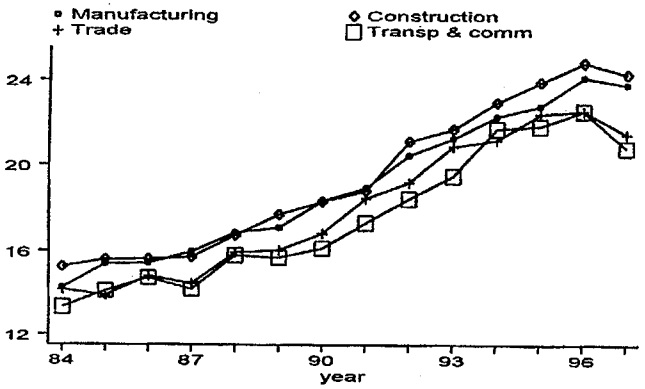
[54] A cautionary note is in order here. Even in the United States, as shown by Krueger and Summers (1988), inter-industry wage differentials tend to be significant despite controlling for observed (and even some unobserved) worker attributes. This could account for some but probably not much of the differential between median wages in the miscellaneous services sector and most other sectors.

[55] Further, the dispersion of annual earnings could differ from that of monthly earnings. However, the GSOEP data set does not contain a variable indicating the number of months that a worker is employed during the survey year.

Figure III-12. Germany: Predicted Mean Hourly Wage by Sector



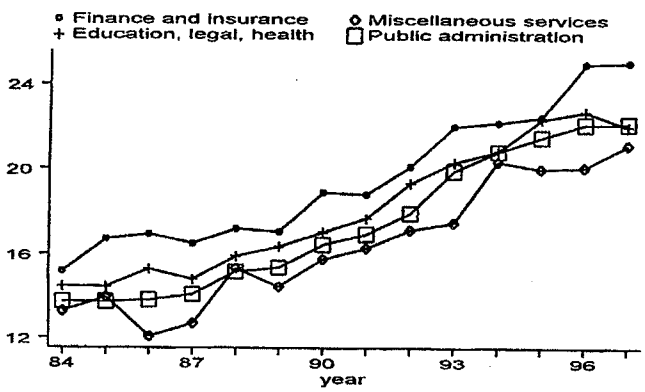
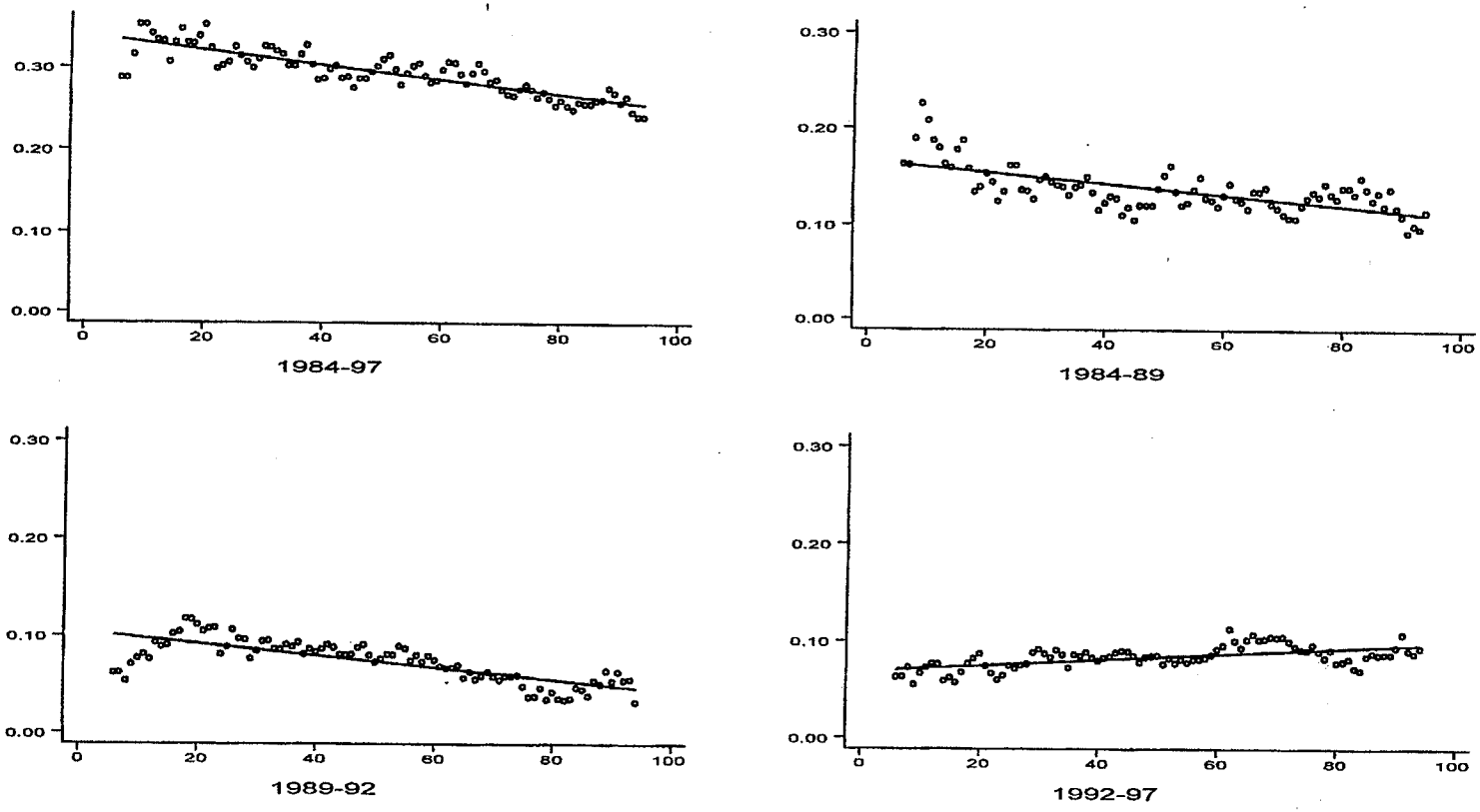


Figure III-13. Germany: Changes in Log Monthly Earnings Across Distribution



reinforced by the stability of the earnings structure.[56] This result also indicates that measurement error in the weekly hours variable used to construct the hourly wage measure is unlikely to have affected the earlier results significantly.

131. A variance decomposition of earnings inequality indicated that the variances of hourly wages and monthly earnings look quite similar, while the variance of hours worked is roughly offset by the covariance component. The data reveal a slightly negative cross-sectional covariance between hourly wages and hours worked in the 1980s, although the covariance component drifts towards zero by the end of the sample.

C. The Role of Market Forces in the Stability of the German Wage Structure

132. The empirical results in the previous section have clearly demonstrated the stability of the German wage structure over the last 15 years. This section explores a number of possible explanations for this remarkable stability of the German wage structure during a period when all major industrial economies appear to have been going through massive shifts in the relative demand for skills resulting from skill-biased technological change, increased openness to external trade, and shifts in employment and output shares from manufacturing towards services (de-industrialization). In what follows, particular attention is given to the roles of market factors, including the effects of shifts in relative supplies of skilled and unskilled workers and in the sectoral composition of employment. Certain unique features of the GSOEP dataset are also exploited to examine the possibility that measurement issues could affect the patterns of wage variation described in this paper.

Relative supply shifts

133. Changes in wage inequality that are attributable to changes in skill prices can be analyzed in terms of a supply and demand framework for different skill attributes. For instance, Katz and Murphy (1992) note that, despite an increase in the relative demand for skilled workers, wage inequality did not increase substantially in the United States in the 1970s since the relative supply of workers with high education levels rose substantially and offset much of the shift in demand. Despite continuing increases in the relative supply of highly educated workers, however, enormous shifts in the relative demand for skilled labor in the 1980s swamped the changes in supply and resulted in sharp increases in observed skill premia.

134. Is there evidence that shifts in relative skill supplies may have resulted in the stable wage structure observed in Germany? Again, note the maintained hypothesis here that, as in other industrial countries, Germany has experienced shifts in the relative demand for skilled labor in recent decades.

135. Average education levels in Germany have indeed been rising over the last two decades and the relative supply of college graduates, in particular, has increased

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[56] Steiner and Wagner (1998) also find little change in earnings inequality during the 1980s.

significantly. In the GSOEP sample used here, for instance, the cross-sectional average of the education variable increases from 11.0 years in 1984 to 11.8 years by 1997 and the proportion of college-educated graduates (>= 16 years of education) rises from about 8 percent in the mid-1980s to about 11 percent by the mid-1990s. Could this supply effect explain the slight decline in the returns to education in the 1980s and the stable returns in the 1990s? A cross-country perspective suggests an answer in the negative. The relative supply of more educated and, especially, college-educated workers has been rising at roughly similar rates in most other major industrial countries as well.

136. Although cross-country comparisons of educational levels are notoriously difficult, ostensibly comparable data from the *OECD Education Statistics* are used to obtain some suggestive evidence.[57] The tabulation below shows the ratio of (a) graduates of higher education (university and non-university) to the total of (a) plus (b) graduates of upper secondary education (general and vocational/technical) in the population. Although the increase in this ratio over the period 1985-97 was 5.4 percentage points in Germany compared to 3.8 percentage points in the United States, this difference seems hardly sufficient to explain the huge disparities in the evolutions of premia for higher education in these two countries. Examinations of other such ratios revealed a very similar picture.

Ratio of Workers with High Relative to Medium Levels of Education

	1985	1992	1997
Germany	0.175	0.216	0.229
United States	0.406	0.428	0.444

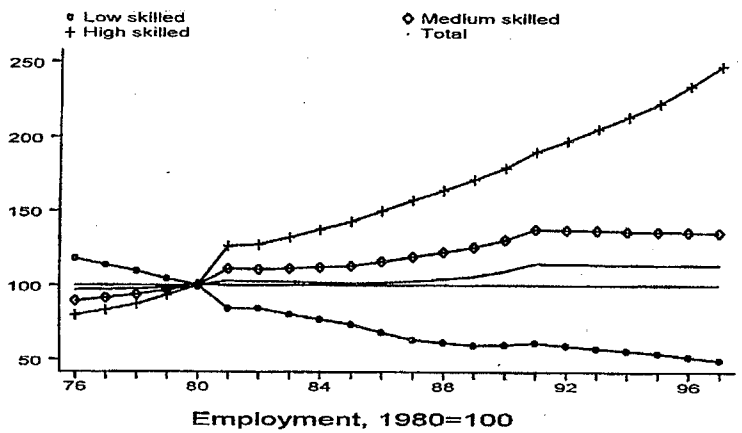
137. A more direct approach, following Gottschalk and Joyce (1998) is to examine labor market quantities, i.e. unemployment and employment of workers of different skill levels. If there were indeed relative shifts in the supplies of workers with different skill levels, this would be reflected in quantities rather than just prices. The first panel of Figure III-14 plots unemployment rates for workers with different skill levels.[58] Clearly, unemployment rates for workers of different skill levels in west Germany have diverged markedly during the 1980s and 1990s. More strikingly, unemployment rates for unskilled workers have risen sharply during the 1990s while the increases in unemployment rates have been much smaller for medium-skilled workers and have in fact fallen for highly skilled workers during the recent cyclical recovery that began around 1993.

138. One cautionary note about interpreting these unemployment rates is that they could reflect the effects of German unification. From the west German perspective, unification was

[57] Source: *OECD Education Statistics, 1985-92*, Table IV-3.

[58] These data, which are limited to west Germany, are taken from Reinberg and Rauch (1999) and are based on the Mikrozensus, a comprehensive survey of the German labor force. The raw data from this survey are not publicly available.

Figure III-14. Germany: Unemployment Rates and Employment by Skill Level



essentially a labor supply shock that was accentuated in the lower portions of the skill distribution and that may have resulted in the observed increases in unemployment rates for low-skill workers. However, in conjunction with the earlier results on the stability of skill premia, this outcome is precisely what one would expect if a rigid wage structure prevented labor market adjustment through the adjustment of relative prices.

139. Even stronger evidence for this interpretation comes an examination of employment levels. As shown in the second panel of Figure III-14, employment levels for workers of different skill levels in west Germany have diverged steadily since the mid-1970s. During the 1990s, employment levels of high skill workers have risen sharply even as employment for unskilled workers has actually declined.[59] This evidence is difficult to reconcile with a story that relies on changes in the supplies of different skill categories to explain the stability of the wage structure as an equilibrium outcome.

140. In short, there is little evidence that shifts in relative supplies of workers with different skill levels can explain observed relative wage developments. Furthermore, the evolutions of relative unemployment rates and employment levels is strongly suggestive of the notion that, in the presence of institutional constraints that inhibit relative price adjustment, relative shifts in the demand for skills have resulted in quantity adjustments.

Shifts in sectoral employment

141. As in other industrial economies, in recent decades there has been a secular decline in the employment share of manufacturing and a corresponding increase in the employment share of the service sector in Germany. This and other cyclical shifts in sectoral employment could influence the overall wage structure since average wages and the dispersion of wages are likely to be quite different across sectors. These two channels through which changes in the structure of sectoral employment could affect the wage structure are also likely to be influenced by the effects of changing skill compositions of the workforce in these sectors.

142. One way to analyze the effects of sectoral shifts on the wage structure is to use a simple variance decomposition. The total variance of wages in a year can be decomposed into within- and between-industry components as follows:

$$\sigma_t^2 = \sum_j s_{jt}\sigma_{jt}^2 + \sum_j s_{jt}(w_{jt} - \overline{w}_t)^2 \qquad (5)$$

where σ_t^2 is the cross-sectional variance of log hourly wages, s_{jt} is the employment share of sector j, σ_{jt}^2 is the within-industry variance of wages, w_{jt} is the mean sectoral wage, $\overline{w}_t$ is

[59] Using the GSOEP data, annual probit employment equations were estimated for men (extending the sample to include men without a job). The estimated coefficients confirm the sharp increase in the employment probabilities of workers with higher levels of education during the 1990s.

the mean wage in the sample and the subscript t is a time index. Using this formula, the change in variance over time can be decomposed into changes attributable to within- and between-industry variance as well as composition effects within and between industries. The results of this decomposition are shown in Table III-7.[60]

Table III-7. Effects of Sectoral Shifts on Changes in Wage Inequality
(Variance Decomposition)

Period	Total Change in Variance	Within Industry		Between Industry	
		Change in Variance	Composition Effect	Change in Variance	Composition Effect
1984-97	-0.086	-0.084	0.001	-0.002	-0.001
1984-89	-0.002	0.000	-0.004	0.005	-0.003
1989-92	-0.108	-0.108	0.003	-0.005	0.002
1992-97	0.024	0.024	0.002	-0.002	0.000

Notes: Workers are classified into ten broadly defined sectors (agriculture, forestry and fishing; manufacturing; construction; trade; transport and communications; finance and insurance; business and personal services; other basic services; public administration). See text for details of the decomposition technique.

143. The total decline of 0.086 in overall wage variance from 1984 to 1997 is largely attributable to the decline in variance over the period 1989 to 1992, partly offset by a slight increase in the variance from 1992 through 1997. The key result from this table is that virtually all of the developments in overall wage variance are attributable to changes in wage variation within industries, rather than between-industry wage variation. Composition effects, both within and between industries, account for only a small fraction of the changes in wage variation after 1989.

144. Thus, recent shifts in sectoral employment do not seem to have played much of a role in influencing patterns of overall wage dispersion. Within-industry wage variation appears to dominate overall wage variation and both appear to have evolved in a smaller pattern.

[60] These results are based on a classification that corresponds roughly to the 1-digit SITC sectoral classification; this coarse classification is intended to capture the effects of shifts in employment from manufacturing to services. Using the full set of GSOEP industry codes, which would be similar to using a 2-digit classification, revealed quite similar results.

Cohort effects

145. The cross-sectional measures of inequality analyzed in this paper could be affected by changes over time in the observed and unobserved attributes of cohorts that enter the labor market at different periods. For instance, changes in inequality could be dampened by the increasing equalization of educational opportunities for workers in cohorts that have recently entered the labor force. Further, inequality changes over time within cohorts (as employers gain more information about workers based on job histories) could influence measures of overall inequality, especially if relative cohort sizes change over time.

146. It is difficult to disentangle cohort, experience and time effects. Nevertheless, by examining changes in inequality over time for different cohorts and different experience groups, it is possible to get an indication of whether cohort and age effects are important for understanding the evolution of overall wage inequality.

147. For this part of the analysis, synthetic cohort groups were constructed based on the imputed year of market entry for each worker. Table III-8 shows 3-year averages of the 90-10 and 75-25 percentile differentials for each cohort for the years 1986, 1991 and 1996. These results should be interpreted with caution since the samples are relatively small (typical cell size: 250-400; minimum cell size: 100). Although there are some small changes over time in inequality within cohorts, there is little evidence that these changes, or the differences in inequality across cohorts, are an important factor in explaining the apparent stability of the wage structure.

Table III-8. Wage Inequality Across Cohorts and Experience Groups

	90-10 differential			75-25 differential		
Year of Market Entry	1986	1991	1996	1986	1991	1996
1987-91	...	...	0.85	...	...	0.43
1982-86	...	0.81	0.83	...	0.38	0.42
1977-81	0.97	0.78	0.85	0.44	0.40	0.43
1972-76	0.83	0.83	0.95	0.40	0.39	0.45
1967-71	0.89	0.82	0.77	0.44	0.39	0.40
1962-66	0.87	0.93	0.93	0.42	0.45	0.47
1957-61	0.92	0.83	0.85	0.46	0.45	0.46
1952-56	0.82	0.64	0.77	0.37	0.33	0.35
1947-51	0.93	0.89	...	0.43	0.39	...
1942-46	0.81		...	0.39	...	...

Notes: The percentile differentials reported above are 3-year averages centered on years shown.

148. Note that the evolution of inequality within specific (synthetic) experience groups can be tracked by reading diagonally across this table. For instance, the experience group corresponding to the 1972-76 entry cohort has a 90-10 differential of 0.83 in 1986, 0.78 in 1991 and 0.83 in 1996. Within experience groups, there is a pattern of a small dip in the 90-10 differential in 1991, followed by an uptick in 1996. This is consistent with the pattern detected earlier of marginal wage compression in the 1980s, followed by a slight widening of wage dispersion after 1992.

149. The main conclusion from Table III-8 is that changes in inequality within age and cohort groups largely reflect the patterns of overall wage variation. In other words, time effects appear to be more important than age or cohort effects per se in explaining changes in the wage structure.

Supplementary earnings

150. Various forms of monetary compensation other than basic wages and salaries constitute an important element of compensation packages in Germany. These include 13th and 14th month salaries; Christmas and vacation bonuses; and profit-sharing and gratuities. These are usually provided as lump-sum payments once a year. Such payments could play an important role in differentiating total compensation across workers of different skill levels but would not be picked up in data on monthly wages and salaries.

151. The GSOEP does not provide data on these elements of compensation for the year of the survey. Starting in 1990, however, individuals were asked about the gross amounts of different categories of nonstandard compensation that they received in the previous year. Using these data, for each individual a wage adjustment factor was constructed based on supplementary earnings using the following formula:

Adjustment Factor = Total gross supplementary income in previous year /
(Average monthly gross wage in previous year *
Number of months worked in previous year)

152. The adjustment factor turns out to be quantitatively quite important. Its distribution over the period 1990-97, shown in the tabulation below, indicates that the median supplementary income amounted to about 8.3 percent of the basic wage. There was no discernible trend over time in this adjustment factor. However, regressions of this factor on skill attributes did indicate a statistically significant positive relationship between the size of this factor and skill level, suggesting that total compensation could be more differentiated than basic wages.

Distribution of Adjustment Factor for Supplementary Income, 1990-97

Percentile point:	5	10	25	50	75	90	95
Adjustment factor:	0.000	0.014	0.044	0.083	0.097	0.129	0.167

153. For each worker for whom the relevant data were available, a new wage variable was constructed, where the current year wage was multiplied by (one plus) this adjustment factor. OLS estimates of the returns to experience and education are indeed higher using (logarithms of) this wage measure compared to the estimates based on the basic wage but, as shown in Figure III-15, the differences are quite small in economic terms. More important, the time profiles of the returns to skill attributes are not altered when the adjusted wage variable is used. Plots of wage changes at different percentiles over the period 1990-97 (not shown here) were also essentially unaffected by the use of this alternative wage measure.[61]

154. Thus, although there is some evidence that total compensation is more differentiated by skill level than basic wages, the differences are not quantitatively very large. Moreover, over the period 1990-97, the structure of total compensation appears to be essentially as stable as the structure of basic wages.

Selection effects

155. Finally, the sensitivity of the results to sample selection bias is examined. The basic idea here is that, since wages are observed only for those workers who are actually employed, there could be systematic differences in unobserved characteristics of employed versus nonemployed workers (unobserved by the econometrician, that is). In other words, the observed wage distribution may be a biased measure of the offer wage distribution. Further, the magnitude of selection bias could vary systematically across skill levels, thereby biasing estimated wage differentials across skill levels.[62]

156. Although sample selection effects are likely to be less important for men than for women, selection-corrected wage equations were estimated for the sample of males.[63] To conserve space, the results are only summarized briefly here; detailed results are available from the author. The selection-corrected coefficient estimates for the education and

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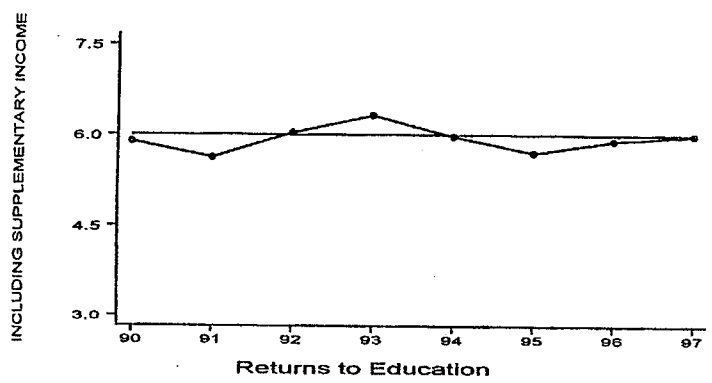
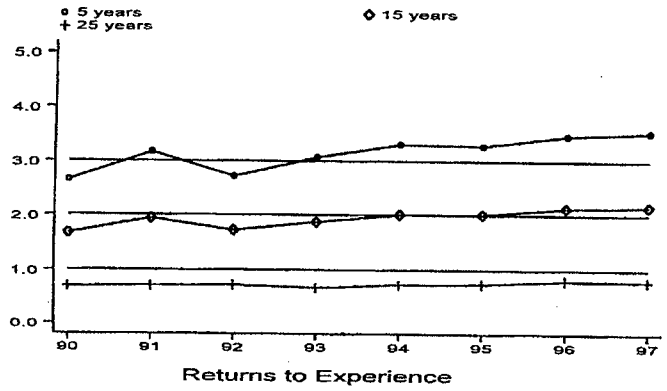
[61] The results reported in this paragraph, including the comparisons of skill premia with and without supplementary earnings, are limited to those observations for which the data needed for constructing the adjustment factor are available. This amounts to about 90 percent of the sample for the years 1990-97.

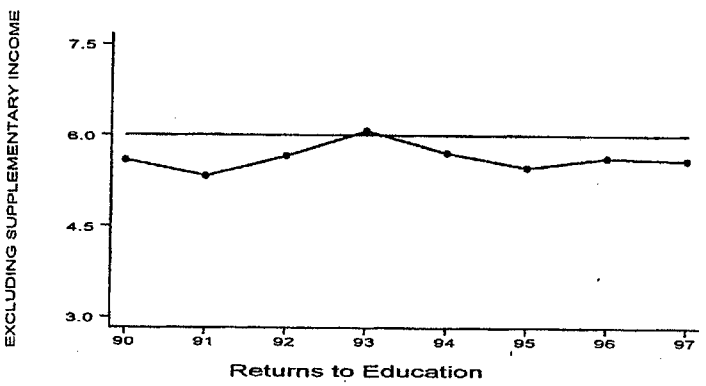
[62] For an explanation of the selection bias problem, see Heckman's (1979) classic paper. Keane and Prasad (1996) provide an example of the importance of accounting for selection bias in estimating skill differentials.

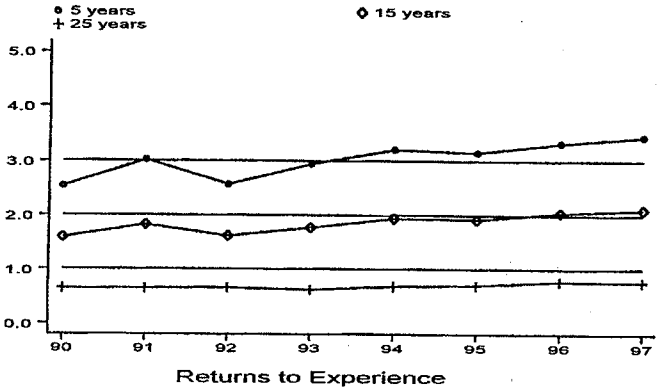
[63] The selection model involves two equations: (i) the basic OLS wage equation and (ii) a probit employment choice equation. The employment choice equation includes the right hand side variables in equation (i) and a set of additional variables that could influence self-selection into employment but would not be expected to affect the wage. This set of additional variables included dummies for marital status, presence of kids, status as head of household and geographic regions. The parameters of equations (i) and (ii) were jointly estimated by full information maximum likelihood techniques.

Figure III-15. Germany: Returns to Education and Experience, Supplementary Earnings









experience variables were virtually identical to those from the basic OLS regressions. The only interesting difference was that, during the 1990s, the estimated education premia declined marginally more than in the OLS regressions. This might reflect the fact that older workers were more likely than younger workers to be laid off during the 1990s (as revealed by relative increases in unemployment rates among older workers). Older workers typically tend to have lower education levels and, therefore, estimates that account for negative selection effects for such workers indicate a smaller education premium. The basic story of stable skill premia is thus confirmed by these results.

Interpretation

157. The results presented in this section provide fairly strong evidence that the stability of the German wage structure is attributable to constraints imposed by institutional forces rather than to market factors. As discussed earlier, the wage bargaining system and the role of unions have resulted in an inflexible wage structure that does not allow prices for skills to respond to shifts in the demand for and supply of different skills.

158. Some authors have argued that the relatively narrow dispersion of wages is attributable to the tighter distribution of skills in Germany compared to countries like the United Kingdom or the United States. The German wage structure is also sometimes viewed as providing the right incentives for firms to provide optimal levels of training to their low-skill workers (see, e.g., Acemoglu and Pischke, 1999). Nevertheless, the rigidity of the wage structure during a period of massive shifts in demand towards the upper end of the skill distribution has had obvious deleterious consequences, as evident from the rising nonemployment rates and declining employment levels for unskilled workers. It should also be borne in mind that the central argument in this paper is based not so much on the levels of wage differentials as it is on the inability of the wage structure to adjust to demand shifts over time.

159. The observed price and quantity outcomes are also consistent with explanations put forward by authors such as Blanchard (1998) who have argued that institutional rigidities in continental European countries have resulted in the substitution of capital for labor following adverse macroeconomic shocks and, consequently, rising unemployment rates. In Germany, overall labor costs appear to be less of a problem than that of rigid wage differentials. Given the evidence of capital-skill complementarity (see Keane and Prasad, 1996, and references therein), stylized facts for Germany such as the falling aggregate wage share, rising employment levels for skilled workers and declining employment prospects for unskilled workers in the 1990s are all perfectly consistent with the substitution of capital for unskilled labor.

160. It is worth emphasizing at this juncture that this paper should not be construed as making the argument that rising wage inequality is a sign of or prerequisite for labor market flexibility. Wage inequality is viewed here more as an outcome of shifts in the demand for

and supply of different skill attributes.[64] The point is simply that, if skill prices are not allowed to adjust to these shifts, quantities will have to adjust instead. It should also be noted that this paper has little to say about broader concepts of income inequality or about the overall welfare effects of changes in wage inequality.

D. Reservation Wages and Labor Supply

161. This section of the paper turns to a brief examination of issues related to labor supply. Although a careful analysis of the determinants of labor supply for workers of different skill levels is beyond the scope of this paper, the GSOEP provides some interesting data related to this issue. In the years 1994 and 1996-97, survey respondents who reported being unemployed and who reported having looked for a job in the three months before the survey were asked what *net* monthly earnings they would have to be offered in order to accept a job. In other words, what was their reservation wage? The answers to this question have potentially important implications for policies designed to influence labor supply.

162. A careful analysis of the determinants of reservation wages would require examining a large set of covariates that could influence the reservation wage, including manner of job separation (quit or layoff), length of unemployment spell, alternative sources of income, presence of other employed persons in the household, industry of last job etc.

163. Nevertheless, a simple but illuminating experiment can be used to cast some light on issues related to labor supply disincentives. Using estimates from annual OLS wage equations for net monthly earnings, for each unemployed worker reporting a reservation wage, a predicted "offer wage" was generated conditional on his (or her) level of education and labor market experience.[65] A scatter plot is then constructed showing each worker's predicted real offer wage and the difference between the real reservation wage and this predicted real offer wage for the years 1994 and 1996-97 (using the west German CPI as the price deflator, 1997=100).

164. The scatter plot (Figure III-16, top left panel) is striking. There appears to be a clear negative relationship between offer wages, which could be interpreted as a market-based measure of skill levels, and the differential between reservation and offer wages. The vertical line in the figure shows the median net monthly earnings among all employed workers, averaged over the years 1994 and 1996-97. Unemployed workers with low levels

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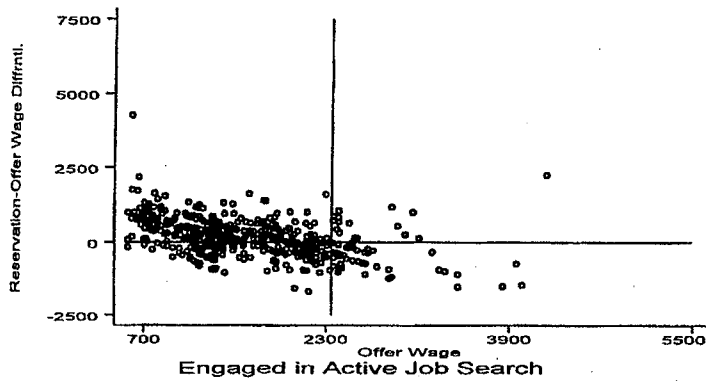
[64] The Netherlands, for instance, appears to have attained much better labor market outcomes, with little increase in wage inequality. This appears to be attributable to recent labor market reforms that have greatly increased the relative supply of skilled workers, particularly by fostering higher labor force participation rates among educated women.

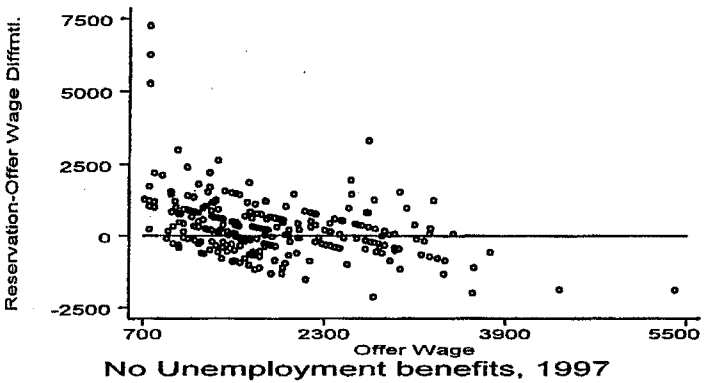
[65] The sample in this part of the analysis includes both men and women. A gender dummy and its interactions with other independent variables was included in the wage regressions used to generate the predicted offer wage. The coefficient estimate on this dummy variable was then used to adjust the offer wage for gender effects.

Figure III-16. Germany: Reservation and Offer Wages, 1994, 1996-97

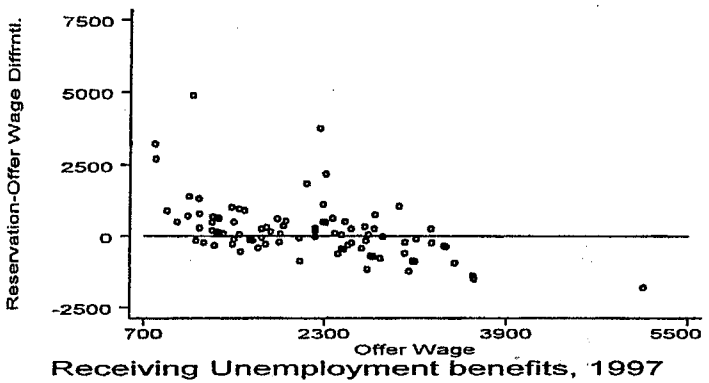
All Unemployed Workers Reporting Reservation Wage



Engaged in Active Job Search



No Unemployment benefits, 1997



Receiving Unemployment benefits, 1997

of human capital appear to be willing to work only for a wage higher than the wage that the market is prepared to pay them. Unemployed workers with higher skill levels, on the other hand, appear to desire employment strongly enough that they are willing to accept a lower wage than that typically paid to workers with similar skill attributes. The pattern is similar when the sample is restricted to unemployed workers actively engaged in job search (Figure III-16, top right panel)[66]

165. Why do unskilled workers have such high reservation wages relative to their earnings potential? One possibility is that social transfers to the unemployed—including unemployment benefits, unemployment assistance, and social benefits—are sufficiently generous that, at the margin, low-skill workers have less of an incentive to accept low-paying jobs. To shed further light on this issue, a similar plot as that described above was constructed using the data for 1997 but breaking the sample into those reporting that they were receiving unemployment benefits or unemployment assistance at the time of the survey and those that were not (Figure III-16, lower panels). Interestingly, the result noted above comes through clearly even among workers who report receiving no unemployment benefits or unemployment assistance. This suggests that, for workers with low levels of skill attributes, high reservation wages could result not just from the generosity of unemployment benefits but from other factors including the generosity of other components of social transfers and the high effective marginal tax rates they face when moving from social support to low-wage employment.

E. Policy Implications

166. This paper has produced two main empirical results. One is that the German wage structure has been quite stable over the last 15 years; this stability may in large part be attributable to institutional factors, including the wage bargaining system, rather than market forces. The second result, a more tentative one, is that the social transfer system appears to reduce the incentives for low-skilled workers to seek and accept employment. How are these results to be interpreted and, by extension, what are their policy implications?

167. As evidenced by patterns of employment growth and evolutions of unemployment rates during the recent cyclical recovery, unskilled workers essentially appear to have been priced out of their jobs because of the inflexible wage structure that has not accommodated shifts in demand at different parts of the skill distribution. Further, skill price rigidities appear to have encouraged capital-labor substitution, with detrimental effects on the employment

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[66] The estimated wage equations explain only about 35 percent of the variation in wages across workers. Thus, unobserved attributes (not observed by the econometrician) clearly play a significant role in wage determination. However, since unobserved attributes would be expected to be lower among the unemployed than among the employed, this bias would probably actually strengthen the result described here. That is, unemployed workers, particularly the less-skilled ones, would be likely to have inferior unobserved attributes compared to employed workers and should therefore expect to earn even less than would be indicated by the wage equation estimates.

probabilities of unskilled workers. Thus, the corporatist approach to wage bargaining, that served Germany well in earlier decades, appears not to be as benign under current circumstances. Further, pursuing distributional objectives through the labor market, rather than through the tax and transfer system, appears to result in overall efficiency losses via lower aggregate employment levels and consequent increases in the burden on social safety nets and the pension system.

168. But can the problem of high unemployment among unskilled and low-skill workers be solved by measures to influence labor demand alone? The second set of results in this paper suggests otherwise. Unemployed workers with low skill attributes appear reluctant to accept jobs even at the existing offer wage levels. Their high reservation wages could be linked to the generosity of social transfers as well as the disincentive effects of high effective marginal tax rates at low income levels, both of which are problems that have been noted by observers of German labor markets. Hence, to spur employment growth for these workers, it would appear necessary to make changes to the social benefit and tax systems in order to induce a positive labor supply response.

169. In the transition to such durable reforms, short-term measures such as employment subsidies might have a role to play, although their effectiveness is likely to be limited (see Chapter IV of this paper). Active labor market policies could also play a useful role. In this respect, Germany does quite well. For instance, apprenticeship schemes and other policies for facilitating school-to-work transitions for younger workers have resulted in youth unemployment rates that are far lower than in most other European countries. Good training and re-training programs also abound in Germany. There might, however, be some scope for improving employment intermediation mechanisms.

170. In summary, a mutually reinforcing set of institutional reforms that influence both labor demand and labor supply appear essential to cure the problem of nonemployment among low-skilled workers.

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IV. Tax-Transfer Options for the Low-Skilled Labor Problem[67]

A. Introduction and Summary

171. The empirical evidence presented in Chapters I and III suggested that Germany's labor market problem is concentrated among the lower-skilled. Those chapters also argued that remolding Germany's labor market institutions—in the direction of more flexible collective bargaining; a more diversified social insurance system; and a social safety net with stronger re-activation incentives—should be at the top of the reform agenda. But sole reliance on reforming these institutions may prove inadequate if values other than efficiency are also important to policymakers. In this context, economists have traditionally embraced tax-transfer solutions as relatively market-compatible measures (in comparison with direct interventions), as these solutions seek to induce behavior rather than command it.

172. The present chapter discusses the nature and scope of tax-transfer solutions to the low-skilled labor problem, focusing on traditional public finance tools—combining wages with in-work social benefits (combi-wages); wage supplements to boost take-home pay; and wage subsidies to reduce labor cost.[68] What are the likely job-creating effects of different tax-transfer schemes? How do tax-transfer schemes rank in terms of fiscal costs? And can tax-transfer solutions help to achieve more efficiently some of society's equity objectives, in particular "fair incomes" for low-skilled labor (which current German labor market institutions seek to impose directly on labor market outcomes)?

173. Tax-transfer solutions to the low-skilled labor problem have been the focus of much recent debate within and outside Germany:

- Within Germany, several public authorities and interest groups have come forward with specific tax-transfer schemes. In particular, a preliminary proposal by the "benchmarking working group" within the "Alliance for Jobs" suggested to inter alia subsidize social insurance contributions at lower wage levels to develop a low-wage sector in Germany.

- At the EU level, the **Employment Guidelines for 2000** encourage member states to inter alia "... provide incentives for unemployed or inactive people to seek and take

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[67] Prepared by Stefan Hubrich.

[68] For example, this chapter does not discuss reducing the rate of VAT on labor-intensive services not exposed to cross-border competition, a proposal by the EU Commission. Germany and several other EU countries have voiced strong reservations against this proposal noting the administrative complexities of such a scheme, the likely difficulty of containing pressures for VAT preferences, and adverse budgetary implications.

up work..." as well as to "... reduce the fiscal pressure on labor and non-wage labor costs, in particular on relatively unskilled and low-paid labor..."[69]

- And a rapidly-expanding body of academic literature analyzes tax-transfer solutions. For example, a widely-publicized book by Phelps (1997) advocates raising earnings of low-wage workers in the United States through wage subsidies.

174. Tax-transfer solutions to the low-skilled labor problem seek to overcome two types of "employment hurdles" at the lower end of the labor market: (i) a worker's labor cost is "too high" relative to a worker's productivity; and (ii), a worker's reservation wage is "too high" relative to a worker's take-home pay. In case (i), the generic tax-transfer solution is to subsidize labor cost, e.g. through wage subsidies that finance employer-paid social insurance contributions. In case (ii), the tax-transfer system could be employed to boost take-home pay, e.g., through a combi-wage scheme.

175. Tax-transfer solutions may, however, not address the ultimate source of the employment hurdles in the market for low-skilled labor. For example, in an environment where labor demand shifts favor skilled workers, lower-skilled workers' labor cost may have risen faster than their productivity because increases were tied (proportionally) to labor cost increases of higher-skilled workers. Or, in an environment of high and rising minimum social benefits, lower-skilled workers' take-home pay may fail to keep pace with increases in reservation wages. Thus, tax-transfer tools may only provide a static solution to a dynamic problem, rooted in institutional labor market arrangements.

176. The employment impact and fiscal cost of different types of tax-transfer solutions depend on the nature and size of the employment hurdles. For example, a subsidy to cut labor cost of employers would not be effective if the binding hurdle is a high reservation wage. Similarly, reduced clawback arrangements for in-work social benefits would not be effective if the binding hurdle is high labor cost. Thus, designing effective tax-transfer solutions may require considerable amounts of information about the employment hurdles afflicting the low-skilled, a type of information that may be difficult to obtain, e.g. in the case of unobservable reservation wages. Not surprisingly, tax-transfer proposals are often first tested out in pilot projects in limited geographic areas to study their effectiveness.

177. Section B introduces a static labor market model for the low-skilled, which will serve as the analytical workhorse of the chapter. Three tax-transfer options debated in Germany can be analyzed with this model: (i) combi-wage proposals that aim at increasing take-home pay of workers receiving means-tested social benefits, i.e. unemployment assistance (*Arbeitslosenhilfe*) or social assistance (*Sozialhilfe*); (ii) wage supplements to employees to bolster take-home pay, e.g. by subsidizing social contributions paid by low-skilled

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[69] Quotes from points 4 and 14, respectively, of the annex to the EU Council's **Employment Guidelines for 2000.**

employees; and (iii) wage subsidies to employers to reduce labor cost, e.g. by subsidizing social contributions paid by employers of low-skilled workers.

178. Section C briefly reviews the characteristics of selected tax-transfer solutions to the low-skilled labor problem in Germany and selected other industrial countries. This overview illustrates the wide-ranging array of tax-transfer solutions applied in practice. The last section, D, describes and analyzes selected tax-transfer solutions currently debated in Germany, highlighting the possibly high fiscal cost of schemes that aim at subsidizing social contributions of the low-skilled.

179. The main conclusion of the chapter is that tax-transfer solutions to the low-skilled labor problem are likely to work best as part of a comprehensive strategy that also addresses the institutional sources of the employment hurdle problems underlying the low-skilled labor problem. When considering the likely high fiscal cost of extensive tax-transfer schemes, it should be borne in mind that these schemes also serve to make the fiscal cost of meeting society's equity objectives more transparent. The alternative approach, achieving these objectives directly through the collective bargaining process and the social insurance system, may, at first sight, involve lower fiscal cost. However, as exemplified by Germany's experience since the 1970s, a malfunctioning labor market can have adverse fiscal spillover effects over time and crimp the overall functioning of the economy. Tax-transfer solutions could also be integrated in a longer-term strategy of social insurance reform. For example, tapered social contributions at the lower end of the wage distribution could be designed as a first step toward establishing a multipillar social insurance system, where the future public pillar provides a basic package of social benefits in line with lower social contribution rates.

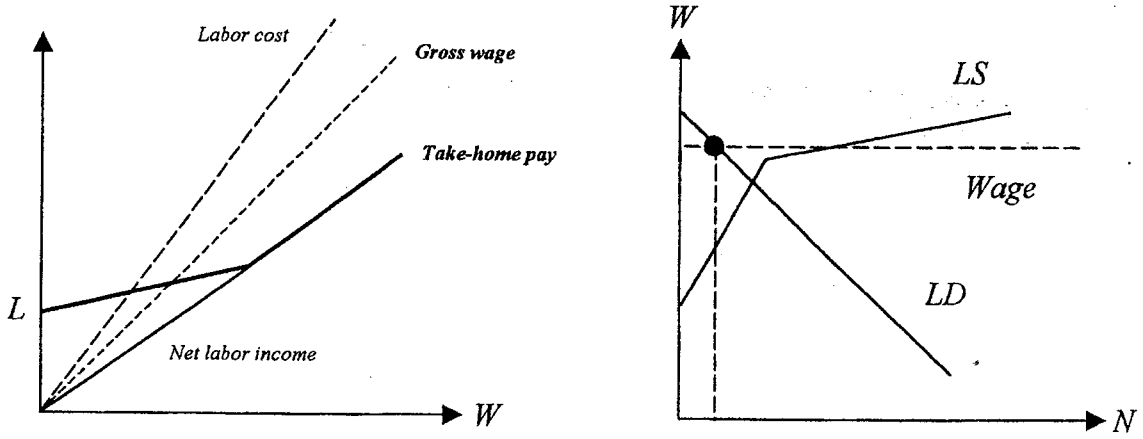
B. The Analytics of Tax-Transfer Options

180. The left-hand panel of Figure IV-1 illustrates the operation of a stylized tax-transfer system at the lower end of the labor market: W is the worker's gross wage; the worker's net labor income (also equal to take-home pay above a certain level of labor income) is defined as gross wage minus employee-paid social contributions;[70] and the worker's labor cost is defined as gross wage plus employer-paid social contributions. Non-insurance social benefits (social assistance, unemployment assistance) introduce a minimum standard of living L, where the level of L depends on the family situation of the worker. Figure IV-1 is drawn to

[70] In the German context, the income tax burden at lower income levels is likely to be small. For example, since the beginning of 1999 monthly gross incomes are subject to income tax beginning at DM 1,080 (single) and at DM 3,900 (family with three children and non-working spouse), respectively, and the personal income tax reforms to be phased in during 2000-02 will lead to further upward adjustments in these amounts.

indicate that the impact of additional work effort on take-home pay at low income levels is almost completely off-set by clawback of social benefits (welfare trap).[71]

Figure IV-1. A Stylized Labor Market for Low-Skilled Labor



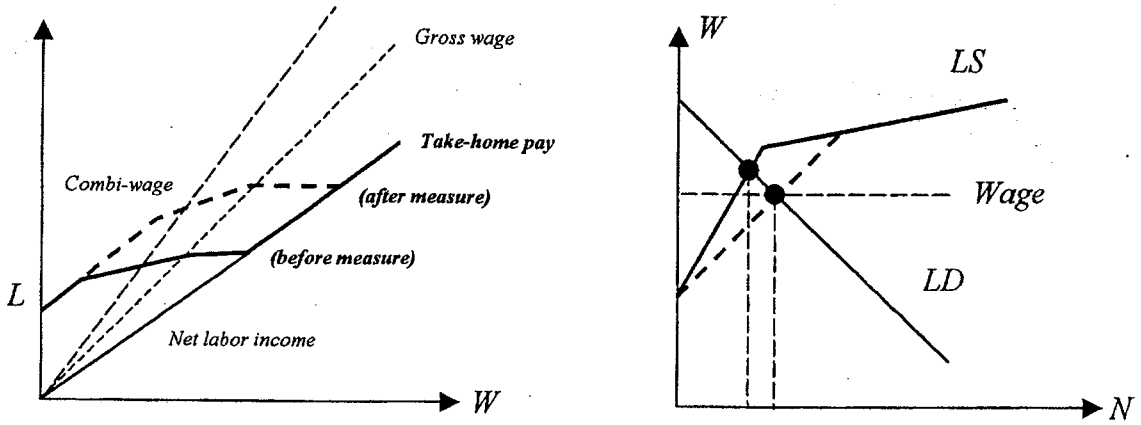
181. The right-hand panel of Figure IV-1 depicts labor supply and demand in the stylized low-skilled labor market, where N denotes low-skilled employment. Labor supply (LS) is drawn as quite inelastic at low levels of gross wage, reflecting the combination of high reservation wages and the operation of social benefit clawback rules. As soon as wage income rises beyond the eligibility range for non-insurance social benefits, take-home income becomes more sensitive to work effort, and, as a consequence, labor supply becomes more elastic as well. The labor demand schedule (LD) is conventional and slopes downward. The equilibrium in the low-skilled labor market illustrates a situation of a binding wage floor due to collective bargaining institutions, which could arise from a minimum wage law or (as is more likely to be the case in Germany) from solidaristic wage bargaining that raises low-skilled wages in line with those of higher-skilled workers. This is not a required ingredient of the framework; in some examples below, the assumption of a binding wage floor is relaxed.

182. In this framework, there are three tax-transfer options available to increase low-skilled employment, depending on whether they aim to shift labor demand or labor supply, and, in the latter case, on how labor supply will be targeted. The first option is referred to as the "combi-wage option." It aims at improving labor supply incentives by reducing the clawback rate of non-insurance social benefits. This option is illustrated in Figure IV-2. A combi-wage reform, illustrated by the bold dashed line, could alter two parameters. First, the reform could provide for a larger basic exemption. Second, the clawback rate in the second segment could be lowered. As a result, labor supply could become more elastic and be shifted to the right, leading to an increase in equilibrium employment, where it is now assumed that collective bargaining institutions permit the gross wage to be set at the

[71] See Thimann (1995) for a quantitative analysis of Germany's welfare trap.

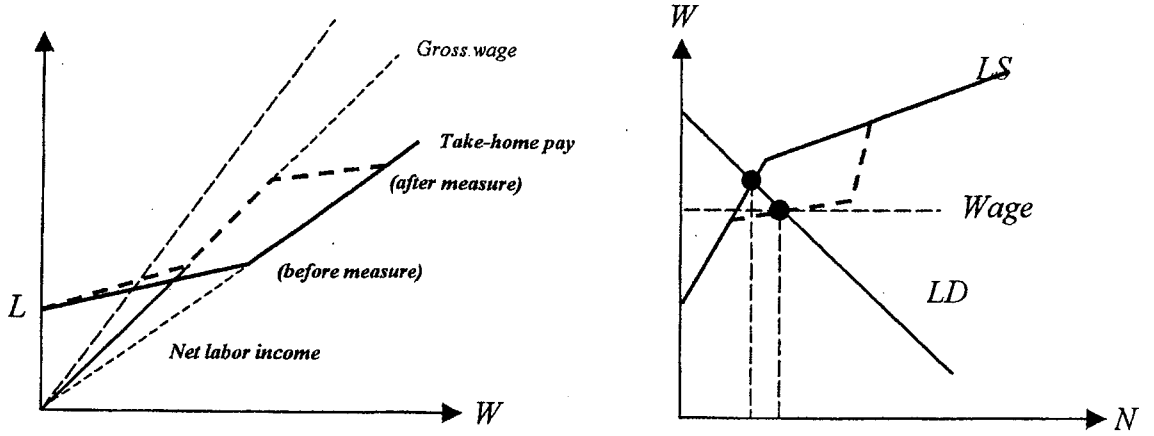
intersection of labor demand and supply. Even though the gross wage decreases, take-home pay in equilibrium increases, and this motivates a higher amount of labor supply.

Figure IV-2. The Combi-Wage Option



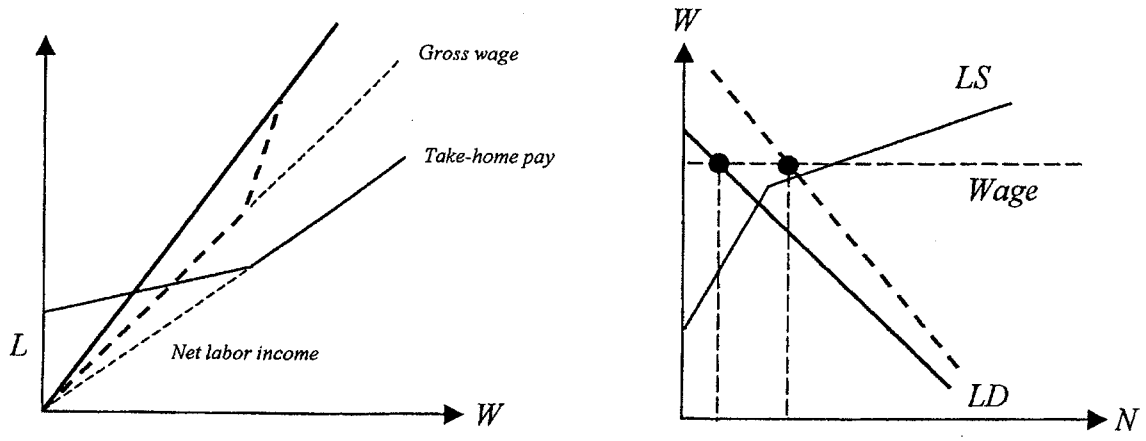
183. The second tax-transfer option, wage supplements, also affects take-home pay and labor supply, but through a different channel and it is not tied to receiving non-insurance social benefits. Wage supplements for employees will translate a given gross wage into a higher net wage. Most wage supplement proposals are designed in a regressive fashion, so that lower wages are subsidized at a relatively higher rate, and subsidies taper off to zero beyond the low-wage range. A cut of employee-paid social security contributions is equivalent to a wage supplement. However, there could be significant sensitivities when it comes to the choice between direct wage supplements versus a measure that would alter the basic design of the social insurance system. In terms of the take-home schedule, such a wage subsidy would be reflected in altering the net income line as depicted in Figure IV-3. This leads to a kinked new labor supply curve.

Figure IV-3. The Wage Supplement Option



184. The third tax-transfer option, wage subsidies, focuses on employers' labor cost. Like employee wage supplements, these proposals are typically regressive, and are economically equivalent to a corresponding reduction in employer-paid social contributions. Given the particularly high levels of employers' social contributions in much of Europe, most of the proposals in this area involve reducing or subsidizing employer-paid social contributions. Figure IV-4 illustrates a regressive cut in employers' social contributions. Labor cost is reduced by making the bottom section of gross wages entirely exempt from contributions, and then gradually raising employers' contributions back to old levels. The resulting change in labor cost is indicated by the bold dashed line. The effect on the labor demand schedule is also illustrated in Figure IV-4 assuming that wages are entirely within the range that is exempt from contributions. The labor market has a binding wage floor, and the LD shift resulting from the policy has a clearly positive impact on employment.

Figure IV-4. The Wage Subsidy Option

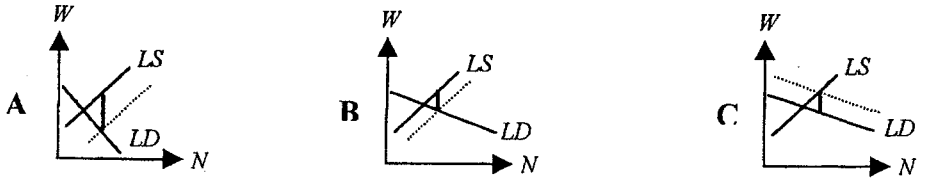


185. To evaluate or rank tax-transfer options requires an efficiency criterion. An ideal yardstick would assess the option's effect on the overall distortions caused by the tax-transfer system, taking due account of society's preferences regarding distributional goals. This exercise would amount to generating a desired income distribution while maximizing allocative efficiency. While some general-equilibrium simulations attempt to evaluate tax-transfer options along these lines, an exercise of this type would be well beyond the scope of this chapter. A more hands-on (and widely popular) criterion is to estimate the fiscal cost of creating additional low-skilled-jobs. As explained in more detail in Boxes IV-1 and IV-2, the fiscal costs of creating additional jobs depend on the sizes of the labor demand and supply elasticities and the "pick-up" and "replacement effects" of a proposed tax-transfer scheme.

Box IV-1. Labor Market Elasticities and the Fiscal Cost of Tax-Transfer Options

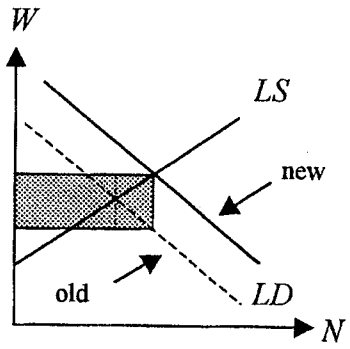
Box Figures A, B, and C below illustrate that the same increase in employment will entail a lower required wage supplement or subsidy (and thus lower fiscal costs) if labor demand or supply are more elastic. For example, indicating the supplement amount by a bold vertical line, and comparing Box Figures A and B reveals that, for the same increase in employment, the required supplement is smaller in Box Figure B since labor demand is more elastic. Box Figure C illustrates that this result does not depend on whether a wage supplement or subsidy is granted. Here, the elasticities are the same as in Box Figure B but labor demand is shifted instead. The amount of the required subsidy is equivalent to the amount of the supplement. Formally, for a small change in a subsidy *(ds)* and labor demand and supply elasticities η and ε, respectively, employment growth (dlnN) will change by:

$$\text{dlnN/ds} = \frac{\eta * \varepsilon}{\eta + \varepsilon}$$



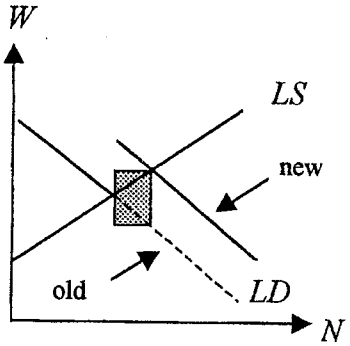
Box IV-2. Pick-Up and Replacement Effects of Tax-Transfer Options

(a) Untargeted

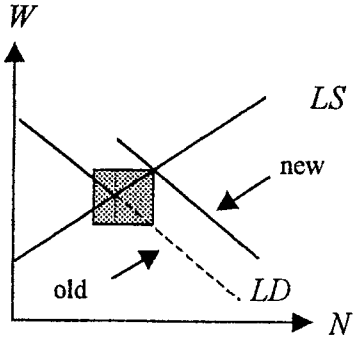


Given the size of the subsidy and the desired employment effect, the cost of a policy depends critically on how well targeted it is. The gray box in Box Figure (a) illustrates the cost of an entirely untargeted wage subsidy. The bigger, left-hand part of that box represents the amount of subsidies paid for workers that were already employed previously, an effect that is called the "pick-up effect." Conversely, Box Figure (b) illustrates a perfectly targeted policy where only previously unemployed workers are subsidized. This assumes that firms do not lay off previously employed workers and replace them with previously unemployed workers, in order to benefit from their lower labor cost. Realistically, this will happen to some extent even under well-targeted schemes, an effect that is called the "replacement effect." Box Figure (c) shows the worst possible case, where firms hire all previously unemployed workers (entire gray box) and then lay off previously employed workers to adjust labor demand (left-hand part of gray box). Realistically, any targeted policy will have replacement effects to some extent.

(b) Targeted



(c) Targeted with replacement



C. Tax-Transfer Tools in Germany and Selected Industrial Countries

186. Section B's framework is first used to survey tax-transfer tools in use in Germany and other industrial countries. Germany already has a considerable number of tax-transfer programs to spur low-skilled employment (Table IV-1).[72] However, all the wage subsidy programs presently in place are in the nature of "jumpstarting solutions." These programs provide temporary and targeted incentives to spur employment opportunities of workers with particularly unfavorable labor market characteristics (e.g., the long-term unemployed; handicapped workers; or workers in depressed regions). These programs also typically involve relatively large wage subsidies to cut labor costs significantly. Hence, these solutions are mainly motivated by an attempt to "buy time," so that subsidized workers can raise their productivity to a level that obviates the subsidy, e.g. by improving their marketable skills while employed, or by allowing employers to overcome possible misperceptions about the productivity of workers.

187. The targeted nature of jumpstarting solutions largely avoids pick up effects. Moreover, the measures usually entail provisions to curb replacement effects. Partly reflecting this, most of the programs listed in Table IV-1 have relatively small numbers of participants, with the notable exception of the special program for eastern Germany (structural adjustment measures east). In 1997, the number of workers enrolled in wage-subsidy programs, with a total of about 246,000 workers, represented about 20 percent of participants of active labor market policy programs. The rather small scale of the wage subsidy measures may also in part be due to financing restrictions as amounts available for these measures are typically subject to ceilings. The conditions of programs were at times made more restrictive as demand for the schemes was growing beyond funds.

188. A tax-transfer policy issue that has recently been the focus of much attention are the so-called "DM 630 jobs" (see Box IV-3 for details). The number of DM 630 jobs appears to have increased significantly, with about 10 percent of the labor force holding a DM 630 job as their sole source of (official) labor income in 1997. The work incentives at the DM 630 limit are low, since for wages exceeding DM 630 the entire income becomes subject to social contributions, implying a marginal tax rate far in excess of some 12,000 percent for the first additional 1 DM earned at an income of DM 630. One implication of this discontinuity is that very few jobs exist in the DM 630 to about DM 1,400 range.

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[72] The table omits a few tax-transfer programs that are outside the framework of section B, such as income tax credits for hiring private service employees or the new government's program for reducing youth unemployment. The latter targets 100,000 unemployed youth with lower qualifications—at an overall cost of DM 2 billion. The table also omits the exemption limits for earning additional income for recipients of social assistance (DM 269 per month) and unemployment assistance (DM 315 per month). The special case of the DM 630 jobs is discussed below.

Table IV-1. Selected Tax-Transfer Tools in Germany

Program	Nature of program	Recipients in 1997
Supplement for Integration *(Einarbeitungszuschuss)*	**Wage subsidy:** Up to 30 percent of gross wage for up to 6 months; can apply when the (re-) integration of a formerly unemployed person requires special on-the-job training.	2,700
Integration Assistance *(Eingliederungsbeihilfe)*	**Wage subsidy:** Up to 50 percent of gross wage for up to 12 months; applies to unemployed whose (re-)integration into the job market is especially difficult (long-term unemployed, disabled).	3,700
Supplements to the Wage Costs for the Elderly Unemployed *(Zuschüsse zu den Lohnkosten für ältere Arbeitslose)*	**Wage subsidy:** Up to 50 percent of gross for up to 24 months; applies to unemployed 50/55 years and older that are long-term unemployed.	23,600
Action Program Employment Assistance for the Long-term Unemployed *(Aktion Beschäftigungshilfen für Langzeitarbeitslose)*	**Wage subsidy:** Up to 80 percent of gross wage for first 6 months, up to 60 percent for another 6 months; only long-term unemployed are eligible, the subsidy depends on the length of the previous unemployment spell.	56,000 (in 1998)
Structural Adjustment Measures East *(Strukturanpassungs-massnahmen Ost)*	**Regional wage subsidy:** Maximum DM 2,162 per month, limited on an individual basis by the unemployment benefits that would be received otherwise, covers up to 10 percent of work force of a given firm for up to one year; applies at the firm level; firms are eligible if they have not laid off workers for 6 months, and agree not to do so during the program; applies only for hiring formerly unemployed workers.	160,000
Social Assistance *(Sozialhilfe)*	**Combi-wage:** Recipients who start a full job can get a subsidy of up to DM 538 (West) for up to 6 months.	n.a.

Sources: Buslei et al. (1999); and Ministry of Labor.

Box IV-3. DM 630 Jobs

System before April 1999: Jobs with monthly gross wage earnings of up to DM 620 (western Germany) or DM 530 (eastern Germany) and requiring less than 15 hours work per week were exempt from both the employers' and the employees' component of social contributions. Employees were exempt from income tax, but employers have to pay a flat tax of 20 percent of gross income. This covered both additional jobs (held besides a main job) and cases where the small-time job provided the sole source of labor income.

System since April 1999: The cut-off income was fixed at DM 630 for all of Germany and will be kept at that level in the future. Employers' flat income tax was removed, but instead employers have to pay social contributions of 22 percent (so that the total labor costs at the DM 630 level remains practically unchanged). The difference is that now the employee is earning claims against the social insurance system.

The number of jobs under the DM 630 regime has increased rapidly during the 1990's, from an estimated 3.8 million in 1991 to an estimated 5.6 million in 1997. About 75 percent of these jobs provide the sole source of labor income for the employee. At the same time, roughly three quarters of the jobs are held by married women, students, or senior citizens, persons who are likely to receive nonlabor incomes from other sources as well. The majority of DM 630 jobs is located in sectors such as private household services, retail services, or resteraunts.

189. Table IV-2 provides an overview of selected tax-transfer schemes used in other industrial countries. These programs vary considerably by type, scale and conditionality—but it appears that countries seem to focus on a certain type of policy. The most extensive combi-wage schemes are found in the United States and the United Kingdom, which in turn do not have particularly substantial wage subsidy schemes in place. The latter are found on a larger scale in several continental European economies, particularly in France and the Netherlands, where they represent key policy instruments.

190. The French case is the subject of considerable attention because of its scale and because this program likely to be expanded in the future. After first measures toward a subsidy to cut employer-paid social contributions were put in place in mid-1993, the policy was re-designed and expanded in 1996. The *ristourne dégressive* has by now become a key element—in terms of funding and in terms of employment effects—of the overall labor market policy strategy. Following the changes in early 1998, employers receive a social contribution refund for all SMIC (minimum wage) employees that amounts to 18.2 percentage points at the SMIC, in effect reducing employers' social contributions from about 40 percent to 22 percent and reducing labor costs at the SMIC level by about 12.6 percent. The size of the refund decreases in steps and reaches zero at 1.3 times SMIC. It is estimated that about 5 million jobs (about 25 percent of employment) benefit from this policy, and the overall budgetary cost in 1998 is somewhat above F 40 billion (0.5 percent of GDP). The ristourne regime is currently being redesigned in conjunction with the introduction of the 35-hour workweek initiative. The base eligible for rebates would be increased to 1.8 times the SMIC, likely extending the number of workers covered by the new regime to about 9 million, but also increasing fiscal cost by some F 25 billion (0.3 percent of GDP).

D. Tax-Transfer Proposals for Germany

191. The present discussion in Germany focuses on significant expansions of tax-transfer solutions to address the low-skilled labor problem. Several proposals have been put forward covering the full range of possible instruments (Table IV-3). Two broad groups can be identified. The first group comprises programs that seek to subsidize social contribution rates at the lower end of the labor market (usually both employer- and employee-paid contributions). The second group comprises combi-wage proposals that seek to increase incentives to supply labor by recipients of social or unemployment assistance.

Table IV-2. Tax-Transfer Schemes in Selected OECD Countries

Country	Program	Nature of program	Policy date 1/
Belgium	Wage subsidy	Social contributions reduced by 50 percent for low monthly wages; measure affects about 10 percent of the working population.	Since 1994
Canada	Wage supplement	Proportional benefit (8 percent) at low income levels; targeted towards families with children; conditional on employment; program is administrated through tax return.	1995
France	Wage subsidy	Regressive refunds of employers' social contributions for wages up to 1.3 times the minimum wage (SMIC).	Since 1996
Ireland	Wage subsidy	Reduced social contributions in the low-wage segment.	1995/6
Ireland	Combi-wage	Income supplement at low incomes; targeted towards families with children; conditional on working at least 19 hours a week; further programs targeted towards the long-term unemployed.	1995
Italy	Combi-wage	Income supplement at low incomes; targeted to families receiving unemployment benefit; conditional on employment.	1995
Nether-lands	Wage subsidy	For wages of up to 115 percent of minimum wage (or 130 percent in the case of a long-term unemployed person) employers are practically exempt from social contributions; continues to be available at a reduced rate for two years once the wage exceeds 115 percent of minimum wage.	Since 1996
Spain	Combi-wage	Income supplement at low income levels.	1995
United Kingdom	Wage subsidy	Social contributions reduced for the low-wage segment of the labor market; additional reductions for hiring long-term unemployed	1995/96
United Kingdom	Combi-wage	Family Credit: A need-tested transfer to those that work a least 16 hours a week; the transfer depends on the family size and is offset at a 70 percent rate against labor income after a sizeable exemption; transfer is higher for full-time employment (30 hours or more).	1995
United Kingdom	Wage supplement	Job Start Allowance Program: A tax deduction for long-term unemployed who take up employment below a certain cut-off wage.	1986-91
United States	Wage supplement	Earned Income Tax Credit: a proportional supplement at low earning levels; depends on family size; administered through tax return.	1996

Source: Mainly Buslei et al. (1999), OECD (1996), and Klös (1999).
1/ A year ("1994") indicates the time that the description of the program refers to. A range ("1989-1993" or "Since 1996") indicates the overall tenure of the program.

Table IV-3. Selected Tax-Transfer Proposals for Germany

Proponent	Program	Nature of program	Highest gross wage affected 1/	Other information
Benchmarking group in 'Alliance for Jobs'	Wage subsidy and supplement	Finances cuts in social contributions at lower income levels to facilitate a low-wage sector in Germany	n.a.	
Friedrich-Ebert-Foundation	Wage subsidy and supplement	No social contributions for gross income less than DM 1,500; social contributions for wages between DM 1,500 and DM 3,000 are subsidized regressively (tapering-off).	DM 3,000	All employees are eligible; also includes a minimum wage of DM 8/9 per hour.
Scharpf proposal	Wage subsidy	Regressive subsidy of hourly wages: DM 5 for a DM 5 hourly wage, decreasing to DM 0 for a DM 15 hourly wage.	DM 2,075	All employees are eligible.
Mainz Model	Wage supplement	Regressive subsidy of social contributions: 100 percent at monthly wages of DM 630, then tapering off linearly to 0 percent at DM 1550.	DM 1,550	All employees are eligible; also contains a children's allowance conditional on employment of up to DM 150 per month.
Blüm proposal	Combi-wage	When supplementing labor income is earned, unemployment assistance is increased from 60/67 percent to 73/77 percent of former net income.	(based on unemployment assistance, which is in turn based on previous wage)	Could also apply to social assistance recipients; employment has to be under the roof of social insurance; limited to max. two years per recipient.
Federal Ministry of Health	Combi-wage	Initial exemption in social assistance is increased for families with children, decreased for singles. Initial offset rate is slightly higher, but applies much longer (depending on household), so that the resulting overall exemption is much higher for families with children.	DM 1,330 (single) DM 3,710 (family with 3 children) (compare under the present exemptions: DM 1,320 and DM 3,400, respectively)	
State of Baden-Wuerttemberg	Combi-wage	Lower offset rates (50 percent initially, then increasing, but never 100 percent) for long-term unemployed social assistance recipients.	(based on unemployment assistance, which is in turn based on previous wage)	Limited duration per recipient; targeted (and restricted) to long-term unemployed.
Employers' Association	Combi-wage	Exemptions in social assistance schedule are decreased for singles and increased for families with children; lower and gradually increasing offset rates; no 100 percent offset ever.	DM 1,530 (single) DM 3,940 (family with 3 children) (compare under the present exemptions: DM 1,320 and DM 3,400, respectively)	Implies initially higher eligibility limits for social assistance, with the medium-term prospect of lowering the levels; unemployment assistance to be integrated into social assistance; introduction of lower wage brackets.

Source: Mainly Buslei et al. (1999) and information from the Federal Ministry of Labor.

1/ Monthly gross wage. When based on hourly wages, 38 hours per week are assumed. For Ministry of Health and Employers' Association proposals, based on 1998 social assistance levels for Western Germany in Boss (1999). These figures correspond to the level of assistance plus the maximum overall exemption amount, taking into account the initial exemption and the amount inherent in offset rates < 100 percent.

192. The fiscal cost of programs can be approached in different ways. First, there is a gross component, captured by simply adding up all additional fiscal costs that arise for the recipients under the policy. At the same time, however, the policies also create jobs and increase take-home income. This implies a potential to reduce gross fiscal costs through lower unemployment benefit payments and additional social insurance contributions, as well as indirect tax revenues from the higher consumption that stems from the increase in take-home income. The balance of all of this, the net cost, thus takes into account the overall effects of the policy (Table IV-4). The net fiscal costs put an additional burden on the budget, which could result in increased borrowing or the need to raise higher revenues through taxation. The resulting general equilibrium effects can further alter the fiscal impact of the policy.[73]

193. The fiscal cost estimates suggest that most of the tax-transfer proposals are expensive in fiscal terms. As a reference point for the figures in the table, consider that the annual gross income at the cutoff-wage, for, say, the *Friedrich-Ebert-Foundation* proposal (DM 3,000 per month) is DM 36,000, and that the average annual gross income in the manufacturing sector is DM 49,000 (western Germany). The wage subsidy programs are expected to generate substantial increases in employment, but the costs—according to the available studies—are likely to be high. Typically these studies use estimates for labor demand elasticities to gauge, together with the percentage change in labor costs due to the subsidy, the increase in labor demand. The actual employment effect will also have to take the labor supply response into account. The costs of the measure are found by multiplying the subsidy amount by the number of workers (or hours worked) presently in these wage categories, together with those that are newly drawn into employment. The degree of precision varies across studies. Buslei at al. (1999), probably the most ambitious study in the table, estimate low-wage labor demand elasticities for jobs/hours worked and men/women, and use these elasticities, together with a distribution of current employment across categories of hourly wages, and the subsidy amount for each individual wage category, to estimate labor demand effects by wage category. The labor supply response is modeled in a very detailed fashion, incorporating an accurate model of the entire present tax and benefit system (to translate wages in take-home income) and taking into account the household type.

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[73] Some studies using a general-equilibrium framework find that cuts in social contributions could be self-financing (negative net costs). For example, Van Rijckeghem (1997) arrives at this conclusion when considering the long-run effects of a cut in employers' social contributions that is targeted towards the low-skilled. The result comes about via a broadening of the tax base and lower outlays in unemployment benefits, but appears to rely on a rather elastic labor supply, together with the realistic (for France) assumption that the low-skilled segment of the labor market is subject to a binding minimum-wage constraint.

Table IV-4. Fiscal Costs of Selected Tax-Transfer Proposals for Germany

Plan 1/	Nature of program	Studies	Gross cost per job created 2/	Net cost per job created
Friedrich-Ebert-Stiftung	Wage subsidy and supplement	**DIW (1999):** Would affect about 4.8 million employees, create between 50,000 and 180,000 new jobs, but cost DM 14.35 billion gross, DM 11.88 billion net (strong pick-up effects).	**DIW:** DM 78,000–287,000	**DIW:** DM 66,000–238,000
		IAB (1999): Would create 50,000 jobs with unchanged gross wages and 140,000 when combined with a slight wage decrease; costs gross DM 15-24 billion, net DM 10-16 billion (rough estimates).	**IAB:** DM 107,000 –480,000	**IAB:** DM 71,000–320,000
Scharpf proposal	Employer wage subsidy	**Buslei at al. (1999):** employment increases on the order of 100,000; cost of gross DM 21 billion, net DM 7 billion (based on micro-econometric model and assuming a subsidy scheme slightly more generous than the original *Scharpf* proposal).	DM 210,000	DM 70,000
Federal Ministry of Health	Combi-wage	**Trabert et al. (1998):** labor supplied increases by 2.4 percent or about 500 people; costs of gross DM 6-9 million, net DM 0-9 million depending on labor demand response (micro-econometric model based on the state of Saxonia-Anhalt)	**Trabert et al.:** DM 12,000–18,000	**Trabert et al.:** DM 0–17,800
		Kaltenborn (1998): labor supply in Germany increases by 900 people (micro-econometric model).		
State of Baden-Wuerttemberg	Combi-wage	**Buslei et al. (1999):** labor supply increases by about 8,000 (based on a micro-econometric model and slightly lower offset rates than in the original proposal)		
Employers' Association	Combi-wage	**Kaltenborn (1998):** labor supply in Germany increases by 3,800 people.		

1/ See table IV.3 for a description of the plans.
2/ Cost ranges cover different assumptions about labor supply and demand elasticities and about savings generated elsewhere in the tax-transfer system (higher income tax and VAT revenues, e.g.).

194. Three factors contribute to the high fiscal cost of the proposed wage subsidy schemes. Firstly, a low labor demand elasticity will imply that the overall cost leads to fewer new jobs, implying high cost on a per-job-created basis. Secondly, an inelastic labor supply response will translate a given labor demand effect in wage increases rather than new employment, reducing the number of jobs created. Thirdly, the untargeted approach leads to very high overall cost stemming from recipients that were already employed to start with.

195. Turning to the proposed combi-wage schemes, the small labor supply effects reported in Table IV-4 illustrate that these measures are unlikely to have strong employment effects.

In additional simulation exercises, Buslei et al. (1999) also found that combi-wage proposals have only small significant positive effects on labor supply.

196. While significant insights can be gained from these exercises, attention needs also to be given to important factors that cannot be addressed specifically within the framework of this chapter. First, to the extent that tax-transfer schemes increase low-skill gross wages, these policies tend to narrow the wage differential with high-skill jobs, thus discouraging training. The practical relevance of this concern, however, seems to be limited. Second, the administrative cost of the different policies could be rather different, depending on the extent to which they rely on simple changes in existing parameters of the transfer system (a very simple combi-wage) as opposed to introducing new parameters (such as a targeted, regressive wage subsidy).

197. The illustrative analysis of this section suggests that an approach that tackles the low-skilled labor problem exclusively through tax-transfer solutions may have limited success in terms of additional employment creation and carry a hefty fiscal price tag. Nevertheless, well-designed tax-transfer solutions can constitute a valuable part of a more comprehensive strategy that also addresses the institutional sources of the employment hurdle problems. In evaluating the high fiscal cost of comprehensive tax-transfer schemes, one could argue that tax-transfer schemes represent a transparent approach to bring out the cost of meeting society's equity objectives as regards labor incomes. The alternative approach, achieving these objectives directly through the collective bargaining process and the social insurance system, may at first sight involve lower fiscal cost burdens. But, as exemplified by Germany's experience since the 1970s, a malfunctioning labor market has also considerable adverse fiscal spillover effects over time. Moreover, tax-transfer solutions aimed at reducing social contribution rates at the lower end of the labor market could be integrated in a longer-term strategy of institutional reforms that seeks to remold social insurance institutions. For example, tapered social contributions at the lower end of the wage distribution could be used as a first step toward establishing a multi-pillar social insurance system, where the (future) public pillar would provide a basic package of social benefits in line with lower social contribution rates.

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V. Financial Sector Issues in Germany[74]

A. Introduction and Summary

198. The financial sector in Germany, like that in many developed countries, is being continuously challenged by the rapidly changing economic and financial environment. In addition to the globalization of financial markets, the introduction of the euro has focused increased attention on the functioning of financial systems in Europe. For instance, many observers have questioned whether European banking systems are adequately prepared for the competitive challenges facing them.

199. Within this context, this paper first focuses on how the banking sector is dealing with some of the current challenges. It examines the overall health of the banking sector, some of its vulnerabilities, and the competitive issues arising from the large proportion of banking business conducted by public-sector banks. These public banks, while they must act to promote economic development in their state or region, are permitted to pursue other universal banking activities, competing directly with the commercial banks. Yet, due to their public mandate, they are able to draw upon their public (guaranteed) status to obtain lower costs of funding. The paper concludes that it is likely to be difficult, in the increasingly competitive European financial markets, to maintain this mix of practices within a public bank without drawing criticism from various external bodies who are charged with limiting anti-competitive practices. Further, it is difficult to establish whether the public banks serve their intended public purpose in an economically efficient manner, justifying the extent of the implicit subsidy they are granted.

200. The second part of the paper focuses on two specific German capital markets that have burgeoned in the last few years: first, the rapid growth of the *Pfandbrief* market; and second, popularity of the *Neuer Markt*, an electronic market for trading high-tech growth stocks. As with many rapidly expanding markets, certain problems arise. For the *Pfandbrief* market, the paper discusses several issues: attempts in other European countries to build a *Pfandbrief*-type market of their own and an expansion of the types of underlying collateral; potential changes in the risk-weights on *Pfandbriefe* for capital charges; and the degree of interest rate risk undertaken by issuing institutions as spreads narrow. With regard to the *Neuer Markt*, its relatively quick ascent has raised issues regarding liquidity, transparency, and the expectations of the new investors. These issues notwithstanding, the interest in the *Neuer Markt* demonstrates the beginnings of an equity culture in Germany.

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[74] Prepared by Laura Kodres.

B. Credit and Banking Markets

Overview of the German banking system

201. The German banking system has several distinctive features. First, it is highly varied and by far the least concentrated in Europe (Table V-1). The system is comprised of several different types of banking institutions, each with different roles and different ownership structures (Box V-1)—no one type of institution dominates the banking business. The diverse nature of the German banking system is often cited as one of its strengths, producing a financial system that has remained stable in the wake of external shocks. Second, a large proportion of the banking sector is comprised of public sector institutions, making up 29.1 percent of the domestic non-bank lending and 32.1 percent of deposits.[75] No other banking system in western Europe has such a large publicly-owned banking sector.[76] Third, in contrast to the steady disintermediation of banking systems around the world, Germany continues to maintain a predominantly bank-intermediated financial system (Table V-2).[77] For instance, the amount of non-financial corporate bonds issued and traded in Germany is negligible as a proportion of GDP—a mere 0.1 percent. As well, the equity market is much smaller than one would expect from a country of its economic size and degree of economic development—stock market capitalization is only 40 percent of GDP. These features are discussed in more detail below along with some of their implications for the future development of the German banking system. An examination of short- and medium-term vulnerabilities is also presented.

202. **The structure of the German banking system.** Banking systems in Europe have tended to evolve slowly, and Germany is no exception. The market shares of the main types of institutions in Germany have changed little over the last ten years (Figure V-1). As of end 1998, there were 3,233 institutions,[78] 175 less than at the end of 1997, and down

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[75] This excludes public sector mortgage banks which represent only a few percent of total business volume.

[76] Greece may constitute an exception with the National Bank of Greece taking up a large proportion of the banking market in Greece.

[77] Although the comparison with other continental European banking systems in Table V-2 is valid, since these countries' banks are also universal banks, the ability to make broader comparisons needs to take into account the degree to which banks assets (and revenue from them) include both traditional credit to firms and households as well as other non-loan assets.

[78] Reported in the Monthly Report, July 1999, Bundesbank. This number excludes building and loan associations, investment companies, housing enterprises with savings facilities, central securities depositories and guarantee banks.

considerably from the 12,000 or so in the early 1960s. Despite the ongoing consolidation, most notably among the credit cooperatives, market shares have been remarkably stable over time.

Table V-1. Concentration at the National Level: Assets of the Five Largest Credit Institutions as a Percentage of the Total Assets of Domestic Credit Institutions

	1985	1990	1995	1997
Belgium	48.0	48.0	54.0	57.0
Germany	...	13.9	16.7	16.7
Spain	38.1	34.9	45.6	43.6
France	46.0	42.5	41.3	40.3
Ireland	47.5	44.2	44.4	40.7
Italy	20.9	19.1	26.1	24.6
Luxembourg	...	...	21.2	22.4
Netherlands	69.3	73.4	76.1	79.4
Austria	35.9	34.6	39.2	48.3
Portugal	61.0	58.0	74.0	76.0
Finland	51.7	53.5	68.6	77.8

Source: European Central Bank, "Possible Effects of EMU on the EU Banking Systems in the Medium- to Long Term," February 1999.

Table V-2. Indicators of Financial Sector Structure, 1993 1/

(In percent)

	Banks' Market Share 2/	Bank Credit Share 3/	Loan Share 3/	Fixed Rate Share 3/	Stock Market Capitalization 4/	Bank Assets 4/
Netherlands	57 (1996)	73	97	75	90 (1995)	114 (1995)
Belgium	...	90	93	56	...	...
Germany	76 (1996)	89	94	65	24 (1995)	119 (1995)
United Kingdom	53 (1996)	56	81	27	127 (1995)	117 (1995)
France	70 (1996)	74	85	57	34 (1995)	99 (1995)

Source: Occasional Paper 181, "The Netherlands: Transforming a Market Economy," Box 4.1, p. 44, using Borio (1995); Huizinga (1998); and White (1998).

1/ Credit in this table refers to credit to firms and households from domestic financial institutions plus any securities outstanding.

2/ Assets of banks (not including insurance companies within the same group) as a percentage of assets of all financial institutions.

3/ In percent of total credit.

4/ In percent of GDP.

Box V-1. Main Types of German Banks

Private commercial banks

Private, commercial banks are the most varied type of bank in Germany—ranging from the very smallest to the largest. The Bundesbank identifies within this category four *Großbanken* or "big banks," regional and other commercial banks, and branches of foreign banks. Despite their specialities, these banks are permitted to undertake all universal banking activities (e.g., grant loans, take deposits, buy and sell securities on behalf of customers, act as underwriters in the capital market). The "big banks" maintain large domestic branch networks as well as subsidiaries, foreign branches, and representative offices worldwide. While they are active in the retail banking market, they are recognized for global wholesale banking and trading activities. The regional and other commercial banks are the broadest subcategory ranging from relatively large banks to the smallest ones: some focus on their region and others are active abroad. Within this category are "mixed" banks: they are organized as universal banks but are also permitted to carry out mortgage bank business (including issuing *Pfandbriefe*). Foreign banks focus on corporate clients, emphasizing wholesale banking and capital market services.

Landesbanken/Sparkassen

The local savings banks (Sparkassen) and their central banks (Landesbanken) are public banks. The Sparkassen are almost exclusively owned by municipalities/localities and they are expected to promote the German savings business in their geographic area. Although they are permitted to undertake the full range of universal banking activities, the Sparkassen have tended to remain retail oriented, lending long term, predominantly for housing, and funding this activity with traditional savings deposits. While most Sparkassen are relatively small, together they hold 23 percent of non-bank deposits and make 16 percent of domestic non-bank loans. The role of the Landesbanken is to service the Sparkassen, acting as their central bank, and to be the borrowing agent for the state and municipalities. The Landesbanken, too, are permitted to undertake a full range of activities, as long as they promote economic development in their region. For the Sparkassen, they hold excess liquidity reserves, act as clearing and payment facilities, put together loans which exceed the capacity of individual Sparkassen, finance foreign trade, and act as a correspondent bank and broker in foreign exchange and securities transactions, respectively. The Landesbanken have increasingly broadened their role both geographically and functionally. They service the larger corporate entities and some participate actively in global banking and capital markets.

Cooperative banks

The credit cooperatives were originally established to provide credit to artisans and peasants in urban areas (Volksbanken) and farmers in rural areas (Raiffeisenbanken) but can now act as universal banks. These cooperative banks are owned by their "members," who are private individuals (mostly depositors or creditors) and there are often limits on the number of shares an individual can own to ensure widespread ownership. Since most cooperatives are relatively small, they leave corporate finance and investment banking services to the four regional central banks, the Genossenschafts-Zentralbanks, who act in a similar capacity as the Landesbanken do for the Sparkassen. The cooperative sector has achieved the most consolidation of the German banking sectors, declining from 11,795 in 1957 to 2,248 in 1998.

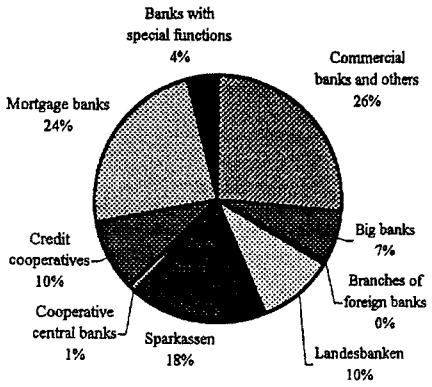
Mortgage banks

Mortgage banks consist of both public and private banks, governed by different laws. Although any commercial bank can extend mortgage credit, only mortgage banks (both public and private) and Landesbanken can issue mortgage bonds against the loans—the mortgage *Pfandbriefe*. Most of the private-law mortgage banks are majority-owned by commercial banks. Their loans are predominantly to the public sector and they are funded by *öffentliche Pfandbriefe*, bonds using the public loans as collateral. The publicly-owned mortgage bank differ little from their privately-owned cousins, but they focus more on lending for industrial and agricultural investments.

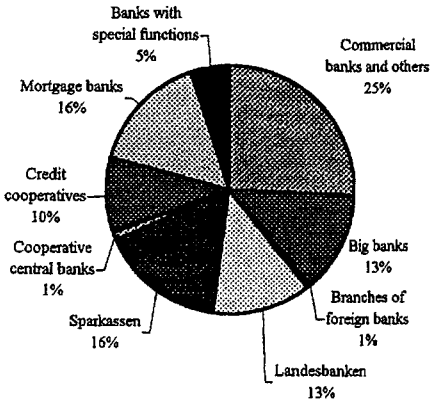
Figure V-1. Selected German Banking Sectors' Share of Domestic Business

Domestic Lending to Non-Banks:

December 1988

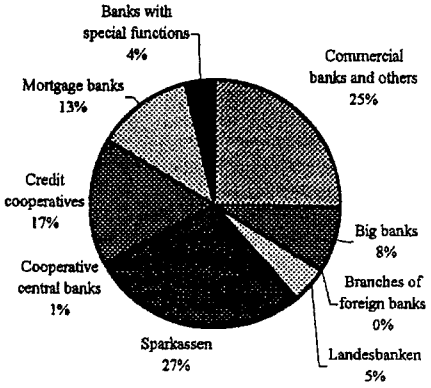


June 1999

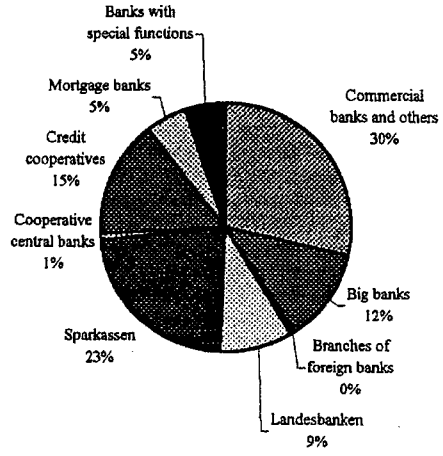


Domestic Non-Bank Deposits of Banks:

December 1998



June 1999



Source: Deutsche Bundesbank, Bankenstatistiks, Various Issues.

203. Foreign penetration into the German banking system, as measured by shares of deposits and loans, is very low (see Figure V-1 and Table V-3). Most of the foreign institutions, however, do not attempt to compete by providing domestic loans or maintaining a retail deposit network, but instead concentrate on wholesale banking activities. However, foreign institutions are interested in entering the German market—in 1998, 19 of the 46 new registrants for bank licenses represented branch offices of foreign banks.[79]

Table V-3. Market Share of Branches and Subsidiaries of Foreign Credit Institutions as a Percentage of the Total Assets of Domestic Credit Institutions, End-1997

	From EEA countries		From third countries		Total
	Branches	Subsidiaries	Branches	Subsidiaries	
Belgium	9.0	19.2	6.9	1.2	36.3
Germany	0.9	1.4	0.7	1.2	4.3
Spain	4.8	3.4	1.6	1.9	11.7
France 1/	2.5	...	2.7	...	9.8
Ireland	17.7	27.8	1.2	6.9	53.6
Italy	3.6	1.7	1.4	0.1	6.8
Luxembourg	19.4	71.1	1.4	8.1	99.9
Netherlands	2.3	3.0	0.5	1.9	7.7
Austria	0.7	1.6	0.1	1.0	3.3
Portugal	2.5	6.8	0.1	1.0	10.5
Finland	7.1	0.0	0.0	0.0	7.1
Euro area weighted average	3.4	...	1.6	...	12.7

Source: European Central Bank, "Possible Effects of EMU on the EU Banking Systems in the Medium- to Long Term," February 1999.
1/ 1996 figures.

204. Although no one type of institution dominates the banking business in Germany, three types of institutions provide a focal point for a discussion of ongoing pressures and changes in the German banking system. These institutions—the private commercial banks, the Landesbanken along with the Sparkassen (the largest set of public banks), and the credit cooperatives (mutually owned banks)—form a group comprising the bulk of the banking business.

205. While the main types of banks differ with respect to their ownership structures, their client bases, and their product offerings, they all are subject, to some degree, to the pressures arising from disintermediation. However, the process of disintermediation does not necessarily imply that German universal banks become less profitable. Savings may also pass

[79] Deutsche Bundesbank, 1998 Annual Report, p. 152.

through the banking system in the form of bank-provided equity investment vehicles (mutual funds) or insurance products: both of which are becoming popular bank products. Moreover, as other sources of funding are used by firms, German banks' underwriting and customer trading activities would be enhanced. Thus, the source of bank revenue would move, and in fact already has to some degree (see below), from lending fees and interest rate margins to issuance fees and trading and sales commissions.

206. **Profitability.** Looking below the surface, some of the global trends are also evident in the recent performance of the German banking system. Although after-tax profits of the German banking system were up in 1998, the results were due to numerous special effects that tended to obscure ongoing developments. For instance, net interest received increased only slightly and net interest margins (net interest received as a percentage of the average volume of business) fell to an all-time low as the volume of business outpaced the amount of interest received. Net interest margins have steadily deteriorated in many countries and this trend is symptomatic of the increased competition faced in banks' main line of business—providing loans.[80]

207. Faced with increased competition for loans, German banks have increasingly turned to commission-based income and to own trading results to bolster profits. Additionally, German banks have over the years realized long-term gains on their large equity holdings—part of the so-called "hidden reserves." In 1998, German banks generated income by selling participating interests and transferring large parts of their industrial shareholdings to autonomous partnerships although the bulk of earnings, about two-thirds, is still provided by interest-based businesses. Net commissions rose due to increased securities commissions and own-account trading profits expanded by one-third despite the year's turbulence in international financial markets. As potential sources of regular income, reliance on trading profits and other extraordinary items are traditionally not very dependable. Net commission income, however, has relatively low volatility, but the spreads (excess of commissions received over commissions paid) achieved in these lines of business are also falling, showing competition has increased here as well.

208. While the income stream of German banks is moving toward somewhat more volatile sources of income, costs remain stubbornly high. General administrative spending increased faster than gross overall earnings in 1998. Staff costs have increased at a slower rate in recent years than other administrative costs[81]—which have included most notably the costs

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[80] Interest rate margins also change with the cyclical movement of interest rates. They tend to decline as interest rates fall, usually with a lag, as a consequence of differing elasticities on the supply and demand for funds. Interest received by banks generally exceeds interest paid out as borrowers wait to refinance their loans while interest paid out to depositors falls closely in line with current rates.

[81] Reductions in the number of staff had dropped only 0.9 percent by 1997 from their peak in 1994. No other industrial country, except Canada, has seen so little effect of consolidation in

(continued...)

associated with the change to the euro and the year 2000 problem. While these costs represent one-time events, investments in information and communications technology are expected to continue for the foreseeable future, even if not at the current rate of growth.

209. Along with administrative costs, German banks have increased their provisioning for potential problem loans. Although most of the provisions are related to domestic lending, provisions have also been high in 1997 and 1998 as a result of exposures to emerging markets. Among the various categories of banks, big banks and savings banks[82] provisioned heavily in 1997 while in 1998 the Landesbanken recorded the steepest increase in such charges. Geographically, the 1998 provisions for emerging market exposures were predominantly related to eastern Europe and Russia while the 1997 provisions were more closely related to lending in south-east Asia.[83]

210. **Capital.** According to rating agencies, German banks have capital ratios that are considered relatively low by international standards.[84] The new version of Principle I, the regulation prescribing capital adequacy, requires that at least 8 percent of risk-weighted assets both of an individual institution and of a group of institutions or a financial holding group be backed by capital. The new principle requires capital be held against both counterparty credit risks as well as market risks in accordance to the Own Funds, Solvency, and Capital Adequacy Directives. At the end of 1998, for all individual German institutions the average capital ratio for both types of risks was 10.5 percent and for consolidated institutions it was 9.6 percent.[85] Although Tier 1 ratio (recommended to be above 4 percent by the Basle Committee) are not reported by most banks, rating agencies report that Tier 1 ratios for rated German institutions hover around 5 percent.[86]

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terms of a reduction in employment (from Bank for International Settlements, 1998 Annual Report, Chapter 5, Table 3).

[82] The Sparkassen, as local and municipal savings banks, were not known to have large emerging market exposures, but it is believed that the previously high growth of mortgage-related lending may have encouraged higher provisions.

[83] Deutsche Bundesbank, Monthly Report, July 1999, p. 41.

[84] The median overall capital ratio for the largest 100 or so banks in the developed countries (outside German) was about 11¼ percent in 1998 whereas the median overall capital ratio for the 11 German banks of comparable asset size was only about 9 percent.

[85] Deutsche Bundesbank, Annual Report, 1998, p. 153.

[86] The lower risk weight (50 percent) associated with commercial real estate for German institutions compared to the Basle recommendations (100 percent) contributes to banks' higher German Tier 1 ratios (reported above) than their BIS Tier 1 ratios. Several other EU countries also have similar weightings for commercial real estate.

211. These relatively low capital ratios are due to several features. First of all, from the microeconomic point of view, capital is expensive compared to liabilities. For the public sector banks in Germany, capital is difficult to obtain since they cannot issue equity and thus capital must be raised primarily through retained earnings—from which taxes and distributions to owners must also be made.[87] Other institutions have built up already taxed "hidden reserves" of capital gains. A proportion of these reserves can augment reported profitability or maintain payouts during periods of low earnings. It is important to recognize that the German banks' ability to use unrealized gains as an absorbing barrier for losses relies on the market prices of the securities remaining above their original purchase price. Unmonetized capital gains may not always be present although it is believed that German banks purchased these holdings long ago and sizeable unrealized gains remain even accounting for the trend in realizing some of these gains.

Short-term vulnerabilities facing the banking sector

212. According to BIS data on internationally active banks, German banks have some of the largest exposures to emerging markets (Table V-4) among industrial country banks. Further, while most industrial country banking systems were pulling away from the emerging markets, German banks extended credit to this set of countries between June 1998 and the end of 1998—increasing their exposures to emerging market countries by 4.8 percent while all other reporting banks lowered theirs by 8.4 percent. More recent German banking data, however, suggest that some of these exposures have begun to fall. By end June 1999, German banks had lowered their on-balance sheet credits to these countries as compared to end 1998. However, German banks continue to hold the largest exposure to Russia, some $25 billion, the largest exposure to other Eastern European countries, $19.5 billion, and the second largest exposure to Brazil, $5.1 billion (following that of the United States' banks).

213. Although data on Tier 1 capital[88] are not uniformly published, it widely believed that German banks hold some of the largest positions in emerging markets relative to their capital. As a portion of total assets of domestic financial institutions, on-balance sheet emerging market claims amount to about 3 percent. In interpreting these data, the following points are relevant. First, many of German banks increased their provisions for bad loans in 1997 after the Asian crisis began and again in the wake of the Russian crisis. Some rating

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[87] In addition, government guarantees provided to the Landesbanken may lessen the need to hold much more than the minimum risk-weighted capital. Looked at from a different point of view, the relatively low capital ratios increase the value of the contingent liability provided by the taxpayer represented by the government guarantee.

[88] Tier 1 capital in Germany includes equity issued by the bank, retained earnings, and silent partnerships, so-called *"stille Einlagen."* The ability to count the silent partnerships as Tier 1 capital up to a limit of 15 percent of total Tier 1 capital was granted by the Basle Committee in October 1998.

Table V-4. Claims of Banks in BIS-Reporting Countries on Selected Emerging Markets as of December 1998 1/

(In billions of U.S. dollars)

	All BIS-Reporting Countries	Japan	United Kingdom	United States	Euro Area 2/	France	Germany
Asia	**554.5**	**154.1**	**78.8**	**27.3**	**210.2**	**51.0**	**93.1**
(Percent change from June 1998)	(-13.2)	(-17.5)	(-6.8)	(-7.9)	(-11.4)	(-7.8)	(+ 0.6)
Of which:							
China	58.2	15.1	6.5	1.9	22.7	8.2	6.9
Hong Kong SAR	131.4	38.7	28.1	4.7	46.5	9.7	22.4
Asia-5	187.9	64.7	15.0	14.7	64.6	18.9	25.5
Latin America	**288.5**	**14.5**	**24.0**	**62.0**	**143.1**	**22.0**	**40.9**
(Percent change from June 1998)	(-2.4)	(-1.8)	(+3.8)	(-3.3)	(+27.3)	(-12.3)	(+3.7)
Of which:							
Argentina	61.5	2.0	5.7	11.3	34.6	3.4	9.1
Brazil	73.3	4.2	6.5	12.7	36.7	6.1	11.3
Mexico	65.0	4.7	5.1	18.2	25.9	6.3	6.8
Transition countries	**121.6**	**3.9**	**2.8**	**6.5**	**95.3**	**10.3**	**56.7**
(Percent change from June 1998)	(-8.9)	(-5.5)	(-27.2)	(-47.8)	(+3.1)	(-7.2)	(+8.0)
Of which:							
Russia	58.6	0.9	1.0	2.2	47.3	5.8	30.9
Middle East	**63.1**	**3.9**	**7.6**	**5.7**	**29.1**	**7.2**	**14.6**
(Percent change from June 1998)	(+10.1)	(+106.5)	(+17.1)	(+7.4)	(+13.4)	(+3.0)	(+25.9)
Africa	**56.4**	**1.9**	**3.7**	**3.3**	**39.0**	**18.6**	**10.2**
(Percent change from June 1998)	(-3.2)	(-19.3)	(-4.2)	(-31.8)	(-0.9)	(-0.8)	(+8.0)
All emerging markets	**1,084.0**	**178.3**	**116.8**	**104.8**	**516.8**	**109.2**	**215.5**
(Percent change from June 1998)	(-8.4)	(-15.5)	(-4.1)	(-11.5)	(-3.5)	(-6.9)	(+4.8)

Sources: Bank for International Settlements (BIS); and IMF staff calculations.

1/ On-balance sheet claims, excluding claims on offshore centers (with the exception of Hong Kong SAR and Singapore, which are included in Asia).

2/ Because data are not reported for Greece and Portugal, data are for Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Spain.

agencies estimate that between 50 and 60 percent of the Russian exposures are provisioned against. As in many industrial countries, provisions are encouraged in Germany because they are tax deductible and German banks have traditionally set aside higher provisions for bad debts than other countries' banks. The second factor mitigating Russian and other eastern European exposures is the use of export agency guarantees, such as the government supported insurance facility, *Hermes-Kreditversicherungs-AG*. Lastly, lending in certain sectors, for instance the gas and oil sector, is structured to eliminate the cross-border currency risk by having the loan repayable in hard currencies.

214. Another risk to German banks resides at home. Real estate and related construction lending, particularly within eastern Germany, has been strong since the unification of Germany and now the quality of some of these loans is starting to deteriorate.[89] Thus far, losses have been relatively small or have occurred in financial institutions that could be easily absorbed by other institutions. For instance, a small credit cooperative in Berlin received monetary support from the association of credit cooperative banks until an appropriate merger partner could be found. In another case, a substantial percentage of credit losses revealed after the merger of two relatively large commercial banks were related to non-performing property loans.

215. Nevertheless, mortgage and construction lending in Eastern Germany does not appear excessive. The growth in mortgage loans in some of the eastern states has exceeded total loan growth by a factor of three or more, but for eastern Germany as a whole, the growth rate of mortgage loans is about the same as the growth of total loans.[90] Lending in Berlin makes up about two-thirds of all loans in eastern Germany that are greater than DM 3 million in size and about ten percent of these loans are mortgage related. Yet, mortgage lending growth in Berlin has been less than total loan growth in Berlin during the last few years. While speculative real estate lending could be included as construction lending or other categories, data for Germany as a whole do not suggest construction lending has been growing extraordinarily fast.[91] Growth in construction loans dropped from about 9¾ percent per

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[89] The number of corporate insolvencies in Germany rose slightly in 1998 from 27,500 in 1997 to 27,800, primarily in the real estate, housing, retail and construction fields (Deutsche Bundesbank, Monthly Report, July 1999). Insolvencies in the construction industry have increased steadily since 1994: from 2,931 to 4,707 in western Germany and 1,040 to 3,402 in eastern Germany (Federal Statistics Office). Net return on sales averaged less than 1 percent in the west and there was an average net loss for the industry in the east.

[90] The data examining eastern Germany are based on the German credit register, recording loans of greater than 3 million deutsche marks or more, provided on a confidential basis from the Bundesbank.

[91] Data for loan growth in Germany as a whole are from various issues of Deutsche Bundesbank, Bankenstatistik.

annum in 1995 to only 1¼ percent in 1998, mirroring the current slump in the construction industry. For Germany as a whole, residential mortgage growth slowed from a peak of about 13½ percent in 1994 to 7½ percent in 1998, only one percentage point higher than total loan growth during 1998. A change in loan quality usually takes some time to manifest itself and so it is possible that the effects of the earlier high loan growth have not entirely materialized.

216. In an effort to update outmoded liquidity risk measurement techniques, in November 1998, Germany changed the rules by which German banks (and for the first time, mortgage banks, building and loan banks, and financial service institutions) will be evaluated on the basis of their liquidity (the so-called New Liquidity Principle II). The rules are considered an improvement over the old system by most observers, but they have several features which are still considered to mismeasure a bank's vulnerability to a liquidity problem. In particular, some critics believe that maturity categories are too wide to be sensitive to short-term funding difficulties and a review of banks' compliance is only undertaken once a month. However, from January 1, 2000, when compliance is mandatory, institutions that violate liquidity ratios will be investigated by the banking supervisor. Despite concerns about the efficacy of the new rules, German banks have not been prone to liquidity problems so far due to their rather large retail funding bases which allow them to maintain liquidity ratios considered to be quite conservative by international standards.[92]

Developments in German banking regulation and supervision

217. The German regulatory and supervisory system is moving ahead with a number of international and domestic reforms aimed at strengthening the financial sector—some of the main features of which are discussed here. Among areas for further action, better disclosure of information on credit quality of German banks is highlighted.

218. The Federal Banking Supervisory Office (Bundesaufsichtsamt für das Kreditwesen, 'BaKred') under umbrella of the Ministry of Finance, is formally responsible for the prudential supervision of individual financial institutions in Germany. The Deutsche Bundesbank, however, plays an auxiliary role through its participation in national and international fora in the development of banking supervision policy. Further, it shares with the BaKred implementation of EU directives and recommendations of the Basle Committee on Banking Supervision.[93]

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[92] For example, the ratio of liquid assets and marketable debt securities to deposits and money market funding is 77 percent for the largest 7 private banks and the Landesbanken.

[93] There is also a securities supervisory office, the Federal Securities Supervisory Office (*Bundesaufsichtsamt für den Wertpapierhandel*, BAWe). Its task is to ensure the functioning of the German financial markets, by, inter alia, increasing market transparency, improving investor protection, and enhancing market integrity. Thus, the German regulatory system is based on functional regulation whereby the BAWe is responsible for the proper functioning

(continued...)

219. Following the publication of the Basle Committee's *Core Principles for Effective Banking Supervision* in 1997, the Committee requested that countries undertake a "self-assessment" of their compliance. This assessment showed that Germany, like many of the 150 participating countries, had implemented most of the principles. A further examination is underway to determine what, if any, legislative changes are needed to ensure complete compliance. In particular, German rules regarding connected lending and affiliated counterparties are not identical to those proposed in the *Core Principles*, although they are close in spirit.

220. On the domestic front, the Sixth Act Amending the Banking Act entered into force on January 1, 1998. Among its many provisions, the Sixth Act, supplemented by the revision of Principle I concerning the capital of institutions, allows for the implementation of the amendment to the EC Capital Adequacy Directive. Principle I was revised in accordance with the final recommendations of the Basle Committee regarding market risk capital requirements, which permit the internal risk management models to be applied to market risks. The implementation of the market risk capital requirements should benefit the German banking system in at least two ways. First, although most German banks had already implemented systems for holding capital against trading risks, the mandatory nature of the regulation should reinforce these risk management priorities and make the system less vulnerable to market risk disturbances. Second, the internal risk models must be vetted by banking supervisors, keeping them abreast of developments in risk management technology. With the growing use of internal risk models, the BaKred, in conjunction with risk management specialists from the Bundesbank, have conducted on-site inspections of the risk management systems of the banks desiring to use the new approach. Between 15 and 20 banks have been examined and most have obtained permission to use their internal model, usually with the stipulation that the multiplicative factor used to calculate capital is higher than the minimum allowed in the enabling legislation. In addition to risk management system examinations, the BaKred is now more actively involved in conducting other special audits.

221. Recent developments in global markets have led many international bodies to conclude that more information could usefully be distributed to the market participants with a view to strengthening market discipline.[94] While recent directives are mostly aimed at individual banks improving their disclosure of information to outsiders, enhanced information about banking

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of financial *markets* and the BaKred is responsible for the prudential supervision of financial *institutions*.

[94] Such reports include: the Basle Committee's "Sound Practices for Loan Accounting, Credit Risk Disclosure and Related Matters," "Enhancing Bank Transparency," and "Framework for Supervisory Information about Derivatives and Trading Activities"; the Institute of International Finance's "Report of the Working Group on Loan Quality"; and the Fund's "Code of Good Practices on Transparency in Monetary and Financial Policies—Declaration of Principles".

publishes monthly banking statistics and provides an annual report on the performance of German credit institutions (as well as collecting confidential bank-specific information), some other vital statistics are not publicly available. In some cases, individual banks release more and better information than required by law in order to appeal to the international investment community in which they operate. Specifically, German banks are not required to report information about the quality of their loan books, nor do the supervisory authorities present system-wide information. For instance, the level of non-performing loans, current provisioning and ratios of these variables using total loans or assets are not routinely published in a way that allows one to evaluate the credit risks being held within the banking system. The publication of Tier 1 capital and other associated capital ratios is also not required of individual banks, although the Bundesbank does provide some information about overall capital ratios for various sectors of credit institutions and, as of the 1999 accounting year, Basle-reporting German banks will be obliged to publish their capital ratios.

222. German banking authorities are concerned that the introduction of information on non-performing loans and capital ratios would be, in the worst case, misinterpreted by potential users, but more likely, used inappropriately in making cross-country comparisons. For instance, German banking regulations do not require banks to declare a loan non-performing after a specific period of time, as in some other countries, but allow the banker to classify the loan based on a view of the prospects for repayment. While most banks are considered conservative—allocating more provisions than necessary and declaring loans non-performing earlier than banking systems that rely on more time-dependent rules—a comparison with other countries could appear to place Germany at a disadvantage. Core capital, too, uses different components than other countries making comparisons difficult.[95] However, recent events suggest that users of this type of information are increasingly sophisticated, recognizing that institutional differences matter considerably in how such information is to be interpreted.

223. With respect to individual institutions' disclosure practices, the banking supervisors' hands are tied. Mandated reporting and disclosure standards for credit institutions cannot be altered by the banking supervisors, nor by the central bank, but only by the Federal Ministry of Justice as part of the German Commercial Code. The Ministry of Justice consults with the relevant bodies, but these bodies are not permitted to initiate changes. The Ministry is solely responsible for amendments to accounting regulations, which include the layout of annual accounts, the consolidation of annual accounts, as well as the contents of notes to the financial accounts. Although there can be good reasons for not disclosing individual bank data, it would be desirable to remove impediments to the disclosure of system-wide information about credit quality (capital ratios, levels of nonperforming loans, provisions, and so on).

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[95] Germany is not the only country that does not conform to "internationally accepted" definitions of capital, as the the discussion about the appropriate definition of various concepts of capital is ongoing.

Recent developments and prospects in the Landesbanken sector

224. **Role and ownership structure.** The Landesbanken are public sector banks created by most of the federal states. Each Landesbank has a public mandate to promote the regional economies in which they are situated. Although they must provide credit at the regional level, the Landesbanken are free to invest and extend credit in other regions or outside Germany.

225. In addition to lending in support of regional economic development, the Landesbanken act as central banks to some 594 Sparkassen, the savings banks owned by the municipalities and localities, and as bankers to their respective state governments. In their role as bankers to state governments, they provide intermediation services—issuing bonds to the general public and on-lending the proceeds to governmental entities.[96] Their central banking services include centralized payment and settlement services, correspondent banking facilities for foreign exchange transactions, and other back-office functions. In addition, the Landesbanken are members of German stock exchanges and act as brokers, executing stock transactions in the name of retail clients of the Sparkassen.

226. Landesbanken receive two formal support mechanisms: *"Anstaltslast"* (a maintenance obligation) and *"Gewährträgerhaftung"* (a statutory obligation or guarantee). Although neither of these state governmental protections to the Landesbanken have ever been used, rating agencies have viewed these support mechanisms as guarantees that would be upheld, ultimately by the central government if the state were, by some highly unlikely circumstance, unable to fulfill its obligations. The rating agencies believe these guarantees provide support for both on- and off-balance sheet obligations or liabilities and they influence the AAA deposit and debt credit rating status of the Landesbanken.[97]

227. To understand the corporate control mechanisms within a Landesbank, it is useful to examine their ownership structure. Although created by most of the states, the Landesbanken are often owned by both the state and a set of Sparkassen, usually through various associations. Table V-5 shows the various ownership structures for ten of the 13 Landesbanken[98]—only one is completely owned by the Sparkassen. Although a Landesbank must, by law, have a minimum of two professional bankers as top managers to

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[96] See Section C for below for a discussion of the *öffentlich* (public) *Pfandbriefe*, the main instrument used in this intermediation process.

[97] Moody's Investor Service also assigns a financial strength rating which examines the financial strength of a bank on a stand-alone basis, excluding external support elements and other system-wide safety and soundness considerations.

[98] A fourteenth institution, the Deutsche Girozentale-Deutsche Kommunalbank, serves as the network's central wholesale institution and is sometimes included in various statistics.

Table V-5. Ownership Structures of Selected German Landesbanken

Landesbank	City/Länder (percent)	Sparkassen/Other (percent)
Westdeutsche Landesbank Girozentrale WestLB	State of North Rhine-Westphalia (43.2)	Sparkassen Association of the Rhineland (16.7) Sparkassen Association of Westphalia (16.7) Regional Association of the Rhineland (11.7) Regional Association of Westphalia-Lippe (11.7)
Bayerische Landesbank Girozentrale	State of Bavaria (50)	Bayerischer Sparkassen und Giroverband (50)
Norddeutsche Landesbank Girozentrale NORD/LB	State of Lower Saxony (40) State of Mecklenburg-Western Pomerania (10) State of Saxony-Anhalt (10)	Lower Saxon Savings Bank and Giro (26.66) Savings Bank Association of Saxony (6.66) Savings Bank Association of Mecklenburg-Western (6.66)
Landesbank Schleswig-Holstein Girozentrale	State of Schleswig-Holstein (25.05) Westdeutsche Landesbank Girozentrale (39.9) Landesbank Baden-Württemberg (10)	Savings Bank and Giro Association of Schleswig-Holstein (25.05)
Landesbank Hessen-Thueringen Girozentrale – HELABA		Savings Bank and Giro Association (100)
Landesbank Berlin – Girozentrale	City of Berlin (25)	Bankgesellschaft Berlin AG (75)
Hamburgische Landesbank – Girozentrale	City of Hamburg (49.5) Landesbank Schleswig-Holstein (49.5)	HLB-Beteiligungsgesellschaft MBH (1)
Landesbank Rheinland-Pfalz Girozentrale	Westdeutsche Landesbank Girozentrale (37.5) Suedwestdeutsche Landesbank Girozentrale (12.5)	Sparkassen-und Giroverband (50)
Landesbank Sachsen Girozentrale	State of Saxony (50)	Holding of Saxony's Savings Banks (50)
Landesbank Saar Girozentrale SaarLB	State of Saarland (17.6) Bayerische Landesbank Girozentrale (25.1)	Sparkassen-und Giroverband Saar (57.3)

Sources: Various annual reports; and Fitsch/IBCA BankScope Database.

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decide all day-to-day matters, the associated Supervisory Boards can be made up of an assortment of individuals. Some of the members must be representatives of the state entity, the *"Gewährträger,"* but others can have diverse backgrounds, which may include, for instance, the state government's Minister of Finance or of Internal Affairs and various elected officials. Oftentimes there are sub-associations within the associations of Sparkassen from which the pool of potential board members may be drawn. Occasionally the Supervisory Board will need to approve a large loan or discuss situations in which a borrower is having difficulty.

228. Sparkassen are, themselves, public entities created by their municipalities or localities for the purposes of promoting savings and investment within their community. By law, the first priority for the Sparkassen is to promote the German savings business and not to maximize profits. A small part of the undistributed profits from the Sparkassen are often earmarked for promoting local art and culture and, although returned to the community, the funds are not to be included in the formal local budget. Examples of such social expenditures include youth music programs, concerts, museum exhibits, and senior citizen events.[99]

229. Knowledge of the ownership structure allows a better perspective regarding the motives for producing profits and their distribution. Like other banks, net income can be held internally as part of reserves or other forms of retained earnings or disbursed to the owners (in this case, the Sparkassen and state) as distributed profits. To the extent that profits are paid out to the Sparkassen associations and their members, these institutions, who have no individual shareholders, can opt to retain them, increasing their own provisioning against non-performing loans, increase their capital base, or return the proceeds to their communities in the form of social expenditures. Since neither the Landesbanken nor the Sparkassen can raise equity through the issuance of shares to the general public, the internal generation of capital is one of the few ways in which they can support the growth of their assets[100] and most of net income is used in this way.

230. **Recent performance and pressures.** A predominance of low-margin business undertaken by the Landesbanken has led to fairly low overall profitability measures (Table V-6). Over the last four years, after-tax profits were 0.13 percent of the average volume of business. By comparison, the same figures for the big banks, the Sparkassen and the credit cooperatives are 0.39 percent, 0.28 percent, and 0.27 percent, respectively. Net interest rate margins and net commissions for the Landesbanken were also low compared to these sectors.

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[99] Like many commercial banks, annual reports of the Sparkassen highlight their community service contributions.

[100] Another is to have the owners allocate more capital. See discussion of WestLB below.

Table V-6. Net Interest Margins and Net Commissions: Various Sectors of the German Banking System, 1995-98

(As percentage of average volume of business)

	1995	1996	1997	1998
Net interest margins				
All categories of banks	1.76	1.65	1.50	1.37
Big banks	1.93	1.71	1.50	1.28
Regional banks and other commercial banks	2.01	1.91	1.79	1.69
Branches of foreign banks	0.72	0.68	0.40	0.40
Private bankers	2.48	2.40	2.33	2.30
Landesbanken 1/	0.68	0.69	0.65	0.62
Sparkassen	3.02	2.91	2.72	2.52
Regional institutions of credit cooperatives 2/	0.89	0.76	0.72	0.76
Credit cooperatives	3.04	2.91	2.76	2.56
Mortgage banks	0.69	0.67	0.63	0.62
Credit institutions with special functions	0.95	0.90	0.85	0.83
Net commissions				
All categories of banks	0.36	0.34	0.35	0.34
Big banks	0.77	0.73	0.76	0.69
Regional banks and other commercial banks	0.44	0.42	0.48	0.50
Branches of foreign banks	0.24	0.23	0.18	0.15
Private bankers	1.21	1.45	1.72	2.04
Landesbanken 1/	0.10	0.10	0.10	0.10
Sparkassen	0.49	0.47	0.47	0.48
Regional institutions of credit cooperatives 2/	0.22	0.22	0.23	0.20
Credit cooperatives	0.53	0.53	0.54	0.55
Mortgage banks	0.00	-0.01	-0.01	-0.01
Credit institutions with special functions	0.21	0.18	0.17	0.13
Operating profit after taxes				
All categories of banks	0.26	0.22	0.21	0.32
Big banks	0.37	0.33	0.21	0.66
Regional banks and other commercial banks	0.31	0.27	0.33	0.51
Branches of foreign banks	0.20	0.11	0.02	0.14
Private bankers	0.38	0.48	0.90	1.01
Landesbanken 1/	0.12	0.13	0.13	0.14
Sparkassen	0.30	0.28	0.26	0.26
Regional institutions of credit cooperatives 2/	0.21	0.24	0.15	0.58
Credit cooperatives	0.31	0.28	0.25	0.22
Mortgage banks	0.21	0.20	0.17	0.18
Credit institutions with special functions	0.20	-0.01	0.15	0.19

Sources: Deutsche Bundesbank; and staff calculations.
1/ Including Deutsche Girozentrale.
2/ Including Deutsche Genossenschaftsbank.

231. Although net interest margins have been falling for banking systems throughout Europe, the relatively lower profitability raises two issues about the long-term viability of the Landesbanken as business entities. First, given already low costs of funding (see discussion below), low profitability may mean already weak business activities are being undertaken when they should be eliminated—resources may be misallocated. Second, low profitability makes capital generation more difficult, the more so since capitalization through publicly-held equity issuances is not an option. Landesbanken are thereby encouraged to seek more profitable activities to supplement the low profit ones. With the squeeze on profits, the search can, and has, lead to increased risk-weighted assets as riskier activities have been included in the balance sheet. As an example, some Landesbanken have followed their commercial bank competitors and have expanded into developing and emerging markets.[101] The emerging market crises starting in 1997 have forced these Landesbanken to increase provisions against doubtful loans. The losses incurred have not been overwhelming and German supervisors authorities note that the Landesbanken managements' ability to judge sovereign and political risk is no better or worse than their private sector counterparts. Provisions and write-downs for various sectors of the German banking system are provided in Table V-7 and show that 1998 reserve allocations for the Landesbanken were a higher percentage of average business volume than for the three largest private banks, but similar numbers for 1995-1997 show the opposite. Direct measures of risk are not uniformly presented so there is no concrete evidence that the Landesbanken have riskier portfolios, on average, than a similar set of commercial banks. Also, while guarantees and public ownership may encourage riskier behavior, offsetting the risks of emerging market exposures is a domestic asset portfolio which many believe is broadly low risk.

232. **Cost of funds and the Westdeutsche Landesbank Girozentrale (WestLB) decision.** Another way to cope with the pressures on profitability (instead of attempting to increase revenues through riskier activities) is to decrease the costs of funding and attempt to contain other operating expenses. The discussion of the cost of funding has been a heated one for the German banking industry. Many private commercial banks believe that the public support mechanisms are the primary reason for the AAA ratings received by the Landesbanken, allowing them to obtain interbank deposits and other forms of funding at comparatively low interest rates. The relatively cheaper funds, the private banks claim, go to support lending activities outside the region, lending that competes directly with the private banks.[102] This discussion of the "unlevel

[101] In most cases, the Landesbanken followed their corporate and official sector customers to these countries and only recently have some pursued lending opportunities with resident borrowers.

[102] The argument that the Landesbanken receive "cheap" capital should, other things constant, lead to higher profits. However, both net interest margins and operating profits, before taking account of net income or net charges from the valuation of assets (i.e., provisioning and asset valuations), for the Landesbanken are slightly lower than for the three big banks (0.1 percent of the average volume of business) and considerably lower than for the larger category of regional and other commercial banks.

playing field" has intensified over the last several years as pressures to generate profits and dividends for private shareholders have come to the fore.

Table V-7. Loss Provisioning and Writedowns of Fixed Income Securities: Selected Sectors of the German Banking System, 1995-98 1/

(As percentage of average business volume during year)

	1995	1996	1997	1998
Commercial banks and Regional banks	0.29	0.32	0.32	0.29
Big banks	0.19	0.15	0.25	0.15
Landesbanken	0.15	0.15	0.14	0.27
Sparkassen	0.52	0.47	0.46	0.34
Credit cooperatives	0.35	0.37	0.41	0.36
Mortgage banks	0.10	0.08	0.11	0.08

Source: Deutsche Bundesbank, Monthly Report, July 1999, pp. 53, 55.

1/ The Bundesbank refers to these data as "net income or net charges from the valuation of assets (other than tangible or financial fixed assets)" in "The Performance of German Credit Institutions in 1998."

233. On July 8, 1999, the EU Competition Commission, concluded its investigation of a complaint lodged by the Federal Association of German Banks (the commercial banks) in December 1994 against six Landesbanken (Box V-2). The commission chose to investigate the capital transfer received by Westdeutsche Landesbank Girozentrale (WestLB), the largest Landesbank, and ruled that it must reimburse its owners for $824 million of back interest which was considered an illegal subsidy provided by the State of North Rhine-Westphalia. Although the case is fairly narrowly focused, many bank analysts and other observers believe that it sets an important precedent for the other six or seven Landesbanken who have acquired similar types of capital from their state owners and have paid what are considered to be lower than market interest rates for its use. Many predict that this is the first stage in a process which will lead to a closer examination of the support mechanisms themselves and, ultimately, to the dismemberment of the Landesbanken's presumed advantages over private sector financial institutions.

234. The reaction of the Landesbanken and other German public banks to the criticisms about their capital benefits and support mechanisms has been, first, to argue that their existence as a public bank (and thus, their mandate to support regional economic development) requires some compensation for the implied lower profitability and higher reserves for potential losses—simply, that public banks produce public goods that require subsidies. While defending the purposes of public banks, Landesbanken are also attempting to implement the same cost efficiency measures as the commercial banks so as to increase profitability and their retained earnings. For instance, increased cross-holdings of stakes among the Landesbanken have allowed some resource sharing and cost cutting and further

Box V-2: The EU Competition Comission Ruling on the WestLB Case

In the early 1990s, the capital of six Landesbanken was augmented by the transfer of the capital of their respective regional residential housing associations to the balance sheets of the banks. The states took no shares in exchange for the injection of the capital and were paid, in the case of WestLB, 0.6 percent per annum for its use. In December 1994, the German Bankers Association lodged a complaint on behalf of German commercial banks with the EU Competition Commission against the six banks alleging that the low return provided to the states for the capital injection amounted to unfair subsidy. In September 1997, the commission formally acknowledged the complaint and subsequently decided to investigate only Westdeutsche Landesbank Girozentrale (WestLB), the largest Landesbank. The commission ruled on July 7, 1999 that WestLB had received a subsidy implicit in the transfer and that it should pay back interest at a rate of 9.3 percent per annum on the amount WestLB was able to use as capital. From this payment was deducted the amount the bank actually paid for the use of the capital leaving an amount of €808 million ($825 million) to be returned to the state. The interest rate was calculated by a consulting group, First Consulting, based on an after-tax figure of 12 percent that a "normal" bank investor would have received along with a deduction for that part of the capital tied up in support of low-income housing activities. WestLB and others have criticized the method used to arrive at the subsidy arguing that the Commission and the consulting group confused pre- and post-tax returns. WestLB has said that it will pursue all legal possibilities to revoke the ruling and will probably lodge an appeal with the European Court of Justice.

The reaction of other parties has also been swift. The rating agencies put the individual strength ratings of WestLB and the other five Landesbanken who have utilized such capital on a negative ratings outlook.[1] They argue that the intrinsic financial strength of these banks may be affected by their ability to make the large one-off payment for the retroactive interest and, in the longer-run, their earnings may be lower if large annual interest payments must be made going forward. The German federal government, which is responsible for enforcing the EU Competition Commissions ruling, has noted that the decision raises serious economic and legal implications. The Bundesbank, while not questioning the decision itself, expressed concern over the delay in decision, arguing that it put the future of the public banks in Germany into question. Further the decision was released without supporting documentation about how the decision was reached, adding to uncertainty about the implications for the AAA ratings of the other six or seven institutions in question and raising their refinancing costs.

The outcome of the decision and the repayment of interest to the state of North Rhine-Westfalia, assuming it takes place, could be less severe than initially predicted. The state could decide to refunnel the payment back to the bank, but this time take shares as compensation. This technique, however, would dilute the relative shareholdings of the associations of Sparkassen and may cause the Sparkassen to complain. Opinions differ about whether the public law establishing the Landesbanken would need to be altered, requiring legislative approval from the state governments, if the shareholdings are redistributed.

[1]The individual strength ratings do not affect the deposit and debt ratings which depend on the external support elements provided by the *Anstaltslast* and *Gewährträgerhaftung*.

such relationships are expected. Vertical integration with the Sparkassen is being considered, which would also allow cost savings and greater efficiencies.

235. **The future of the Landesbanken.** However, despite attempts to become more efficient, the Landesbanken face an increasingly difficult position in a global financial market in which public banks are being privatized and market principles are being encouraged. In Europe, especially, the introduction of the euro, a centralized monetary policy, and the general emphasis on more competitive markets has focused attention on the structure of Europe's financial markets with an eye to make them more efficient. The large amount of business flowing through Germany's public sector banks, both the Landesbanken and the Sparkassen, has thus attracted the attention of others—particularly those who would like to tap into Europe's largest market.

236. From a public policy perspective, however, the issue is first, whether the original reasons for the introduction of the public banks are still present and secondarily, whether the public banks efficiently and equitably accomplish the public goals laid out for them. If so, the "unlevel play field" argument holds less sway, since then public banks would be "entitled" to subsidies necessary for the provision of the public goods. However, if the Landesbanken are competing directly with private institutions then they should not receive beneficial treatment, at least not for the part of the business that competes directly. The German authorities argue that the Landesbanken have fulfilled in important role: at first, following World War II, when the Landesbanken were set up in their present form; and more recently, in providing needed credit for business development following the unification of eastern Germany. The Association of German Public Banks views its members as guaranteeing "unbureaucratic handling of assistance programs and budget-friendly use of tax revenues."[103]

237. However, it is difficult to gauge whether the Landesbanken have fulfilled their public mandate to provide credit for regional development. First, loans are not catalogued according to whether they were provided on a preferential basis to meet the public mandate. The proportion of business, besides loans, is also not divided into that undertaken as a public bank and that undertaken for commercial reasons. Further, since information about non-performing loans is not required to be publicly released, it is impossible to verify that the regional lending business could not be otherwise fulfilled by a commercial entity. If it could not, then one might expect this business to be more likely to result in losses due to the proportionately higher number of loans that are extended on a less than a fully commercial basis. The only (imperfect) indication that this might be the case is to compare provisions of the Landesbanken against commercial banks assuming that provisions represent a constant proportion of non-performing or problem loans.[104] As noted earlier, except for 1998,

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[103] Association of German Public Sector Banks, Annual Report, 1998/1999, p. 7.

[104] Some individual commercial banks and Landesbanken do provide information about their loan portfolios in their annual reports but are likely to represent a biased sample, since these

(continued...)

commercial banks made higher loss provisions than the Landesbanken as a proportion of average volume of business, even when excluding the three big banks that were known to have large emerging market exposures for which provisions were necessary.[105] Thus, without more detailed information about the quality and profitability of loans extended by the Landesbanken it is not possible to determine their effectiveness in carrying out their public mandate as only circumstantial evidence is available.

238. In principle, public banks may have certain advantages over explicit government control in allocating credit. A professional set of bankers may be more experienced in deciding viable projects and helping borrowers in problem situations than less-experienced government officials. Also, as pointed out by the Association of German Public Sector Banks in their annual report, guarantees and loans can be used on a revolving basis and the interest subsidy on a loan is usually only a fraction of the subsidy otherwise required. However, the subsidies provided to the Landesbanken and Sparkassen are less transparent than might be the case if the funds were explicitly provided through the state or municipal budgets. The way in which the lower funding costs, resulting from the public support mechanisms, translate into the public subsidy is difficult to calculate since the lower funding costs support both the publicly mandated lending as well as other loans and services based on commercial principles. Thus, the appropriateness of the subsidy granted to public banks is not easily evaluated.[106]

239. Regarding the other services the Landesbanken provide to the states and the Sparkassen (the clearing and other back-office facilities as well as the public debt issuance facilities), the benefits derived by a publicly supported institution are also hard to measure. It is noted below (Section C), that issuing banks state that public *Pfandbriefe* can only be issued at a negative spread to the underlying public lending rates when features are matched, suggesting that there is little if any value added to this intermediation process. Further, developed countries tend to utilize private institutions for many of these services—although some countries have a mix of, for example, private and public check clearing or small-value payments systems.

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institutions tend to be larger and engage in more international activity than nonreporting banks.

[105] Actually the category includes asset revaluations other than tangible or financial fixed assets and therefore includes changes in values from write-downs of the market prices of fixed-interest securities. These were reportedly relatively small in 1998. Voluntary transfers of reserves are included in a different category but show the same phenomenon. (Deutsche Bundesbank, Monthly Report, July 1999, p. 40).

[106] A case could be made, as well, for the state and local government to use other tools to enhance regional economic development rather than the distribution of credit, such as tax policy, grants, and removal of regulatory impediments to the formation of new businesses.

240. With global and European competition in the financial services industry expected to intensify, there will be increasing pressure on public banks, particularly ones that appear to obtain preferential treatment from their public bank status, to justify their existence. In this context, observers of the Landesbanken and Sparkassen banking sectors have identified several possible outcomes. The first, and easiest to implement, is to try to make the existing Landesbanken more efficient. This is already underway through cross-holdings and the centralization of some functions. Mergers among the Landesbanken themselves, however, have been difficult to arrange. In some cases the public law establishing them needs to be altered to allow other states to purchase stakes. In other cases, where the public laws are basically conformable among the interested states, negotiations among the shareholders have tended to be protracted given the regional pride and power which some Landesbanken and their board members enjoy.

241. A second outcome would be to remove the state support mechanism (*Anstaltslast* and *Gewährträgerhaftung*)—only possible by changing the legal construction of the Landesbanken (for example into a "stock company")—or make the Landesbanken pay explicitly for such support, which would eliminate the subsidy and substitute it with insurance. However, without reducing the publicly-mandated regional development constraints (which are assumed to be binding) the Landesbanken may be forced to be competitive with commercial banks on the liability side of their balance sheet but not allowed full freedom to determine the asset side. This could ultimately lead to problems for the state and central government guarantors, unless the guarantees were priced to reflect the lower average credit quality that would be the result.

242. A final outcome would be to dissolve the current structure of the Landesbanken either by restricting the Landesbanken to be entirely public lending institutions, with strict lending requirements, or by privatizing them so that they operate fully as commercial banks. In this latter case, some other mechanism would be needed to accomplish the regional development goals, assuming they continue to be deemed important, and any other public services that could not be produced efficiently by the privatized institutions. Ultimately, the mix of public and commercial practices within the Landesbanken will be difficult to maintain. Pressures are likely to increase from the outside as claims regarding anti-competitive practices are considered by the EU Competition Commission or other bodies. Further, the increasingly competitive environment will encourage banks to take on riskier activities, which in turn, may result in a large shock to the chronically low profitability of the Landesbanken. Such a shock to earnings may exhaust the relatively low capital cushion before public funds are required. The time it will take for either of these outcomes to manifest themselves depends partly on political considerations and partly on the size and distribution of any negative earnings shocks that banks need to absorb.

C. Capital Markets: Debt and Equity

243. As bank intermediation begins to play a lesser role in German financial markets, debt and equity markets will come to the fore. The following two sections examine two asset classes in which growth has been particularly robust over the last few years. In the fixed-

income area, the outstanding amount of German *Pfandbriefe* (fixed-income bonds collateralized by a pool of either public or mortgage loans with the same volume and interest rate characteristics) has doubled since 1992 and this market has quickly become the largest bond market in Europe. In German equity markets, the interest in initial public offerings (IPOs) and venture capital has fueled the take-off of the *Neuer Markt*, an electronic market started in 1997 listing mostly small, high-tech enterprises. Since the advent of the euro and the consequent removal of exchange rate risk, European investors have taken renewed interest in securities in Europe—the interest in the *Pfandbrief* market and the *Neuer Markt* represent just the beginnings of a new vitality in German capital markets.

Debt markets: the *Pfandbrief* market

244. By December 1998, the German *Pfandbrief* market was around €950 billion: the largest bond market in Europe, overtaking the size of both the Italian and German government bond markets (Figure V-2), and achieving a rank of sixth worldwide. The *Pfandbriefe* market has seen enormous growth over the last several years (Figure V-3), partly the result of the introduction of the Jumbo *Pfandbrief*. The traditional *Pfandbrief*, a fixed-interest coupon bond with principal paid at maturity and collateralized by pools of public-sector assets or mortgages, has been around since 1769. The newest innovation, the Jumbo *Pfandbrief*—a straight bond with a minimum face value of DM 1 billion (or €500 million)—began in May 1995.[107] The Jumbos represent nearly 23 percent of the total volume of the *Pfandbrief* market and have contributed the most to the 22 percent overall growth of the market last year.

245. A *Pfandbrief* security has several characteristics that has made it more attractive in recent years and particularly so since the start of EMU. The pool of collateral usually consists of assets of uniformly high credit quality leading to high ratings (almost exclusively AAA) even when the issuing institution is not as highly rated on a stand-alone basis. The high credit quality, along with the large amounts outstanding, has created over the years a liquid market of high quality bonds. Since corporate bond markets in Europe are still nascent,[108] the *Pfandbriefe* have become the fixed-income security of choice, providing slightly higher returns (historically about 26 basis points) than sovereign debt in exchange for little, if any,

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[107] Other innovations to the *Pfandbriefe* include a floating step-up *Pfandbrief*, a fixed-floating-fixed *Pfandbrief*, a multi-tranche *Pfandbrief* with an optional increase in the volume of issue, a reverse floater with debtor right to call, and so on.

[108] The corporate bond market in Europe is also growing rapidly. In the first six months of 1999, €149 billion worth of bonds were issued by European corporates—double the amount issued in the same period of 1998 and exceeding most estimates made for the year as a whole. While the German corporate bond market doubled between 1997 and 1998, as of end-1998, Germany corporate bonds represented less than 1 percent of all outstanding German bonds.

additional credit risk. Another feature increasing demand since the start of the euro, is its acceptability as Tier 1 collateral in dealings with the European Central Bank through the TARGET payment systems—the only privately issued bonds ranked alongside sovereign assets.

246. The uniformly high credit quality is of key importance in establishing the liquidity of the market, putting it on par with the government bond markets of Europe. The high credit quality is maintained by relatively strict criteria about the types of underlying collateral and the monitoring undertaken by a trustee appointed by the German supervisory authorities. For mortgage-backed *Pfandbriefe*, the pools of mortgages consist of first-lien mortgages underwritten with a loan to value ratio of 60 percent or less. The *öffentliche* (public) *Pfandbriefe*, bonds which are backed by loans to public authorities (the federal government, federal special funds, states, and municipalities) and s*chuldscheine* (promissory notes), are considered essentially guaranteed. Non-German European bonds and loans are restricted to 10 percent of any *Pfandbrief* collateral pool. The limit, however, does not apply to France, Austria, Denmark and Luxembourg since their laws permit the *Pfandbrief* holder to have preferential rights to the underlying collateral. Only mortgage banks, Landesbanken and a few others are permitted to originate *Pfandbriefe*. The Jumbos also have a mechanism for maintaining liquidity by assigning market makers to quote two-way prices at all times.

247. The demand for *Pfandbriefe* has extended beyond the borders of Germany to other parts of Europe and, increasingly, outside Europe. The increase in cross-border portfolio flows witnessed in the first half of 1999 is partly a result of the increased interest in the *Pfandbrief* market, along with other portfolio investments. Investors have become increasingly familiar with the securitization process, the value of having a diversity of liquid, euro-denominated fixed-income securities in their portfolio, and the legal and regulatory environment in Germany which supports the rights of bond-holders and maintains the quality of the collateral. Contributing to the demand for *Pfandbriefe* is a recognition that the amount of sovereign debt outstanding is expected to diminish as countries whittle away their central government debt to free up fiscal resources for other uses. This trend has already become evident in 1998 with the 8.8 percent drop in *Pfandbriefe* backed by federal government loans and federal special funds and the 17.2 and 19.5 percent increase in the *Pfandbriefe* backed by states and municipalities, respectively. Overall, the growth in the *öffentliche Pfandbriefe* has been larger than the mortgage-backed *Pfandbriefe* in 1998 and outstanding *öffentliche Pfandbriefe* represent 33 percent of all outstanding German registered and bearer bonds.[109] The differential issuance growth has been attributed to the waning of mortgage refinancings as most homeowners have already taken advantage of the lower interest rate environment and slower growth in the construction industry. Further, most of the Jumbos are supported by public sector loans since mortgage pools of the size required for Jumbos require too many securities (due to their relatively small individual size) to be easily managed.

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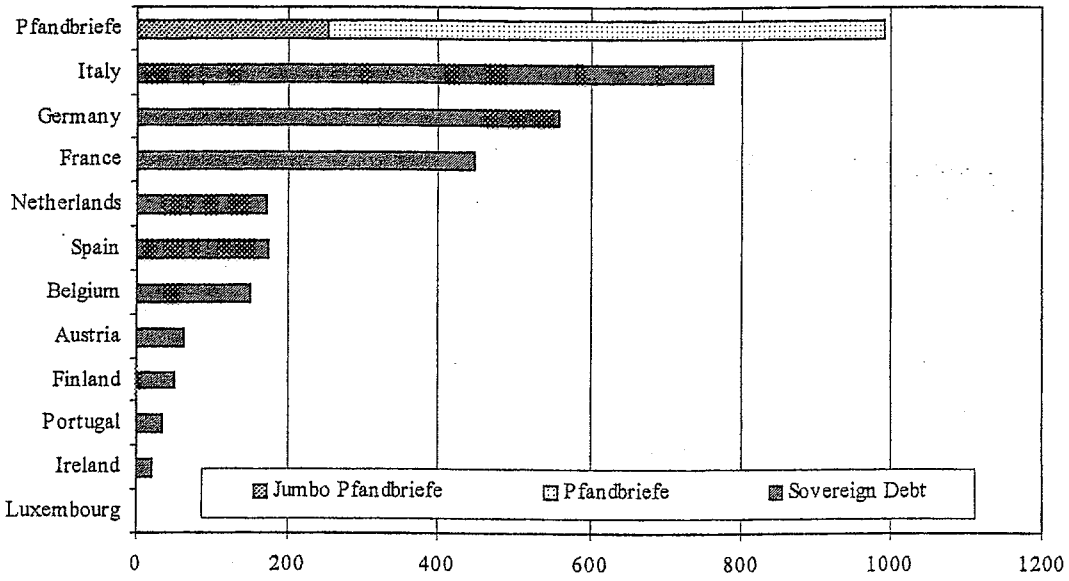
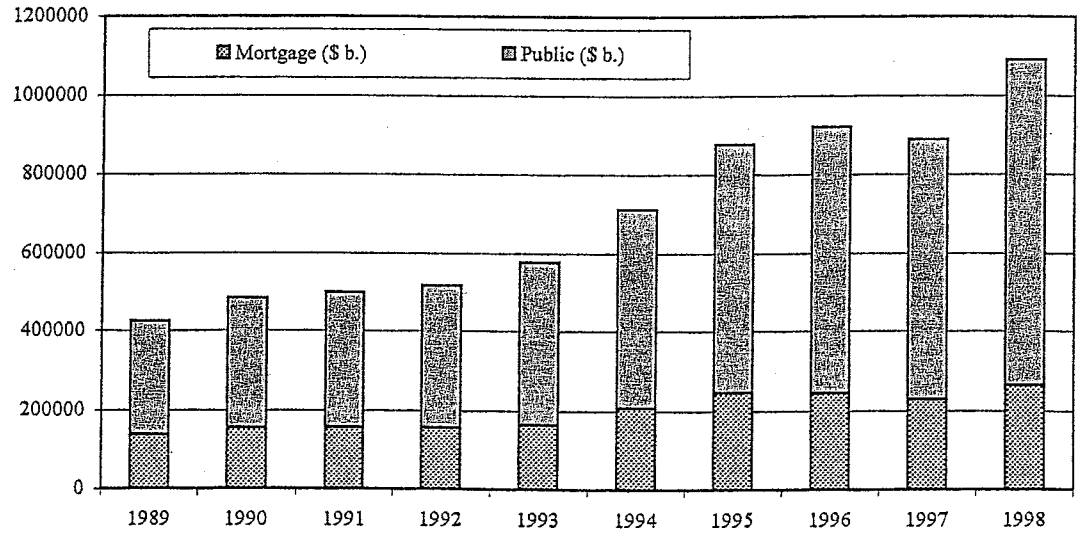
[109] Annual Report of the Association of German Mortgage Banks and Deutsche Bundesbank.

Figure V-2: Continental European Bond Markets: March 1999 (In billions of euro)



Source: The Association of German Mortgage Banks, Annual Report, 1998.

Figure V-3: Growth in the Pfandbrief Market: 1989-1998 (In billions of U.S. dollars)



Source: The Association of German Mortgage Banks, Annual Report, 1998.

248. The new interest in the *Pfandbriefe* has meant that the other institutions and countries are trying to replicate the *Pfandbrief* form of securitization. In some cases, even the name "*Pfandbrief*" has been marketed with these securities. Officially, the right to designate a bond as a "*Pfandbrief*" was created in the 1930 German Mortgage Act, and some believe the right to issue *Pfandbriefe* thus only applies to those designated in the Act. Some others argue that *Pfandbriefe* are simply a special form of an asset-backed security (ABS) and any financial institution should be allowed to issue them. Still others argue an intermediate position: that the restriction that only certain German institutions can issue them be removed but that the rules governing the collateral quality should be maintained. Despite their differences, most German issuers and financial authorities are concerned that the name "*Pfandbrief*" should continue to be associated with the high quality standards for the underlying collateral pool and that the pool of loans, the "cover pool," gives investors priority ahead of other creditors in the event of insolvency.

249. Another issue is the potential change to the credit risk-weight attached to the *Pfandbriefe*. Issuers worry that changes may lessen the attractiveness of the *Pfandbrief* instrument. Presently, different risk-weights are assigned to the *Pfandbriefe* for capital purposes in various jurisdictions. There is a 10 percent risk-weight on the *Pfandbriefe* held by institutions in Germany, Austria, Denmark, Spain, and France in accordance with EU-directives and a 20 percent weight in other EU-member countries.

250. Currently, the Basle Committee has proposed changes to its risk-weighting schemes.[110] The Basle Committee views asset-backed securities' risk-weight as depending on the risk associated with the underlying securities. The Basle Committee's proposal assigns risk-weights to the ratings of the securitization tranches directly. However, some observers believe that the Basle Committee's decision on ABS is irrelevant for the *Pfandbrief* instrument, because the *Pfandbrief* is not a traditional ABS—the loans underlying the *Pfandbrief* remain on the balance sheet of the relevant institution. From Basle Committee's point of view, it wants to preserve the advantages of asset securitization (a diversification of credit risks) but worries that the drive to securitize assets may be based on subverting the capital rules by altering the form, but not the substance, of the economic risks held by an institution. Irrespective of this, the AAA-rated *Pfandbriefe* of international operating institutions (applying to both the public and mortgage types) would still have a risk-weighting of 20 percent.

251. Aside from issues of collateral quality and changing risk-weights, concerns have been raised about the interest rate risk assumed by the issuing institutions: mainly mortgage credit institutions in Germany (both publicly- and privately-owned) and the Landesbanken. The mortgage credit institutions have been viewed as low risk (since the maturity of assets and liabilities are expected to be closely matched), and they have therefore received lighter

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[110] The changes are motivated by a number of disconnects between the risk-weights and the actual credit risks incurred on a number of instruments.

supervisory oversight. It is now claimed that the public loans are granted at such low interest rates that *Pfandbrief*-issuing banks sometimes wait a period of days, incurring interest rate risk, to assure a positive spread. Or alternatively, they may issue a *Pfandbrief* and deposit the proceeds with approved banks, waiting until other permanent collateral can be purchased at advantageous rates. Other tactics now use derivatives to arbitrage differences in the value of the *Pfandbrief* and its underlying collateral, either due to yield curve kinks or liquidity differences (Box V-3). In general, most banks lending to the states believe that it has become impossible to refinance the official sector debt immediately at matching maturities and still make a profit—either attaching various "bells and whistles" are required or a timing mismatch must be undertaken.

Box V-3: *Pfandbrief* Derivative Plays: An Example

In order to take on less interest rate risk and enhance their returns, mortgage banks use derivatives along with their issuances of *Pfandbriefe*. One such strategy resembles bond stripping whereby the value of the stripped security is different that the sum of its parts: in this case, differences in the liquidity of the various components provides the "arbitrage" allowing the mortgage bank to make profit where a loss would have been incurred. For example, a mortgage bank may purchase a 10-year Schuldschein (semi-tradable state loan) with an attached put option maturing in five years at a slightly lower yield than a Schuldschein without an option. To offset the risk of the option, in addition to issuing a *Pfandbrief*, the mortgage bank sells an option to offset the one it purchased. It would do so by selling a swaption (an option to enter a swap) using Euribor with the same nominal value as the Schuldschein. The option would allows the buyer to initiate a swap to receive a floating Euribor rate and pay a fixed rate to the mortgage bank. The premium received for selling the swaption combined with the amount received on the Schuldschein would exceed the usual fixed interest rate the mortgage bank would have to pay out on the *Pfandbrief*, thereby achieving a positive spread. If the buyer of the swaption exercises the option, the mortgage bank in turn exercises its option on the Schuldschein. The mortgage bank would receive a fixed rate in the swap, covering its regular payments on the *Pfandbrief* and would pay out Euribor. The par amount paid off from the Schuldschein would be lent out at Euribor creating the offsetting cash flow. The reason that the Schuldschein plus the purchased put option is cheaper than the *Pfandbrief* plus sold option is that the *Pfandbrief* counterparty does not want to purchase the illiquid Schuldschein. Thus, there is an "arbitrage" profit due to liquidity characteristics of the two instruments

252. Strictly speaking, the supervisory authorities require that *Pfandbriefe* be issued simultaneously with the purchase of the collateral and matched by maturity. However, the supervisors recognize that, as a practical matter, perfect timing and maturity matches are usually not possible. Each issuance bank is expected to manage interest rate risk appropriately and not to use the issuance procedure for yield curve speculation. Yet, until recently the mortgage banks were exempted from a number of more rigorous regulations, making it difficult for BaKred to observe the degree of interest rate risk being undertaken.

Now, the mortgage institutions need to acquire individual exemptions from these regulations, declaring that they are only doing long-term lending. Although some public mortgage banks continue to maintain their traditional role as suppliers of mortgage credit to those not able to obtain it, the sophistication of some of the strategies pursued by others raises questions about whether the more conservative institutions can continue to compete. It may become important to re-evaluate whether restricting the issuance of *Pfandbriefe* to certain institutions and the differential regulatory burden on the mortgage banks is warranted.

Equity markets: the *Neuer Markt*

253. An equity culture is beginning to hold in Germany. In the last three years, the proportion of Germans holding shares increased from 13 to 19 percent.[111] Much of the excitement in owning equity securities has focused on the fledging firms that have used public offerings of equity as the seed capital for development rather than bank financing. The initial growth of the *Neuer Markt*, or New Market, launched in March 1997, has surprised even the most optimistic observers. This new equity market, devoted to high growth, high-tech listings, has taken the lead among continental Europe's small capitalization, growth markets, with a €47 billion capitalization it is more than 80 percent of Europe's small capitalization market. The Nouveau Marche in France follows with about 10 percent and venture capital markets in Brussels and Amsterdam together make up about 3 percent.

254. The number of listings on the *Neuer Markt* has grown enormously—from an initial two stocks to more than 150 since inception (Figure V-4). In the latter half of 1999, about twenty more are scheduled. This growth has occured despite the relatively stringent listing requirements which eliminate an estimated 20 to 25 percent of all applicants. Companies must pass a screening process by the Deutsche Börse and must publish quarterly earnings statements that meet international accounting standards, providing better information about the company's ownership structure and financial situation than are now required by the German accounting and disclosure standards. Initially, these more stringent listing requirements were expected to dampen the enthusiasm of companies considering a listing. However, the enhanced disclosure and information has served to signal higher quality entrants, or at least entrants that are willing to spend the time and money to set up dual accounting systems. This has resulted in higher liquidity and smaller bid-ask spreads making the market attractive not only to German investors but to investors worldwide. The high liquidity and low bid-ask spreads is also enhanced by the use of "advisers," market makers who agree to quote buy and sell prices and keep an inventory in order to satisfy gaps in the supplies or demands of investors.

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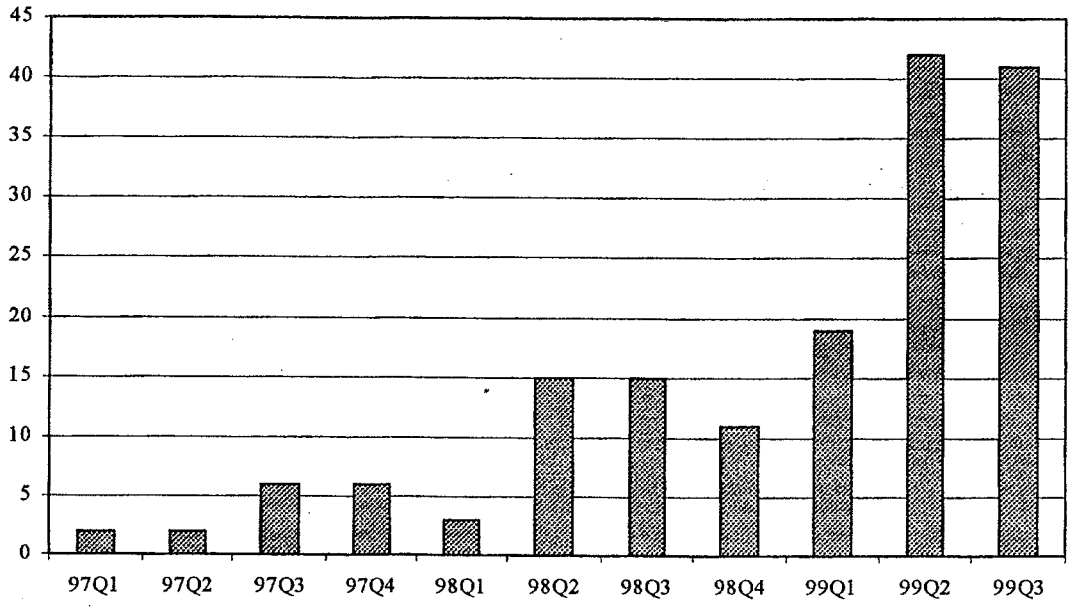
[111] From a survey conducted by Ipso Social Research Institute for the Federal Association of German Banks.

Figure V-4: Number of New Listings on the *Neuer Markt* since Inception



Source: Deutsche Börse, Statistics.

255. Although the market has got off to a brisk start, some problems are now starting to emerge. First, the number of listings—as many as four per month—is starting to overwhelm the ability of investors to distinguish among the relatively high-risk companies. In any growth-oriented segment, especially one dominated by information technology, there will be a number of firms which whose earnings potential will not be realized and some shareholders will have to absorb these losses. Second, early entrants into the market may be wanting to take out some cash by selling their holdings as prices have risen 600 percent since inception. Third, such successful ideas attract competition—a new segment of the stock market for small stocks called SMAX has been set up. While serving a slightly different niche, the segment is attracting some investors away from the *Neuer Markt*. Lastly, as prices rise more slowly, trend-chasing investors will move to the sidelines and a more fundamentals-based pricing methodologies will emerge in which some firms (e.g., without current earnings) may find their stock prices decline and the market's attractiveness is likely to diminish somewhat.

256. The Deutsche Börse is counteracting some of these tendencies by attempting to facilitate better information about the complex, technologically-based firms that have come to characterize the new listings. The Deutsche Börse, in conjunction with the German Association for Financial Analysis and Investment Advice (DVFA), has launched an initiative to make reports on *Neuer Markt* securities more transparent, adding a disclosure of the analysts' valuation methodology, the definitions of various ratios, and whether the analyst has a stake in the company to reduce possible conflicts of interest.

257. The success of the *Neuer Markt* serves to highlight two features of Germany's financial markets. First, there is surprisingly high demand for riskier investments by savers. Despite the fact that German savers have been accustomed to placing their savings in low-risk, low-return deposit accounts, bonds, and life insurance policies, there is increasing interest in equity products.[112] Second, there are a growing number of small, high-tech firms that prefer to issue equity to finance their growth, partly to be able attract talented employees by offering stock option plans, which are becoming standard for high-tech companies in other countries. The desire for smaller, high-growth firms to issue equity in Germany is a phenomenon that is likely to increase as much of the economic growth in the new "information age" will come from smaller, more nimble enterprises than in the past. It is also noteworthy that these firms are producing accounting information in excess of what is necessary to satisfy the Ministry of Justice, where German accounting standards are devised, as they realize that to attract and maintain an interested investor base financial information must adapt to international accounting standards.

[112] For the first time ever, at the end of 1998, Germans put more funds into insurance policies than savings accounts. (German Stock Institute, Deutsches Aktieninstitut.)

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Table A1. Germany: Key Data on Output, Income and Demand

	1993	1994	1995	1996	1997	1998
			(In billions of deutsche mark)			
Gross national product	3,248.9	3,380.6	3,504.4	3,570.1	3,649.4	3,754.1
Gross domestic product	3,235.4	3,394.4	3,523.0	3,586.0	3,666.6	3,784.2
Domestic demand	3,228.4	3,381.5	3,498.1	3,546.7	3,613.0	3,720.9
Private consumption	1,857.5	1,925.1	2,001.6	2,055.4	2,106.8	2,174.7
Public consumption	643.0	669.2	697.8	717.5	714.2	719.4
Gross investment	727.9	787.1	798.6	773.8	792.1	826.8
Labor income 1/	1,829.5	1,874.7	1,941.4	1,965.7	1,971.2	2,001.8
Household disposable income 2/	2,083.9	2,156.8	2,229.4	2,312.4	2,355.1	2,421.9
			(In millions)			
Population	81.2	81.4	81.7	81.9	82.1	82.0
Employment 3/	36.6	36.5	36.4	36.2	35.9	36.0
			(In deutsche marks)			
GDP per employed person 3/	88,433	93,087	96,711	99,195	102,236	105,120
Average monthly labor income 1/ 4/	3,807	3,885	4,029	4,108	4,140	4,202
Investment per employed person 3/	19,896	21,586	21,923	21,405	22,085	22,967

Sources: Statistisches Bundesamt, Volkswirtschaftliche Gesamtrechnungen; and Deutsche Bundesbank, Monthly Report.

1/ Gross compensation from dependent employment, according to place of residence (ESA95).
2/ Based on pre-ESA95 data.
3/ Domestic employment; national accounts basis (ESA95)
4/ Excludes social security contributions paid by employers; employers' contributions based on pre-ESA95 data.

Table A2. Germany: Aggregate Demand

(Percentage changes at 1995 prices)

	In billions of deutsche mark at *current* prices in 1998	1993	1994	1995	1996	1997	1998
Private consumption	2174.7	0.2	1.0	2.1	0.8	0.7	2.3
Public consumption	719.4	0.1	2.4	1.5	2.1	-1.1	0.5
Gross fixed investment	797.2	-4.5	4.0	-0.7	-1.1	0.5	1.4
Construction	460.7	1.8	6.9	-1.8	-2.9	-1.4	-3.9
Machinery and equipment	297.0	-15.1	-1.9	1.1	1.2	3.4	9.2
Other	39.5	5.5	8.2	5.6	8.9	5.9	15.1
Stockbuilding 1/	29.6	-0.1	0.3	0.3	-0.4	0.4	0.7
Total domestic demand	3720.9	-1.0	2.2	1.7	0.3	0.7	2.5
Export of goods and nonfactor services	1092.1	-5.5	7.6	5.7	5.1	10.9	7.0
Import of goods and nonfactor services	1028.9	-5.4	7.3	5.6	3.2	8.3	8.5
Foreign balance 1/	63.3	-0.1	0.1	0.1	0.5	0.8	-0.3
Gross domestic product	3784.2	-1.1	2.3	1.7	0.8	1.5	2.2

Source: Statistisches Bundesamt, Volkswirtschaftliche Gesamtrechnungen.

1/ Change in percent of previous year's GDP.

Table A3. Germany: Household Income, Consumption and Saving

(Percentage change)

	1993	1994	1995	1996	1997	1998
Gross compensation from dependent employment 1/	2.3	2.5	3.6	1.3	0.3	1.6
Gross compensation per employee 1/	4.3	3.2	3.9	2.2	1.4	1.4
Net compensation from dependent employment 1/ 2/	3.0	-0.6	1.0	2.8	-1.5	1.6
Net compensation per employee 1/ 2/	4.9	0.2	1.4	3.7	-0.4	1.5
Disposable income 3/	3.5	3.5	3.4	3.7	1.8	2.8
Final consumption expenditure	4.0	3.6	4.0	2.7	2.5	3.2
Real disposable income 3/ 4/	-0.3	0.9	1.5	1.8	0.1	1.9
Real final consumption expenditure	0.2	1.0	2.1	0.8	0.7	2.3
Saving ratio 5/ 6/	10.9	10.7	10.2	11.1	10.5	10.2

Sources: Statistisches Bundesamt, Volkswirtschaftliche Gesamtrechnungen; and staff estimates.

1/ According to place of residence.

2/ Contributions and taxes based on pre-ESA95 data.

3/ Based on pre-ESA95 data.

4/ Deflated by private consumption deflator.

5/ Household saving as a share of disposable income.

Table A4. Germany: Labor Market

(In thousands, unless otherwise indicated)

	1995	1996	1997	1998
Germany				
Employment (ESA95) 1/	36.428	36.151	35.864	35.999
(Percent change)	-0.1	-0.8	-0.8	0.4
Unemployment (ESA95)	3,198	3,498	3,907	3,710
Standardized unemployment rate	8.1	8.8	9.8	9.4
Registered unemployment	3,612	3,965	4,384	4,279
(In percent of laborforce) 2/	9.4	10.4	11.4	11.1
Vacancies	321	327	337	422
West Germany				
Employment (*Bundesanstalt für Arbeit*)	28,464	28,156	27,884	27,915
(Percent change)	-0.7	-1.1	-1.0	0.1
Registered unemployment	2,565	2,796	3,021	2,904
(In percent of labor force) 2/	8.3	9.1	9.8	9.4
Vacancies	267	270	282	342
East Germany				
Employment (*Bundesanstalt für Arbeit*)	6,396	6,267	6,078	6,055
(Percent change)	1.0	-2.0	-3.0	-0.4
Of which:				
Short-time workers	71	71	49	34
Persons employed under employment promotion schemes	312	278	235	314
Persons undergoing vocational training	254	238	184	149
Registered unemployment	1,047	1,169	1,363	1,375
(In percent of labor force) 2/	14.0	15.7	18.1	18.2
Vacancies	55	57	56	79

Sources: Statistisches Bundesamt, Volkswirtschaftliche Gesamtrechnungen; Deutsche Bundesbank, Monthly Report; and data provided by the authorities.

1/ Domestic employment

2/ Laborforce calculated from employment and unemployment data

Table A5. Germany: Wages and Prices

(Percentage changes)

	1994	1995	1996	1997	1998	1999Q1 1/	1999Q2 1/
GDP deflator	2.5	2.0	1.0	0.8	1.0	1.4	1.0
Private consumption deflator	2.6	1.9	1.9	1.7	0.9	0.6	0.7
Fixed investment deflator	1.3	1.3	-0.3	0.2	0.1	-0.6	-1.0
Export deflator	1.0	2.0	0.3	1.3	0.0	-1.4	-0.4
Import deflator	0.6	0.7	0.7	2.7	-2.0	-4.6	-1.7
Producer price index	0.5	1.7	-1.2	1.1	-0.4	-2.4	-1.7
Consumer price index	2.7	1.7	1.4	1.9	1.0	0.3	0.5
Western Germany	2.7	1.6	1.3	1.9	0.9	0.3	0.5
Eastern Germany	3.6	1.9	1.9	2.3	1.1	0.3	0.4
Unit labor costs in manufacturing	-2.4	1.9	1.5	-2.3	-2.2	...	...
Negotiated hourly wages							
Overall economy	3.4	4.9	2.7	1.5	1.9	2.7	2.8
Producing sector	4.1	6.1	3.8	1.9	1.8	4.0	3.0
Western Germany							
Overall economy	2.1	4.2	2.3	1.3	1.7	2.6	2.6
Producing sector	2.2	5.3	3.3	1.4	1.7	4.1	3.0
Eastern Germany							
Overall economy	9.4	9.0	4.9	2.6	2.4	3.2	3.6
Producing sector	16.7	13.9	7.8	4.9	1.5	2.9	2.5

Sources: Statistisches Bundesamt, Volkswirtschaftliche Gesamtrechnungen; Deutsche Bundesbank, Monthly Report; and Ministry of Labor.

1/ Percentage change from a year ago.

Table A6. Germany: General Government Finances 1/ 2/

(In billions of deutsche mark; national accounts basis)

	1993	1994	1995 3/	1996	1997	1998
Total expenditure	1,595.0	1,663.2	1,742.3	1,803.7	1,805.4	1,829.0
Expenditure on goods and services	761.0	786.5	805.5	820.3	809.5	809.5
Intermediate inputs	368.4	389.5	409.1	424.1	420.9	423.1
Wage bill	301.7	306.8	315.9	319.5	318.4	319.6
Public investment	90.9	90.3	80.6	76.7	70.2	66.9
Transfer payments	833.9	876.7	936.8	983.4	995.9	1,019.5
Social benefits	564.2	599.9	636.4	689.3	704.7	712.9
Subsidies	60.8	71.3	74.8	72.3	67.1	69.4
Interest	109.4	114.3	129.8	132.8	134.2	135.2
Other	99.5	91.2	95.8	89.0	89.9	102.1
Total revenue	1,491.5	1,579.7	1,630.3	1,682.5	1,708.8	1,764.5
Tax revenue	738.1	773.1	795.9	820.1	827.6	872.9
Indirect taxes	370.9	401.5	400.8	408.3	418.5	438.6
Direct taxes	367.2	371.6	395.2	411.8	409.1	434.3
Social security contributions	588.2	632.2	662.4	696.4	719.7	726.1
Sales	79.5	83.4	85.6	84.7	83.3	81.7
Other revenue	85.8	91.0	86.4	81.4	78.2	83.9
Financial balance	-103.4	-83.5	-112.0	-121.2	-96.5	-64.5
(in percent of GDP)	-3.2	-2.5	-3.2	-3.4	-2.6	-1.7
Of which						
Territorial authorities	-109.2	-87.0	-97.2	-109.4	-100.0	-72.3
Federal	-72.1	-40.3	-51.2	-69.1	-60.9	-67.1
Länder	-32.5	-41.0	-37.4	-38.1	-40.6	-20.2
Local governments	-4.5	-5.8	-8.6	-2.2	1.5	15.0
Social security system	5.7	3.5	-14.9	-11.8	3.5	7.8

Sources: Federal Ministry of Finance; and Financial Planning Council.

1/ Data are based on the new European System of Integrated Economic Accounts 1995 (ESA95).
2/ Including the German Unity Fund.
3/ Excluding the assumption of Treuhand debt.

Table A7. Germany: Territorial Authorities' Finances

(Administrative basis; in billions of deutsche mark)

	1993	1994	1995	1996	1997	1998	1999 1/
Total expenditure	1,122.6	1,167.0	1,203.1	1,188.3	1,175.5	1,133.8	1,177 1/2
Current expenditure	936	984.4	1,019.9	1,019.2	1,015.8	971.1	1,016 1/2
Of which:							
Wages and salaries	336.1	355.6	367	368.3	367.2	324.1	329
Goods	153.5	155.2	155.6	156.1	155.0	133.3	138 1/2
Interest	101.9	113.8	128.7	130.4	131.8	133.3	138 1/2
Current transfers	344.3	358.1	368.7	364.4	361.1	379.8	411
Capital expenditure	186.7	182.7	183.2	169.1	159.7	162.7	161
Of which:							
Investment	99.2	95.1	92.8	87.5	83.9	77.1	77 1/2
Capital transfers	50.2	45.5	47.6	45.2	41.9	49.9	49
Loans	34.5	39.1	37.5	33.6	32.9	32.2	31 1/2
Total revenue	984.8	1,050.8	1,093.7	1,067.8	1,080.5	1,077.7	1,104.0
Current revenue	950	1,000.9	1,032.9	1,014.2	1,006.8	994.1	1,024.0
Taxes	750.5	785.3	815.1	800.5	797.5	833.1	877
Other	199.5	215.7	217.8	213.7	209.2	160.9	147
Capital revenue	34.7	49.9	60.8	53.6	73.8	83.6	80
Financial balance	-137.8	-116.3	-109.4	-120.3	-94.8	-56.0	-73 1/2
(In percent of GDP)	(-4.4)	(-3.5)	(-3.2)	(-3.4)	(-2.6)	(-1.5)	(-2.0)
Of which:							
Federal Government	-66.9	-50.6	-50.5	-78.5	-63.4	-56.6	-53.6
States (west) 2/	-22.5	-24.7	-28.6	-32.1	-24.4	-18.5	-18
States (east) 3/	-19.9	-19.9	-16.4	-14.8	-12.4	-9.6	-8
Municipalities (west)	-8.9	-5.9	-12.4	-5.1	-6.3	5.7	2 1/2
Municipalities (east)	-4.4	-4.8	-1.9	-2.4	-1.4	-0.8	-2
German Unity Fund	-13.5	-3.0	2.3	2.7	3.3	0.7	1/2
Inherited Debt Fund	...	...	7.3	9.5	8.0	24.2	9 1/2
Other special funds 4/	-1.7	-7.5	-9.1	0.3	1.7	-1.1	-5

Source: Federal Ministry of Finance.

1/ Interim technical projections provided by the authorities; from 1998 onward without public hospitals.

2/ Including Berlin (west).

3/ Including Berlin (east).

4/ European Recovery Program (ERP), Burden Equalization Fund (LAF), European Community accounts, Credit Repayment Fund (KAF) (until 1994), Bundeseisenbahnvermögen (BEV) (1994), Entschädigungsfonds (from 1994),Steinkohlefonds (from 1996), Versorgungsrhcklage des Bundes (from 1999).

Table A8. Germany: Federal Government Finances

(Administrative basis; in billions of deutsche mark)

	1995 Actual	1996 Actual	1997			1998			1999	
			Draft 1/	Amended draft	Actual	Draft 1/	Amended draft	Actual	Draft 1/	Amended draft
Total expenditure 2/	464.7	455.6	440.2	444.8	441.9	461	456.8	456.9	488	485.7
Current expenditure	397.0	393.4	378.1	393.4	383.8	402	398.3	398.4	428.9	427.4
Wages and salaries	52.9	52.9	53	53.1	52.5	52.8	52.5	52.1	53.4	52.9
Goods	37.8	39.1	38.7	39.4	38.1	39.2	39.6	38.6	41.2	41.9
Interest	49.7	50.9	56.6	53.7	53.4	56.4	56.5	56.2	81.9	81.5
Current transfers to other levels of government	63.0	66.8	65.4	57.9	57.7	64.7	58.9	57.3	27.9	27.9
Other current transfers 2/	193.5	183.7	164.4	187.5	182.1	188.9	190.9	194.3	224.5	223.3
Other current expenditure	0	0	0	1.8	0	0	0	0	0	0
Capital expenditure	67.7	62.1	62.4	58.7	58.1	59.6	59.5	58.5	59.5	59.4
Investment	12.3	12.1	13.1	12.8	12.2	13.8	13.7	13.5	14.1	14.1
Capital transfers and loans to other levels of government	23.8	24.5	22.2	20.2	20.5	19.7	19.9	20.5	19.6	19.6
Other capital transfers and loans	13.4	11.6	27.1	27.6	9.9	26.1	13.6	14.0	14.2	14.2
Total revenue 2/	414.1	377	383.6	373.9	378.4	403.1	400.3	400.3	431.7	432.1
Current revenue 2/	395.0	365.9	374.1	363	359.4	374.4	359.6	369.1	399.3	399.7
Taxes 2/	366.1	338.6	350.3	330.2	331.1	347.6	331.8	341.5	371.2	371.7
Other	28.8	27.3	23.8	26.3	28.3	26.8	27.9	27.7	28.1	28
Capital revenue	19.2	11.1	9.4	24.3	19.0	28.7	40.7	31.2	34.4	34.4
Financial balance	-50.5	-78.5	-56.6	-71	-63.4	-57.9	-56.5	-56.6	-56.3	-53.6
(In percent of GDP)	(-1.5)	(-2.2)	(-1.5)	(-1.9)	(-1.8)	(-1.5)	(-1.5)	(-1.5)	(-1.5)	(-1.4)
Memorandum item:										
Defense expenditure	47.7	47.4	46.6	46.6	46.4	46.9	46.9	47.0	47.4	47.8
(In percent of GDP)	(1.4)	(1.3)	(1.3)	(1.3)	(1.3)	(1.2)	(1.2)	(1.2)	(1.2)	(1.2)

Source: Federal Ministry of Finance.

1/ As approved by the Cabinet.

2/ For 1996, includes an approximate DM 20 billion reduction due to reclassification of child allowances from an expenditure to a tax deduction.

Table A9. Germany: Länder Government Finances 1/

(Administrative basis; in billions of deutsche mark)

	1994		1995		1996		1997		1998		1999 (Proj.) 2/	
	West Germany 3/	East Germany 4/	West Germany 3/	East Germany 4/	West Germany 3/	East Germany 4/	West Germany 3/	East Germany 4/	West Germany 3/	East Germany 4/	West Germany 3/	East Germany 4/
Total expenditure	343.1	109.7	357.6	116.1	364.5	119.7	363.0	118.4	367.7	117.8	373 1/2	118 1/2
Current expenditure	295.6	79.0	308.9	84.0	316.0	87.2	317.8	87.0	322.5	87.8	329	89 1/2
Wages and salaries	139.6	27.8	145.1	29.5	145.4	30.4	146.2	30.7	148.2	30.7	152	31
Goods	32.8	9.5	32.6	9.9	34.7	10.7	34.0	10.5	34.5	10.4	35	10 1/2
Interest	26.9	3.1	27.4	4.2	28.0	5.2	29.2	6.1	29.8	6.8	30 1/2	7
Current transfers to other levels of government	59.6	25.5	67.0	27.2	63.5	26.3	63.1	25.1	64.2	24.4	64	25
Other current transfers	36.7	13.2	36.8	13.2	44.3	14.7	45.3	14.6	45.8	15.5	47	16
Capital expenditure	47.5	30.7	48.7	32.1	48.5	32.5	45.2	31.4	45.2	30	45	28 1/2
Investment	11.9	5.5	11.9	5.6	10.5	5.2	10.9	4.6	10.5	4.6	11	4 1/2
Capital transfers and loans to other levels of government	17.5	10.6	17.9	11.4	15.1	10.5	13.3	10.8	13.0	10.4	13	10
Other capital transfers and loans	18.1	14.6	18.9	15.1	22.9	16.8	21.0	15.9	21.6	15.0	21	14
Total revenue	318.4	89.7	329.1	99.4	333.3	104.7	338.7	105.7	349.1	108.3	355 1/2	110
Current revenue	298.6	79.9	305.7	84.7	315.3	87.0	313.3	88.0	328.4	90.5	338 1/2	92 1/2
Taxes	236.7	34.1	246.9	51.2	252.7	49.6	249.7	50.3	264.1	52.3	273 1/2	54 1/2
Other	61.8	45.8	58.8	33.5	62.5	37.4	63.6	37.7	64.3	38.2	65	38
Capital revenue	19.8	9.9	23.4	14.8	18.0	17.7	25.4	17.7	20.7	17.8	16 1/2	18
Financial balance	-24.7	-20.0	-28.4	-16.7	-31.1	-15.0	-24.3	-12.6	-18.5	-9.6	-18	-8
(In percent of GDP)	(-0.7)	(-0.6)	(-0.8)	(-0.5)	(-0.9)	(-0.4)	(-0.7)	(-0.4)	(-0.5)	(-0.3)	(-1/2)	(0)

Source: Federal Ministry of Finance.

1/ Without public hospitals

2/ Interim technical projections provided by the authorities.

3/ Including Berlin (west).

4/ Including Berlin (east).

Table A10. Germany: Municipalities' Finances 1/

(Administrative basis; in billions of deutsche mark)

	1994		1995		1996		1997		1998		1999 (Proj.) 2/	
	West Germany	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany	East Germany	West Germany	East Germany
Total expenditure	235.0	59.2	237.9	60.8	231.6	57.4	226.4	53.4	225.3	52.1	229	52 1/2
Current expenditure	183.3	40.3	188.5	42.5	186.2	40.8	183.2	37.9	183.2	37.2	186 1/2	38
Wages and salaries	60.0	17.7	61.3	18.0	60.8	17.0	60.8	15.7	60.9	15.3	61 1/2	15 1/2
Goods	43.0	10.5	41.5	10.7	41.3	10.2	41.8	9.8	41.8	9.6	42	9 1/2
Interest	9.9	1.2	9.8	1.5	9.7	1.7	9.4	1.7	9.2	1.7	9	2
Current transfers to other levels of government	7.4	0.5	7.6	0.1	7.6	0.4	6.4	0.4	7.0	0.2	7	1/2
Other current transfers	63.0	10.2	68.3	12.3	66.8	11.6	64.8	10.3	64.4	10.3	66 1/2	10 1/2
Capital expenditure	51.7	18.9	49.4	18.2	45.4	16.6	43.2	15.5	42.1	15.0	42	15
Investment	41.9	17.5	40.3	16.1	37.4	14.4	35.7	13.3	34.8	12.9	35	12 1/2
Capital transfers and loans to other levels of government	2.4	0.4	2.1	0.5	1.0	0.4	1.1	0.4	1.1	0.3	1	1/2
Other capital transfers and loans	7.5	1.1	7.0	1.6	7.0	1.8	6.4	1.7	6.2	1.8	6	2
Total revenue	228.9	53.9	225.6	58.7	227.5	54.9	222.1	51.8	230.9	51.3	231	50 1/2
Current revenue	198.1	42.7	196.7	46.4	196.9	42.9	193.3	39.7	200.3	39.2	202 1/2	39
Taxes	81.0	6.5	78.5	7.5	79.7	6.4	80.7	6.8	87.2	7.8	89	8 1/2
Other	117.1	36.2	118.2	38.9	117.2	36.5	112.5	32.9	113.2	31.4	113	31
Capital revenue	30.8	11.1	28.9	12.3	30.6	12.0	28.9	12.1	30.6	12.2	29	11 1/2
Financial balance	-6.1	-5.3	-12.3	-2.1	-4.0	-2.5	-4.2	-1.6	5.7	-0.8	2 1/2	-2
(In percent of GDP)	(-0.2)	(-0.2)	(-0.4)	(-0.1)	(-0.1)	(-0.1)	(-0.1)	(-0.0)	(0.2)	(-0.0)	(0)	(-0.0)

Source: Federal Ministry of Finance.

1/ Without public hospitals.

2/ Interim technical projections provided by the authorities.

Table A11. Germany: Tax Revenue of the Territorial Authorities 1/

(Cash basis; in billions of deutsche mark)

	1993	1994	1995	1996	1997	1998	1999 2/	2000 2/
Total tax revenue	749.1	786.2	814.3	800.0	797.2	833.0	876.8	904.4
By type of tax								
Personal income tax	314.0	323.5	326.4	288.3	280.5	304.0	311.3	323.4
Corporate tax	27.8	19.6	18.1	29.5	33.3	36.2	48.1	45.6
Wealth tax	6.8	6.6	7.9	9.0	1.8	1.1	0.7	0.2
Trade tax 3/	42.3	44.1	42.2	45.9	48.6	50.5	50.2	52.2
Value-added tax 4/	216.3	235.7	234.6	237.2	240.9	250.2	265.9	277.0
Petroleum tax	56.3	63.8	64.9	68.3	66.0	66.7	75.3	80.3
Tobacco tax	19.5	20.3	20.6	20.7	21.2	21.7	21.8	21.9
Motor vehicle tax	14.1	14.2	13.8	13.7	14.4	15.2	13	11.9
Other taxes	52.1	58.4	85.8	87.4	90.5	87.5	90.5	91.9
By level of government								
Federal Government	360.3	386.1	390.8	363.7	356.2	367.1	397.9	409.3
Länder	256.4	262.2	288.5	302.9	302.8	318.5	330.5	339.2
Municipalities 5/	95.8	97.1	95.0	94.0	96.4	105.1	107.4	111.6
European Communities 6/	36.6	40.7	40.0	39.4	41.7	42.3	41.0	44.3

Source: Federal Ministry of Finance.

1/ Tax revenue data in this table are calculated on a cash basis, and may differ from data on an administrative basis.

2/ Interim technical projections provided by the authorities.

3/ Tax based on capital stock of businesses and on return to capital.

4/ Including turnover tax on imports.

5/ Including municipal taxes in Berlin, Bremen, and Hamburg.

6/ Collection of import duties and the EU's share of value-added tax collections. Also includes other revenue which is calculated based on GNP.

Table A12. Germany: Social Security Funds 1/

(In billions of deutsche mark)

	1992	1993	1994	1995	1996	1997	1998
Total revenue	628.5	679.8	715	745.2	789.3	813.4	833.1
In percent of GDP	19.9	21.0	21.0	21.1	22.0	22.2	22.0
Contributions	533.1	565.3	607	636.4	668.8	691.0	697.5
Other current transfers	82.6	102.4	97.2	98.2	111.2	113.1	126.2
Of which:							
From territorial authorities	80.6	100.2	94.8	95.1	107.5	108.7	122.2
Other revenue	12.8	12.1	10.8	10.6	9.2	9.3	9.4
Total expenditure	630.7	672.3	708.2	756.3	798.4	807.4	821.8
In percent of GDP	20.0	20.8	20.9	21.5	22.3	22.0	21.7
Consumption (net)	217.9	220.3	237.8	253.9	271.6	274.8	281.1
Social transfers	397.9	436.6	455.7	484.3	510.4	518.8	526.7
Other expenditure	14.9	15.4	14.7	18.1	16.4	13.8	14.0
Financial balance	-2.2	7.4	6.9	-11.1	-9.2	6.0	11.3
In percent of GDP	-0.1	0.2	0.2	-0.3	-0.3	0.2	0.3

Source: Federal Ministry of Finance.

1/ On a national accounts basis; pre-ESA95.

Table A13. Germany: Interest Rates

(In percent per annum, period averages)

	Discount rate	Securities repurchase rate	Lombard rate	Money market rate	10-year public bond yield	Lending rates		3-month time deposits 1/
						Current account loans	Discount loans	
1995	3.9	4.4	5.8	4.5	6.9	10.9	6.1	4.1
1996	2.7	3.2	4.7	3.3	6.2	10.0	4.9	3.0
1997	2.5	3.1	4.5	3.3	5.7	9.1	4.7	2.9
1998	2.5	3.3	4.5	3.5	4.6	9.0	4.8	3.1
1995								
I	4.5	4.9	6.0	5.1	7.5	11.3	6.6	4.6
II	4.0	4.5	6.0	4.6	7.0	11.0	6.2	4.2
III	3.8	4.4	5.8	4.4	6.8	10.9	6.0	4.1
IV	3.4	4.0	5.4	4.0	6.4	10.6	5.6	3.7
1996								
I	3.0	3.4	5.0	3.4	6.2	10.3	5.2	3.2
II	2.6	3.3	4.6	3.3	6.5	10.2	4.9	3.1
III	2.5	3.2	4.5	3.2	6.3	10.1	4.8	3.0
IV	2.5	3.0	4.5	3.2	5.9	9.6	4.7	2.9
1997								
I	2.5	3.0	4.5	3.2	5.8	9.2	4.7	2.9
II	2.5	3.0	4.5	3.2	5.8	9.1	4.7	2.9
III	2.5	3.0	4.5	3.2	5.6	9.1	4.7	2.9
IV	2.5	3.3	4.5	3.7	5.5	9.1	4.7	3.1
1998								
I	2.5	3.3	4.5	3.5	5.0	9.1	4.7	3.1
II	2.5	3.3	4.5	3.6	4.9	9.0	4.7	3.2
III	2.5	3.3	4.5	3.5	4.4	9.0	4.8	3.1
IV	2.5	3.2	4.5	3.5	4.1	8.9	4.9	3.1
1999								
I	...	...	...	3.1	3.9	8.9	5.3	2.9
II	...	...	...	2.6	4.1	8.8	5.2	2.5
1996								
January	3.0	3.7	5.0	3.6	5.9	10.4	5.2	3.5
February	3.0	3.3	5.0	3.3	6.2	10.3	5.2	3.1
March	3.0	3.3	5.0	3.3	6.5	10.3	5.2	3.1
April	2.8	3.3	4.8	3.3	6.4	10.3	5.1	3.1
May	2.5	3.3	4.5	3.3	6.5	10.1	4.8	3.0
June	2.5	3.3	4.5	3.3	6.6	10.1	4.8	3.1
July	2.5	3.3	4.5	3.3	6.5	10.0	4.8	3.1
August	2.5	3.2	4.5	3.3	6.3	10.1	4.8	3.1
September	2.5	3.0	4.5	3.1	6.2	10.1	4.7	2.9
October	2.5	3.0	4.5	3.1	6.0	10.0	4.7	2.9
November	2.5	3.0	4.5	3.2	5.9	9.4	4.7	2.9
December	2.5	3.0	4.5	3.2	5.8	9.3	4.7	2.9

Table A13. Germany: Interest Rates (concluded)

(In percent per annum, period averages)

	Discount rate	Securities repurchase rate	Lombard rate	Money market rate	10-year public bond yield	Lending rates		3-month time deposits 1/
						Current account loans	Discount loans	
1997								
January	2.5	3.0	4.5	3.1	5.9	9.3	4.7	2.9
February	2.5	3.0	4.5	3.2	5.6	9.2	4.7	2.8
March	2.5	3.0	4.5	3.2	5.8	9.2	4.7	2.9
April	2.5	3.0	4.5	3.2	5.9	9.2	4.7	2.9
May	2.5	3.0	4.5	3.2	5.8	9.1	4.7	2.9
June	2.5	3.0	4.5	3.1	5.7	9.1	4.7	2.9
July	2.5	3.0	4.5	3.1	5.6	9.1	4.7	2.9
August	2.5	3.0	4.5	3.2	5.7	9.1	4.7	2.9
September	2.5	3.0	4.5	3.3	5.6	9.1	4.7	2.9
October	2.5	3.2	4.5	3.6	5.6	9.1	4.7	3.0
November	2.5	3.3	4.5	3.7	5.6	9.1	4.8	3.1
December	2.5	3.3	4.5	3.7	5.3	9.1	4.7	3.3
1998								
January	2.5	3.3	4.5	3.6	5.1	9.1	4.7	3.2
February	2.5	3.3	4.5	3.5	5.0	9.1	4.7	3.1
March	2.5	3.3	4.5	3.5	4.9	9.1	4.7	3.1
April	2.5	3.3	4.5	3.6	4.9	9.1	4.7	3.1
May	2.5	3.3	4.5	3.6	5.0	9.0	4.7	3.2
June	2.5	3.3	4.5	3.5	4.8	9.0	4.7	3.1
July	2.5	3.3	4.5	3.5	4.7	9.0	4.8	3.1
August	2.5	3.3	4.5	3.5	4.5	9.0	4.8	3.1
September	2.5	3.3	4.5	3.5	4.1	9.0	4.7	3.1
October	2.5	3.3	4.5	3.5	4.2	9.0	4.8	3.1
November	2.5	3.3	4.5	3.6	4.2	9.0	4.9	3.1
December	2.5	3.1	4.5	3.4	3.9	8.9	4.9	3.1
1999								
January	...	...	...	3.1	3.7	8.9	5.3	2.9
February	...	...	...	3.1	3.9	8.9	5.3	2.8
March	...	...	...	3.0	4.1	8.9	5.4	2.8
April	...	...	...	2.7	3.9	8.8	5.2	2.6
May	...	...	...	2.6	4.0	8.8	5.2	2.4
June	...	...	...	2.6	4.4	8.7	5.1	2.4
July	...	...	...	2.7	4.7	8.8	5.2	2.4
August	...	...	...	2.7	4.9	8.8	5.2	2.4
September	...	...	...	2.7	...	...	...	...

Sources: Deutsche Bundesbank; and IMF, International Financial Statistics.

1/ Until October 1996, time deposits with agreed maturities of one to three months; from November 1996 onward, time deposits with agreed maturity of one month.

Table A14. Germany: Monetary Survey

(Percentage changes from a year earlier)

	(In billions of deutsche mark at end 1998)	1996				1997				1998			
		Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Banking assets													
Lending to domestic non-banks	5,388.8	8.1	8.0	7.3	7.5	7.4	7.0	7.4	6.0	6.3	6.6	5.9	6.3
Of which:													
Enterprises and individuals	4,144.0	7.0	6.8	6.7	7.6	7.3	7.6	7.4	6.2	6.8	6.6	6.8	7.7
Public authorities	1,236.1	12.0	12.3	9.5	7.6	7.7	5.1	7.7	5.3	4.7	6.6	3.3	2.2
External assets, net 1/	257.1	0.8	0.6	1.5	2.4	0.2	-0.1	-0.5	-0.8	-1.0	0.1	-0.6	-2.4
Other assets, net 1/ 2/	-211.2	0.4	0.5	0.7	1.3	1.6	0.8	2.6	1.4	0.9	2.9	0.2	-0.1
Banking liabilities													
Money stock (M3)	2,425.7	7.2	7.6	8.0	8.7	6.6	6.4	5.4	3.6	4.1	4.2	4.8	7.3
Currency in circulation	242.6	6.0	6.9	5.9	3.9	4.7	3.0	1.4	0.1	-1.4	-1.5	-1.9	-1.8
Sight deposits	799.5	13.4	12.8	13.7	15.8	12.0	12.5	10.3	3.1	8.5	8.4	10.2	15.7
Time deposits	412.2	-12.7	-12.5	-12.1	-9.6	-8.9	-7.1	-6.3	-1.5	-2.8	-0.7	1.0	4.9
Savings deposits at 3-months' notice	971.4	18.0	18.2	17.8	15.5	12.1	10.2	8.9	7.3	5.7	5.1	4.5	4.6
Monetary capital 3/	3,043.8	8.9	8.0	7.1	7.2	6.7	6.6	6.4	5.8	6.3	6.1	6.0	4.8
Memorandum items:													
Narrow money (M1)	1,042.1	11.1	10.9	11.3	12.4	9.8	9.6	7.7	2.3	5.6	5.6	6.8	11.1
Money stock (M2)	1,454.3	1.1	1.6	2.2	4.6	3.0	3.9	3.0	1.1	2.9	3.7	5.1	9.3

Source: Deutsche Bundesbank, Monthly Report.

1/ Change in percent of M3 one year earlier.

2/ Including counterpart of coins in circulation and excess of interbank liabilities.

3/ Time deposits for 4-years and over; savings deposits at agreed notice; bank savings bonds, bearer bonds outstanding; capital and reserves.

Table A15. Germany: Exchange Rate Developments

	DM/$	FF/DM	Yen/DM	DM/ Pound Sterling	Effective Exchange Rates	
					Nominal	Real 1/
1990	1.62	3.37	89.55	2.87	100.0	100.0
1991	1.66	3.40	81.28	2.93	99.1	98.8
1992	1.56	3.39	81.26	2.75	102.1	102.4
1993	1.65	3.43	67.34	2.48	106.1	108.8
1994	1.62	3.42	63.02	2.48	106.4	111.6
1995	1.43	3.48	65.59	2.26	111.8	119.5
1996	1.50	3.40	72.29	2.35	108.9	117.0
1997	1.73	3.37	69.89	2.84	103.9	108.6
1998	1.76	3.35	74.35	2.91	104.1	105.5
1995						
I	1.48	3.49	64.99	2.34	110.9	118.3
II	1.40	3.52	60.45	2.23	112.9	119.8
III	1.43	3.46	65.65	2.25	111.5	118.7
IV	1.42	3.46	71.27	2.22	112.0	121.2
1996						
I	1.47	3.43	72.02	2.25	110.6	121.4
II	1.52	3.39	70.64	2.32	108.5	116.7
III	1.50	3.40	72.77	2.33	108.9	116.1
IV	1.53	3.38	73.74	2.51	107.5	113.9
1997						
I	1.66	3.37	73.11	2.70	105.6	112.4
II	1.71	3.37	69.84	2.80	104.3	110.3
III	1.81	3.37	65.29	2.94	102.2	105.7
IV	1.76	3.35	71.32	2.91	103.3	106.1
1998						
I	1.82	3.35	70.43	2.99	102.7	104.4
II	1.79	3.35	75.64	2.97	103.7	105.6
III	1.76	3.35	79.42	2.91	104.7	105.2
IV	1.66	3.35	71.90	2.79	105.4	106.7
1999						
I	1.74	3.35	66.85	2.85	103.8	104.2
II	1.85	3.35	65.31	2.97	102.3	102.5
1996						
January	1.46	3.42	72.30	2.24	110.8	121.5
February	1.47	3.44	72.09	2.25	110.8	122.2
March	1.48	3.42	71.66	2.26	110.1	120.4
April	1.51	3.39	71.35	2.28	109.1	118.1
May	1.53	3.38	69.30	2.32	108.1	116.1
June	1.53	3.39	71.28	2.36	108.2	115.9
July	1.50	3.39	72.61	2.34	108.7	116.2
August	1.48	3.41	72.75	2.30	109.3	116.5
September	1.51	3.41	72.95	2.35	108.6	115.5
October	1.53	3.38	73.55	2.42	107.8	114.3
November	1.51	3.38	74.27	2.51	107.8	114.0
December	1.55	3.38	73.40	2.58	106.9	113.3

1/ Based on relative normalized unit labor costs in manufacturing.

Table A15. Germany: Exchange Rate Developments (concluded)

	DM/$	FF/DM	Yen/DM	DM/ Pound Sterling	Effective Exchange Rates	
					Nominal	Real 1/
1997						
January	1.60	3.37	73.50	2.66	106.1	112.8
February	1.67	3.38	73.42	2.72	105.4	112.4
March	1.70	3.37	72.42	2.72	105.4	112.0
April	1.70	3.37	73.40	2.79	104.9	111.3
May	1.70	3.37	69.94	2.78	104.5	110.8
June	1.73	3.38	66.18	2.84	103.6	108.9
July	1.79	3.37	64.29	2.99	102.0	106.2
August	1.84	3.37	64.08	2.95	101.8	105.0
September	1.79	3.36	67.49	2.86	102.8	105.8
October	1.76	3.35	68.84	2.87	103.3	106.3
November	1.73	3.35	72.26	2.92	103.5	106.2
December	1.78	3.35	72.87	2.95	103.2	105.6
1998						
January	1.82	3.35	71.29	2.97	102.8	104.8
February	1.81	3.35	69.35	2.97	102.7	104.3
March	1.83	3.35	70.64	3.03	102.5	104.2
April	1.81	3.35	72.64	3.03	102.9	104.9
May	1.77	3.35	75.94	2.91	104.1	106.3
June	1.79	3.35	78.32	2.96	104.1	105.7
July	1.80	3.35	78.28	2.95	104.1	104.9
August	1.79	3.35	80.89	2.92	104.7	104.8
September	1.70	3.35	79.09	2.86	105.3	105.9
October	1.64	3.35	73.87	2.77	105.8	107.0
November	1.68	3.35	71.58	2.79	105.1	106.7
December	1.67	3.35	70.26	2.79	105.2	106.4
1999						
January	1.68	3.35	67.14	2.78	104.6	105.3
February	1.74	3.35	66.88	2.84	103.8	104.1
March	1.80	3.35	66.55	2.91	103.1	103.4
April	1.83	3.35	65.56	2.94	102.7	102.9
May	1.84	3.35	66.31	2.97	102.5	102.7
June	1.88	3.35	64.07	3.01	101.8	101.9
July	1.89	3.35	63.25	2.97	101.8	101.9
August	1.84	3.35	61.67	2.96	...	...
September	...	...	...	...	...	...

Source: IMF, International Financial Statistics.

1/ Based on relative normalized unit labor costs in manufacturing.

Table A16. Germany: Trade Flows by Destination

(In billions of deutsche mark)

	1993	1994	1995	1996	1997	1998
Exports	632.2	694.7	749.5	788.9	888.6	954.4
Industrial countries	487.8	533.4	576.7	602.3	667.0	728.0
Of which:						
EU	368.6	401.4	437.2	453.7	493.6	539.8
Other European countries	48.2	50.2	56.0	57.1	62.9	66.6
USA	46.8	54.2	54.6	60.1	76.6	89.3
Japan	15.8	17.9	18.8	21.2	20.5	18.3
Countries in transition	57.0	64.1	71.8	82.7	103.0	115.2
Developing countries	81.9	91.9	99.1	101.7	116.1	108.9
Of which:						
NIEs 1/	30.3	37.2	42.0	44.5	48.4	36.7
OPEC countries	18.2	17.5	16.8	16.7	20.0	19.2
Other	5.4	5.3	1.9	2.2	2.5	2.3
Imports	571.9	622.9	664.2	690.4	772.1	828.3
Industrial countries	439.1	474.2	511.6	530.5	585.6	627.7
Of which:						
EU	317.7	343.6	375.1	388.6	424.4	453.2
Other European countries	40.7	45	48	50.6	56.7	57.8
USA	40.3	44.7	45.3	49.5	59.0	67.3
Japan	34.1	34.1	35.4	34.4	37.5	40.7
Countries in transition	54.8	65.6	74.5	80.3	96.8	108.4
Developing countries	72.4	77.0	77.5	78.7	88.8	89.3
Of which:						
NIEs 1/	32.0	34.6	35.5	35.7	40.1	41.7
OPEC countries	13.7	12.9	11.1	12.5	13.9	11.2
Other	5.6	6.2	0.6	0.9	0.9	2.9

Source: Deutsche Bundesbank, Monthly Report.

1/ Brunei, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, and Thailand.

Table A17. Germany: Financial Transactions with Non-Residents

(In billions of deutsche mark)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Balance financial transactions										
Total	-110.3	-89.5	12.6	69.8	21.4	57.9	63.5	23.2	-0.7	23.5
Direct investment	-15.4	-34.4	-30.2	-32.3	-27.8	-19.0	-38.7	-68.0	-53.2	-117.4
Portfolio investment	-4.5	-5.8	41.1	45.9	198.5	-50.5	48.6	87.2	-10.7	-2.5
Credit transactions	-88.3	-47.0	4.9	58.9	-146.8	128.9	58.8	8.0	68.3	151.1
Other transactions	-2.2	-2.1	-3.2	-2.7	-2.5	-1.5	-5.2	-4.0	-5.1	-7.6
Net German investment abroad										
Total	-247.3	-181.9	-103.0	-110.6	-288.0	-91.6	-169.5	-192.5	-382.3	-559.3
Direct investment	-28.4	-39.2	-38.1	-29.0	-28.4	-30.6	-56.0	-76.5	-69.9	-152.4
Portfolio investment										
Total	-49.0	-23.2	-28.1	-70.9	-41.8	-65.4	-26.5	-54.9	-169.1	-258.0
Of which: Equities	-3.1	0.6	-2.1	-1.5	-8.3	-12.0	1.7	-21.9	-62.6	-108.5
Debt securities	-39.9	-24.5	-12.6	-7.7	-12.5	-27.3	-24.1	-20.6	-76.6	-109.2
Credit transactions										
Total	-167.8	-117.5	-33.6	-8.1	-215.2	6.8	-82.8	-57.1	-138.9	-141.3
Credit institutions	-88.2	-60.2	-2.5	7.6	-146.3	30.4	-77.8	-60.7	-141.1	-140.4
Enterprises and individuals	-71.0	-44.7	-22.6	-5.4	-57.3	-27.4	4.1	3.7	5.8	-0.1
Public authorities	-8.6	-12.6	-8.5	-10.3	-11.6	3.6	-9.4	-0.6	-4.0	-0.7
Other investment	-2.2	-2.1	-3.2	-2.6	-2.5	-2.5	-4.3	-4.0	-4.4	-7.6
Net foreign investment in Germany										
Total	137.0	92.4	115.6	180.4	309.5	149.5	233.0	215.7	381.5	582.8
Direct investment 1/	13.0	4.8	7.8	-3.3	0.6	11.6	17.2	8.5	16.7	35.0
Portfolio investment										
Total	44.5	17.4	69.2	116.8	240.3	14.9	75.1	142.1	158.5	255.5
Of which: Equities	22.8	-3.0	3.1	-4.3	8.6	1.3	-1.7	22.1	27.5	97.2
Debt securities	22.2	19.8	58.8	121.0	211.4	22.6	86.0	102.9	122.9	147.9
Credit transactions										
Total	79.5	70.5	38.5	67.1	68.5	122.1	141.5	65.1	207.2	292.4
Credit institutions	42.5	42.7	15.2	73.4	58.7	111.4	120.2	55.7	205.0	281.2
Enterprises and individuals	17.8	27.0	33.9	10.2	6.1	11.0	19.7	5.7	15.9	10.1
Public authorities	-5.3	0.2	-0.9	-1.7	6.3	3.2	5.3	5.5	-13.0	-2.5
Other investment	0.0	-0.3	0.0	-0.1	0.1	0.9	-0.9	0.0	-0.8	-0.1

Source: Deutsche Bundesbank, Balance of Payments Statistics.

1/ Change in definition from 1996 onward.

Table A18. Germany: Aid and Other Resource Flows to Developing Countries and Multilateral Agencies 1/

(Net disbursements in millions of deutsche mark)

	1980	1985	1990	1994	1995	1996	1997	1998
Official development assistance	6,476.1	8,656.7	10,213.3	11,057.3	10,787.3	11,437.1	10,156.3	...
Bilateral	4,219.0	5,826.1	7,238.3	6,720.0	6,903.2	6,824.1	6,309.5	...
Grants	4,098.3	4,197.7	7,312.7	5,755.9	6,296.6	6,781.2	5,906.0	...
Technical cooperation 3/	1,798.9	2,576.3	2,917.3	3,447.9	3,554.0	3,605.9	3,393.1	...
Other grants 4/	2,299.4	1,621.4	4,395.4	2,308.0	2,742.6	3,175.3	2,512.9	...
Loans/other capital aid/ debt relief	120.7	1628.4	-74.4	964.1	606.6	42.9	403.5	...
Multilateral	2257.1	2830.6	2974.9	4337.3	3884.1	4613.0	3846.7	...
Grants	1164.0	1608.0	1796.1	2757.9	2706.1	2509.9	2748.5	...
Shares/subscriptions	1079.7	1235.3	1196.9	1550.5	1149.9	2074.1	1040.9	...
Loans	13.4	-12.7	-18.0	-20.7	-21.1	-19.3	-15.9	...
Other official flows	1,144.1	1,985.0	3,410.0	5,740.3	1,260.4	292.4	-835.5	...
Bilateral	1,149.5	2,017.1	3,412.8	6,001.7	1,662.2	792.4	-335.5	...
Export credits	344.0	798.5	137.9	390.2	464.0	877.4	878.7	...
Rescheduling (refinancing)	760.4	1,179.3	3,243.9	5,607.2	1,082.4	-178.9	-1367.6	...
Other credits	45.1	39.3	30.9	4.3	115.8	93.9	153.3	...
Multilateral	-5.4	-32.1	-2.8	-261.4	-401.8	-500.0	-500.0	...
Private flows at market terms	10,923.9	4,314.0	7,073.0	20,449.7	17,084.0	18,728.7	23,266.9	...
Bilateral	8,461.9	3,194.2	5,939.2	26,155.0	16,659.7	18,448.4	22,311.6	...
Investments and other capital transactions	5,939.6	2,504.0	3,396.7	15,315.9	12,052.6	15,872.3	20,251.5	...
Export credits	2,522.3	690.2	2,542.5	4,827.8	4,607.1	2,576.1	2,660.2	...
Multilateral	2,462.0	1,119.8	1,133.8	294.7	424.3	281.2	355.3	...
Net grants by private voluntary organizations 5/	763.9	1,246.9	1,222.7	1,591.3	1,593.8	1,571.1	1,546.0	...
Total net disbursements	19,308.0	16,202.6	21,918.9	38,833.7	30,785.4	32,030.2	34,133.7	...
ODA as a percentage of GNP	0.44	0.47	0.42	0.33	0.31	0.33	0.28	...

Sources: OECD Development Assistance Committee; and Federal Ministry of Finance.

1/ Prior to October 1990, data refer to western Germany only. GDP used for 1990 is a weighted average of western and united German GDP.

2/ From 1989 onward, DAC figures, excluding grants to churches and private agencies.

3/ Primarily grants for financial cooperation, food aid, and humanitarian aid.

4/ Grants given by non-governmental organizations (e.g., churches, societies) from their own funds or donations.

Table A19. Germany: Support for Economies in Transition, 1990-97

(In billions of deutsche mark)

	Republics of the Former Soviet Union 1/	Central and Eastern Europe 2/
Grants	23.1	18.2
Loans, loan guarantees, investment guarantees	88.8	40.6
German equity stake in EBRD	1.0	1.2
Balance of transfer rubles	23.0	10.7
Financing of investment projects	3.7	...
Total	139.6	70.7

Source: Data provided by the German authorities.
1/ End-1989 to 1998.
2/ End -1990 to 1998.