November 2004
IMF Country Report No. 04/340

Germany: Selected Issues

This Selected Issues paper for **Germany** was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on **October 8, 2004.** The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of **Germany** or the Executive Board of the IMF.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

To assist the IMF in evaluating the publication policy, reader comments are invited and may be sent by e-mail to publicationpolicy@imf.org.

Copies of this report are available to the public from

International Monetary Fund ● Publication Services
700 19th Street, N.W. ● Washington, D.C. 20431
Telephone: (202) 623 7430 ● Telefax: (202) 623 7201
E-mail: publications@imf.org ● Internet: http://www.imf.org

Price: $15.00 a copy

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

GERMANY

Selected Issues

Prepared by Jörg Decressin, Allan Brunner, Benedikt Braumann
and Louis Kuijs (all EUR)

Approved by the European Department

October 8, 2004

Contents Page

OVERVIEW

1. A cyclical recovery is underway in Germany, but the longer-term growth prospects remain a concern. A combination of fiscal adjustment and structural reform is needed to improve the longer-term growth outlook, and this Selected Issues Paper illuminates different aspects of the challenges confronting Germany and the associated policy requirements.

2. **In a cross country study involving 21 OECD economies, Chapter I investigates the steady decline in capital accumulation in Germany in recent decades.** It finds that capital accumulation was very strong in the early years after World War II, consistent with rebuilding. With marginal benefits diminishing as the capital stock was restored to levels comparable with other advanced countries, part of the more recent slow down could thus have been expected and is commonly referred to as "convergence". However, the path along this convergence has had wide swings, which are related to wage booms in the 1970s and immediately following unification in the 1990s, and to increases in taxes on capital and wages. Sharp wage increases are found to boost capital formation in the short run as employers substitute capital for labor at a rate that adjusts to the higher relative price for labor (thereby boosting unemployment and causing an underutilization of labor). Higher taxes on factor inputs, be they capital or wages, are both seen to lower capital accumulation. In the long run, capital formation is seen to depend on the growth of total factor productivity and labor supply. Hence policies should aim at keeping factor price distortions to a minimum, and especially promote flexibility in labor markets together with proper incentives for a higher degree of labor utilization.

3. **Chapter II focuses on the German labor market, assessing participation rates, employment, and unemployment from a cross country perspective.** Participation is found to be low among elderly workers (who are bridging into retirement with generous unemployment facilities), women (in the West), and youth. Employment rates are especially low among the elderly, notably in the East, where lower productivity workers were essentially priced out of the market through high wage floors (high reservation wages) linked to the adoption of generous entitlement provisions from the West following unification. Moreover, while the overall unemployment rate is higher than in comparator countries, the gap in participation (i.e. labor utilization) is larger than in unemployment, suggesting that policies directed at increasing participation rates offer the greatest potential for increased labor supply and output growth. Labor market and entitlement reforms in Agenda 2010 are estimated to boost steady state employment by some 1½ percent. In light of the impending demographic changes, especially the decline in the working-age population, additional steps will be needed to boost longer-term participation rates and labor utilization. The paper concludes with several options to deepen reforms in this direction.

4. **Chapter III considers the link between pensions and growth.** The key to this link is embedded in German law, which generally requires that social transfers need to be financed with payroll taxes. Higher payroll taxes, however, reduce labor supply, and therefore reduce growth. Staff simulations show that the coming demographic shifts are likely to reduce GDP growth below what is currently expected because of an adverse cycle of

rising nonwage labor costs and low incentives to work. The Agenda 2010 reforms to begin addressing the pressures from aging are a step in the right direction, but are not expected to be enough to contain payroll taxes sufficiently and prevent a growth slowdown. An important policy option to lessen the pressure from aging is to increase the effective retirement age—thereby supporting growth and enhancing the distributional equity between generations.

5. **Chapter IV offers perspectives on Federalism and Germany's Political Economy of Fiscal Adjustment.** It shows that the evolution of the structural fiscal balance is closely linked to the support for the government in the upper house of parliament (the Bundesrat—representing the Länder governments). Also, it explores the course of structural reforms, which are key to boosting growth and redressing long-term fiscal imbalances, and finds that these are subject to frequent policy reversals. In order to limit the political economy biases to fiscal policy, the chapter explores options to strengthen budgetary institutions, notably more transparency; stronger budgetary rules; and more room for Länder governments to mobilize revenue and tailor spending to local circumstances—thereby inducing a degree of competition in the federalist framework that is now dominated by the need for consensus.

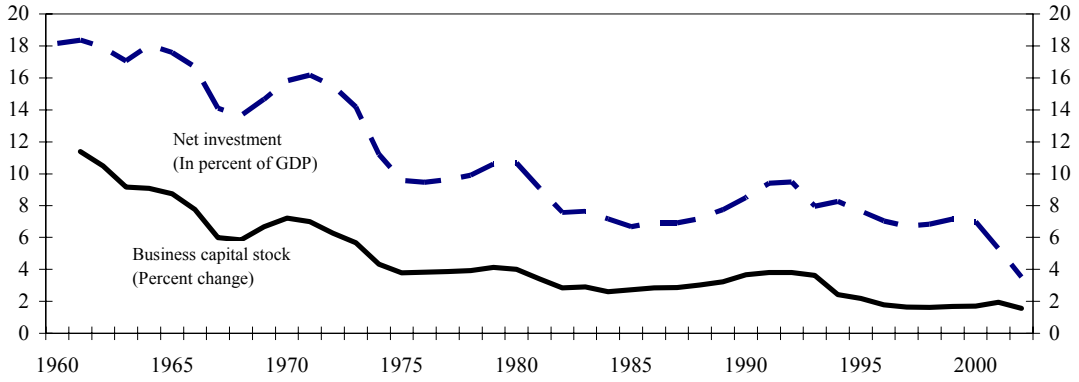
6. **Chapter V examines whether purchasing power parity (PPP) holds over the long run in Germany and Switzerland.** Using data for the past century, it finds that PPP, characterized by a relatively stable REER, holds for Germany but not for Switzerland. The Swiss trend appreciation reflects high equilibrium private and public saving rates and a degree of pricing power in monopolistic domestic markets that is not present in Germany. Calculations of the German *fundamental equilibrium exchange rate* suggest that the current REER is close to its equilibrium level. How to reconcile this external, and quite competitive, equilibrium in Germany with dormant domestic demand and low labor utilization is a challenge that requires further research.

I. Investment Trends and Business Capital Stock in OECD Countries: Long-Term Developments and Future Prospects[1]

A. Introduction

7. **By almost any measure—capital stock or net investment rate—the pace of capital accumulation has been declining steadily in Germany over the past several decades (Figure I-1)**. This phenomenon has been a source of concern to policymakers, since it directly affects the long-run ability of the German economy to produce goods and service. The Deutsche Bundesbank (1998, page 36), for example, wrote "... the current capital stock is not sufficient to absorb the existing supply of labor. To create the necessary jobs, more corporate investment is urgently necessary." Since the Bundesbank wrote those words in 1998, capital accumulation has slumped further.

Figure I-1. Germany: Investment Trends, 1960-2002

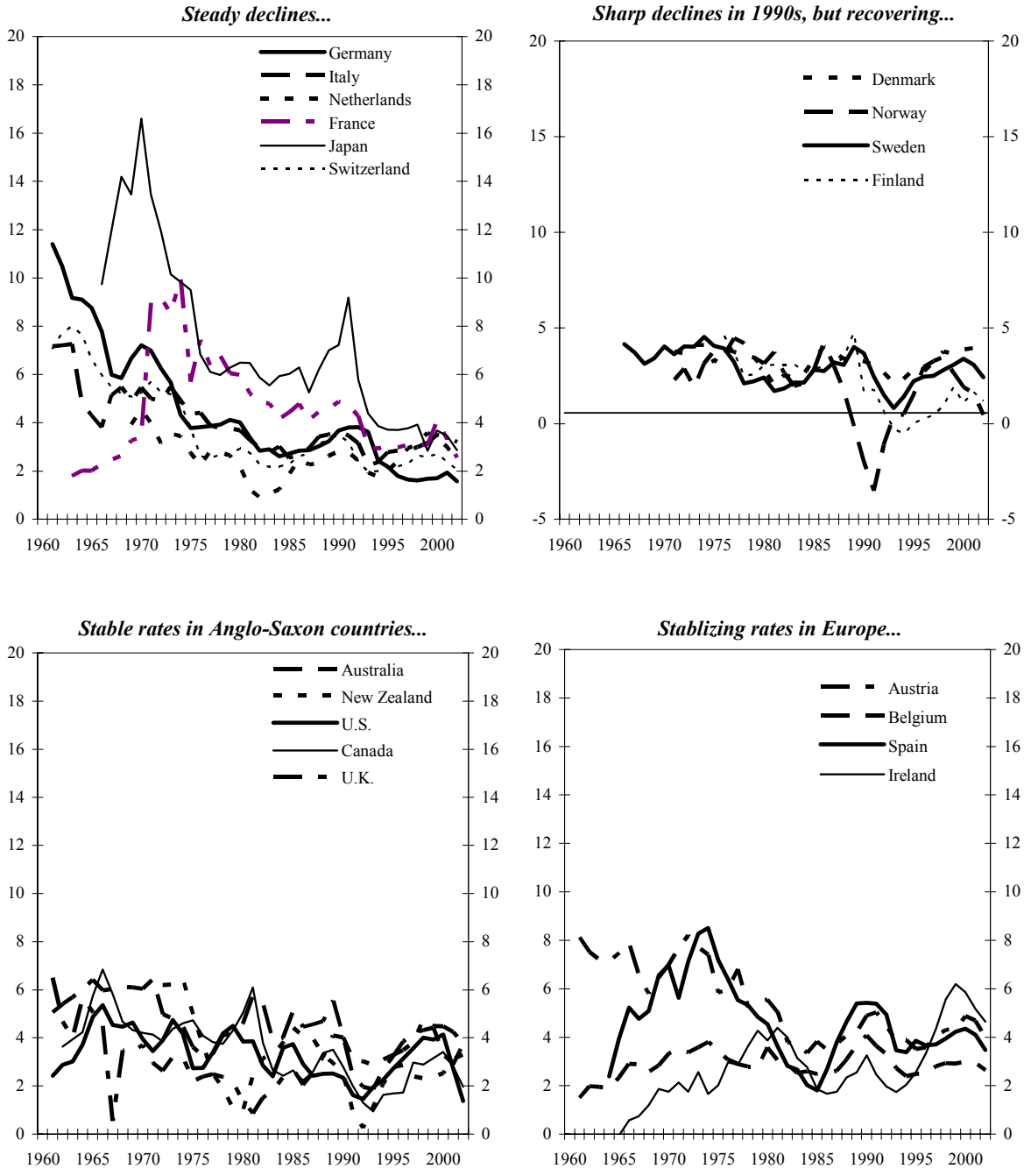


Source: OECD, European Commission; and IMF staff calculations.

8. **These trends are shared by a number—but not all—OECD countries (Figure I-2)**. Investment trends have been similar to Germany's experience in several European countries, such as France, Italy, the Netherlands, and Switzerland, and in Japan. Capital growth declines were somewhat sharper in the Nordic countries (Denmark, Finland, Norway, and Sweden) and in Greece in the early 1990s, but appear to have recovered somewhat in recent years. In contrast, there are a number of countries with fairly stationary investment rates and capital growth rates, with the most stable trends seen in Anglo-Saxon countries: Australia, Canada, New Zealand, the United Kingdom, and the United States. Finally, there also is a group of European countries where growth rates have stabilized in recent years.

[1] Prepared by Allan Brunner.

Figure I-2. Selected OECD Countries: Business Capital Growth Trends, 1960-2002
(Percent change)



Sources: OECD, European Commission; and IMF staff calculations.

9. **Although the economic literature offers several possible explanations, there is no agreement on the causes of these trends.** The following explanations have been put forward:

- First, standard neoclassical growth theory, which relies on a balanced growth path, predicts that the long-run, steady-state growth rate of the capital stock should equal the sum of total factor productivity (TFP) growth and labor force (LF) growth. Both of these components have slowed for many countries in recent years.

- Second, the capital-to-labor ratio was relatively low for some countries after World War II, particularly in France, Germany, Italy, Japan, and the United Kingdom. Thus, convergence could account for the relatively high levels of investment in those countries during the 1960s and 1970s. Moreover, there was additional "catch-up" investment in Germany in the 1990s following reunification.

- Finally, there are a number of factors that alter the trade-off between capital and labor, such as the real interest rate, the rate of capital depreciation, wage rates, and tax rates on capital and labor. While these factors can temporarily affect the growth rate of capital during the transition period, they cannot affect the long-run growth rate. Broadbent, Schumacher, and Sachels (2004) have argued that countries with a large presence of public sector banks—particularly Germany—have relatively lower rates of return on capital and larger capital-to-labor ratios. With EMU and a decreasing presence of public sector banks in recent years, interest rate spreads among public sector banks have been on the rise and could explain part of the recent slowdown in investment. Many countries with declining capital accumulation rates have also been saddled with high unemployment rates, following increases in labor market protection and real wages in the 1970s and early 1980s. Blanchard (1997, 1998) has argued that excessive wage growth initially stimulates capital growth in the short run (as firms substitute away from labor) but this diminishes the marginal product of capital and investment rates in the medium term. The persistence—and perhaps permanency—of these effects is still an unsettled question. Daveri and Tabellini (2000) have argued that higher labor taxes have been an important source of increased labor costs—thereby leading to both higher unemployment and slower capital growth. But, the importance of this explanation for capital stock *growth rates* is questionable, as tax policy is generally considered to have a negligible effect on the long-run growth of an economy (see Mendoza, Milesi-Ferretti, and Asea for a recent study on this issue), although it can affect the *levels* of capital and labor utilization.

10. **This paper examines the empirical importance of these explanations, using a panel data set of 21 OECD countries**. The paper is organized as follows: Section B provides a more extended discussion and examines the stylized facts of each explanation. Section C presents econometric test results for the various theories. Section D concludes.

B. Stylized Facts and Possible Explanations

11. **This section compares the stylized facts to those implied by various theoretical explanations**. All the explanations that have been offered can be viewed as extensions to the neoclassical growth model, so that model is used as the benchmark for evaluating various alternatives.[2] The next section then presents a more rigorous evaluation using econometric techniques.

12. **The paper focuses only on capital accumulation—the growth rate of business capital—which has advantages and disadvantages for economic analysis**. First, the growth rate of the business capital stock is an important component of the potential growth rate of the economy—along with total factor productivity and labor force growth rates. That is, the capital growth rate is helpful in understanding income growth, but it is not useful for understanding the *relative* importance of using capital—relative to labor, for example—or for understanding per capita income.[3] Second, the net investment rate—an alternate measure of capital accumulation—is more commonly cited in the literature, largely because it is easily constructed from national accounts data. Still, this measure includes private residential construction and public investment; the former has little direct impact on the productive capacity of the economy, and the latter may not be a perfect substitute for private investment.[4] Finally, all of the above measures rely on calculations for capital consumption, which, in turn, rely on assumptions for depreciation and scrap rates. Countries use different methodologies to calculate capital consumption, so these measures are not strictly comparable across countries.

13. **Particular emphasis is placed on four countries—Germany, Sweden, the United States, and Spain—each representing a member of the four groups of countries shown in Figure I-2**.

Long-run determinants of capital accumulation

14. **According to the neoclassical growth model, the growth rate of the capital stock (and GDP) is determined by the sum of the growth rate of the labor force and the growth rate of total factor productivity (TFP)**. In the long run, the factors of production

---

[2] See the Appendix for a brief discussion of the neoclassical growth model. See Romer (1989) for an extended discussion of capital accumulation and long-run growth.

[3] For example, a permanent change in the tax rate on capital income could have important effects on the capital-to-labor ratio or the net investment rate—as labor is substituted for capital—but such a policy change would likely have little impact on the long-run growth rates for capital, labor, or income.

[4] The literature is somewhat ambiguous as to whether public investment is a substitute or a complement for private investment.

are supply-determined. In the standard neoclassical growth model, TFP growth (which is labor-augmenting) and changes in the labor supply are exogenously determined and are the sole drivers of potential GDP; assuming a balanced growth path, the capital stock must grow in line with these components.[5] As it turns out, these two factors explain only part of the long-run trends in most countries (Figure I-3). Fundamentals (shown as dashed lines in each panel) show a relatively close correlation with the growth of business capital in the U.S. However, in Germany and Sweden, the capital stock grew faster than fundamentals in the 1960s and 1970s, with capital accumulation falling more in line with fundamentals more recently. In Spain, capital accumulation continues to exceed the pace of fundamentals.

15. **There are several factors (shocks) that could disrupt the long-run relationship between the growth rate of capital and its fundamental determinants**. First, the actual capital-to-labor ratio might be lower than the desired level. As a result, the marginal product of capital will be high, which will encourage high rates of investment and capital accumulation until the economy reaches the steady state. Similarly, changes in real rates of return, depreciation rates, or tax policies will change the optimal level of capital relative to other factors, such as labor. Again, this will involve permanent changes in the capital-to-labor ratio and the net investment rate but will generate only temporary changes in the capital stock growth rate, until the economy reaches the new steady state.

16. **The literature suggests that the transition period to a new steady-state capital stock, and hence deviations from the fundamentals, could be very long**. It finds that convergence rates are between 2 percent and 3 percent per year. This means that it could take between 25 and 35 years to accomplish only ½ of the necessary adjustment. In other words, the long-run trends that are seen in Figures I-1 through I-3 could actually be long-run adjustments to age-old shocks. This possibility is examined in the remainder of this section.

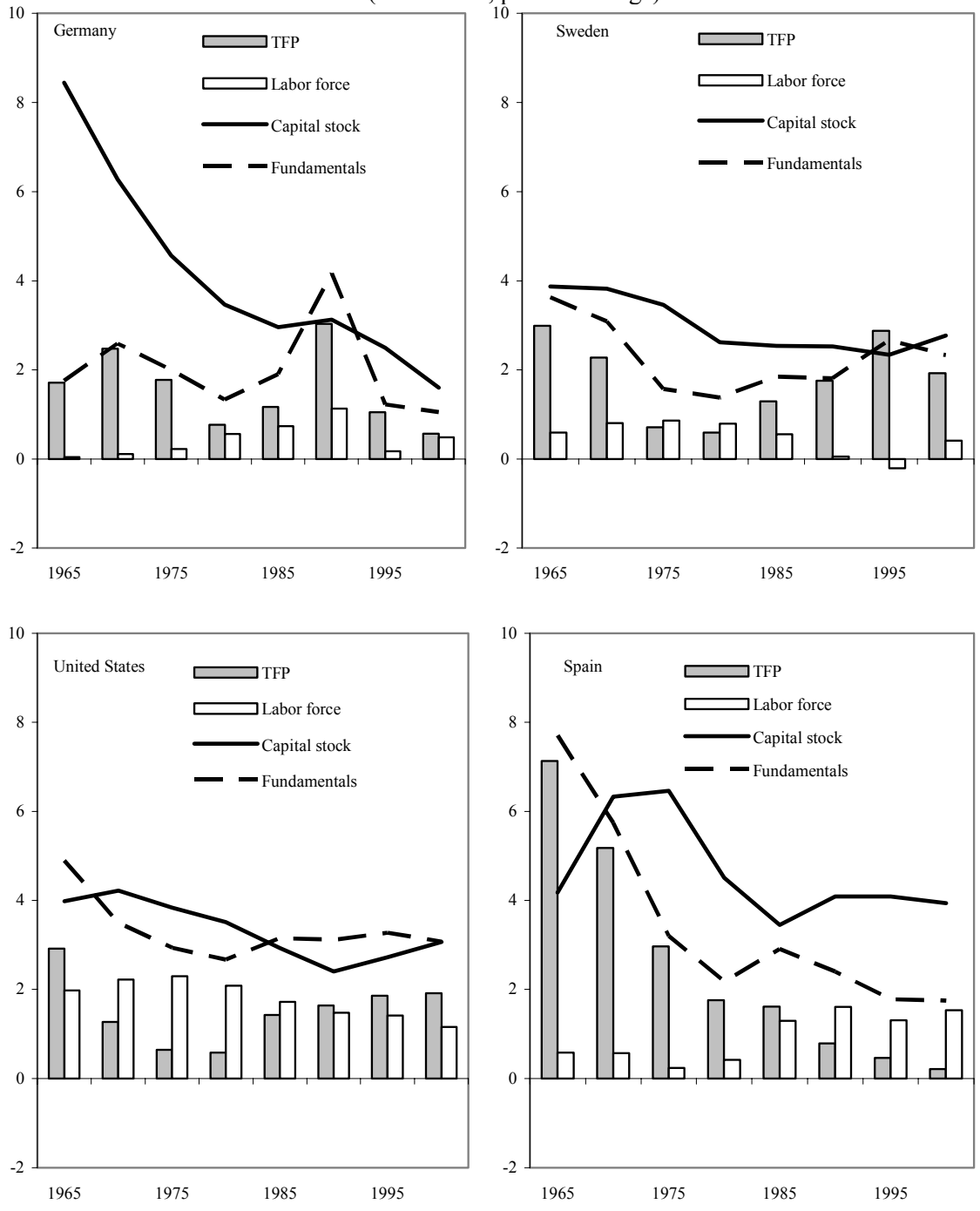
Capital stock convergence

17. Assume, for the moment, that there are no real differences among countries with regard to TFP or labor force growth and that there have been no changes to production possibilities, consumer preferences, or government policy in several years. In this case, the steady-state determinants of capital stock growth rates would be the same for all countries, and all countries would have the same steady-state growth rate. Suppose, however, that countries differ in their initial endowments of capital, with some having too little capital relative to the steady-state level. Standard growth theory predicts that investment and savings rates will increase temporarily until the steady-state capital stock is reached.

---

[5] Henceforth, the sum of TFP growth and labor force growth will be referred to as "the fundamentals." Also, note that changes in employment rates and hours worked will be reflected in changes in TFP, since the labor force is being used as the measure of labor supply.

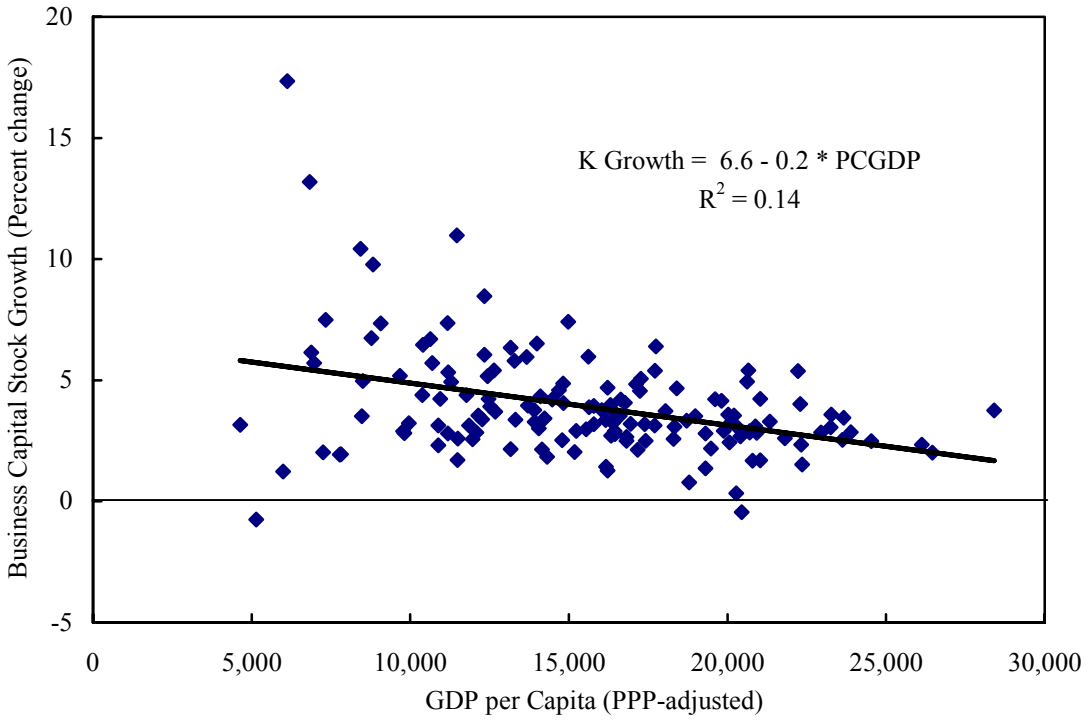
Figure I-3. Selected OECD Countries: Business Capital Stock Growth and Neoclassical Fundamentals, 1965-2000
(HP filtered, percent change)



Sources: OECD, European Commission; and IMF staff calculations.

18. **There is a fairly strong negative correlation between measures of capital accumulation and per capita GDP (Figure I-4)**. Assuming a Cobb-Douglas production function, per capita GDP is proportional to the capital-to-labor ratio. As seen in the figure, there is a great deal of dispersion at low income levels (low capital-to-labor ratios) compared to higher income levels. Much of the dispersion at low-income levels is due to two countries—Japan (which had very high investment rates) and Ireland (which had very low investment rates).

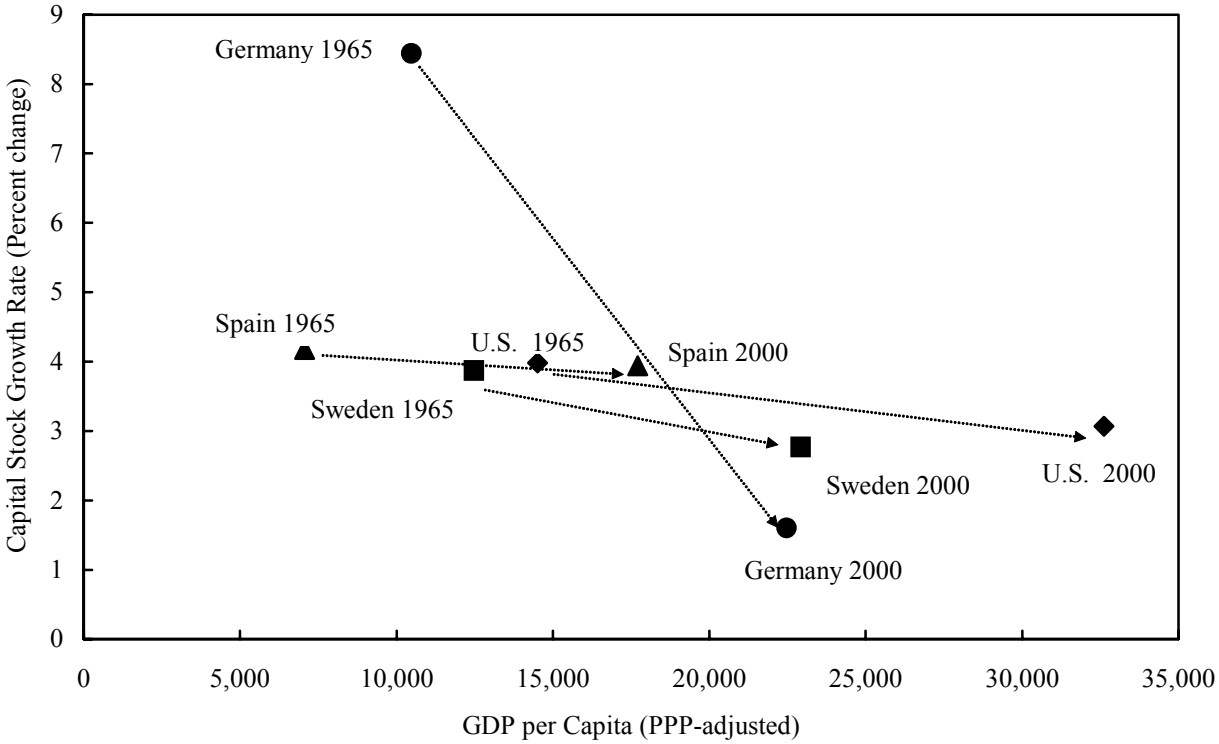
Figure I-4. Selected OECD Countries: Capital Accumulation and Per Capita GDP, 1960-2000



Sources: OECD, European Commission, Penn-World Tables; and IMF staff calculations.

19. **Focusing on Germany, Sweden, the United States, and Spain, the convergence hypothesis appears to have some merit in explaining investment trends (Figure I-5)**. Germany, for example, had a relatively low level of per capita income and per capital stock after WWII and was investing heavily in 1965; subsequently, the capital stock growth rate converged to levels closer to those in the United States in 2000. However, the fall is much steeper than for other countries, suggesting additional explanations. Although Sweden's capital stock growth rate slowed along with U.S. rates, Sweden's net investment rate has slowed much faster. Spain also had a relatively low level of per capita income in 1965 but invested less than Germany; more recently, its investment trends are in line with the convergence hypothesis. Thus, while the fit is not perfect, the convergence hypothesis appears to have some merit.

Figure I-5. Selected OECD Countries: Capital Accumulation and Per Capita GDP, 1965 and 2000



Sources: OECD, European Commission, Penn-World Tables; and IMF staff calculations.

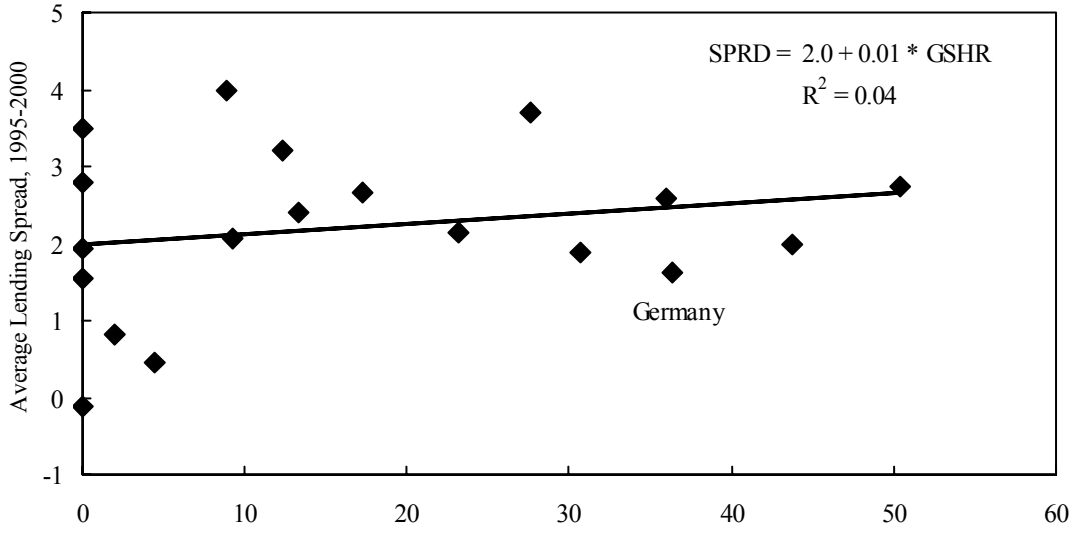
Lending rates

20. **Broadbent, Schumacher, and Sachels (2004) have argued that Germany has significantly lower rate of return on capital than other European countries**. They attribute this feature to a relatively large presence of public sector banks. Low cost of capital encouraged overinvestment and, more recently, slow capital stock growth. Although the authors do not provide an explicit estimate of the investment overhang, they imply that it is substantial. In contrast, analysis below does not suggest a strong correlation between lending rates and the presence of public sector banks.

21. **Real rates of return on capital are notoriously difficult to calculate for cross-country comparisons**. The necessary data are often not available, or the data are not comparable across countries. As a crude approach, one can calculate the "real" rate as an interest spread of lending rates over short-term government rates and compare them to the share of banking assets that are government controlled (Figure I-6). The government banking shares are from La Porta and others (2002) for 1995, and the interest rate spreads are average spreads from 1995-2000 from the *International Finance Statistics*. There is a slight *positive* correlation between these two measures. While it is true that lending rate spreads are somewhat low in Germany compared to other continental European countries, they are not

low compared with a broader sample of countries, and there is no strong evidence suggesting that there is a link between these spreads and the role of public sector banks.

Figure I-6. Selected OECD Countries: Government Ownership of Banks and Lending Spreads, 1995-2000



Sources: IMF, International Financial Statistics; and La Porta and others, 2002.

Excessive wage growth

22. **Blanchard (1997, 1998) has argued that excessive wage growth—relative to inflation and changes in labor productivity—is the primary reason for persistently high unemployment in Europe**. In Blanchard's model, firms are monopolistically competitive, and, therefore, can earn positive economic profits. Workers can extract some of these profits through collective wage bargaining agreements. Workers are assumed to be less aggressive when unemployment rates are high. The so-called wage curve can be written as:

$$\Delta \log \hat{w}_t = \lambda \Delta \log u_t + \upsilon_t \qquad (1)$$

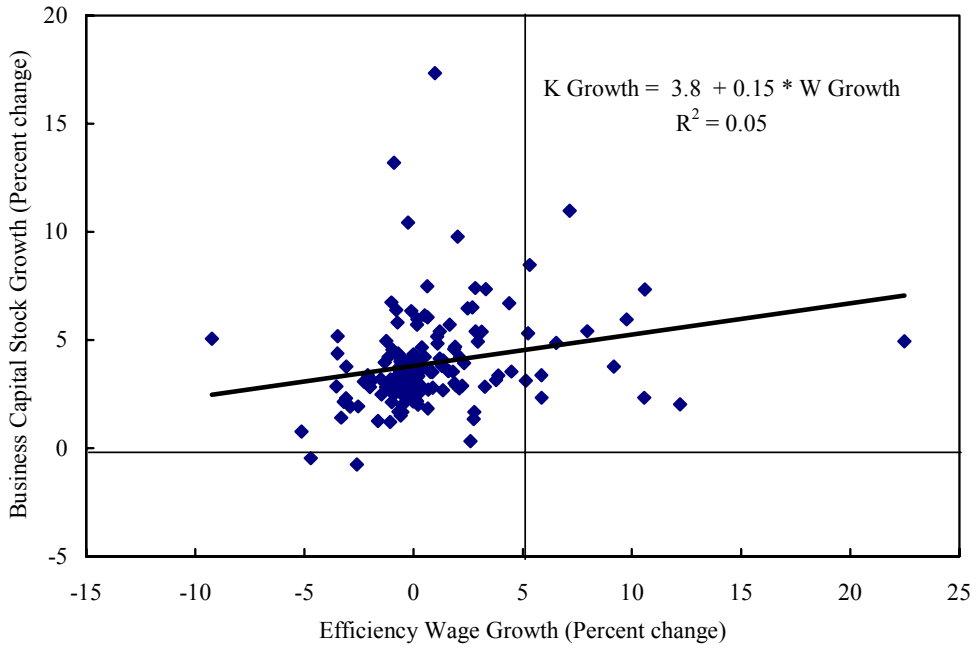
where $\hat{w}_t$ is the efficiency wage rate, u_t is the unemployment rate, λ is a slope of the wage curve (<0), and υ_t is a temporary labor supply shock (measured in wage rate terms) that results in permanent changes to the level of efficiency wages. A very large literature finds that λ is fairly constant across countries, regions, and time periods, at a value of about -0.1.

23. **Relatively high labor costs—as a result of negative labor supply shifts—lead to changes in the optimal mix of capital and labor**. In Blanchard's model, the effects of

excessive wage growth are temporary. Initially, they stimulate capital growth, as firms substitute away from labor. In the medium-term, however, capital growth diminishes the marginal product of capital and investment rates, and thus capital accumulation. Kaas and von Thadden (2001) formalized and provided a more thorough discussion of the Blanchard model; they showed that the persistence of the effects of labor supply shocks depends critically on the elasticity of substitution between labor and capital. Blanchard also hinted at the possibility of permanent effects on the capital-to-labor ratio, and Acemoglu (2000) has formalized this explanation. The basic idea is that firms not only substitute away from labor in response to adverse wage shocks, but they also invest in labor-saving capital. Nevertheless, it should be stressed that the effects, whether temporary or permanent, only affect the long-run *levels* of capital, labor, and income and not their *growth rates*.

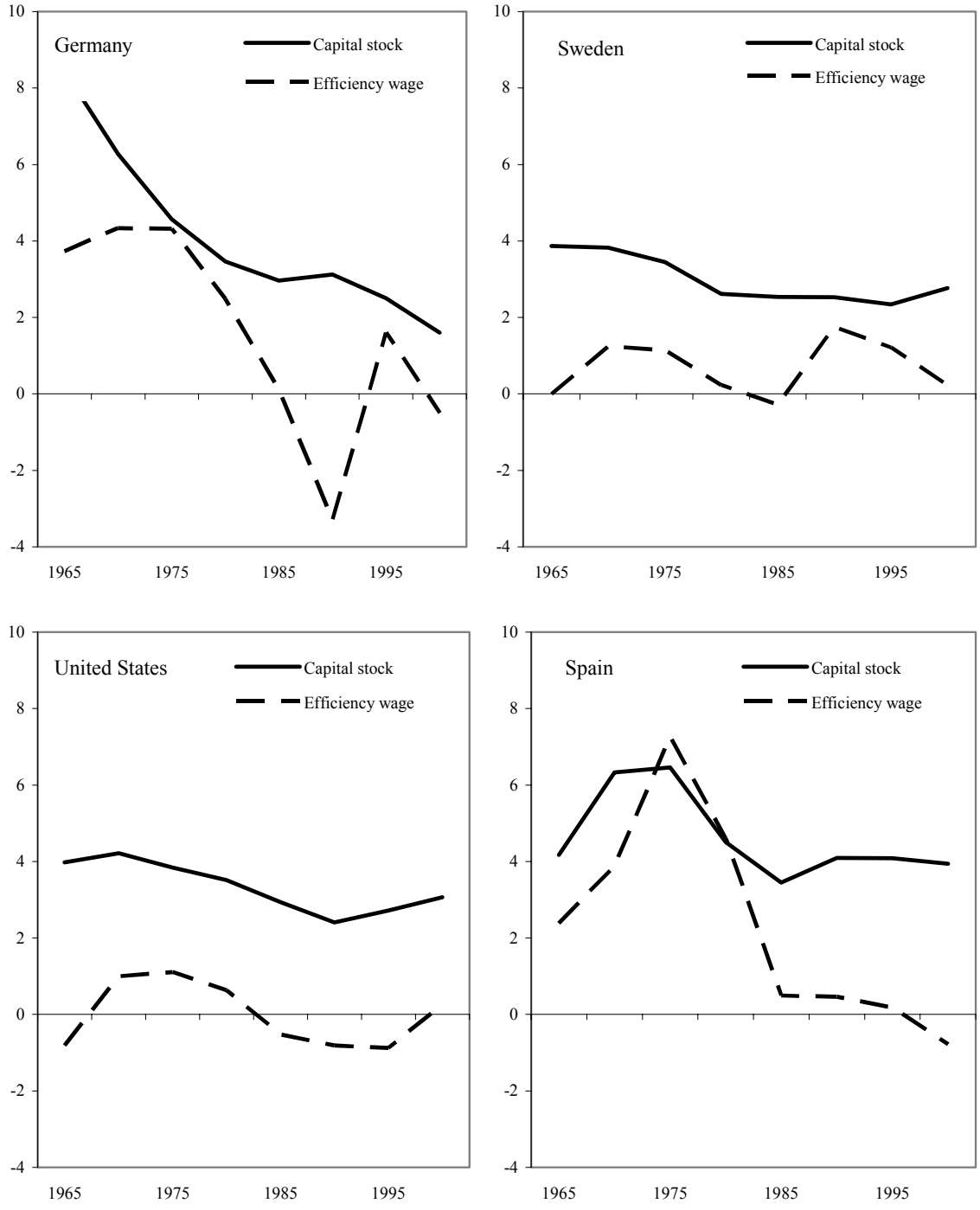
24. **The correlation between efficiency wage growth and capital accumulation is somewhat weak (Figure I-7)**. A detailed look at Germany, Sweden, the United States, and Spain also suggests that excessive wage growth is unlikely to be an important explanation for the stylized facts observed earlier (Figure I-8). Indeed, in many cases, it appears that slowing capital growth went hand-in-hand with efficiency wage growth, which suggests a common explanation rather than causality from labor to capital.

Figure I-7. Selected OECD Countries: Capital Accumulation and Efficiency Wage Growth, 1960-2000



Sources: OECD, European Commission; and IMF staff calculations.

Figure I-8. Selected OECD Countries: Business Capital Stock and Efficiency Wage Growth, 1965-2000



Sources: OECD, European Commission; and IMF staff calculations.

The role of labor and capital taxation

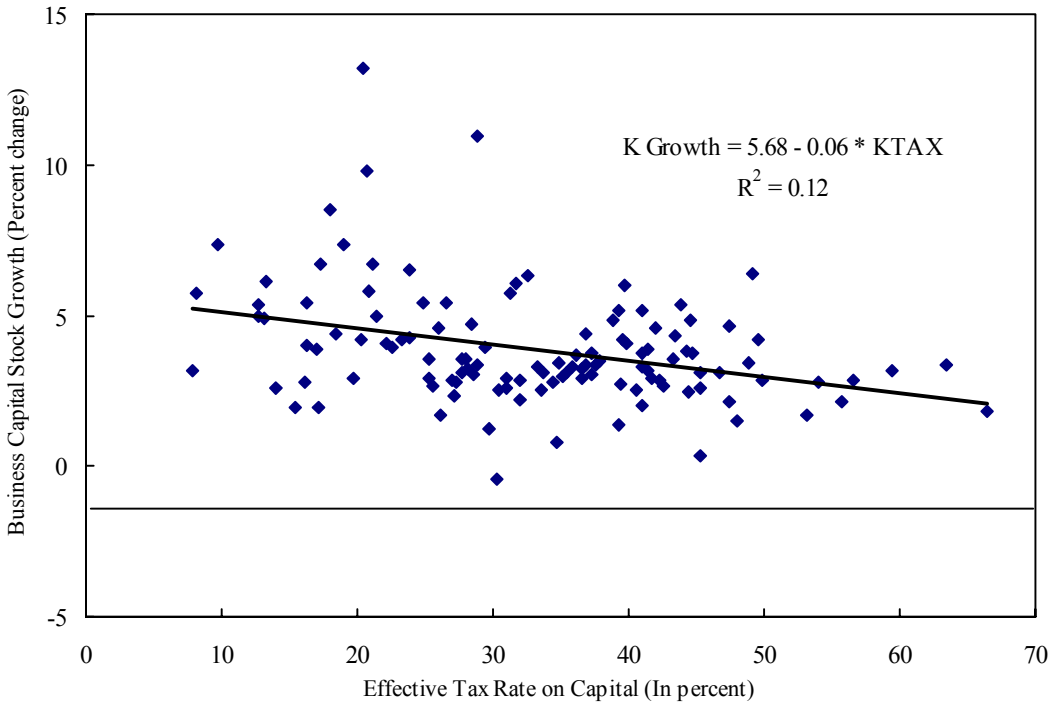
25. **Daveri and Tabellini (2000) argue that higher taxes on labor income can have important effects on employment and capital**. The intuition for this result is very similar to the arguments made by Blanchard and others in the context of efficiency wages. If workers have monopolistic power because of collective bargaining arrangements, then the burden of higher labor taxes can be passed on (to some extent) to firms. This has two effects. First, real wages will be higher, resulting in lower employment. Second, firms will also substitute toward capital. As before, capital growth speeds up and then falls as the marginal product of capital is pushed down. In the long-run, the economy has higher unemployment, a higher capital-to-labor ratio, lower per capita income, and an unchanged capital stock growth rate.

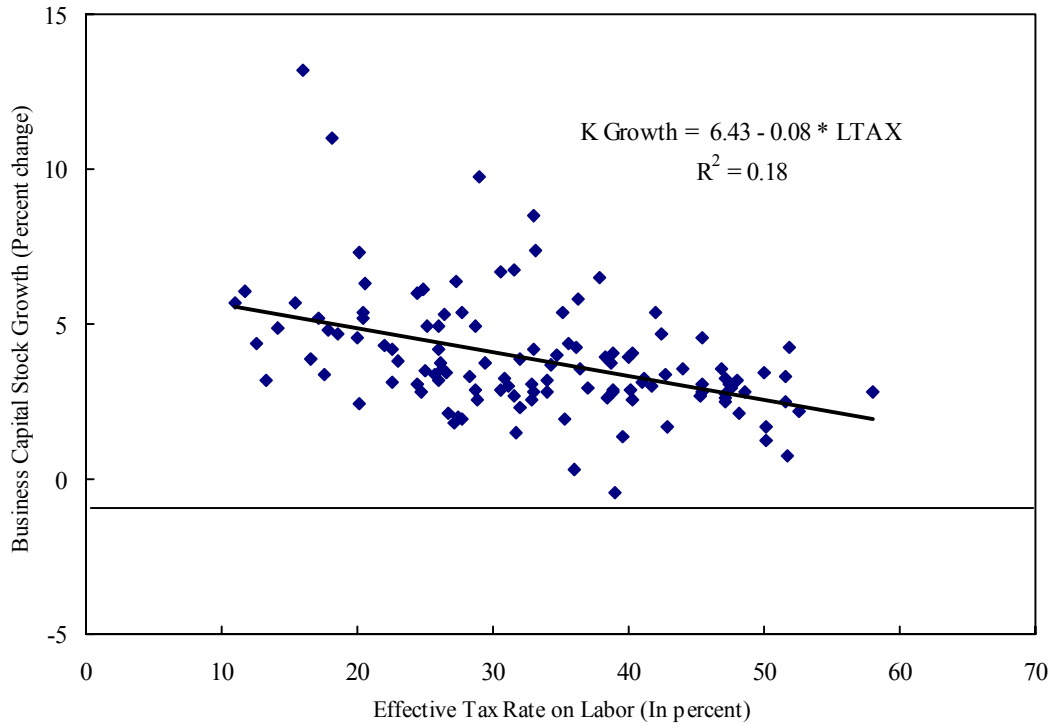
26. **Net investment rates and capital accumulation will also be affected by the tax rate on capital income**. Higher taxes on capital income will lower the steady-state capital-to-output ratio and the net investment rate. In addition, capital accumulation will slow until the new steady state is reached.

27. **The correlation between capital accumulation and tax rates are shown in Figure I-9**. As seen in the top panel, there is a small negative correlation between capital growth rates and tax rates on capital, in line with the notion that capital accumulation slows with higher taxes and that the transition period is very long. The evidence on the effects of labor taxes is also consistent with the theory (bottom panel). That is, with higher taxes and lower subsequent output, both capital and labor are adversely affected in the medium-term (over the 5-year intervals).

28. **With respect to specific countries, the time-series evidence also suggests that tax rates are playing a role in observed investment trends (Figure I-10)**. The United States has had relatively high and fairly constant tax rates on capital, in line with relatively low and constant capital stock growth rates. Moreover, tax rates on labor have edged up over time, which may help explain the small slowdown in capital accumulation over the sample period. In contrast, tax rates have been relatively low but increasing in Spain, where investment rates have been significantly higher. Tax rates were very high and increasing in Sweden, until very recently, and capital accumulation edged down over this period as well. Germany is a bit harder to explain with a tax rate story, given the relatively large fall in the capital stock growth rate relative to changes in taxation. Still, higher taxes on both capital and labor may have contributed to the decline.

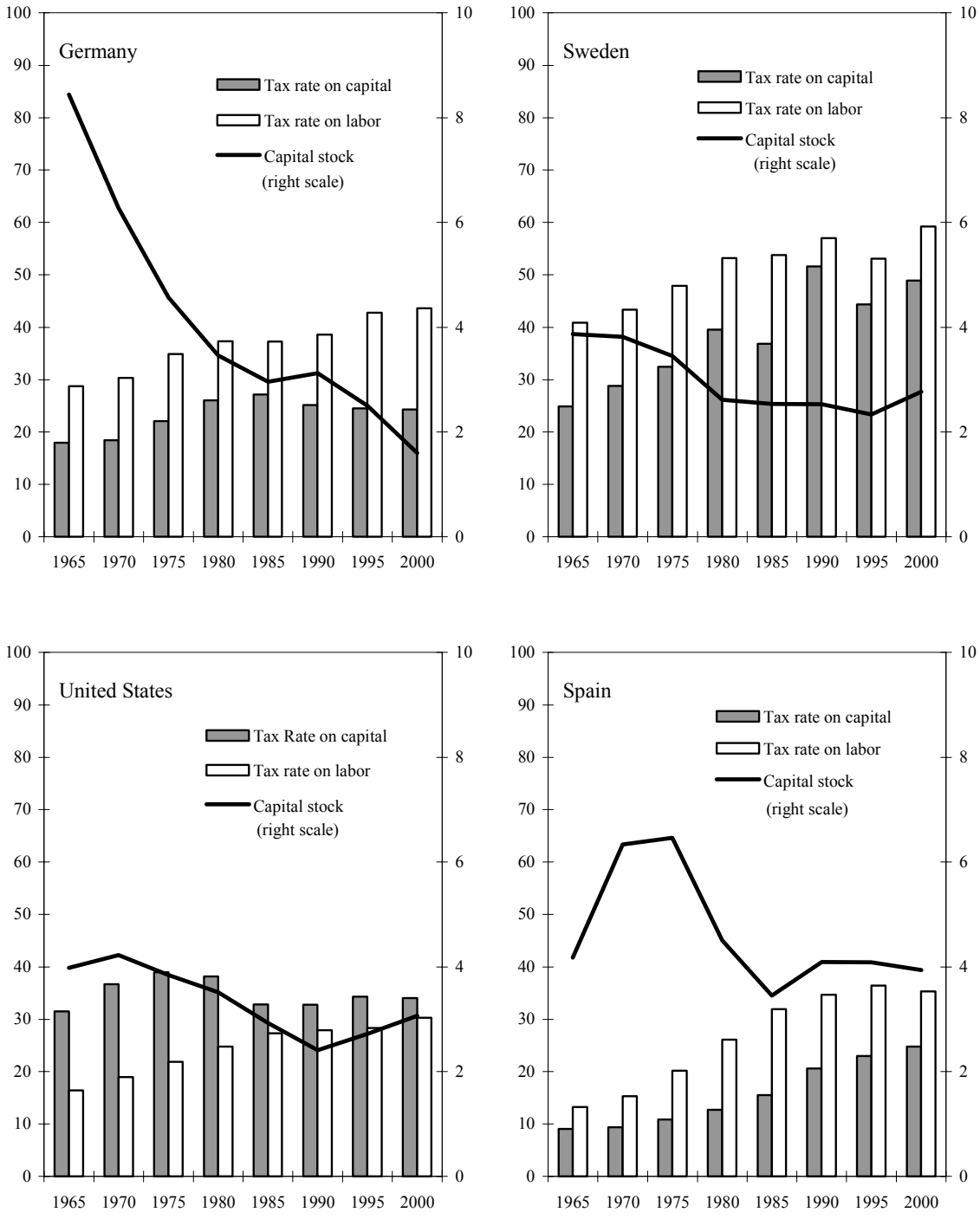
Figure I-9. Selected OECD Countries: Capital Accumulation and Taxation of Capital and Labor, 1960-2000





Sources: OECD, European Commission; and IMF staff calculations.

Figure I-10. Selected OECD Countries: Business Capital Stock Growth and Taxation of Capital and Labor, 1965-2000



Sources: OECD, European Commission; and IMF staff calculations.

C. Econometric Results

29. **This section of the paper examines several explanations for movements in capital stock growth rates using econometric analysis**. As reviewed in the previous section, economic growth theory points to two main determinants of the capital stock growth rates in a steady state—the growth rate of TFP and the labor force. Changes in these determinants result in a new steady-state, along with transitional dynamics to the steady-state. In addition, there are several shocks that could temporarily raise or lower the growth rate and require transition back to the steady state. Changes in the level of the capital stock, the real interest rate, the depreciation rate, tax rates on capital or labor, or the efficiency wage are some of the many factors that could have temporary affects on capital accumulation. The econometric approach to testing these possibilities involves two steps. First, the theory implies a co-integrating relationship among capital stock, TFP and labor force growth rates. In the second step, deviations from the long-run level—that portion that cannot be explained by fundamentals—is then regressed on proxies for the various explanation and also allowing for transitional dynamics.

30. **Measures for the determinants of the capital stock growth rates are problematic**. First, one should use total hours worked rather than the labor force to measure the labor component, but this variable is not widely available over time or across countries. This, in turn, affects the measure of TFP growth and efficiency wages, which calculated as a residual, after accounting for labor and capital inputs. Second, households and firms respond to effective *marginal* tax rates, which are difficult to measure. Instead, this study uses effective *average* marginal tax rates on labor and capital income. Third, there are many ways to calculate real interest rates and efficiency wage rates. With respect to real interest rates, this paper uses the 3-month interest rate less actual GDP inflation.[6] With respect to wage growth, the "wage" rate is measured by estimating total compensation for all workers in the economy, using the relationship in equation (1). Finally, capital depreciation rates, as discussed earlier, are measured differently across countries, and, sometimes, across time.

31. **This paper uses a panel data set of 21 OECD countries from 1961-2000**. Since there is a great deal of business cycle volatility in these data and the emphasis is on long-run developments, five-year averages of the data were constructed (1961-65, 1966-70, and so forth). This provides (at most) 168 observations for each variable in the panel.

The econometric approach

32. **The results of estimating the long-run, steady-state relationship is as follows**:

$$\Delta K_t = \alpha + \underset{(1.89)}{0.58} * \Delta TFP_t + \underset{(3.35)}{1.37} * \Delta LF_t + \varepsilon_t \qquad (2)$$

[6] Ideally, one would like to use longer-term real interest rates. However, long time series on such measures were not available for most countries in the sample.

where t-statistics are shown in parenthesis and ε_t represents temporary, but persistent, deviations from the steady state. The hypothesis that the co integration coefficients are both equal to one cannot be rejected. Henceforth, this restriction will be imposed. The next econometric challenge is to explain these deviations:

$$\varepsilon_t = \mu + \gamma X_t + \eta_t \qquad (3)$$

where X_t denotes a vector of variables that could have a temporary effect on the capital stock growth rate.[7] Note that these variables are, by assumption, stationary, since they cannot have permanent, long-run effects on the steady-state capital stock.

33. **The econometric results of estimating second-stage regression are presented in Table I-1**. Four specifications are presented in the table. Each specification contains country and time dummies, as well as a reunification dummy for Germany. The first regression is the most general, while other specifications progressively remove variables that are statistically unimportant. The results are fairly consistent with theory, but some puzzles exist:

- Several lag structures were evaluated, although the number of lags was limited by the short time series component of the panel data set. One lag was found to be sufficient to capture dynamics. This implies a fairly short adjustment period compared to other studies, as discussed in Section B.

- The proxy for the capital-to-labor ratio (per capita income) has the wrong sign, but is not significantly different from zero. This could indicate that it is not a good proxy, that countries are not converging to the same capital-to-labor ratio, or that other changes (such as tax rate policy) that are correlated with increases in per capita income provide better explanations for capital growth rates.[8]

- The real interest rate and the depreciation rate do *not* have statistically significant effects. Both of these measures are difficult to construct and likely accounts for this outcome. The tax rates on capital and labor and the wage rate have statistically significant effects on the change in the capital stock growth rate. The most parsimonious regression in column (4) indicates that higher taxes on labor or capital results in decreases in capital accumulation while increases in the efficiency wage boosts capital growth, suggesting a substitution of capital for labor.

[7] This model could have been set up as an error-correction model, but the presence of a lagged dependent variable would complicate the decomposition analysis in the next section.

[8] Several other proxies for the capital-to-labor ratio were used with similar results.

Table I-1. Selected OECD Countries: Determinants of Business Capital Growth Rates, 1960-2000
(Dependent variable is "excess" capital growth)

	(1)	(2)	(3)	(4)
RHS variable	Coefficient	Coefficient	Coefficient	Coefficient
Lagged per capita income	0.379	0.395		
Lagged change in TFP growth	0.024			
Lagged change in labor force growth	0.067			
Change in real interest rate	0.037	0.038	0.020	
Lagged change in real interest rate	0.029	0.028	-0.030	
Change in depreciation rate	-0.517	-0.531	-0.262	
Lagged change in depreciation rate	-0.969	-0.959	-0.897	
Change in tax rate on capital	-0.038	-0.038	**-0.053** *	0.006
Lagged change in tax rate on capital	**-0.034** *	**-0.033** *	**-0.041** *	**-0.046** *
Change in tax rate on labor	-0.018	-0.019	-0.007	-0.044
Lagged change in tax rate on labor	**-0.221** ***	**-0.225** ***	**-0.219** ***	**-0.103** *
Change in efficiency wage rate	**0.329** ***	**0.323** ***	**0.438** ***	**0.355** ***
Lagged change in efficiency wage rate	-0.139	-0.149	-0.119	-0.077
R-bar squared	0.66	0.67	0.66	0.61
Degrees of freedom	43	45	46	67

Notes: Data are 5-year averages of annual observations. Each regression also includes country and time du
and a reunification dummy for Germany. Standard errors have been corrected for heteroskedasticity.

***, **, and * indicate significance from zero at the 1, 5 and 10 percent level, respectively.

Decomposition of long-run developments

34. **The final step in the analysis is to decompose capital stock growth rates into contributing categories**. This done by multiplying the regression coeffecients by the appropriate time-series value, using the right-most regression in Table I-1. Tables I-2A through I-2D show the decomposition of change in the capital stock growth rate for the four countries from the 1970s to the 1990s. The first line shows the actual change in the average growth of the capital stock for each country. The next three rows show developments in fundamentals, leaving "excess" capital growth to be explained. The final rows show the amount of excess capital growth—the deviations from the steady state in equations (2) and (3)—that can attributed to changes in tax rates on capital and labor and to increases in the efficiency wage rate. The results can be summarized as follows

- As noted earlier, fundamentals make only a partial contribution in explaining the decline in the capital stock growth rates.

- A large part of Germany's rapid capital stock growth rate in the early 1970s and in the period following reunification can be attributed to large increases in the efficiency wage rate. Increases in taxation, especially labor taxation, had a negative effect on capital accumulation.

- Sweden and Spain also experienced increases in efficiency wages in the 1970s. These increases were smaller than Germany's, and they were almost exactly offset by developments in taxation of capital and labor.

- The amount of "excess" capital growth is very small in the United States relative to the other countries. Small declines in the efficiency wage rate were offset by the effects of higher taxes on capital and labor.

- Finally, the "unexplained" portion of excess capital growth—the last line of each table—has mostly declined over the last three decades for Germany, Sweden, and (to a lesser extent) the United States, suggesting that convergence may have played a role in these countries but was not adequately captured by the convergence measures used in the regression analysis. In contrast, the unexplained growth for Spain has remained relative high over the entire sample period, as was seen in Figure I-5.

D. Summary and Policy Conclusions

35. **This study has examined possible explanations for the decline in capital accumulation rates that have been observed in several countries**. In addition to changes in fundamentals, the possibility of convergence in capital-to-labor ratios, changes in factors that affect the underlying capital-to-labor ratios and investment rates (real interest rates, depreciation rates, and the taxation of capital and labor), and changes in the supply of labor (proxied by the growth rate of the efficiency wage rate) were examined.

Table I-2A. Germany: Decomposition of Capital Stock Growth Rates, 1961-2000
(in percentage points)

	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Growth rate of capital stock	5.4	3.9	2.9	3.1	5.4	1.7
Fundamentals	1.0	2.8	1.1	3.1	2.4	1.8
TFP growth	0.9	2.2	0.5	2.2	2.6	1.2
Labor force growth	0.1	0.6	0.6	0.9	-0.1	0.6
"Excess" capital growth	4.4	1.2	1.8	0.0	3.0	-0.1
Amount attributed to:						
Change in tax rate on capital	0.0	-0.1	-0.2	-0.1	0.1	0.0
Change in tax rate on labor	-0.4	-0.6	-0.2	-0.1	-0.3	-0.5
Growth in efficiency wage	2.5	-0.7	0.8	-0.8	1.2	-0.4
Unexplained capital growth	2.3	2.6	1.4	1.0	2.0	0.7

Table I-2B. Sweden: Decomposition of Capital Stock Growth Rates, 1961-2000
(in percentage points)

	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Growth rate of capital stock	4.1	2.8	2.1	3.3	1.7	2.8
Fundamentals	1.7	0.7	2.0	1.7	2.6	2.9
TFP growth	0.8	0.0	1.4	0.9	3.3	2.8
Labor force growth	0.9	0.7	0.6	0.8	-0.7	0.1
"Excess" capital growth	2.3	2.1	0.2	1.6	-0.9	-0.1
Amount attributed to:						
Change in tax rate on capital	-0.2	-0.1	-0.3	0.2	-0.7	0.4
Change in tax rate on labor	-0.5	-0.7	-0.6	-0.2	-0.4	-0.2
Growth in efficiency wage	0.4	0.6	-0.5	0.2	1.0	-0.3
Unexplained capital growth	2.5	2.2	1.6	1.4	-0.7	0.0

Table I-2C. United States: Decomposition of Capital Stock Growth Rates, 1961-2000
(in percentage points)

	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Growth rate of capital stock	3.8	3.7	3.3	2.5	2.0	3.8
Fundamentals	3.0	3.5	3.2	3.3	2.7	3.9
TFP growth	0.9	0.9	1.7	1.4	1.6	2.3
Labor force growth	2.0	2.7	1.5	1.8	1.1	1.7
"Excess" capital growth	0.8	0.2	0.1	-0.7	-0.7	-0.2
Amount attributed to:						
Change in tax rate on capital	-0.2	-0.1	0.0	0.2	0.0	-0.1
Change in tax rate on labor	-0.4	-0.4	-0.4	-0.3	-0.1	-0.1
Growth in efficiency wage	0.3	-0.1	-0.2	-0.3	-0.1	-0.2
Unexplained capital growth	1.1	0.8	0.7	-0.4	-0.5	0.2

Table I-2D. Spain: Decomposition of Capital Stock Growth Rates, 1961-2000
(in percentage points)

	1971-75	1976-80	1981-85	1986-90	1991-95	1996-2000
Growth Rate of Capital Stock	7.3	5.3	2.6	4.4	4.2	4.0
Fundamentals	4.7	1.6	2.9	3.4	1.2	2.1
TFP growth	4.0	1.8	2.2	1.0	0.2	0.8
Labor force growth	0.7	-0.3	0.7	2.5	1.0	1.3
"Excess" capital growth	2.7	3.7	-0.3	0.9	3.0	1.9
Amount attributed to:						
Change in tax rate on capital	0.0	-0.1	-0.1	-0.1	-0.2	-0.1
Change in tax rate on labor	-0.4	-0.8	-0.9	-0.7	-0.4	-0.1
Growth in efficiency wage	3.8	1.0	-0.3	-0.3	0.8	-0.6
Unexplained capital growth	-0.7	3.5	0.9	2.0	2.8	2.7

36. **While TFP growth and the labor force growth rates have abated over the last several years, the results suggest that other factors were also important in explaining the slowdown in capital accumulation**. A large part of the explanation lies in excess wage growth during the 1970s. Results for Germany, for example, show that about half of the rapid growth in business capital in the 1970s can be attributed to increases in the efficiency wage. Wage increases had a much smaller effect in Sweden. These developments were offset, to some degree, by increases in tax rates on capital and labor. Somewhat surprisingly, the evidence found in favor of the convergence hypothesis is relatively weak, although there is certainly a strong negative raw correlation between capital-to-labor ratios and capital growth rates, suggesting that countries in the sample are not converging to the same capital-to-labor ratio or have different rates of convergence.

37. **Focusing on Germany, these results have several important implications for future capital accumulation and potential GDP growth**. Fundamentals during the late 1990s suggest a long-run capital stock growth rate of about 2 percent. However, over the medium term, it is likely that the growth of the capital stock will slow further—along with the growth rate of potential GDP.

- First, capital accumulation will likely slow further over the next several decades in line with expected decreases in the labor force due to aging of the population. In addition, while reforms are underway to improve labor force participation, slippages in this area would lead to further slowdown in the growth rate of the capital.

- Second, wage rates have shown a downward trend in Germany in recent years, as in other European countries, which is positive for employment prospects but can slow capital accumulation in the short run. It is difficult to assess how much further wage moderation will occur in the future.

- Finally, after some decades of very high capital accumulation, convergence appears to have been largely achieved in Germany (Table I-2A); that is, capital-to-labor ratios should now be close to their fundamental long-run equilibrium.

38. **The results are preliminary**. Capital stock measures and proxies for their determinants are imprecise and difficult to obtain. In addition, this study examined the capital stock in isolation, rather than looking at the simultaneous determination of capital and labor, which could be an interesting project for the future.

Capital Accumulation in a Neoclassical Growth Model

39. **This appendix describes a simple, benchmark closed-economy neoclassical growth model and its implications for capital accumulation**. The economy is characterized by a representative firm and a representative household. Although the closed-economy assumption is not directly defensible for the countries analyzed in this paper, Barro and others (1992) have shown that such a model has essentially the same steady-state properties, if capital is a composite of physical capital and human capital and if only physical capital can be used as collateral for international borrowing.

The representative firm

40. **The representative firm hires labor and rents capital to produce a single good**. The production function is:

$$Y_t = F(K_t, A_t L_t) = A_0 K_t^{\alpha} (A_t L_t)^{1-\alpha}$$

where Y_t is output; A_0 is an arbitrary constant; A_t is the level of labor-augmenting technology; K_t is the level of the capital stock; L_t is the size of the labor force, respectively; and α is the share of output paid to capital.[9] Technology and the labor force are assumed to grow exogenously at a constant rates over time:

$$A_{t+1} / A_t = (1+\gamma_A)$$

$$L_{t+1} / L_t = (1+\gamma_L)$$

Since technology and the labor force grow over time, it is convenient to transform the growing economy into one that is stationary, by dividing through by $A_t L_t$:

$$Y_t/A_t L_t = \hat{y}_t = A_0 (K_t / A_t L_t)^{\alpha} = A_0 \hat{k}_t^{\alpha}$$

Note that output and the capital stock are now expressed relative to "effective" labor.

41. **The firm is assumed to choose capital in each period in order to maximize the firm's profits, which can be written as**:

$$\hat{\pi}_t = A_0 \hat{k}_t^{\alpha} - v_t \hat{k}_t - \hat{w}_t$$

[9] The Cobb-Douglass production function assumes that the elasticity of substitution between capital and labor is one. This assumption has important implications for rate of capital accumulation when the economy is not in steady-state, as discussed in the main section of the paper.

where $\hat{w}_t$ is the efficiency wage rate (w_t/A_t) and v_t is the rental rate of capital. The optimal choice for capital and the zero-profit condition imply that:

$$\alpha A_0 \hat{k}_t^{\alpha-1} = v_t \quad \text{(A1)}$$

$$(1-\alpha) A_0 \hat{k}_t^{\alpha} = \hat{w}_t \quad \text{(A2)}$$

Both conditions state that the firm rents capital and hires labor up to the point where their marginal products are equal to their effective marginal costs.

The representative household

42. **The representative household is comprised of L_t workers, earns income from renting capital and providing labor to firms, pays taxes, and derives utility from consumption and leisure**. The household budget constraint is:

$$C_t + [K_{t+1} - (1-\delta)K_t] = (1-\tau_K) v_t K_t + w_t L_t + T_t$$

where τ_K is the tax rate on capital income, δ is the depreciation rate of capital, and T_t is a lump-sum transfer from the government.[10] In effective labor units, the household budget constraint is:

$$\hat{c}_t + (1+\gamma_A)(1+\gamma_L)\hat{k}_{t+1} - (1-\delta)\hat{k}_t = (1-\tau_K) v_t \hat{k}_t + \hat{w}_t + \hat{t}_t \quad \text{(A3)}$$

43. **The household chooses consumption and the amount of capital to be carried into the next period, so as to maximize household utility**:

$$U_t = \sum_{t=0}^{\infty} \beta^t L_t U(\hat{c}_t)$$

subject to the budget constraint in equation (A3). Finally, the utility function is:

$$U(\hat{c}_t) = (\hat{c}_t^{1-\theta} - 1)/(1-\theta)$$

The optimal capital choices is:

$$(1+\gamma_A)[\hat{c}_{t+1}/\hat{c}_t]^{\theta} = \beta [(1-\tau_K)v_{t+1} + 1 - \delta] \quad \text{(A4)}$$

[10] There is no labor-leisure choice in the model, so there is no distortionary role for the taxation of labor.

The equation states that the relative willingness of households to postpone consumption increases with an increase in the discount rate or the rate of capital, and decreases with an increase in the tax rate on capital or the depreciation rate. In addition, the household budget constraint in equation (A3) must hold.

The government

44. **In this model, the government simply collects taxes and redistributes them to the household, so the lump-sum transfer can be written as**:

$$\hat{t}_t = \tau_K \mathrm{v}_t \hat{k}_t \qquad \text{(A5)}$$

Steady-state equilibrium

45. **The equilibrium conditions for the economy are summarized by equations (A1) through (A5)**. These conditions—which determine output, capital, and consumption expressed in efficiency units—can be further simplified as:

$$\hat{\mathrm{y}}_t = A_0 \hat{\mathrm{k}}_t^{\alpha}$$

$$\hat{c}_t + (1+\gamma_A)(1+\gamma_L)\hat{k}_{t+1} - (1-\delta)\hat{k}_t = \hat{y}_t$$

$$(1+\gamma_A)[\hat{c}_{t+1}/\hat{c}_t]^{\theta} = \beta\,[(1-\tau_K)\alpha\, A_0 \hat{\mathrm{k}}_{t+1}^{\alpha-1} + 1-\delta]$$

46. **In the steady state, the model has the following implications for capital accumulation:**

- The capital stock and output grow at the exogenous rate of $\gamma_L + \gamma_A$.
- The capital-to-output ratio is:

$$\frac{K}{Y} = \frac{\alpha\,\beta\,(1-\tau_K)\mathrm{A}_0}{(1+\gamma_A) + \beta(1-\delta)}$$

  which states that the optimal ratio is larger with increases in the share of output paid to capital, the discount rate, and the depreciation rate, and is smaller with increases in the tax rate on capital income, and the growth rate of technology. Note that changes in these factors would change the *level* of the capital stock, but they would not affect the long-run growth rate of the capital stock nor the long-run growth rate of the economy.

- The net investment (NI) rate is:

$$\frac{NI}{Y} = [(1+\gamma_A)(1+\gamma_L)-1]\frac{K}{Y}$$

$$= [(1+\gamma_A)(1+\gamma_L)-1]\frac{\alpha\beta(1-\tau_K)A_0}{(1+\gamma_A) + \beta(1-\delta)}$$

  which has essentially the same properties as the optimal capital-to-output ratio, except that the effect of faster technology growth is ambiguous, but faster labor force growth raises the optimal net investment rate.

47. **In summary, the model suggests that the capital stock growth rate should be determined by the growth rates of TFP and the labor force**. However, temporary deviations from the steady state in response to factors that determine the underlying the capital-to-output and net investment rates, such as changes in real interest rates, tax rates, and depreciation rates. In addition, extensions to the neoclassical model also suggest that fundamental changes in the labor market—changes in the rents captured by labor, for example, could also have temporary effects on capital accumulation. These changes are evaluated in the empirical section of the paper.

References

Acemoglu, Daron, 2000, "Labor- and Capital-augmenting Technical Change," Working Paper No. 7544, National Bureau of Economic Research.

Barro, Robert J., N. Gregory Mankiw, and Xavier Sala-i-Martin, 1992, "Capital Mobility in Neoclassical Models of Growth," Working Paper No. 4206, National Bureau of Economic Research.

Blanchard, Olivier, 1997, "The Medium Term," *Brookings Papers on Economic Activity*, (2), pp. 89-158.

Blanchard, Olivier, 1998, "Revisiting European Unemployment: Unemployment, Capital Accumulation, and Factor Prices," Working Paper No. 6566, National Bureau of Economic Research.

Broadbent, Ben, Dirk Schumacher, and Sabine Sachels, 2004, "No Gain without Pain—Germany's Adjustment to a Higher Cost of Capital," Global Economics Paper No. 3, Goldman Sachs.

Daveri, Francesco, and Guido Tabellini, "Unemployment and Taxes: Do Taxes Affect the Rate of Unemployment?," *Economic Policy*, (April), pp. 49-104.

Deutsche Bundesbank, 1998, "Trends in and Structure of the Overall Capital Stock," *Monthly Report*, (November), pp. 25-37.

Kaas, Leo and Leopold von Thadden, 2001, "Unemployment, Factor Substitution, and Capital Formation," Discussion Paper 01/01, Economic Research Centre of the Deutsche Bundesbank.

La Porta, Rafael, Florecio Lopez-de-Silanes, and Andrei Schleifer, 2002, "Government Ownership of Banks," *Journal of Finance*, Vol. LVII (1), pp. 265-301.

Mendoza, Enrique, Gian Maria Milesi-Ferretti, and Patrick Asea, 1997, "On the Effectiveness of Tax Policy in Altering Long-run Growth: Harberger's Supernuetrality Conjecture," *Journal of Public Economics*, Vol. 66, pp. 99-126.

Romer, Paul M., 1998, "Capital Accumulation in the Theory of Long-Run Growth," in *Modern Business Cycle Theory,* (edited by Robert J. Barro), Cambridge, MA: Harvard Unversity, pp. 51-127.

II. Employment, Unemployment, and Labor Supply in Germany[11]

A. Introduction

48. **Imminent and longer-term labor market issues vie for the attention of policymakers**. High unemployment is an important problem in the German economy, and fighting it has been a central focus of the government's Agenda 2010 reforms. At the same time, concerns about demographic pressures, a declining working-age population, and slowing potential growth are also moving center stage.

49. **In this context, this paper focuses on the prospects for employment, unemployment, and labor supply.** It finds that the reforms of labor market institutions under Agenda 2010—including the merger of unemployment assistance and social assistance—can have a significant steady-state effect on employment (about 600,000 persons, or 1½ percent additional employment), largely due to lower unemployment. Nonetheless, on current policies—including these reforms—labor supply and employment are expected to decline in the decades ahead as aging of the population drives old-age dependency ratios to new highs. The economic consequences of aging can be ameliorated by measures to increase labor force participation[12]—especially for older workers, women, and youth—and there is room for additional reforms of labor market institutions. Additional measures and reforms beyond Agenda 2010 will be needed to help increase employment ratios and promote continued per capita income growth in the decades ahead.

50. **The paper is structured as follows:**

- Section B describes Germany's labor force participation, employment, and unemployment.
- Section C discusses institutions as potential sources of labor market problems.
- Section D presents the reforms under Agenda 2010 agreed upon to date and evaluates their impact.
- Section E discusses the prospects for labor supply and employment with further reforms.
- Section F concludes.

---

[11] Prepared by Louis Kuijs.

[12] Defined as the number of employed plus unemployed as a share of the working-age population (15-64).

B. Labor Force Participation, Employment, and Unemployment: an Overview

51. **While the overall utilization of labor is low in Germany, labor market problems are to a large extent concentrated.** Compared to some OECD countries with more dynamic recent labor market performance (for instance, the United States, the United Kingdom, the Netherlands, and Sweden):

- Germany has lower overall labor force participation and higher unemployment, with the gap in participation larger than that in unemployment.
- The employed work fewer hours than in the United Kingdom and the United States.
- And Germany's employment rate is low due to unemployment in the East, unemployment and non-participation among older workers nation-wide, as well as to low participation of women—particularly in the West—and young people.

52. **Germany's labor utilization has declined to a low level (Table II-1).** The average annual hours worked per person of the working age population (15-64) declined by 26 percent between 1970 and 2003, more than in most other OECD countries. As a result, in 2003 time spent working by the working age population in Sweden, the United Kingdom, and the United States was between 24 and 37 percent higher than in Germany.

53. **Low participation and high unemployment both contribute to low labor utilization.** In comparisons to peers, the key factors behind the differences vary. For instance, in Sweden, hours worked per employee and labor force participation are 8 percent and 11 percent higher than in Germany, respectively, with lower unemployment explaining the residual 4 percent. In the United States, hours worked per employee is 24 percent higher than in Germany, explaining two-thirds of the total 37 percent difference, with higher labor force participation and lower unemployment explaining another 6 and 4 percent, respectively.[13] The gap between Germany and other countries is larger in labor force participation than in unemployment.

54. **Labor force participation is low among older people, the young, and women (Table II-2).** Germany's participation rate among prime-age people (25-54) is higher than in the Netherlands, the United Kingdom, and the United States. However, it is relatively low among young people (15-24) and especially among older people (55-64). Nation-wide, female participation is low, compared with other countries. While declining, female

[13] The decline in the number of hours worked per worker may be a less serious problem than inactivity and unemployment. Blanchard (2004) has argued that, with leisure likely to be a normal good, this reduction could reflect partly a voluntary process. At any rate, in 2003, for the first time since long, the average number of hours worked per worker increased somewhat again in Germany.

participation rates are significantly higher in the new Länder than in the old ones (71.4 percent, compared to 63.6 percent) (Table II-3). Thus, hidden labor supply appears to exist among the young, older people, and women—the latter particularly in the West.

55. **Unemployment in the East is particularly high and cohort specific.** The non-accelerating inflation rate of unemployment (NAIRU) for Germany is estimated to have been about 7¼ percent in 2003 (approximately 2 percentage points below the headline unemployment rate of 9 percent using the ILO definition) suggesting that structural unemployment was high compared to other countries (Table II-1). However, the averages hide stark differences between the new and old Länder. While the estimated structural unemployment rate in the old Länder is 5.2, in the new Länder it is 15.4 percent (Table II-4). A significant share of this is cohort-specific, in the form of people whose skills are difficult to exploit on market terms when reservation wages are relatively high (Heckman (2002)). Unlike typical structural unemployment, cohort-specific unemployment does not stem purely from inappropriate labor market institutions, although the blanket extension of the welfare and collective wage bargaining systems from the West into the East significantly aggravated unemployment there by raising reservation wages. In the West, key problems are high long-term unemployment and a general rising trend in unemployment since the 1960s.[14]

56. **There are differences in unemployment across age and gender groups (Table II-2)**. In the West, unemployment is significantly higher for men than for women. In the East, the differences are smaller and unemployment is high for both genders. Disparities in unemployment rates across age groups are lower than in many other countries. In particular, unlike many other European countries, youth unemployment is low in Germany. Instead, unemployment of elderly workers (54-64) is very high, due partly to generous unemployment arrangements that "bridge" to retirement.

57. **Employment rates are very low among older workers, aged 55-64 (Table II-2).** The employment rate of prime-age people (25-54) is only slightly lower than in the United Kingdom and the United States—despite very high unemployment in the East. Nonetheless, the average employment rate of people aged 15-64 in Germany is nearly 7 percentage points lower than in the U.S. and almost 10 percentage point lower than in Sweden. Of these differences, two-thirds is accounted for by the low employment rate of elderly workers (55 -64) in Germany, which illustrates the concentrated nature of Germany's labor market problems. Since the early 1970s—when employment rates for elderly workers were similar across OECD countries—these rates decreased more in Germany and neighboring countries than in the Scandinavian countries and the U.S.

[14] The share of people unemployed longer than 12 months in total unemployment was around 36 percent in the first months of 2004. Indeed, correcting for employment in public work programs, long-term unemployment would even be around 60 percent in the East and 50 percent in the West.

58. **There are various reasons why people do not participate in the labor force (Table II-5).** For males, study (the young) and early retirement (among elderly) are the main reasons. Half of the nonparticipating women in the West note that they are "largely supported by others in the family," compared to 8 percent in the East. Overall, early retirement is the reason for non-participation for 31 percent of those between 15-64. On average, the share of people outside of the labor force but looking for a job is low, indicating that the discouraged worker effect is not prominent or, at least, that reservation wages are high, although the share is significantly higher in the East, particularly among women.[15]

Table II-1. Germany: Utilization of Labor Resources in International Perspective, 1970 and 2003
(Germany = 100, unless otherwise indicated)

	Germany	France	Netherlands	Sweden	UK	US
2003						
Average annual hours actually worked, per person of the working population (15-64)	100	96	107	124	131	137
Average annual hours actually worked, per person employed	100	100	94	108	116	124
Participation (labor force in relation to working population (15-64))	100	96	107	111	107	106
Employment of the labor force (employment in relation to the labor force)	100	100	106	104	105	104
1970						
Average annual hours actually worked, per person of the working population (15-64)	100	97	...	98	0	97
Average annual hours actually worked, per person employed	100	101	...	91	102	101
Participation (labor force in relation to working population (15-64))	100	97	...	109	...	101
Employment of the labor force (employment in relation to the labor force)	100	99	...	99	...	96
Memorandum items: Change, in percent, 1970-2003						
Average annual hours actually worked, per person of the working population (15-64)	-26.3	-27.0	...	-6.3	...	3.3
Average annual hours actually worked, per person employed	-23.7	-24.0	...	-8.9	...	-6.4
Participation (labor force in relation to working population (15-64))	5.9	4.1	...	7.6	...	12.0
Employment of the labor force (employment in relation to the labor force)	-8.9	-7.7	...	-4.5	...	-1.4
Working population (15-64) [1]	13.7	21.7		9.7		51.4
Total number of hours worked	-16.2	-11.1		2.7		56.4
Unemployment rate (2003)	9.3	9.4	3.8	5.6	5.0	6.0
Structural unemployment (Nairu) (2003) [2]	7.2	8.3	3.4	4.0	4.9	5.3

Sources: OECD Economic Outlook (2004); OECD Labor Force Statistics; and IMF staff estimates.

[1] For Germany this is adjusted for unification by removing the growth of the number in 1991.
[2] IMF staff estimates (WEO).

[15] Survey data from the Mikrozensus (2004) of the Federal Statistics Office indicate the share is on average less than 4 percent, although it is 7.2 percent for women in the East.

Table II-2. Germany: Disaggregated Labor Market Data in International Comparison, 2003

	Germany	France	Netherlands	Sweden	UK	US
Total (men and women)						
15-64						
Unemployment rate	9.4	9.3	3.6	5.8	4.9	6.1
Labor force participation rate	71.3	68.2	76.4	78.9	76.6	75.8
Employment rate	64.6	61.9	73.6	74.3	72.9	71.2
15-24						
Unemployment rate	10.6	20.2 1/	6.6	13.8	11.5	12.4
Labor force participation rate	47.4	30.2 1/	73.2	52.3	67.6	61.6
Employment rate	42.4	24.1 1/	68.4	45.0	59.8	53.9
25-54						
Unemployment rate	9.1	8.1 1/	3.1	4.9	3.8	5.0
Labor force participation rate	86.0	86.4 1/	85.1	87.8	84.1	83.0
Employment rate	78.2	79.4 1/	82.4	83.5	80.9	78.8
55-64						
Unemployment rate	9.7	5.8 1/	2.2	4.8	3.3	4.1
Labor force participation rate	43.1	41.7 1/	45.9	72.5	57.5	62.4
Employment rate	39.0	39.3 1/	44.9	69.0	55.5	59.9
Men						
15-64						
Unemployment rate	9.7	8.3	3.5	6.4	5.5	6.4
Labor force participation rate	78.0	73.8	84.2	80.8	83.9	82.2
Employment rate	70.4	67.7	81.2	75.6	79.3	76.9
15-24						
Unemployment rate	12.3	18.2 1/	6.7	14.8	13.2	13.4
Labor force participation rate	49.9	33.8 1/	73.7	51.9	71.1	63.9
Employment rate	43.8	27.6 1/	68.7	44.2	61.7	55.3
25-54						
Employment rate	9.4	7.0 1/	3.0	5.3	4.2	5.2
Labor force participation rate	93.0	93.9 1/	93.6	90.1	91.4	90.6
Employment rate	84.2	87.4 1/	90.7	85.3	87.6	85.9
55-64						
Unemployment rate	9.4	6.0 1/	2.2	5.7	4.3	4.5
Labor force participation rate	52.0	47.0 1/	58.7	75.5	67.9	68.7
Employment rate	47.1	44.2 1/	57.4	71.2	65.0	65.6
Women						
15-64						
Unemployment rate	8.9	10.4	3.8	5.3	4.1	5.7
Labor force participation rate	64.5	62.5	68.4	76.9	69.2	69.7
Employment rate	58.7	56.0	65.8	72.8	66.4	65.7
15-24						
Unemployment rate	8.6	22.8 1/	6.5	12.7	9.5	11.4
Labor force participation rate	44.9	26.5 1/	72.7	52.7	63.9	59.2
Employment rate	41.1	20.4 1/	68.0	46.0	57.8	52.5
25-54						
Unemployment rate	8.8	9.4 1/	3.3	4.4	3.3	4.8
Labor force participation rate	78.9	79.0 1/	76.5	85.5	76.6	75.6
Employment rate	72.0	71.6 1/	74.0	81.7	74.1	72.0
55-64						
Unemployment rate	10.1	5.5 1/	2.0	3.9	2.0	3.7
Labor force participation rate	34.3	36.6 1/	32.9	69.5	47.3	56.6
Employment rate	30.9	34.6 1/	32.2	66.8	46.4	54.5
Memorandum items						
Shares in population 15-64 (2000)						
15-24	16.4	19.7	17.3	16.4	16.9	19.4
25-54	62.7	66.1	67.8	65.6	67.2	67.2
55-64	20.9	14.3	14.9	18.1	16.0	13.4

Sources: OECD Employment Outlook (2004); and Burniaux, Duval, and Jaumotte (2004).

1/ Data for 2002.

Table II-3. Germany: Participation and Unemployment Rates
(For the population aged 15-64, May 2003)
(In percent)

	Men	Women	Total
Germany			
Participation rate	79.2	65.1	72.2
Unemployment rate [1]	10.5	9.6	10.1
West			
Participation rate	79.4	63.6	71.6
Unemployment rate [1]	8.7	7.4	8.1
East			
Participation rate	78.3	71.4	75.0
Unemployment rate [1]	18.3	18.4	18.3

Source: Mikrozensus (Statistisches Bundesamt) 2004.

[1] The unemployment rates are according to the National definition, which results in significantly higher numbers than the international definitions.

Table II-4. Germany: Unemployment Rates, 2003
(In percent)

Unemployment rate (Eurostat/OECD definition)	
Germany	9.3
West [1]	7.3
East [1]	17.5
Structural unemployment rate (Nairu) [2]	
Germany	7.2
West	5.2
East	15.4

Sources: Mikrozensus (Statistisches Bundesamt) 2004; and IMF staff estimates.

[1] Staff estimates.
[2] Assuming that the output gap is similar in the East and West.

C. The Role of Labor Market Institutions

59. **Germany's relatively rigid labor market institutions have contributed to its poor labor market performance.** Cross-country analysis suggests that key constraints are:

- the generosity of the benefit system;
- the high tax wedge on labor, and;

- institutions affecting the wage structure.[16]

These constraints are identified as areas where Germany's institutions are far removed from "best practice" (Figure II-1) and where reform could yield the largest gains.

60. **The concentrated nature of Germany's labor market problems suggests that certain institutional features are especially distorting.** For instance, employment rates of elderly people are low due to favorable incentives for early retirement in previous decades.[17] By contrast, prime-age people participate and work at rates almost comparable to most advanced economies.

61. **High replacement rates in Germany's social security system, and wide coverage, affect incentives to work.** Germany's unemployment benefit duration and replacement ratios are high compared to Anglo-Saxon countries (Figure II-1).[18] Cross-country empirical studies (Fitoussi and others (2000), Blanchard and Wolfers (2000), Nickell and others (2001), and (IMF (2003)) show that these are key determinants of the incentive to work. Steiner (2003) also finds that the remaining duration of eligibility for unemployment support has a significant effect on the probability of ending unemployment in Germany. Importantly, the German system also has wide coverage and lacks strictly enforced job search and job acceptance requirements. In a context of high replacement rates, these aspects together appear key in determining the impact on unemployment (OECD, 2004b).

[16] As an indication of the relative importance, in the study of Nickell and others, 39 percent of the difference in unemployment was explained by the differences in benefit systems. The tax system, unionization variables, and employment protection legislation (EPL) explained 26, 19, and 10 percent.

[17] Differences in employment rates between prime age males and other groups have also been interpreted as an insider-outsider issue. For instance, Heckman(2002) suggests that EPL creates "a protected enclave of insiders who experience less unemployment and wage fluctuations than the excluded outsiders."

[18] The benefit duration ratios shown in Figure II-1 are defined as in the empirical literature. They need to be combined with the replacement ratios to obtain the replacement rate in longer-term unemployment.

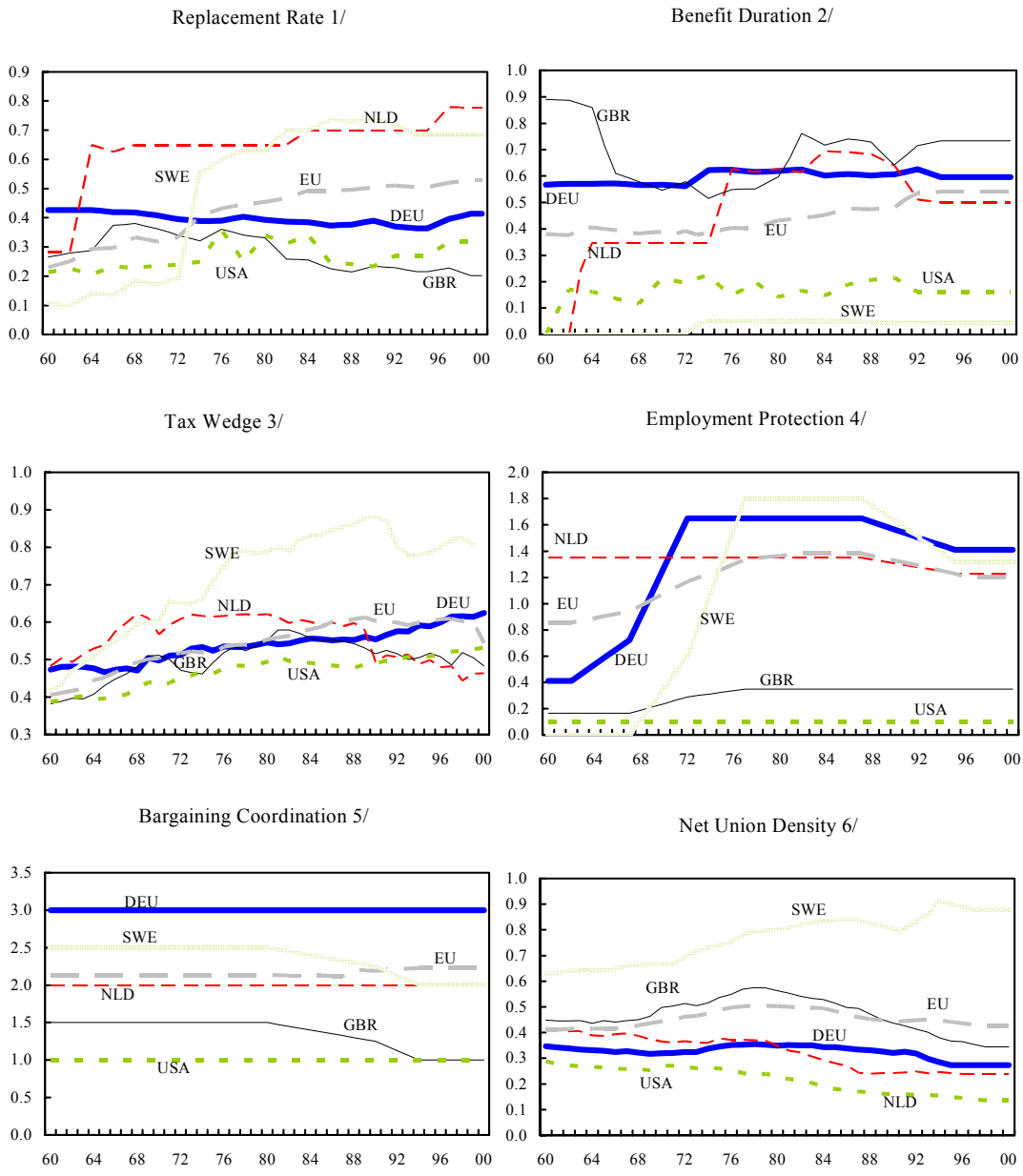
Table II-5. Germany: Reasons for not Participating in Labor Market (15-64)

(In percent of total non-participating people between 15-64)

	Germany	West	East
Men			
Study	41.6	41.5	41.8
Retirement	41.8	41.0	45.2
Other	16.6	17.5	13.0
Of which:			
Largely supported by other in family	5.3	6.1	2.5
Women			
Study	24.7	23.0	33.8
Retirement	23.9	19.9	46.8
Other	51.4	57.1	19.4
Of which:			
Largely supported by other in family	43.4	49.7	7.7
Total			
Study	31.1	29.8	37.3
Retirement	30.7	27.6	46.1
Other	38.3	42.6	16.6
Of which:			
Largely supported by other in family	29.0	33.7	5.4

Source: Statistisches Bundesamt (Mikrozensus, 2004).

Figure II-1. Germany, and Selected Countries: Labor Market Institutions, 1960-2000



Source: Labor Market Institutions Database, Nickell and Nunziata (2001), extended using OECD data.
1/ Benefit entitlement before tax in the first year as a percentage of previous earnings before tax; average over two earnings levels and three family types.
2/ A weighted average of replacement rates in the second/third year and that in the fourth/fifth year of an unemployment spell, as a ratio of the replacement ratio in the first year.
3/ Payroll tax rate plus income tax rate plus consumption tax rate; effective rates based on national accounts.
4/ Captures strictness of employment protection laws: 0 low, 2 high. Reported by OECD (1999).
5/ Captures the degree of consensus between actors in collective bargaining: 1 low, 3 high. See Nickell and others for sources.
6/ The ratio of total reported union members (minus retired and unemployed members).

62. **Particularly problematic are high replacement rates for low-skilled and many elderly people.** Compared to the earnings from jobs at less than the median wage, replacement rates in unemployment support are high in Germany (Tables II-6 and II-7), and marginal effective tax rates on labor are very high when considering the combined impact of benefits and taxes.[19] With unemployment insurance (UI) and unemployment assistance (UA) benefits depending on previous wages, disincentives are particularly high for people considering a job with a wage lower than the one prior to being unemployed—an issue relevant for many older people with relatively high wages prior to unemployment due to the seniority system guiding wage formation in Germany. The existence of a socially defined minimum income level implies similarly high replacement rates in social assistance (SA).[20] Indeed, with regional differentials in benefits smaller than differentials in wages, effective replacement rates have been found to be especially high in the East (Sinn and others, 2002).

Table II-6. Germany: Net Replacement Rates for Unemployed Persons[1]
(Compared to different earnings levels prior to unemployment)

	Single parent, 2 children				2 earners couple with 2 children			
In percent of average production worker wage	50	67	100	150	50	67	100	150
Germany	100	92	82	78	98	99	96	91
France	86	92	78	70	96	92	83	79
Netherlands	93	87	77	66	86	86	84	75
Sweden	100	92	72	56	86	84	83	69
UK	66	65	62	46	79	72	60	49
US	60	64	56	40	85	83	78	63

Source: Carone, Immervoll, Paturot, and Salomaki, 2004.

[1] For transition from full time jobs to unemployment, measured in the second month of unemployment in 2001.

63. **A steady upward trend in the tax wedge helps to explain a substantial part of the increase in structural unemployment.** The tax wedge—including income tax, social security contributions, and the consumption tax—increased by over 10 percentage points since 1969 (Figure II-1). This wedge affects decisions on labor force participation and the

[19] For people in UI previously earning 67 percent of the average production worker's wage (APW) and returning to a job with the same wage level, the marginal effective tax rate (METR)—the rate at which taxes go up and benefits down as an unemployed person takes up a job—is 100 percent or higher (Carone and others (2004)).

[20] In this case, when taking up a job at 67 percent of APW or less, the METR is 77 percent or higher for all types of family composition except 2 earners couples (Carone and others (2004)).

number of hours worked.[21] An increase in the tax wedge leads to a rise in gross labor costs and hence unemployment as long as there is resistance among workers to a drop in net (after-tax) wages. Based on a survey of the literature, Nickell (2003) estimates that a 10 percentage point increase in the total tax wedge would decrease employment by 2-3 percent.[22, 23]

Table II-7. Germany: Net Replacement Rates for Long-Term Unemployed Persons [1]
(Compared to different earnings levels prior to unemployment)

	single parent, 2 children		2 earner couple, 2 children	
In percent of average production worker wage	67	100	67	100
Germany	71	63	71	65
France	60	43	59	42
Netherlands	76	61	85	71
Sweden	70	59	110	85
UK	81	71	88	80
US	48	38	59	46

Source: OECD Benefits and Wages, 2002.

[1] After having claimed benefits for 60 months in 1999. For Germany, this means Unemployment Assistance.

64. **The existence of wage floors aggravates the impact of the high tax wedge on employment for low skilled workers.** Even households with modest incomes face high tax wedges in Germany (Table II-8). In a flexible labor market, taxes on labor should be reflected in lower net wages, as the elasticity of supply of labor (with respect to the net wage) is low compared to the elasticity of demand (Steiner, 2004). However, wage floors—from high reservation wages resulting from the social security system and minimum "tariff" wages from collective wage bargaining—mean that for low-skilled labor the incidence of the higher tax wedge falls on gross labor compensation and thus reduces employment. Moreover, due to the system of joint taxation of married couples, marginal tax rates faced by secondary earners are high, reducing participation of women (Nickell, 2003).

[21] The financial trade-off between working or drawing a benefit is determined by the relation between after-tax unemployment benefits to after-tax wages (discussed above), of which tax rates are only one determinant.

[22] Including the impact on hours worked per worker, the impact on total hours worked is likely to be higher.

[23] Blanchard (2004) concludes tentatively that the reduction in hours worked per employee in Europe over the previous 3 decades is perhaps for one-third due to increases in tax wedges, with the rest due either to other labor market institutions, or voluntary.

Table II-8. Germany: Statutory Tax Wedge on Labor and Its Components in International Comparison, 2003
(Average rate, in percent)

	Germany	France	Netherlands	Sweden	UK	US
Single						
No children, earning 67 percent of APW[1]						
Total tax wedge	46.7	37.6	37.6	44.8	26.2	27.1
Income tax	14.4	6.8	2.7	21.4	12.7	13.9
Payroll taxes	32.3	30.8	34.8	23.3	13.4	13.2
Employees' social security contributions	21.1	13.6	24.9	7.0	7.2	7.7
Total payments less cash transfers	35.5	20.4	27.6	28.4	20.0	21.5
Employers' social security contributions	11.2	17.2	9.9	16.3	6.2	5.6
Cash transfers	0.0	0.0	0.0	0.0	0.0	0.0
No children, earning 100 percent of APW						
Total tax wedge	52.0	48.3	43.0	46.6	31.1	29.4
Income tax	20.8	13.2	8.5	23.8	15.8	16.4
Payroll taxes	31.2	35.1	34.4	22.8	15.3	13.0
Employees' social security contributions	21.1	13.6	25.4	7.0	8.5	7.7
Total payments less cash transfers	41.9	26.8	34.0	30.8	24.3	24.1
Employers' social security contributions	10.1	21.5	9.0	15.8	6.8	5.4
Cash transfers	0.0	0.0	0.0	0.0	0.0	0.0
No children, earning 167 percent of APW						
Total tax wedge	57.0	50.7	39.9	51.2	34.2	34.6
Income tax	29.9	17.7	20.2	31.2	18.3	21.9
Payroll taxes	27.1	33.1	19.7	20.0	15.9	12.7
Employees' social security contributions	18.9	12.8	14.9	5.6	8.6	7.7
Total payments less cash transfers	48.8	30.5	35.1	36.7	26.9	29.6
Employers' social security contributions	8.1	20.2	4.7	14.4	7.3	5.0
Cash transfers	0.0	0.0	0.0	0.0	0.0	0.0
2 children, earning 67 percent of APW						
Total tax wedge	30.1	29.4	18.0	34.1	-10.8	3.4
Income tax	-5.6	4.8	2.0	21.4	-16.5	-11.6
Payroll taxes	35.8	33.1	24.1	26.5	16.6	15.0
Employees' social security contributions	21.1	13.6	11.0	7.0	7.2	7.7
Total payments less cash transfers	15.4	9.9	5.0	14.7	-20.2	-4.0
Employers' social security contributions	14.7	19.5	13.0	19.5	9.3	7.4
Cash transfers	0.0	-8.4	-8.1	-13.8	-10.9	0.0
Married						
Couple, 2 children, principle earner earns 100 percent of APW, spouse does not work						
Total tax wedge	33.5	40.0	33.7	39.5	18.3	15.5
Income tax	-1.5	7.1	8.2	23.8	8.7	1.4
Payroll taxes	35.0	38.5	30.9	24.9	16.6	14.1
Employees' social security contributions	21.1	13.6	20.4	7.0	8.5	7.7
Total payments less cash transfers	19.5	15.1	23.3	21.6	10.3	9.1
Employers' social security contributions	14.0	24.9	10.5	17.9	8.1	6.5
Cash transfers	0.0	-5.6	-5.4	-9.2	-6.9	0.0
Couple, 2 children, principle earner 100 percent of APW, spouse earns 33 percent of APW						
Total tax wedge	39.6	39.0	35.2	40.1	19.6	20.5
Income tax	5.8	7.1	6.5	22.2	10.7	6.8
Payroll taxes	33.8	36.2	32.7	24.7	14.0	13.7
Employees' social security contributions	21.1	13.6	22.5	7.0	7.2	7.7
Total payments less cash transfers	26.9	16.5	25.0	22.4	12.8	14.4
Employers' social security contributions	12.7	22.6	10.2	17.7	6.8	6.1
Cash transfers	0.0	-4.2	-4.0	-6.9	-5.2	0.0
Couple, 2 children, principle earner earns 100 percent of APW, spouse earns 67 percent of APW						
Total tax wedge	43.9	40.1	37.3	41.6	23.9	23.2
Income tax	11.0	8.3	6.2	22.9	13.0	9.7
Payroll taxes	32.9	35.2	34.3	24.3	15.1	13.5
Employees' social security contributions	21.1	13.6	24.4	7.0	8.0	7.7
Total payments less cash transfers	32.1	18.5	27.3	24.4	16.8	17.3
Employers' social security contributions	11.8	21.6	9.9	17.3	7.1	5.9
Cash transfers	0.0	-3.4	-3.2	-5.5	-4.1	0.0
Couple, no children, principle earner earns 100 percent of APW, spouse earns 33 percent of APW						
Total tax wedge	46.7	43.8	39.6	45.4	26.2	27.2
Income tax	14.4	9.4	6.6	22.2	12.7	13.9
Payroll taxes	32.3	34.4	33.0	23.2	13.4	13.2
Employees' social security contributions	21.1	13.6	23.5	7.0	7.2	7.7
Total payments less cash transfers	35.5	23.0	30.1	29.3	20.0	21.6
Employers' social security contributions	11.2	20.8	9.5	16.1	6.2	5.6
Cash transfers	0.0	0.0	0.0	0.0	0.0	0.0

Source: OECD, Taxing Wages Database, 2004.

[1] APW stands for Average Production Worker.

65. **Cross-country evidence on the impact of institutions affecting wage formation is mixed.** On the one hand, strong unionization and wage bargaining coordination, and wide coverage of wage agreements, limit competitive wage-setting. This could result in upward pressure on wages and higher structural unemployment. It could also lead to a more rigid wage structure which increases unemployment persistence (Prasad, 2004). On the other hand, greater coordination may lead workers to take into account the broader economic consequences of wage demands, facilitating economy-wide wage moderation (Calmfors and Driffel, 1988). Empirical evidence on the impact of bargaining coordination and unionization is mixed, depending on country characteristics.[24]

66. **Unemployment inertia among the low-skilled and in the East suggests that wage rigidities have prevented the adjustment of wages to shocks.** OECD countries have witnessed a reduction in demand for low-skilled labor due to technological developments and globalization. In Anglo-Saxon countries, the reduction was dampened by a rise in wage differentiation across skills. Sinn and others (2002) note that in Germany (and other European countries), with wage structures more rigid and wage floors in place, the reduction in demand led to relatively large declines in employment for low skilled people and increases in unemployment. Although cross-country evidence is not available, Franz (1999) and Prasad (2004) find indeed that Germany's wage structure has not changed significantly over several decades and, consequently, that unemployment of low-skilled people has risen much faster than that of other workers. In the case of the East after unification, collective wage agreements and relatively high social benefits imported from the West have, by raising average wages, resulted in even more pronounced reductions in demand for labor and increases in unemployment. As institutional factors taken over from the West have increased gross labor costs, the low-productivity workers have essentially been "squeezed" out of employment.

67. **Empirical evidence on the impact of tight employment protection legislation (EPL) on employment is less strong.** Germany's EPL was tightened in the early 1970s, and eased somewhat in the 1990s due to the deregulation of part time work. EPL tends to prevent some jobs from being shed and, therefore, it makes firms more cautious to fill vacancies. Moreover, since EPL increases the job security of current employees, it may encourage them to ask for higher wages (Blanchard and Wolfers, Nickell and others).
The cross-country empirical evidence that EPL has a decisive impact on overall rates of unemployment is "mixed, at best" (Nickell and others). Nevertheless, there is evidence of a negative link between strict EPL and the employment rates of specific groups (youth, and

[24] Nickell and others find a favorable impact of bargaining coordination on unemployment, and no effect for unionization (although they do find an impact of unionization on wages). IMF (2003) finds two offsetting effects of bargaining coordination—with the overall impact depending on a country's characteristics—and that stronger unionization is associated with higher unemployment.

prime age women), as well as a positive link with long-term unemployment (OECD, 2004a).[25]

D. Recent Reforms and Their Possible Impact

68. **Agenda 2010 has introduced several reforms to promote greater labor market flexibility.** Quantifying their impact on employment and unemployment is difficult, but a preliminary assessment suggests it could be significant, although insufficient to offset longer-term demographic challenges.

69. **Benefit replacement and duration ratios are being reduced, and eligibility and job acceptance requirements tightened:**

- The duration of UI is being cut. For employees younger than 55, UI duration will be capped at 12 months, and for those aged 55 and over at 18 months, effective January 2006.[26] This is expected to lead to a reduction in long-term unemployment in particular, especially for older workers who could use the long duration of UI to finance (to bridge to) early retirement.

- Unemployment Assistance (UA, *Arbeitslosenhilfe*) and Social Assistance (SA, *Sozialhilfe*) for employable claimants will be merged into the Unemployment Benefits II program (UBII, *Arbeitslosengeld* II), effective January 2005.[27] The level of UBII benefits will be similar to SA, implying generally a reduction in the replacement rate for the 2.2 million people now in UA. The merger will also be accompanied by tighter means testing, with some 500,000 people possibly losing eligibility.

- Job acceptance requirements are being tightened and enforced more strictly, following up more consistently on the results of job offers. This has already resulted in an almost tripling of the number of penalties imposed for not accepting a job, or the placement in an active labor market policy measure (ALMP) in 2003.[28] Moreover, since July 2003, people have to notify the Federal Labor Agency (FLA,

---

[25] There is also evidence that EPL-related potential costs of closure or downsizing weigh particularly on young (and small firms) (OECD (2004b)).

[26] Currently, the unemployed aged 55 and older can receive UI benefits for 32 months, and those aged 45-54 between 18 and 26 months. Younger peoples' eligibility is already limited to 12 months.

[27] Non-employable claimants will continue to receive SA.

[28] Penalties amount to 30 percent of benefits for up to three months. Young unemployed job seekers' benefit can be fully withdrawn for this period.

Bundesagentur für Arbeit) as soon as they find out they will loose their job; job searchers are obliged to accept jobs further away from where they live; and the need to provide evidence that refusing a job was justified. Specifically, recipients of UBII will have to accept any legal job regardless of pay.

70. **The effective reduction in replacement rates from these reforms should reduce unemployment**. However, a more significant impact would require a more substantial reduction in replacement rates (Steiner, 2004; Sinn and others, 2002). The success of the tightening of the job acceptance requirements will depend on the introduction of an appropriate incentive structure in the FLA.

71. **The FLA is being restructured to improve its effectiveness.** Intermediation is being intensified, including by the assignment of Personnel Service Agencies (PSAs) to the local Federal Labor Agencies.[29] The employment offices will be reformed, with their task and resources being shifted towards more active intermediation. In this context, profiling is being introduced. Cost savings will stem from streamlining benefit payments and cutting spending on ineffective ALMPs.

72. **Several measures have been taken to rein in early retirement.** In addition to the reduction in the duration of UI for employees 55 and older from 32 to 18 months, the minimum age of early retirement on account of unemployment has been raised from 60 to 63 (to be phased in between 2006 and 2008), and many of the traditional paths into early retirement are being phased out, including the official early retirement programs for specific groups of people.

73. **EPL was relaxed (effective January 2004).** First, the threshold number of employees above which EPL (*Kűndigungsschutz*) becomes binding was raised from 5 to 10 employees, with existing employees working in firms with between 5 and 10 employees grandfathered.[30] Second, measures have been taken to reduce legal costs and uncertainty stemming from EPL. The range of social criteria to be taken into consideration in dismissal decisions has been limited.[31] In the case of lay offs because of poor business results (*betriebsbedingten Kűndigung*) employees can now opt to accept a severance payment equivalent to six months wages instead of challenging the dismissal in court.

---

[29] The PSA can hire out people to private sector companies. They should in principle pay collective bargaining agreement wages which can be subsidized by the FLA for a limited period of time.

[30] In addition, the time limit for temporary contracts without specific justification has risen from 2 to 4 years for newly founded firms.

[31] They are limited to job tenure, age, and maintenance obligations for dependents.

74. **Other reform measures include the extension of the coverage of the *Minijob* arrangements.** *Minijobs* benefit from lower tax and social security contributions—capped at 23 percent—under a simplified system. In April 2003, the income threshold for *Minijobs* was increased from €325 to €400 per month, and other limitations were eased. The payroll charge subsidies are now gradually phased out over a range of incomes up to €800 per month. A significant number of *Minijobs* have been created. However, the attractiveness of *Minijobs* for the unemployed is limited because they imply a large cut in unemployment-related benefits, and the bulk of the new jobs are second jobs. Indeed, adverse incentives may actually imply a negative overall impact on the total amount of hours worked (OECD, 2004b; and Steiner and Wrohlich, 2004). Other reforms include a special subsidy for previously unemployed people who become self-employed (*Ich AG*); loan subsidies for firms hiring unemployed people; and a reform of the Handicrafts Code aimed at liberalizing the crafts sector.[32]

75. **Wage moderation has continued and there has been progress toward more flexible wage formation.** Continued moderation of wage growth relative to productivity increases—including through negative "wage drift" (Figure II-2)—has led to a favorable development of unit labor costs and competitiveness. Other examples of increased flexibility include:

- the adjustment of the collective wage bargaining framework of some sectors to allow "shop floor" agreements that take into account local and firm-specific conditions. This has allowed innovative wage and working time agreements;

- a gradual reduction in the number of employees covered by collective wage agreements, particularly in the Eastern Länder;[33]

- the lengthening of the workweek in several agreements; and

- further deregulation of temporary work (per January 2004).

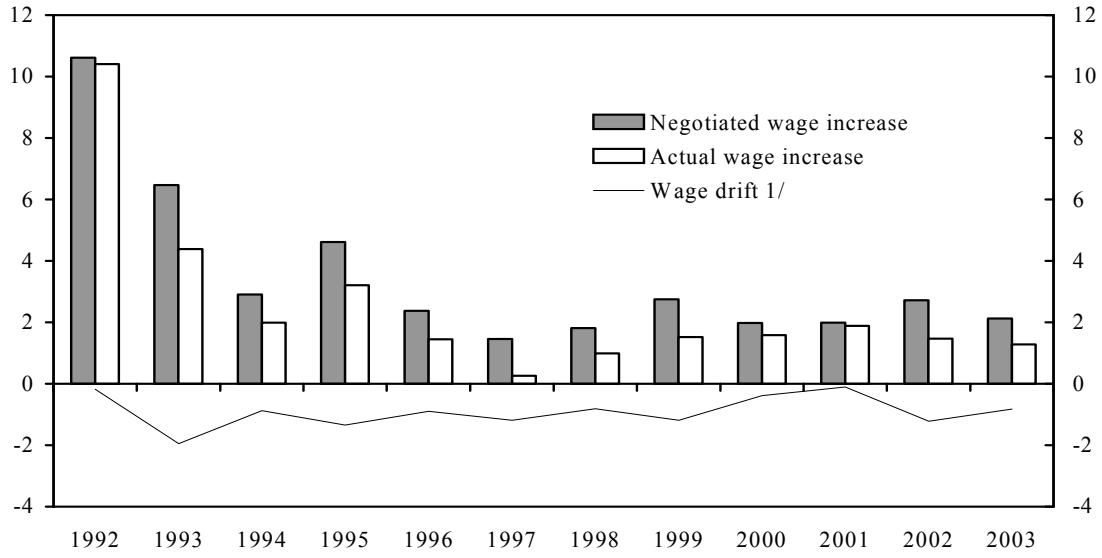
76. **So far, only limited progress has been made in reducing the tax wedge on labor.** To some extent, this is caused by the legal requirement that social security spending

[32] People without a "master" certificate—which enables someone to train apprentices and run a shop—can now open a craft trade business in sectors where safety concerns are not considered to be important, which account for 10 percent of total employment in all trades.

[33] In 2000, 63 percent of West German employees were covered by a collective wage bargaining agreement, and 45 percent of East German employees. Interestingly, though, around half of the employees not officially covered by agreements were affected by the agreements because their employers voluntarily orient their wage policies on the agreement (Kohaut and Schnabel).

automatically be funded by payroll taxes—while spending pressures in the aging society keep rising. The government is considering de-linking health care financing from wages, which would help to limit any further increase in the already high tax wedge on labor. However, any significant reduction in payroll tax rates will require entitlement reform and containment of public spending.

Figure II-2. Germany: Negotiated and Actual Pay Increases, 1992-2003
(In percent)



Source: Deutsche Bundesbank.

1/ Wage drift is the difference between negotiated and actual wage increases.

77. **The quantification of the impact of these reforms on unemployment and labor supply is challenging but tentative estimates suggest that it could be significant**. In addition to the usual difficulties in quantifying the effect of labor market policies, the impact of a key reform—the merger of UA and SA into Unemployment Benefits II, combined with a strengthening of the effectiveness of the FLA—depends heavily on "practicalities of implementation" that are still being worked out. It is also difficult to assess the individual impact of several measures implemented simultaneously. Various German Research institutes are in the process of modeling some of the reforms, but definitive econometric estimates are not yet available. A preliminary assessment, based on discussions with researchers in the field, suggests the total long-run impact on employment to be of the order of 600,000 persons (or some 1½ percent additional employment), of which around 400,000 would be due to reduced unemployment (1 percentage point) with the remainder due to higher labor force participation (see text table below). This tentative estimate assumes good progress in strengthening the functioning of the FLA and that 90 percent of an increase in participation translates into more employment. The bulk of the impact is expected to stem

from the social security reforms (the reduction in unemployment and social benefits and their duration, the increase in the minimum age for early retirement, and the merger of UA and SA. Simulations of safety net reforms suggest that larger employment gains require significantly larger cuts in benefit levels (Steiner and Jacobebbinghaus, 2003), Boeters, Gurtzgen, and Schnabel, 2003). The impact of the other measures (relaxation of EPL, Minijobs, Ich AG), although favorable, is thought by most observers to be modest. The reason is that the cross country studies suggest that large changes in labor market institutions are required to generate significant reductions in unemployment.

Germany: The Impact of Existing Reforms on Participation, Employment, and Unemployment
(In thousands of people)

	Implementation Date	Impact on Participation	Impact on Employment	Impact on Unemployment
Total		**168**	**586**	**-418**
Existing reforms under Agenda 2010		**168**	**576**	**-408**
Unemployment benefit reform				
Capping duration UI for younger than 55	2006	0	125	-125
UBII (merger UI and SA)	2005	0	150	-150
Reducing early retirement				
Capping duration UI for 55 and older	2006	25	150	-125
Raising minimum age for early retirement	2006	140	126	14
Relaxing EPL	2004	0	5	-5
Extension coverage mini-jobs	2003	3	5	-2
Strengthening effectiveness FLA	2003	0	15	-15
Largely endogenous changes		**0**	**10**	**-10**
Reducing coverage of collective wage agreements		0	10	-10

Source: IMF staff estimates based on discussions with German research institutes.

78. **Thus, although the Agenda 2010 reforms are a pathbreaking step forward, on their own they will not be sufficient to correct Germany's labor market problems.** The estimates suggest the measures might reduce the NAIRU to a nation-wide average of just over 6 percent. With unemployment much higher in the East than in the West and only limited room to reduce the NAIRU in the West much below the current estimate of 5.2 percent, most of the reduction in unemployment would be expected to take place in the East. However, the high unemployment in the Eastern Länder is to a significant extent cohort-specific. While more pronounced differences in unemployment benefits across regions and measures to stimulate mobility would help, given current social preferences and the minimum income levels they render, the likelihood for unemployment reduction through changes in labor market institutions is limited. This assessment also confirms that these reforms should not be expected significantly to offset the demographic pressures and boost potential growth—the key longer-term challenges in Germany. To make inroads into the longer term challenges, more fundamental entitlement and other reforms are necessary.

E. Labor Supply and Employment Prospects with Further Reforms

79. **On current policies, the working-age population and employment are expected to shrink in the decades ahead.** Demographic projections suggest that the *working age population* (15-64, given the current statutory retirement age of 65) has already started to decline and will continue to do so in the long run (Figure II-3). The evolution in the *labor force* is more difficult to project, as this depends on the demographic factors and on participation rates. Participation rates could be raised with additional well-targeted policies.

80. **Therefore, to help offset the demographic pressures, a new round of labor reforms is needed to boost participation and employment**. The identification of high-yield measures requires a look at the main sources of hidden labor supply. As indicated in section B, the difference between Germany and comparator countries is higher in participation rates than in unemployment rates. Moreover, while unemployment reduction is currently a top priority, from a long-run perspective the scope for boosting employment by raising participation rates is larger than from reducing unemployment. Indeed, the OECD (2003) suggests that current slack of usable labor resources is around 12 percent of employment in Germany, with over 90 percent of this amount in the form of "excess inactivity" rather than "excess unemployment". There is thus significant scope for boosting labor force utilization, especially with measures geared at elderly workers, women—particularly in the West—and the young.[34]

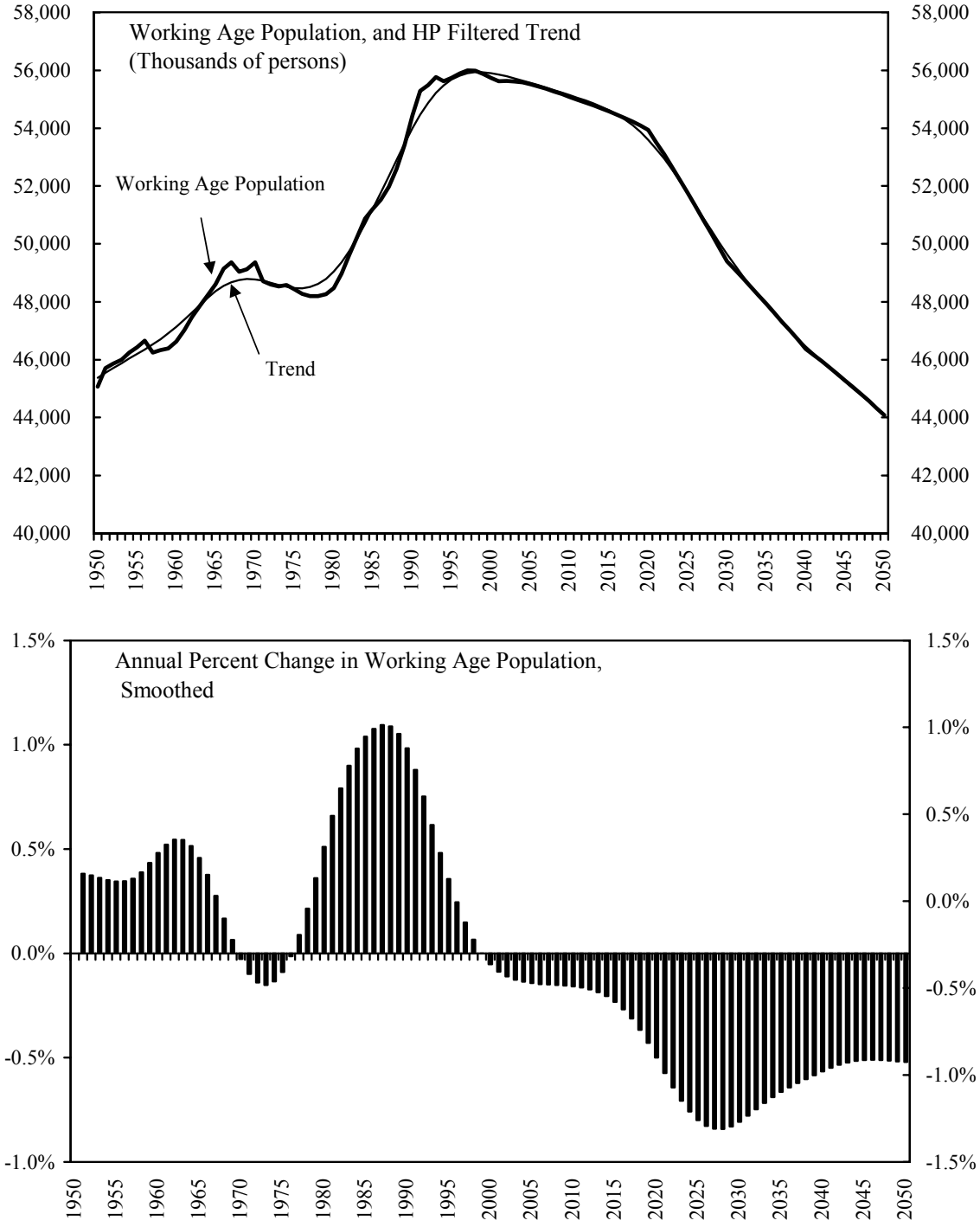
81. **Possible measures to increase the *participation* of elderly workers include:**

- **Discontinuing the arrangements for early retirement**, especially those bridging toward retirement in unemployment. Most of the early retirement arrangements are already being phased out, which has contributed to some pick up in the effective retirement age. However, consideration should also be given to phasing out the old-age subsidized part-time scheme (*Altersteilzeit*) and abolishing the exemption of older unemployed workers from job search requirements.

- **Achieving more complete actuarial neutrality of old-age pensions.** The current discounts and bonuses—3.6 percent per year—for early and late retirement do not appear to remove fully the financial incentives for early retirement.

[34] International comparisons indicate that Scandinavian countries are able to combine less flexible labor market institutions with high employment rates by avoiding low unemployment rates of the young, older people and women.

Figure II-3. Germany: Dynamics of Working Age Population, 1950-2050



Source: German Authorities; Eurostat; OECD; and IMF staff calculations.

- **Increasing the statutory retirement age,** initially to 67 as proposed. Increases in the retirement age appear unavoidable as life expectancy has risen considerably and the population continues to age. Several OECD countries already have raised the retirement age beyond 65. The "yield" of moving to higher statutory retirement ages could be quite large as it has a powerful impact on the old-age dependency ratio. In turn, as shown in Chapter 4, this is also seen as one of the more powerful policies to reduce pressures on nonwage costs in the German economy, and to sustain output growth in the long-run.

82. **Reducing the disincentives to work for secondary earners (mostly women) could also generate significant additional labor supply.** Two aspects are relevant:

- The impact of improving the availability of affordable (public or private) child care is estimated to be relatively high in Germany (Burniaux, Duval, and Jaumotte, 2004), as also suggested by the situation in the East, where better availability of public child care supported higher female participation.

- Under the current system of joint taxation for married couples, the marginal tax rates for second income earners is high. While moving to consolidated taxation would pose significant legal challenges, steps could be taken to reduce the tax rate on the secondary earner.[35]

83. **Youth participation could also be raised.** Reforms of the education system aimed at reducing duration of tertiary education could raise labor force participation of young people. These reforms could over time increase the overall participation rate by as much as 4 percentage points.[36]

84. **Additional reforms of labor market institutions could further boost *employment*.**

- **Further reforms to the benefit system**. Currently only one in three unemployed finding a new job via the FLA. Strengthening the effectiveness of job search and implementation of the rules could thus yield significant further benefits.

- **Reductions in the tax wedge on labor.** Given the pressure on public finances in the coming decades, a strategy to reduce taxes needs to be facilitated by the containment of public spending. Public finances permitting, reforms of the tax system should aim at reducing the tax wedge on low-wage labor. To some extent, the *Minijobs* arrangements achieve this. However, as discussed above, these do not provide

[35] See Steiner and Wrohlich (2004).

[36] The middle of the range estimated by Burniaux, Duval, and Jaumotte (2004).

appropriate incentives for benefit recipients. Exploring further the options of de-linking the financing of health and social insurance from wages could help.

- **Other labor market measures.** More pronounced regional differentiation of social benefits and measures to stimulate the mobility and retraining of Eastern workers would mitigate the unemployment problem in the East. In addition, measures supporting further increases in the number of hours worked could be considered, including by reducing disincentives stemming from the tax and benefit systems.

F. Conclusions

85. **While labor utilization in Germany is low, labor market problems are concentrated.** The total number of hours worked in Germany has declined to a low level. Compared to other countries, Germany has both lower labor force participation and higher unemployment, with the gap in participation larger than that in unemployment. With prime-age (25-54) participation and employment rates comparable to international levels, Germany's labor market problems are concentrated in unemployment in the East, unemployment and non-participation among older workers nation-wide, and non-participation among women—particularly in the West—and young people.

86. **Germany's labor market institutions have affected its labor market performance,** in particular the parameters determining the generosity of the benefit system, the high tax wedge—especially at low levels of wage income—and, to some extent, wage rigidities.

87. **Various reforms under Agenda 2010 aim at reducing unemployment and increasing employment.** The reforms move towards (i) reducing the benefit duration and replacement ratios of the social benefit system, and tightening requirements; (ii) improving the effectiveness of the Federal Labor Agency, and tightening the enforcement of rules; (ii) reining in early retirement; (iii) relaxing employer protection legislation; (iv) extending the coverage of *Minijobs;* and (v) introducing measures to stimulate self employment. A tentative estimate suggests that these measures could—over time—increase employment by about 1½ percent, of which two-thirds would stem from a reduction in unemployment.

88. **On current policies, demographic pressures would affect employment as a source of potential growth in the decades ahead.** The working-age population is already declining, and based on current participation patterns, the labor force would also start to shrink soon. Projections for old age dependency ratios point to the need for policy adjustments in the face of these demographic challenges.

89. **There is scope for additional well-targeted measures to boost participation and reduce unemployment**, even though some may be politically difficult. Participation rate of older workers could be increased by discontinuing the remaining arrangements for early retirement, ensuring actuarial fairness of old-age pensions, and raising the statutory retirement age. The incentives to work for secondary earners (women) could be increased,

including by adjustments to the tax system and improving the availability of affordable child care, while the average age at which people enter the labor market can be reduced. The impact of these reforms could be substantial, allowing higher employment rates to become a significant source of per capita growth over the coming decades. Further reforms to the social security system and reductions in the tax wedge on labor could also contribute to higher participation and lower unemployment rates.

References

Berthold, Norbert, and Rainer Fehn (2002), "Unemployment in Germany: Reasons and Remedies," presented at CESifo Conference in Munich, December 6-7, 2002.

Blanchard (2004), "The Economic Future of Europe," National Bureau of Economic Research, Working Paper No. 10310.

Blanchard, Olivier, and Justin Wolfers, 2000, "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," *Economic Journal*, Vol. 110 (March), pp. C1-33.

Boeters, Stefan, Nicole Gürtzgen, and Reinhold Schnabel (2003), "Reforming Social Welfare in Germany—An Applied General Equilibrium Analysis," ZEW Discussion Paper No. 03-70, Zentrum für Europäische Wirtshaftsforschung, Mannheim.

Burniaux, Jean-Marc, Romain Duval, and Florence Jaumotte (2004), "Coping with Ageing: A Dynamic Approach to Quantify the Impact of Alternative Policy Options on Future Labor Supply in OECD Countries," OECD, Economics Department Working Papers No. 371, Organization for economic Co-operation and Development.

Calmfors, Lars, and John Driffill (1988), "Centralization of Wage Bargaining," Economic Policy, Vol. 2 (April), pp. 14-61.

Carone, Immervoll, Paturot, and Salomaki (2004), "Indicators of Unemployment and Low-Wage Traps (Marginal Effective Tax Rates on Employment Incomes)," OECD Social, Employment and Migration Working Paper No.18.

Fitoussi, Jean-Paul, David Jestaz, Edmund Phelps, and Gylfi Zoega, 2000, *"Roots of the Recent Recoveries: Labor Market Reforms or Private Sector Forces?"* Brookings Papers on Economic Activity: 1, Brookings Institution, pp. 237-309.

Franz, W. (1999), "Einführung zum Themenheft: Lohnstruktur, Qualifikation und Mobilität," Jahrbücher für Nationalökonomie und Statistik 219, pp. 1-7.

Heckman, James (2002), "Flexibility and Job Creation: Lessons for Germany," NBER Working Paper 9194.

International Monetary Fund (2003), "Unemployment and Labor Market Institutions: Why Reforms Pay Off," in World Economic Outlook, 2003.

Kohaut, Susanne, and Schnabel, Claus (2003), "Tarifverträge – nein danke!?, Ausmass und Einflussfaktoren der Tarifbindung West- und ostdeutscher Betriebe," Jahrbücher fur Nationalökonomie und Statistik (Lucius and Lucius, Stuttgart 2003) Bd. Vol. 223/3.

Nickell, Stephen (2003), "Employment and Taxes," CESIFO Working Paper No. 1109.

Nickell, Stephen, and others (2001), "The Beverage Curve, Unemployment, and Wages in the OECD from the 1960s to the 1990s," in *Knowledge, Information and Expectations in Modern Macroeconomics: In Honor of Edmund S. Phelps*, ed by Philippe Again, R. Freedman, Joseph Stilts, and Michael Woodford (Princeton, New Jersey: Princeton University Press).

Nicollet, Giuseppe, Andrea Bassanini, Ekkehard Ernst, Sébastien Jean, Paulo Santiago, and Paul Swaim (2001), "Product and Labour Markets Interactions in OECD Countries," OECD Economic Department Working Papers No. 312, Paris, Organization for economic Co-operation and Development.

Prasad, Eswar (2004), "The Unbearable Stability of the German Wage Structure: Evidence and Interpretation," IMF Staff Papers, Vol. 51 (2), 2004 (Washington: International Monetary Fund).

Sinn, Hans-Werner, and others (2002), "Aktivierende Sozialhilfe—ein Weg zu mehr Beschäftigung und Wachstum, Sonderausgabe IFO Schnelldienst, Vol. 55 (9).

Steiner, Viktor (2003), "Senkung der Arbeitslosenunterstützung: Weniger Arbeitslosigkeit, Mehr Effizienz," Deutsche Institut für Wirtschaftsforschung (DIW) Wochenbericht 25/03, Berlin.

Steiner, Viktor (2004), "Social Welfare Reform and the Low-Wage Labor Market in Germany – What Works and What Doesn't?," Paper for the ARGE meeting, Berlin, April 2004, Deutsche Institut für Wirtschaftsforschung (DIW).

Steiner, Viktor, and Katharina Wrohlich (2004), Work Incentives and Labor Supply Effects of the 'Mini-Jobs Reform' in Germany, mimeo

Steiner, Viktor, and Peter Jacobebbinghaus (2003), "Reforming Social Welfare as We Know It? A Microsimulation Study for Germany," ZEW Discussion Paper No. 03-33, Zentrum für Europäische Wirtshaftsforschung, Mannheim.

OECD (2003), "Employment Outlook," Organization for Economic Corporation and Development (2003).

OECD (2004a), "Employment Outlook," Organization for Economic Corporation and Development (2004).

OECD (2004b), Economic Review—Germany, ECO/EDR (2004)12

III. PENSIONS AND GROWTH[37]

A. Introduction

90. **Potential output growth in Germany could decline significantly if social security contribution rates continue to rise.** Germany's society is aging, and pension and health care outlays are projected to increase substantially over the next three decades. German law stipulates that the social security accounts maintain balance and, under current rules, the growing expenditures must be met with equivalent social security contributions. While this is helpful in preventing runaway fiscal deficits and a buildup of debt, it does lead to higher payroll taxes. Higher payroll taxes, in turn, negatively affect incentives to work and capital formation, and thereby economic growth. This process can feed upon itself, as slower growth could lead to a shortfall in revenue, triggering further tax increases. To assess these challenges, this chapter uses a general equilibrium model with feedback effects from pensions to growth. It embeds the fiscal dynamics of aging in a model of economic growth that is calibrated to the German data. The chapter highlights the importance of moderating non-wage payroll costs, including by raising the retirement age.[38]

B. The Model

91. **A neoclassical growth model is used to estimate the impact of pension costs on growth.** Households allocate their time between work and leisure, with the amount of work financing their consumption. Higher taxes on labor make working less attractive and lead to an decrease in labor supply. Nickell (2003) estimates that for a 10 percentage point increase in payroll taxes, the supply of labor declines by up to 3 percentage points. These parameter values are incorporated into the model. To simplify, the saving rate is stabilized by setting the intertemporal elasticity of substitution to zero, as in the Solow model (empirical estimates yield a small positive value). Firms are assumed to use a Cobb-Douglas production technology with labor and capital inputs. The share of labor is set at two-thirds in accordance with long-run historical data for Germany. The economy is assumed to be closed, and all savings are invested at the rate of 18 percent of GDP, while capital depreciates by 5 percent each year. Total factor productivity increases at 1 percent per year—corresponding to averages for the German economy over the past 20 years. Finally, it is assumed that fiscal policy maintains a constant ratio of debt to GDP at 63 percent. As stipulated by German law, increasing age-related expenditure is financed with higher payroll taxes.

92. **The model is used to explore three scenarios of the relationship between aging and growth:**

---

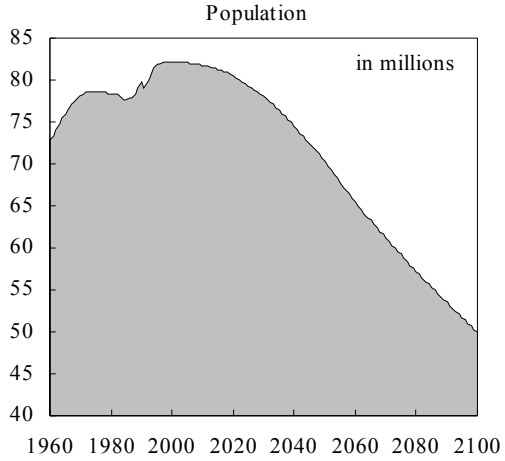
[37] Prepared by Benedikt Braumann.

[38] Chapter 2 discusses labor market reforms that could boost employment. These reforms are an important complement in financing the burden of aging.

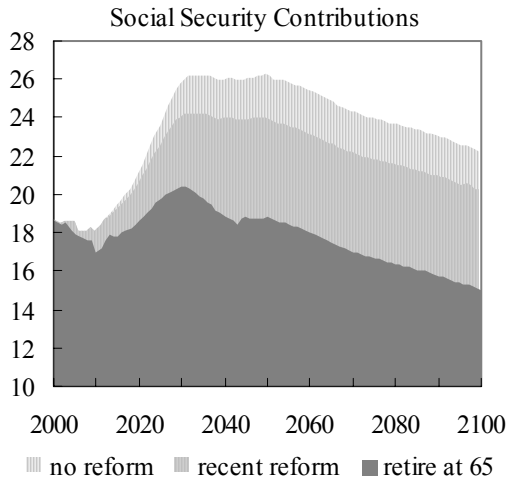
- Economic effects of aging without reforms,
- The impact of the entitlement reforms of 2004,
- The impact from raising the retirement age.

C. Economic Effects of Aging Without Reforms

93. **Current demographic projections suggest that Germany's population could decline by 40 percent during the 21st century**. More important for fiscal policy, the ratio between the working age population and dependents (children and elderly) will worsen sharply after 2010, as the process of aging accelerates. The labor force will then decline, even if labor force participation increases. As large cohorts of baby-boomers begin to retire, the demands on the social security system will escalate. This age-related shift is projected to continue to about 2035, when the dependency ratio stabilizes at close to 50 percent, nearly twice the present rate.



94. **The decline in the labor force will inevitably reduce trend GDP growth.** Capital and labor are the key inputs in the production function. As the supply of labor shrinks, output growth slows. Employment is projected to decline by an average of 0.4 percent a year during the 2010s, and by 1.0 percent a year during the 2020s. In current benchmark scenarios, capital and total factor productivity are assumed to grow at around 2 and 1 percent a year, respectively. With these assumptions, which reflect recent experience, potential GDP growth would be about 0.5 - 1.0 percent per year.



95. **However, the burdens of aging may reduce potential GDP growth to around zero if they are financed with ever-higher payroll taxes.** Increasing payroll tax rates would reduce net (after-tax) wages, and depress labor supply. This effect would magnify the demographic decline of the labor force mentioned above. As a result, GDP growth will slow further, and in turn reduce investment and capital accumulation. The ensuing shortfall in social security revenue may trigger another round of payroll tax hikes, employment declines and growth reductions. This downward spiral could paralyze potential output. According to the calibrated model, German potential GDP growth could decline to around zero for most of the 2020s.

96. **With unchanged policies, the model thus suggests that higher payroll taxes could shave off 1 percentage point of GDP growth per year.** As shown in the figure, social security contributions may need to rise by up to 7 percentage points of GDP through about 2035 to cover higher pension and health outlays. This would leave real GDP in 2030 some 20 percent below the level it could attain if contributions had remained unchanged. Similarly, after-tax real wages would also forgo a gain of some 20 percent. This result should also be seen in the context of income distribution. A shrinking working population will transfer more funds to an expanding dependent population. This will lower Germany's productive efficiency, but also make income distribution more uneven among generations.

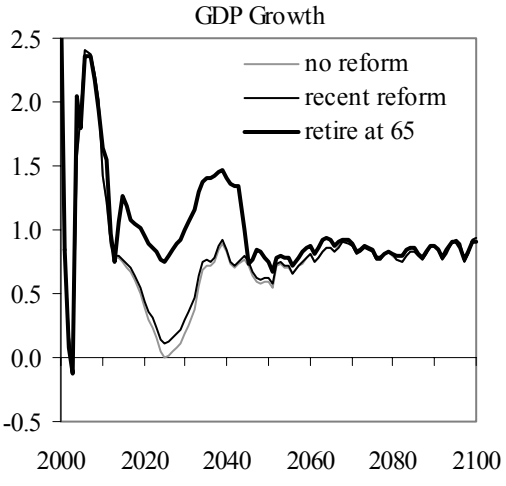
D. The Reform of 2004

97. **The recent pension reform dampens somewhat the growth in benefits.** Following the recommendations of the Rürup commission, a series of measures was implemented in February 2004 to limit the increase in benefits. The annual raise in pensions was suspended for 2004, and more importantly, a "sustainability factor" was added to the pension adjustment formula. This factor slows benefit growth if the population ages and the dependency ratio increases. Simplifying for exposition, the pension formula now reads:

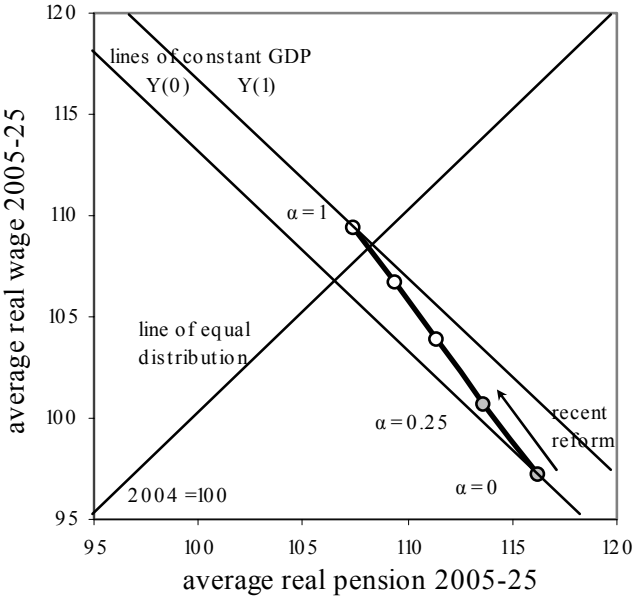
$$\Delta \, benefits = \Delta \, gross \; wages \times \left(1 - \alpha \, \frac{D_{t-1}}{D_{t-2}}\right),$$

where D is the old-age dependency ratio and the sustainability factor α is equal to 0.25 according to the law. The indexation of benefits to gross wages thus becomes less than unity as the dependency ratio increases. A higher value of α would slow benefit growth further. Until now, α was zero, and there was only a weak link to demographics.

98. **This reform is estimated to raise GDP growth by 0.1 percent per year compared to the no-reform scenario.** Slower benefit increases translate into smaller increases in payroll taxes, and a somewhat smaller decline in the labor supply. Nevertheless, with social security contributions still increasing by 5 percentage points of GDP, the active generation continues to bear a large transfer burden. The figure below shows the effects of the recent pension reform on income distribution. The horizontal axis shows that with no reform (α=0), the average real pension over the coming 20 years would be around 16 percent higher than today. The vertical axis shows that average real net wages would decline by about 3 percent (2004 levels are set at 100). The recent reform (α=0.25) slows down somewhat the growth in real pensions (still an increase of 14 percent), and preserves average



real net wages at their current level. At the same time, labor supply and GDP would be slightly higher, as shown by the thin downward-sloping lines of constant GDP (moving away from the origin indicates higher levels of real output). While not part of current government plans, an α above 0.25 would dampen transfers further, raise labor utilization and lift GDP from Y(0) toward Y(1).



99. **Many current projections do not take into account the feedback effects from payroll increases to labor supply—they hence may underestimate the challenge from aging and overestimate future growth.** Notwithstanding the recent reform, employment and output growth in the next few decades may thus be lower than generally expected. For instance, the officially projected increase in contribution rates is only about 2 percentage points of GDP compared to 5 percentage points in our model. Therefore, additional measures will be required to ensure that payroll burdens do not rise to a crippling level.

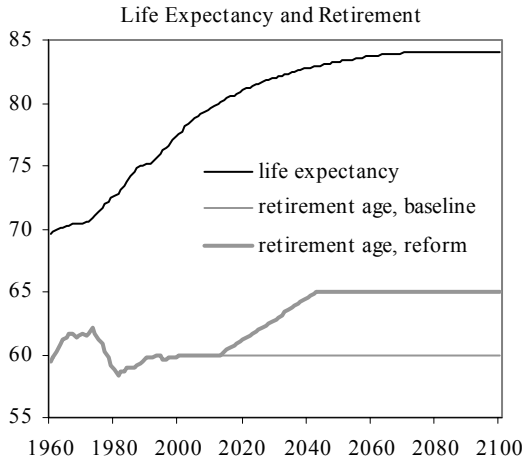
E. Raising the Effective Retirement Age

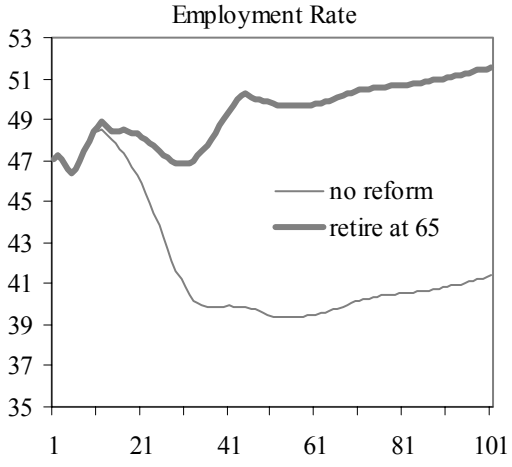
100. **While life expectancy has increased by eight years since the early 1970s, the effective retirement age has declined by two years, to around 60**. A recent study by the OECD[39] finds that there are strong disincentives to work beyond the age of 60 in Germany. Generous benefit payments have raised the replacement rate for early retirement, in particular after a pension reform in 1972. In addition to pension benefits, early retirees are often eligible for unemployment benefits, too. At the same time, the costs of this generous system

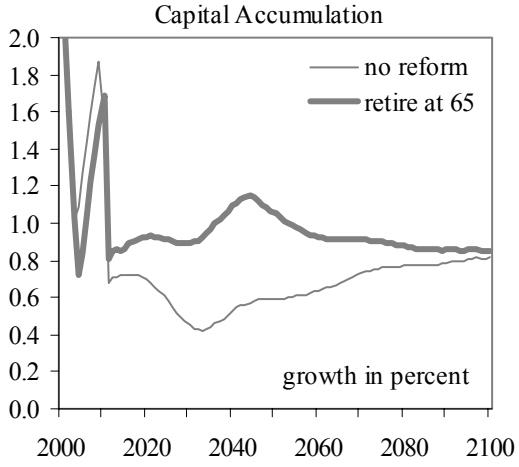
[39] OECD working paper ECO/WKP(2003)25

have increased payroll tax rates from 25 to 42 percent of gross wages, one of the highest in the world. Taken together, recent OECD estimates suggest that high replacement rates and payroll taxes create a net income loss of 20 percent for those who opt to work beyond age 60, instead of retiring.

101. **Raising the effective retirement age in line with life expectancy would help support growth and sustain the welfare system.** This measure directly reduces the dependency ratio, and slows the increase in benefits more markedly than a change in the adjustment formula. In addition, raising the retirement age boosts labor supply twofold: (1) it directly increases the participation rate and (2) it keeps the rise of payroll taxes in check, which improves work incentives. Simulations suggest that payroll taxes would need to increase by less than half the amount under the current system if the effective retirement age were gradually raised to 65. Consequently, potential GDP growth would be about 1 percentage point a year higher than in the no-reform scenario.

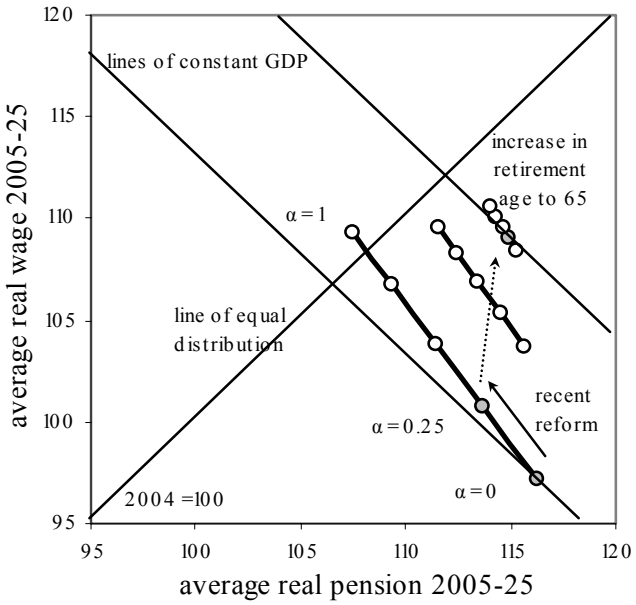






102. **Higher growth and lower payroll taxes would increase both real wages and real pensions.** With higher levels of output, there are more resources to distribute, and the budget constraint for the whole economy expands. A higher supply of labor would temporarily lower *gross* real wages, but the moderation in payroll taxes more than offsets the effect on *net* real wages. This allows workers to participate in the benefits of higher growth. Model simulations show that a gradual increase of the effective retirement age to 65 would increase average real net wages by 9 percent over the next 20 years, and average real pensions by 15 percent.

103. **Distributive equity could improve as the financial burden of aging is spread more evenly.** Under present rules, the tax base for Germany's pay-as-you-go system will narrow as the number of workers declines. An increase in the retirement age would effectively widen this tax base, allowing payroll tax rates to increase less, and providing higher real net wages for workers. Figure 6 compares the distribution of real wages and real pensions for a retirement age of 60, 61 and 65 and values of α ranging from 0 to 1. Each increase in the retirement age shifts the trade-off line between higher wages or pensions away from the origin by improving productive efficiency. Furthermore, the trade-off line edges closer to the diagonal of equal growth for wages and pensions as the system becomes more equitable.



104. **In sum, the financial burden of aging is likely to reduce labor supply and GDP growth by more than currently expected.** This is mostly due to increasing in payroll taxes to finance growing entitlements. The recent reforms were a step in the right direction, as they reduce the transfers from the active to the retired population. However, the growth slowdown will still be dramatic. A change in incentives to increase the effective retirement age will thus be necessary. This would allow much more significant gains in growth and distributional equity between generations.

IV. Perspectives on Federalism and the Political Economy of Adjustment[40]

A. Introduction and Summary

105. **The relation between Bund and Länder is attracting considerable interest, amid questions about how it might affect fiscal policy and structural reforms**. Against that background, Section B briefly describes Germany's political infrastructure. Section C explores empirically the relation between the political environment on the one hand, and fiscal consolidation and structural reforms on the other. Section D advances several proposals to strengthen budgetary institutions, and Section E discusses possible improvements in intergovernmental fiscal relations. The suggested reforms aim to counter political economy distortions of fiscal policy.

106. **The empirical evidence suggests that governments with weak parliamentary support spend more and run larger structural deficits but that they do not necessarily raise state intervention in the economy through structural measures**. Most economic policies require approval of both the lower and upper houses in parliament. Governments typically begin their terms with majorities in both houses, but they tend to gradually lose support in the upper house as their term progresses. This weakening of power has been associated with higher government spending and weaker fiscal positions. Matters are somewhat different for structural reforms. Over the past decade, policymaking in this domain is better characterized by a lack of consistency rather than by inaction. This might have contributed to uncertainty, which reduces the responsiveness of the economy to structural reforms.

107. **Budgetary institutions can play an important role in reducing the political economy bias to fiscal policy**. The idea is to foster a better understanding of the cumulative consequences of policy decisions, particularly of those regarding public expenditure, entitlement programs, and taxes and contributions.[41] Nothwithstanding Germany's good international standing, there is room to strengthen budgetary institutions:

- Each year an independent commission of experts could prepare medium- and long-term projections for the general government based on the policies in place. Such projections are essential for the electorate to determine how budgetary measures or structural reforms would help in achieving targets for the general government deficit while maintaining healthy growth. Currently no body regularly produces such projections.

---

[40] Prepared by Jörg Decressin and Benedikt Braumann.

[41] A key objective is to combat "fiscal illusion." See Friedman (1962) for a fuller development of this argument in the context of monetary policy rules.

- The presentation of all fiscal accounts should be moved to an ESA 1995 basis and they should be better integrated. Presently, it is difficult for the electorate to understand how the federal budget and the budget of each Land fit within the objectives for the general government deficit. Not only is there no aggregation of these budgets, they are also prepared on the basis of accounting standards that differ significantly from ESA 1995.

- The golden rules governing Bund and Länder budgets could be replaced with rules that are more consistent with the Stability and Growth Pact (specifically, aiming for balance over the cycle). Also, the Internal Stability Pact could be strengthened in various respects.

108. **In addition, reforms of intergovernmental fiscal relations could improve the prospects for fiscal consolidation and structural reform**. At present, these relations are too complex and the mechanisms that are in place could be redesigned to provide stronger incentives for prudent fiscal management. Potential measures are:

- Making revenue allocation across Länder more transparent by folding all redistribution into the formal equalization mechanism (the Finanzausgleich).

- Providing additional scope for the Länder to follow independent, deficit-constrained expenditure and tax policies. At the same time, the interregional equalization mechanism could be simplified and redesigned to support Länder fiscal adjustment efforts.

B. The Political Economy Infrastructure

109. **The power to shape economic policy is shared between the federal government (Bund) and 16 Länder governments**. Federal parliament is composed of two chambers. The members of the lower chamber (Bundestag)—which selects the Chancellor, the head of the federal government—are chosen in general elections that take place every four years. The members of the upper chamber (Bundesrat) are designated by the state (Länder) governments: at least three and up to six per Land, depending on the population. Members for each Land have to cast their votes en bloc. Länder governments are chosen in Länder elections that are staggered throughout the term of the Bundestag.

110. **According to Germany's Constitution (Grundgesetz), both the Bund and Länder can shape economic policy but in practice the initiative in policy making has largely been taken over by the Bund, with the Länder ensuring the administration of the laws and their enforcement** (Spahn, 2000). One key reason is the concern—raised in the Constitution—for establishing the same living standards across Germany.[42] However, all

[42] The interpretation of the "same living standards" wording is subject to considerable debate (see para. 143).

laws proposed by the Bund that affect Länder interests—either financially or administratively—in any event need the approval of both the lower and upper chambers of parliament.[43]

111. **Accordingly, Germany's federalism is highly cooperative rather than competitive**. In other federations, e.g., the United States, Canada, and Switzerland, lower levels of government have considerable tax and expenditure powers. In Germany, the federation develops the economic policy framework for all Länder, with the latter implementing and administering the specific policies, including through their own budgets. For instance, reflecting a very strict interpretation of the call for same living standards across Germany in the Constitution, tax law is virtually identical across Länder. Also, revenue is typically shared or apportioned among different layers of government, with an equalization mechanism ensuring that all Länder have very similar revenue per capita.

112. **With this strong consensus approach, broad support within the population is almost always necessary to achieve important economic reforms**. There are two key reasons. First, a majority of the members of the upper chamber (Länder representatives) need to approve all major reforms. However, the membership of the upper chamber changes frequently as a result of Länder elections that are staggered throughout the four-year general election cycle. The outcome of the Länder elections then represents, to varying degrees and over time, a view on the policies followed at the national level. Second, electoral rules favor coalition governments. Elections for the lower chamber and federal government feature direct voting for roughly half of the seats. The remainder is distributed across parties with a view to securing a representation that is broadly in line with the proportion of votes cast for the various parties.[44] As a result, no single party has been able to command an absolute majority in the lower house of parliament over the past three decades. Instead, the country has been governed by coalition governments, headed either by the Christian Democrats (CDU) or the Social Democrats (SPD). Coalition governments are also the rule rather than the exception in the Länder.

C. The Role of the Political Economy Infrastructure in Fiscal Adjustment and Structural Reform

113. **The government's political support can have significant implications for fiscal adjustment and structural reforms**. This section explores how the political infrastructure in Germany might have influenced economic policy. Furthermore, it analyzes empirically the

[43] The exact distinction between laws that require approval of both chambers and those that do not is subject to some debate in Germany and a Bund-Länder commission is investigating the matter.

[44] Parties need to have either three direct seats or 5 percent of the votes cast to be represented as a parliamentary group.

relation between fiscal adjustment and structural reform on the one hand and political economy indicators on the other.

Insights from the political economy literature

114. **A growing literature highlights the many ways in which the political infrastructure of a country can affect fiscal policy**. Optimal fiscal policy is frequently equated with intertemporal tax smoothing, where the net present value of spending has to be equal to the net present value of taxes. The budget is maintained in structural balance but deficits or surpluses can arise from the free play of automatic stabilizers. Such an optimal policy might not be pursued by policymakers for various reasons related to fiscal illusion among voters and the political infrastructure. In this regard, periodic elections and their related uncertainty, the nature of party competition, and the degree of information and polarization of the electorate, can play important roles.[45]

115. **Germany's political infrastructure might favor the emergence of deficits and a large public sector, according to the literature**.

- The emphasis on proportionality in Germany's electoral rules means that legislators need to appeal to a broader spectrum of the population than in countries with majoritarian rules. Evidence suggests that countries with proportional electoral rules have larger governments and welfare programs (Persson and Tabellini, 2004).

- Fragmentation is a greater risk when many decision makers need to be brought on board to approve major reforms. Empirical evidence suggests that economic shocks prompt action but that more fragmented governments tend to need more time to deal with fiscal adjustments (Roubini and Sachs, 1989ab and Poterba, 1994). Also, more fragmented governments have been associated with larger public sectors, particularly welfare programs (Perotti and Kontopoulos, 2002). In Germany, fragmentation between decision makers has been an issue: (i) one coalition government has broken up during its term; and (ii) Länder elections have often significantly changed the support of federal governments in the upper chamber. Thus, policy makers must take account of the frequent Länder elections throughout a federal government's term to maintain sufficient support in the upper chamber.[46]

116. **Moreover, different but related political economy issues concern the emphasis in the Basic Law on attaining the same living standards in fairly dispersed Länder**

[45] For a broad review, see Alesina and Perotti (1995).

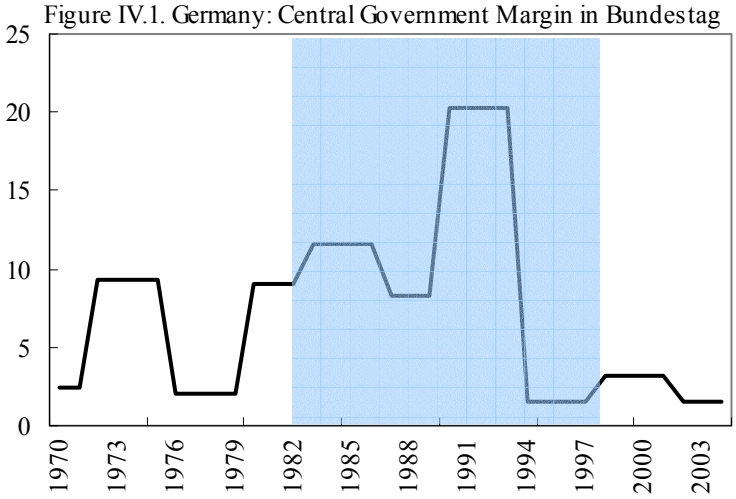
[46] They may do so either systematically or only ahead of key elections, giving rise to political business cycles (Alesina, Cohen, and Roubini, 1992 and 1993).

economies.[47] This emphasis is reflected in the nature of interregional fiscal relations. Evidence in the literature suggests that representatives overestimate the net benefits of local spending if the revenues also come from other districts as a result of interregional redistribution (Weingast, Shepsle, and Johnson, 1981). Section E explores whether the interregional redistribution mechanism in Germany may create a bias toward higher spending and deficits.

Indicators of the political economy in Germany

117. **The federal government and the head of government change infrequently**. The administration changed only twice during the last 35 years: in 1982, from a left-leaning to a right-leaning government, following the break-up of the coalition between social democrats (SPD) and liberals (FDP); and in 1998 back to a left-leaning coalition of the SPD and the Green Party, as a result of the general election. While sometimes narrow, the governing coalition's margin in the Bundestag was always sufficient to ensure the stability of the national government (Figure IV-1). This stability in government should have been conducive to reform.

Figure IV.1. Germany: Central Government Margin in Bundestag

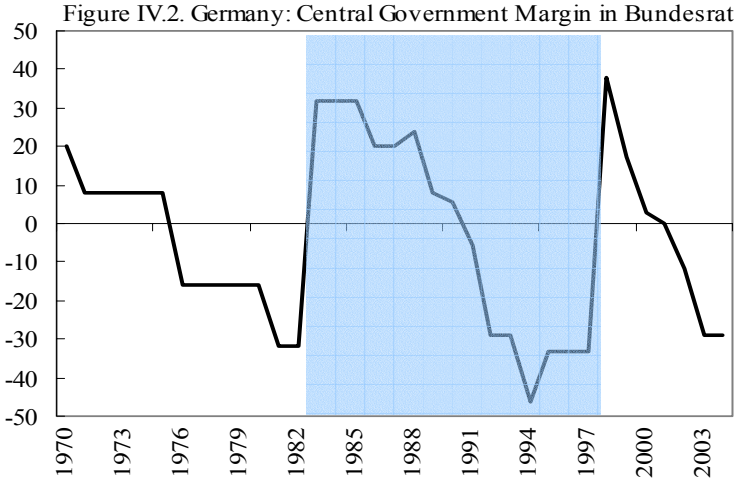


118. **Nonetheless, the power base of federal governments can be fragmented and thus weak**. Many laws require the approval of the Länder in the upper house. Länder elections are much more frequent than national ones and can tip the balance of power during a government's term. In fact, all three governments over the last 35 years suffered a loss of

[47] During the 1970s and 1980s, Länder with a coastal line (e.g., Bremen, Niedersachsen, Schleswig-Holstein) and smokestack industries (e.g., Saarland) struggled with structural change. The challenges raised by reunification are considerably larger. Throughout the post-war history the interests of city states, for obvious reasons, differed from those of the other Länder.

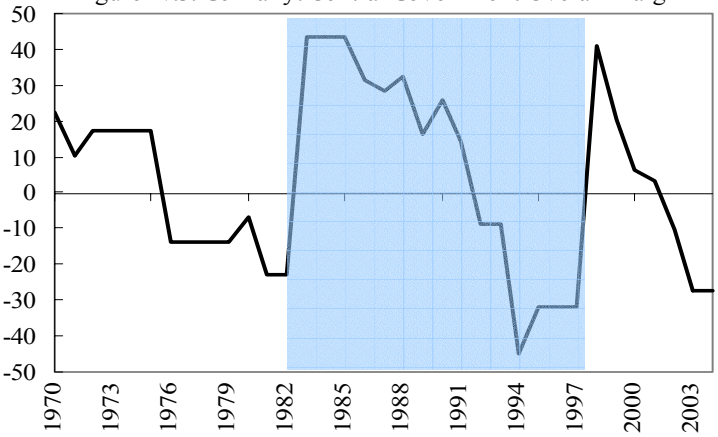
their majority in the Bundesrat. Figure IV-2 shows the governing coalition's margin of seats in the Bundesrat, using information from Länder statistical and electoral offices. Coalition governments in the Länder were classified according to their voting record. As a rule, the largest coalition party dominated (SPD or CDU). "Grand Coalition" state governments of SPD plus CDU usually abstained from voting and thus were not counted for in the margin.

Figure IV.2. Germany: Central Government Margin in Bundesrat



119. **The fragmentation of the power base via a loss of majority in the Bundesrat seems to occur in a regular fashion, and has preceded the loss of majority in national elections**. The support for the typical German government thus weakens predictably over the electoral cycle. The government is strong in the first term but the governing coalition increasingly needs to seek consensus in later terms, as it loses its combined majority in Bundestag and Bundesrat—which will be the measure of government support (or power) used in the analysis (Figure IV-3). Interestingly, the loss of majority accelerated between the 1970s and now, suggesting some loss of loyalty on the side of voters.

Figure IV.3. Germany: Central Government Overall Margin



Government ideology, support, and the deficit

120. **A visual inspection suggests that the structural fiscal deficit is highly correlated with a government's power but not with its ideological bent** (Figure IV-4 and Box IV-1). "Left-leaning" governments have not run different deficits than "right-leaning" ones, probably reflecting a broad consensus for a degree of fiscal restraint and relatively strong budgetary institutions.[48] But the correlation between support and the deficit is fairly close: the deterioration of a government's base leads to a degeneration of fiscal discipline, typically owing to expenditures (Figure IV-5).[49] As a government loses its majority in the upper house, it has to reach out to the opposition and special interests. The institutional setting enforces a consensual, drawn-out decision-making process. While this is sometimes seen as a political characteristic of Germany, it mainly applies to the final years of government. The loss of control seems to occur in an abrupt way, sometimes in conjunction with exogenous shocks: the oil crisis of the 1970s, reunification in the1990s, and most recently the bursting of the asset prices.

Figure IV.4. Germany: Government Margin, Structural Balance

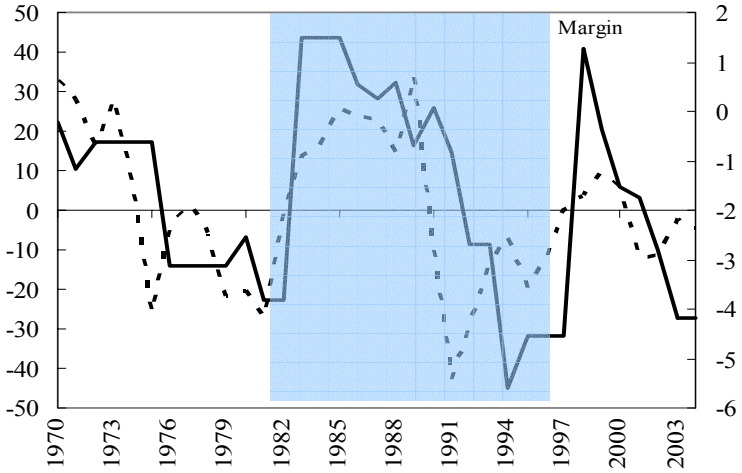
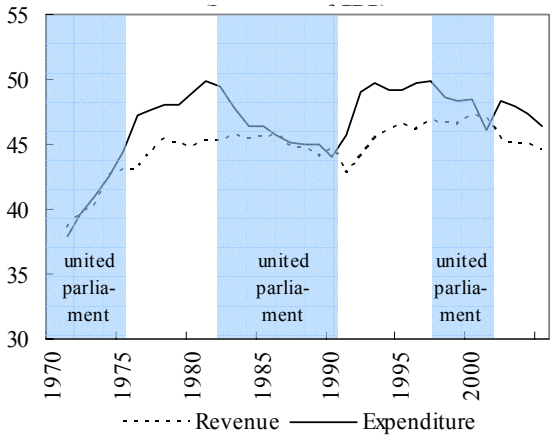


Figure IV.5. Germany: Structural Revenue and Expenditure



[48] By and large, governments in Germany have been fairly centrist. The use of the terms "left leaning" and "right leaning" in this paper therefore is simply convenient shorthand for denoting relative tendencies at the margin rather than an absolute judgement.

[49] In contrast, strong (united) governments have been able to cut expenditures (1980s and 2000), or to raise taxes (1970s)—see Figure IV-5.

Box IV-1: The Political Economy of Fiscal Adjustment

This box formalizes the text by regressing the structural fiscal balance on institutional variables for 1970-2004: the "ideology" of parliament (a higher number indicates a more "left-leaning" parliament); the majority margin of the government; a unification dummy; and the misery index (the sum of inflation and the unemployment rate—it stands for economic pressures on the government). A two-period lag (AR(2)) was included so as to have the same set-up as for the regression explaining structural reforms where it matters (Box IV-2): [1/]

Reforms	Coefficient	T-Value
Constant	-2.144 **	(-2.09)
Ideology	-0.003	(-0.67)
Majority	0.035 **	(-3.51)
Unification	-2.205	(-2.26)
Misery Index	0.042	(-0.34)
AR(2)	-0.156	(-0.8)
R^2 adj.	0.41	
D.W.	1.68	

** Indicates significance at the 5 percent level.

The results suggest that the "majority" variable is the most important factor in determining the structural fiscal balance. It has a positive sign, which means that a stronger majority in parliament will deliver stronger fiscal results. The unification dummy is also significant, while ideology is not. The latter may indicate a consensus across parties against excessive deficits. Also, there is no evidence for backtracking in fiscal adjustment—the two-period lag does not enter significantly—unlike for structural reforms (see Box IV-2); and the structural fiscal balance is not sensitive to overall economic pressures as captured by the misery index.

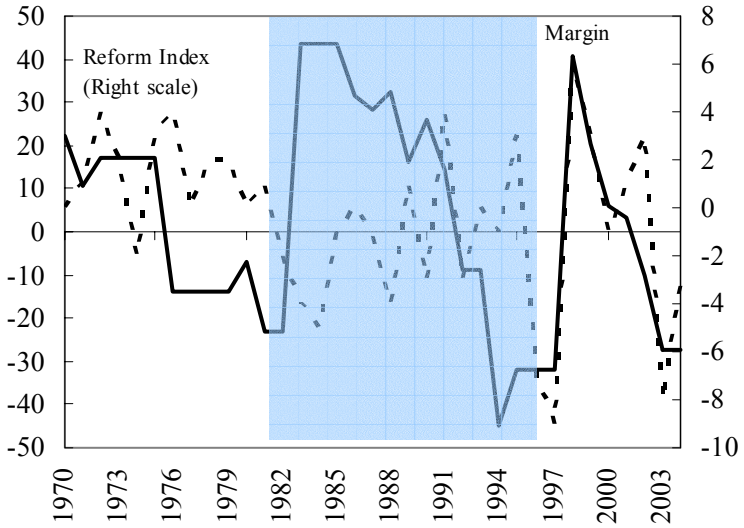
1/ Another specification also included the output gap (to capture the effect of the cycle on social security contribution rates) but it did not enter significantly.

Government ideology, support, and structural reforms

121. **Structural reforms seem to be related to economic pressures and ideology, in addition to government support.** Constructing an index of the structural reform efforts of the past 30 years is not easy. Descriptive information on the reforms reviewed here was mainly drawn from the Annual Reports of the Bundesbank for 1971-2003 (Table IV-1). First, the scope of each reform measure was gauged (1-4), with a higher number indicating a more far-reaching reform. Second, the direction—more (+1) or less state intervention (-1)—was determined. The resulting index does not necessarily mirror government spending, given that some measures have large financial repercussions in bad economic times only (e.g., more generous unemployment benefits), or mainly in the future (e.g., long-term care programs), or

they might have no direct repercussions at all (e.g., job protection legislation, product and financial market reforms). A simple bivariate analysis of government ideology, support, and the structural reform index reveals the following, tentative conclusions (Figure IV-6 and Box IV-2):

Figure IV.6. Germany: Government Margin, Structural Reforms



- Until German reunification, left-leaning governments typically expanded the role of the state in the economy while right-leaning governments did the opposite.

- Following German reunification, economic pressures came to dominate ideological orientation. Slow growth led to a steady upward drift of unemployment and impressed on all governments the need to improve the efficiency of the economy. Also, reform initiatives became erratic, changing direction within the same government term. While the right-leaning government cut social benefits and privatized state enterprises in the 1980s, it expanded the welfare state in 1995 by establishing a public long-term care insurance. However, it cut benefits again in 1997 by introducing a demographic factor to pensions, co-payments to health care, and subtracting separation grants from unemployment benefits. The incoming left-leaning government repealed these measures in 1999, only to reintroduce them under different headings in 2003-04. As a result, the public may well have become disoriented about the general direction and objectives of structural policy.

Box IV-2: The Political Economy of Structural Reforms

This box formalizes the text by regressing the indicator of structural reforms on institutional variables (1970-2004). The change in the reform indicator is regressed on the ideology of parliament, the majority margin of the government, a unification dummy, the misery index, and a lag term (this was added to remove autocorrelation found in the regression without this term).

Reforms	Coefficient	T-Value
Constant	-6.015 **	(-3.46)
Ideology	0.041 **	(-5.04)
Majority	0.039 **	(-2.11)
Unification	10.057 **	(-5.46)
Misery Index	-0.783 **	(-3.69)
AR(2)	-0.555 **	(-3.33)
R^2 adj.	0.52	
D.W.	2.47	

** Indicates significance at the 5 percent level.

The results suggest that, since the 1970s, the ideology of parliament tilted reforms towards an expansion of the state under SPD-led coalitions and towards a reduction under CDU-led coalitions. These are average influences, however. The late 1990s saw different policies being pursued on both sides of the political spectrum. For example, in 1995, a conservative government introduced public long-term care, an important expansion of the welfare state. In 2004, the current left-leaning administration reduced benefits in health care, pensions, and assistance for the unemployed.

The variable "majority" has an unexpected positive sign. Governments with large majorities in parliament apparently engage in an expansion of the economic role of the state, not in market-oriented reforms. As Box IV-1 illustrates, however, the same strong governments carry out fiscal adjustment. Perhaps governments perceive a trade-off between fiscal adjustment and structural reform, as both cannot easily be accomplished at the same time. Alternatively, there might be feedback from the structural reforms to the majority—this concern may be addressed by specifying a system of two equations, one of which models the political process, but this would require additional data.

Unification temporarily increased the role of the state, as one-off expenditures were financed by tax surcharges. Notice that with increasing economic pressures (misery index) governments reduce distortions and make the economy more efficient. Finally, reforms were found to have some negative autocorrelation, the AR(2) term. This is evidence for backtracking, as modeled e.g. by Wyplosz (1993). Reforms generate gains that are unevenly distributed. The actual distribution of winners and losers may only become apparent after the fact. In the absence of compensation schemes, the losers may extract concessions from the government that lead to a partial reversal of the reforms. The concessions could also be in other areas of economic policy, but they would appear in any case as a renewed increase in the reform indicator.

Table IV.1. Germany: Chronology of Reforms, 1970 - 2004

Year	Description	Scope	Role of the state
1971	Revaluation of DM	1	0
	Steuer Befreiung Vermoegens Bildung der Arbeitnehmer 624 DM	1	-1
	Betriebs Verfassungs Gesetz	2	1
1972	Pension reform. Reduction of effective retirement age. More generous benefits. Capital	3	1
	Capital controls introduced to deter inflows	1	1
1973	Floating of exchange rate, revaluation of DM	1	-1
	Increase in income tax, to reduce demand	1	1
	Increase in investment tax, to reduce demand	1	1
	Increase in fuel tax	1	1
1974	Begin of monetary targeting by Buba	1	0
	Capital controls abolished	1	-1
	Decrease in income tax, because of recession	1	-1
	Decrease in investment tax, because of recession	1	-1
	Tax reform, reductions for families with children	1	-1
	Anwerbe Stopp fuer auslaendische Arbeiter	2	1
1975	Public construction program, fight unemployment	1	1
	Einfuehrung des Kohlepfennigs	2	
1976	Increase in tobacco tax and alcohol tax	1	1
	Mitbestimmungs Gesetz	2	1
	Erhoehung Kohlepfennig	1	1
1977	Increase in VAT, decrease in income taxes (bracket creep)	1	0
	Public construction program, fight unemployment	1	1
	Health care reform	1	1
	Tax reform, elimination of double taxation of dividends	2	-1
	Verschiebung der Renten Anpassung	1	-1
	Foerderung des Wohneigentums	1	1
1978	Increase in VAT, decrease in income taxes (bracket creep)	1	0
	Public construction program, fight unemployment	1	1
	Energy conservation program	1	1
1979	Increase in VAT, decrease in income taxes (bracket creep)	1	0
	Public construction program, fight unemployment	1	1
	Increase in child subsidy	1	1
1980	Decrease in income taxes (bracket creep)	1	-1
	Increase in tax on fuel	1	1
1981	Increase in tax on alcohol and tax on fuel	1	1
1982	Increase in tax on alcohol and tax on fuel	1	1
	Decrease in child subsidies	2	-1
	Decrease in Kohlepfennig	1	-1
1983	Increase in VAT	1	1
	Cuts in social and unemployment benefits, subsidies, freeze public salaries	3	-1
	Reform of housing rents	2	-1
1984	Privatization of VEBA	2	-1
	Elimination of tax on coupons	1	-1
	Cuts in social and unemployment benefits, subsidies, freeze public salaries	3	-1
	Increase in maternity and education benefits	1	1
	Subvention Vor Ruhestand	1	1
	Steuer Befreiung Vermoegens Bildung der Arbeitnehmer 936 DM	1	-1
1985	Legalization of temporary labor contracts	2	-1
	Subsidy for environmentally clean cars	1	1
1986	Tax reform, decrease in income tax	2	-1
	Privatization of VIAG, VW (partial)	1	-1
	Increase in child subsidy	1	1
	Introduction of vacation after giving birth	1	1
	Increase in duration of unemployment benefit	1	1
1987	Reform of coal subsidy, reduction of quantities	1	-1
	Reform of stock exchange	1	0
1988	Tax reform, decrease in income tax, change in rate profile	3	-1
	Privatization of VIAG, VW (rest)	1	-1

Table IV.1. Germany: Chronology of Reforms, 1970 - 2004 (concluded)

Year	Description	Scope	Role of the state
1989	New interest tax, 10 percent	2	1
	Reform of health care	2	0
	Reform of telecoms	2	-1
	Increase in taxes on tobacco and fuel	1	1
	Increase in opening hours	1	-1
	Increase in Kohlepfennig	1	1
1990	Tax reform, decrease in income tax	2	-1
	Decrease in Kohlepfennig	1	-1
1991	Increase in income and corporate tax, "solidarity surcharge" eastern Laender	2	1
	Increase in interest tax to 25 percent	2	1
	Increase in subsidies for investing in the eastern Laender	2	1
	Cuts in subsidies for marginal western Laender	2	-1
1992	Pension reform. Net wage adjustment, increase in effective retirement age.	3	-1
	Tax reform, cut in corporate income tax	1	-1
	Increase in child subsidy	1	1
1993	Firing restrictions, notification period increased	1	1
	Reform of federal financial transfer system to integrate eastern Laender	2	0
	Reform of railways	1	-1
	Increase in VAT	1	1
	Increase in insurance tax	1	1
	Health care reform	2	-1
1994	Privatization of Deutsche Kreditbank AG	1	-1
	Law on settling communist expropriations in the eastern Laender	2	0
	Central government takes over debt of Treuhand and former GDR	1	0
1995	Reestablishing "solidarity surcharge" at 7.5	2	1
	Elimination of local corporate capital tax	1	-1
	Cuts in housing subsidies	1	-1
	Cuts in coal subsidies	1	-1
	Increase in insurance tax	1	1
	Introduction of long-term care insurance	3	1
	Eastern Laender included in Finanz Ausgleich	1	0
1996	"Program for growth and employment"		
	Relaxation of firing restrictions	1	-1
	Reduction in early retirement incentives	1	-1
	Reform of social benefits, cut in growth rates, linked to net wages	1	-1
	Health care reform, introduction of deductible	1	-1
	Elimination of wealth tax (inconstitutional)	1	-1
	Abolition of Kohlepfennig	2	-1
1997	Pension reform for 1999, introduction of demographic factor	3	-1
	Tightening of unemployment benefits	1	-1
	Subsidies for eastern Laender reformed and prolonged until 2004	1	1
	Reform of income taxes fails in Bundesrat		
	Decrease in "solidarity surcharge" from 7.5 to 5.5 percent	2	-1
	Breaking monopolies of post and telecoms	2	-1
	Health care reform	2	-1
1998	Tax reform, reduction in personal income tax, increase in corporate inc tax	1	0
	Repeal of pension reform	3	1
	Repeal of health care reform	1	1
	Repeal of relaxation of firing restrictions	1	1
	Increase in VAT	1	1
1999	Ecological tax reform, decrease social security contributions	2	0
	Obligation to pay soc sec contributions on casual employment	2	1
	Repeal of tightening of unemployment benefits	1	1
2000	Auction of UMTS celular bandwiths	1	0
	Tax reform, reduction of corporate income tax	1	-1
	Compensation scheme for forced laborers in WW2	1	0
2001	Pension reform, Riester, voluntary fully funded pillar introduced	2	0
	Subsidies for eastern Laender reformed and phased out until 2019	1	1
	Part-time work extended	1	0
2002	Increase in natural gas tax	1	1
	Increase in tobacco tax	1	1
	Increase in insurance tax	1	1
2003	Labor market reforms "Hartz"	4	-1
	Health care reform, introduction of deductible	2	-1
	Tax reform, income taxes reduced in 2004 and 2005, corporate taxes reduced	2	-1
2004	Pension reform, re-introduction of demographic formula	3	-1
	Reduction of subsidies "Koch-Steinbrueck"	1	-1
	Increase in tobacco tax	1	1

Sources: Annual Reports of Bundesbank and IMF staff assessment of reforms (scope=1,..,4 with a larger number indicating a larger reform; role of state = +1 if the reform increased state intervention or -1 if it narrowed intervention).

122. **Overall, governments have faced difficulties in advancing fiscal consolidation as their support in parliament has fallen over time, while structural policies have lacked a consistent direction over the past decade**. It is hard to disentangle analytically whether the falling support reflects a normal political cycle, of the type that can be observed in many countries, or whether it is related to special features of the political infrastructure in Germany. But two features—the power vested in the Länder and the frequency of Länder elections—might allow a more rapid feedback between economic policy and the electorate. The inconsistency of structural policies might reflect policymakers' struggle to adapt the welfare state to major shocks, such as unification, globalization, and the recent growth slowdown in Germany. The next sections explore some avenues to improve the prospects for fiscal consolidation and structural reform: strengthening budgetary institutions (Section D) or changing intergovernmental fiscal relations (Section E).

D. The Role of Budgetary Institutions

123. **Empirical evidence suggests that budgetary institutions can have an important effect on fiscal policy performance**. According to Alesina and Perotti (1995), "Germany's voting rules are actually among the least compatible (at least on paper) with fiscal responsibility." However, the country ranks relatively high on the efficiency of its budgetary institutions, which helps also in overcoming the biases stemming from fiscal illusion. This section briefly describes the key features of current budgetary institutions and options for reform.

Budgetary institutions: The status

124. **Many aspects of the budgetary institutions in Germany promote fiscal responsibility.**[50] The IMF fiscal ROSC concluded that Germany has achieved a high level of fiscal transparency (IMF Country Report No. 03/286). In particular, sound standards for budgeting, accounting, and reporting apply to all levels of government; multiyear budget preparation is an integral part of the process; and fiscal reporting includes contingent liabilities, guarantees, tax expenditures, and equity holdings. Nonetheless, the fiscal ROSC pointed to significant scope for strengthening the budgetary institutions.

125. **Reliance on outside experts for elaborating the macroeconomic framework and the tax revenue projections plays an important role in stemming fiscal illusion**. Each January, the Ministry of Economy and Labor elaborates a macroeconomic framework in its Annual Economic Report (Jahreswirtschaftsbericht). This is followed, typically in March, by the consensus macroeconomic projections of Germany's main economic research institutes. This consensus framework serves as input for the medium-term tax forecast, another consensus projection prepared by the Working Group for Tax Estimates (Arbeitskreis Steuerschätzung). This group includes representatives from the Federal and Länder

[50] See also Von Hagen (1992).

Ministries of Finance, local government, the Bundesbank, the main research institutes, and the Council of Economic Experts.[51] The tax estimates are incorporated in the Bund and, partly, in the Länder budgets. All estimates are updated in the fall, before the budget's final reading and adoption (typically) in December.

126. **Furthermore, the Basic Law and the Law to Promote Economic Stability and Growth commit all levels of government to coordinated fiscal management**. For example, borrowing by the Bund is limited to the amount of the gross investment in the budget (golden rule) unless the government declares that the economy is out of equilibrium and that more borrowing will help in redressing the disequilibrium. The same holds for many Länder as well as, in a tighter form, for all the municipalities, whose budgets are approved by their respective Land parliament. Furthermore, policies should be coordinated between all levels of government. In practice this is done by the Joint Financial Planning Commission (Finanzplanungsrat) that meets twice a year following the meeting of the Working Group for Tax Estimates. The commission's task is to reach an understanding on the broad budgetary targets for Bund, Länder, and Municipalities.

Budgetary institutions: Scope for reform

127. **These budgetary institutions were strong enough to forestall major fiscal excess in any given year but did not stem persistent fiscal deficits and rising public debt**. A continued increase in the public debt-to-GDP ratio and a growth-stifling tax and contributions burden—which is a likely scenario for the long run absent any further policy change—would not be in the spirit of the laws covering fiscal responsibility.[52] Better budgetary institutions might help in forestalling such a scenario, by fostering an earlier adoption of reforms. Three avenues for reform could be considered: more transparency and accountability; better coordination; and stronger rules.

Transparency and accountability

128. **A promising first step might be to raise transparency and accountability**. This could be achieved through several measures that combat fiscal illusion and clarify intra- and intergenerational redistribution:

- Shifting budgetary accounting and planning to an ESA 1995 national accounts basis. Currently, the budget is prepared on the basis of cash-based accounting dating back to 1969. The ESA 1995 (accrual) presentation of the general government's accounts is considered the broadest and most accurate measure of a country's general government balance, expenditures, and revenues. Moreover, Germany's

[51] The latter comprises five professors, appointed by the government to the council, who draft an independent, annual assessment of the German economy, which is released in November.

[52] See Chapter IV of IMF Staff Country Report 02/240, and Chapter III in this volume.

commitments under the Stability and Growth Pact (SGP) are monitored on the basis of ESA 1995 data. Accordingly, it would be natural to prepare Bund and Länder budgets also on that basis.[53]

- Producing long-run projections (say through 2050) for general government deficits, expenditure, revenue, and tax and contribution rates on a "current services" basis. While outside experts produce medium-run projections for tax revenue on such a basis (Working Group for Tax Estimates), they do not do so for the long run, for social security receipts, or for expenditure. Such projections for the Bund, Länder, and the social security system would reveal the full future burden of current fiscal and social policies, fostering a more informed discussion about reform. They would also facilitate assessing the consistency of current policies with sustained and balanced growth, which is stipulated by the laws covering fiscal responsibility. Such projections should ideally be produced for parliament by independent experts.

- Explaining in the budget documents how the budgetary and other measures link the official targets for the general government with the long-run current services projections.

Coordination

129. **The coordination of Bund and Länder budgeting could be increased, through reforms to the Internal Stability Pact**. In 2002, Germany adopted an Internal Stability Pact (ISP) to improve Bund-Länder fiscal policy coordination. However, this pact could be made more transparent and binding in several respects. This is particularly important when the majorities in lower and upper chambers differ.

130. **The ISP established several objectives**. First, Bund and Länder (including municipalities) agreed on the need to return budgets back to balance and this objective was made part of the laws defining fiscal responsibility. Second, they agreed that the deficit target of the Bund and all Länder combined could reasonably be split 45:55 percent between Bund and all Länder, respectively. Third, under the pact the Bund would reduce its expenditure by ½ percent per annum during 2003-04 while the Länder (as a group and including the municipalities) would keep annual expenditure growth within 1 percent. However, the pact did not spell out specific deficit or expenditure targets for each Land (Table IV-3). This, in turn, makes it difficult for the Joint Financial Planning Commission to issue

[53] Compliance with the golden rule could still be monitored with such data, with public investment defined accordingly. For the general government this would have revealed frequent violations of the golden rule during the 1990s (Table IV-2).

recommendations for corrective action, except in egregious cases. Furthermore, its recommendations would not be binding.[54]

131. **The ISP offers a useful starting point to improve coordination between Bund and Länder**. The roles and responsibilities of various levels of government in fiscal policy need to be agreed on and spelt out clearly. Specifically, the annual and medium-term budget planning of the different levels of government needs to be better integrated, which may require some Länder to shift from two-year budgets to one-year budgets. Based on a common macroeconomic framework, specific expenditure and deficit targets should be proposed by the Bund and each Land in support of the official objectives for the general government balance, and all should be held accountable for the achievement of these targets. Furthermore, the proposed expenditure and deficit paths would have to be approved by the federal and regional parliaments to ensure ownership.[55] Mechanisms to sanction Bund or Länder that do not respect their ISP commitments might have to be considered if increased transparency fails.

Budgetary rules

132. **An alternative avenue for reform would be to strengthen the budgetary rules that already apply to Bund and Länder**. The golden rules are not compatible with the rules under the SGP. The SGP calls for general government fiscal balance over the cycle; deficits under 3 percent of GDP, except under certain circumstances; and a debt ratio that, if not falling, is under 60 percent of GDP. While the SGP has already found its way into German budgetary law, it has done so only in the form of a general call on Bund and Länder to return to their budgets to balance. Perhaps the golden rules that govern budgeting at Bund and Länder level should be replaced with the SGP's rules, although this raises complexities on account of the intergovernmental fiscal relations. Alternatively, they could be tightened, by focusing on ESA 1995 government deficits and by adopting a stricter definition of investment expenditure, namely net investment as defined under ESA 1995. Such a definition would better capture the spirit of a golden rule. Wendorff (2001) points out that on such a basis the golden rule for Germany need not be inconsistent with a balanced budget rule: the ESA 1995 data suggest that net investment by the public sector was close to zero ever since the mid-1990s (Table IV-2).

---

[54] Preliminary data through 2003 suggest that the Bund missed its expenditure target, largely because of the Bund's contributions to the social security system, while the Länder achieved it. The deficits targets of the Bund and Länder (combined) were appreciably overshot.

[55] Similar suggestions have been made by a commission of experts, appointed by the Ministry of Finance.

Table IV-2. Germany: General Government Balance and Public Investment, 1992-2003 1/
(In percent of GDP)

Year	Overall balance	Gross public investment	Golden rule violated (1=yes)	Net public investment	Tighter golden rule violated (1=yes)
1992	-2.5	2.9		1.1	1
1993	-3.1	2.8	1	0.9	1
1994	-2.4	0.3		0.8	1
1995	-3.3	2.3	1	0.5	1
1996	-3.4	2.1	1	0.3	1
1997	-2.7	1.9	1	0.2	1
1998	-2.2	1.9	1	0.2	1
1999	-1.5	1.9		0.3	1
2000	1.3	1.8		0.2	
2001	-2.8	1.8	1	0.2	1
2002	-3.7	1.7	1	0.1	1
2003	-3.8	1.5	1	-0.1	1

Source: Federal Statistical Agency.
1/ Data for net investment for 2000-03 assume same depreciation (in percent of GDP) as for 1999. Data through 1999 are taken from Wendorff (2001).

Table IV-3. Germany: Distribution of Cash Deficit, 1992-2002
(In percent)

Year	Bund	Länder and Municipalities
1992	62.6	37.4
1993	65.1	34.9
1994	44.4	55.6
1995	51.1	48.9
1996	61.5	38.5
1997	57.7	42.3
1998	78.2	21.8
1999	87.8	12.2
2000 1/	94.2	5.8
2001	51.0	49.0
2002	50.6	49.4
2003	51.9	48.1

Source: Federal Statistical Office, ESA 1995 data.
1/ In 2000, excluding UMTS receipts.

133. **The experience of other countries suggests that binding fiscal rules can be helpful in stemming expenditure growth and deficits**.[56] In some countries, local governments have independently chosen fiscal rules. In others, the rules have grown out of a cooperation between federal and regional governments and the monitoring and potential sanctioning for breaching rules is also done in a cooperative manner. Daban and others (2003) review the ISPs or ISP-like frameworks that have been adopted by Austria, Belgium, Italy, and Spain. All these frameworks set ceilings on deficit or debt and they usually do so for the federal government and each local government. Austria has chosen to allocate the Maastricht deficit between the federal government and the regions, mainly as a function of their populations. All these frameworks, except that of Spain, provide for transparent sanctions in case of noncompliance with the targets (in the case of Italy, a benefit for compliance), although they typically can only be invoked by a unanimous decision of all parties.

E. Reforming Bund-Länder Economic Relations

134. **Broader reforms to the Bund-Länder relations could also help in stemming expenditure pressures and fostering fiscal consolidation**. They can do so if they: (i) raise the transparency of the intergovernmental relations; (ii) better align expenditure with taxation responsibilities; (iii) inject some scope for tax and expenditure policy competition between the Länder; and (iv) allow for some Länder-specific experimentation with reform that, if successful, can foster progress across the entire country (Roland, 2001). Moves in such a direction are being explored by a parliamentary commission.

Interregional redistribution

135. **Interregional redistribution is common in federal states for reasons related to equity and economic efficiency**. Resources are redistributed vertically (from the central to the local governments or vice-versa), for example, when tax receipts accruing to different levels of government do not match expenditure mandates. Resources might be redistributed horizontally (between various local governments) to support an efficient distribution of public goods, to insure against region-specific income fluctuations, or to align living standards. In Germany, equity is a key consideration guiding redistribution.

136. **However, the mechanism by which fiscal resources between Bund and Länder are apportioned does not provide strong incentives to contain expenditure or raise revenue** (Box IV-3). Many sources provide a detailed review of the functioning of the mechanism (e.g., Federal Ministry of Finance, 2003; Lenk 2003; and Baretti and others, 2000). Its key features have undesirable incentive effects, for various reasons:

[56] See Poterba (1994) and Daban and others (2003).

Box IV-3: Intergovernmental Redistribution

Tax sharing. About 70% of all fiscal revenues are shared between Bund and Länder (Table IV-5). The sharing coefficients for income and savings taxes are fixed while that for valued added tax is determined periodically, so as to ensure that each level of government can cover "necessary expenditure" (Table IV-6). Because there is no objective definition of "necessary expenditure," in practice the sharing of the value added tax receipts is a function of the history of expenditure and Bund-Länder bargaining.

Umsatzsteuervorwegausgleich. Income taxes are distributed across Länder according to the "residency" of the tax payers. For value-added tax: (i) at least 75 percent is distributed according to population; (ii) at most 25 percent is distributed to Länder with a lower-than-average fiscal revenue per capita—computed including receipts from shared taxes and Länder taxes but excluding VAT and municipal taxes. Each Land is to reach at least 92 percent of the average per capita revenue so defined. As of 2005, Länder with less than 97 percent of average per capita revenue will have 95 percent of their gaps filled; those with between 97 percent and less than 100 percent will have their gaps filled between 95 and 60 percent.

Finanzausgleich. Formal horizontal redistribution aligns the revenue-raising capacity (RC) of each land with an equalization index (EI). RC is the revenue per capita except that only 50 percent of the municipal tax receipts are considered. Starting in 2005, 64 percent of municipal tax receipts will be considered (and some 12 percent of the receipts stemming from above-average revenue growth will no longer be included in the measurement of the RC). The EI essentially corresponds to the average level of revenue per capita but with city states receiving a 135 percent population weight.

Thus far, for Länder with RC<EI, equalization transfers bring them up to 92 percent of the EI; in addition, they fill 37.5 percent of the gap between 92 and 100 percent of the EI. The Länder with RC>EI and 1 percent (10 percent) higher than average RC surrender 33 percent (80 percent) of the excess. Starting 2005, horizontal equalization is more complex: (i) for those Länder with RC<0.8EI, 75 percent of the gap between RC and EI is filled; (ii) if 0.8EI<RC<0.93EI, then 75 percent down to 70 percent is filled (linearly falling); and (iii) if 0.93EI<RC<EI, then 70 percent down to 44 percent is filled (linearly falling). Furthermore, between 44-70 percent of the difference between RC and EI is surrendered if RC>EI, with the exact amount rising gradually between a revenue capacity of 100 to 120 percent.

Bundesergänzungszuweisungen. Additional transfers from Bund to weaker Länder ensure that they reach at least 99.5 percent of the average RC. As of 2005, the transfers will only cover 77.5 percent of the gap that remains relative to 99.5 percent of RC. Furthermore, special transfers are made, mostly to the new Länder to overcome burdens that remain from unification.

- The vertical revenue sharing is guided by past expenditure. Thus higher spending might be rewarded with more revenue. In addition, it includes a horizontal equalization component. This detracts from the transparency of the redistribution that takes place and thereby potentially fosters fiscal illusion.

- Redistribution almost completely equalizes the per capita resources of all the Länder (Table IV-4). While some differences remain—largely because municipal tax revenue is not fully considered in a Land's revenue capacity—these differences are small.[57] Furthermore the rationales for excluding part of the municipal taxes in measuring revenue capacity and for the special treatment of city states are not clear.

Tax policy coordination versus competition

137. **Aside from the limited incentives to do so, virtually no scope exists for the Länder to practice an independent tax policy**. Most tax revenue is shared between Bund and Länder, levied on common tax bases at common tax rates. Some tax receipts flow only to the Länder (see Table IV-4). But tax bases and rates are the same across Länder. Municipalities levy two taxes: a local business tax (the Gewerbesteuer) and a tax on land (the Grundsteuer). For both the definitions of the tax bases are the same across municipalities but the rates can be set independently. In 2002, receipts from these taxes amounted to about 1½ percent of GDP.

138. **The reason for harmonizing taxation across the country is to avoid tax competition and complicating tax administration**. Tax competition might lead to falling taxation on mobile factors of production. The result might be an underprovison of public goods. Furthermore, different taxes, tax bases, and tax rates can complicate tax administration, resulting in efficiency losses.

139. **Nonetheless, there are also good reasons for allowing local governments somewhat greater autonomy in setting tax policy**. The degree of tax harmonization across jurisdictions is unusually high in Germany compared with other countries with a federal system (e.g., Canada, and Switzerland). First, more autonomy would allow a closer link between tax policy and the provision of public goods, many of which might not have effects that spill across several jurisdictions. Second, some tax competition might be a desirable counterweight to the "political economy" biases toward a larger government. Third, tax autonomy might help the new Länder to attract business, arrest the emigration of their workforce, and thereby foster a more efficient use of land and existing infrastructure.[58]

[57] Even upon fully considering municipal revenue, some calculations suggest that each Land reaches at least 89.5 percent of average per capita revenue; under the new, 2005 system the figure will be 91.2 percent (Lenk, 2003). Matters differ somewhat for the city states because of the population weights.

[58] Providing such incentives with tax rates might be more effective than doing so with subsidies.

Table IV-4. Germany: Revenues Before and After Redistribution and GDP, 2001
(Per capita revenue, in percent of national average)

	Before	After			Nominal GDP
		Umsatzsteuervor-wegausgleich	Länderfinanz-ausgleich	Bundesergänzungs-zuweisungen	
Old Länder	114.7	105.3	101.4	...	107.7
North Rhine-Westphalia	107.4	101.8	101.1	101.1	100.9
Bavaria	124.3	112.4	104.1	104.1	116.3
Baden-Württemberg	124	113.2	104.2	104.2	115.1
Lower Saxony	89.4	89.6	95	99.5	89.2
Hesse	143.3	125.8	106.4	106.4	123.0
Rhineland-Palatinate	95	93.2	95.8	99.6	88.0
Schleswig-Holstein	100.4	97.4	98.4	99.8	91.8
Saarland	83.2	88.9	95	99.5	94.1
Hamburg	173.8	109.3	104.1	104.1	171.8
Bremen	103.7	75	95.8	99.6	136.4
New Länder	33.4	84.8	95	99.5	66.3
Saxony	34.6	84.5	95	99.5	66.7
Saxony-Anhalt	30.1	84.8	95	99.5	65.1
Thuringia	30.8	84.3	95	99.5	66.3
Brandenburg	39.4	86.3	95	99.5	67.4
Mecklenburg-Western Pomerania	30.2	83.9	95	99.5	65.8
Berlin	89.2	68.6	95	99.5	89.7

Source: Federal Ministry of Finance. Bold face indicates a city state.

Table IV-5. Germany: Tax Receipts of Bund and Länder, 2002

	In billions of euro	In percent of total
Shared taxes	303.3	68.7
Personal income	153.8	34.8
Interest	8.5	1.9
Corporate income	2.9	0.7
Sales	138.1	31.3
Bund taxes	83.5	18.9
Petrol	42.2	9.6
Tobacco	13.8	3.1
Alcohol	2.5	0.6
Coffee	1.1	0.2
Insurances	8.3	1.9
Electricity	5.1	1.2
Solidarity surcharge	10.4	2.4
Other	0.1	0.0
Länder taxes	18.6	4.2
Wealth	0.2	0.0
Inheritance	3	0.7
Land purchases	4.8	1.1
Vehicles	7.6	1.7
Lottery and games	1.8	0.4
Beer	0.3	0.1
Other	0.9	0.2
Municipalities taxes	33.4	7.6
Local business tax	23.5	5.3
Land	9.2	2.1
Other	0.7	0.2
Other	2.9	0.7
Total	441.7	100.0

Source: Federal Ministry of Finance, 2003.

Table IV-6. Germany: Bund-Länder Repartition of Tax Revenue, 1992-2001

	Total Revenue		Sales Tax			
	Bund 1/	Länder 1/	Bund 1/	Länder 1/	Municipalities	EU
1992	48.2	47.1	49.6	37	0	13.4
1993	47.5	47.6	47.4	39	0	13.6
1994	48.2	46.6	45.7	40.1	0	14.2
1995	45	50.1	42	44	0	14
1996	42.3	52.8	36.6	49.5	0	13.9
1997	41.5	53.2	36	49.5	0	14.5
1998	41	53.9	36.9	46.6	2.1	14.3
1999	42.5	53	39.8	45.7	2.1	12.5
2000	42.5	52.8	38.9	45.9	2.1	13.1
2001	43.4	52.2	40.1	45.9	2.1	11.9

Source: Federal Ministry of Finance, 2003.
1/ For Länder, including Ergänzungszuweisungen; excluding payments into Fonds "DE"; reverse for Bund.

Region-specific expenditure policy

140. **More tax autonomy makes sense only together with more freedom for expenditure policy**.[59] Large expenditure components that concern all levels of government are determined by national policy (e.g., pay of public sector employees and social policies). Nonetheless, Bund and Länder are autonomous in drawing up and implementing their budgets, although Bund budgets often hinge on tax or structural changes that require Länder approval. The Bund takes charge exclusively of national defense and external affairs (policymaking and implementation), employing about 12 percent of all government personnel and accounting for about one third of government expenditure (including federal special funds). The Länder handle exclusively law enforcement, education, culture, sports and leisure, residential dwellings, zoning, and various services. Several programs are decided and implemented jointly by Bund and Länder. These concern regional infrastructure and education and their total cost is about ½ percent of GDP.[60] Otherwise, most programs are designed jointly at the national level but are implemented either exclusively by the Bund or exclusively by the Länder.

141. **Recently, more scope for regional policy differentiation has been introduced and further steps in such a direction might be desirable**. Recently the Länder began to

[59] The Länder can vary the Gewerbesteuer (local business tax) but its tax base likely is fairly mobile, unlike the tax base of personal income tax rates, for example.

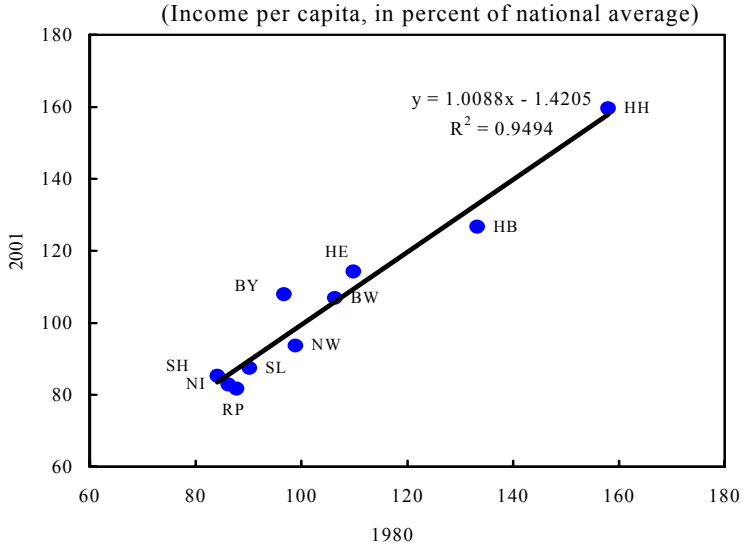
[60] For a review see Federal Ministry of Finance, 2003.

differentiate the wage supplements of public employees (e.g., holiday pay).[61] Since living costs and labor market conditions differ across Länder, additional scope for wage differentiation appears appropriate. More scope for differentiating welfare policies has also been brought up for discussion. Differences in welfare policies exist between different jurisdictions in some countries. They might help structurally disadvantaged Länder in charging lower taxes to boost economic development. In short, they would allow tailoring the social policies to local circumstances. In so doing, they might also help to limit the aforementioned "political economy" biases toward higher government spending.

Potential avenues for reforming Bund-Länder fiscal relations

142. **Reforms can contribute to improving the prospects for fiscal consolidation, structural reforms, and the interregional convergence of living standards.** Over the past couple of decades there has been no significant convergence among the old Länder (Figure IV-7).[62] Reform options may include:

Figure IV-7. Germany: Convergence
(Income per capita, in percent of national average)



Source: Federal Statistical Office.

- Increasing the transparency of revenue redistribution and redesigning it to provide better incentives for fiscal consolidation.

[61] Public sector employees in the new Länder receive a lower wage than those in the old Länder although the difference is set to be phased out.

[62] This is not to deny that government transfers to the new Länder likely have been helpful in fostering their rapid catch-up during the first half of the 1990s.

- Raising the scope for the Länder to follow independent expenditure and tax policies. More room for wage differentiation in the public sector would lead to compensation packages that better fit local living and labor market conditions. The same holds for welfare policies. Regarding taxes, Länder could be allowed to levy surcharges or offer discounts on personal income tax rates, possibly within some broad ranges to avoid harmful tax competition.

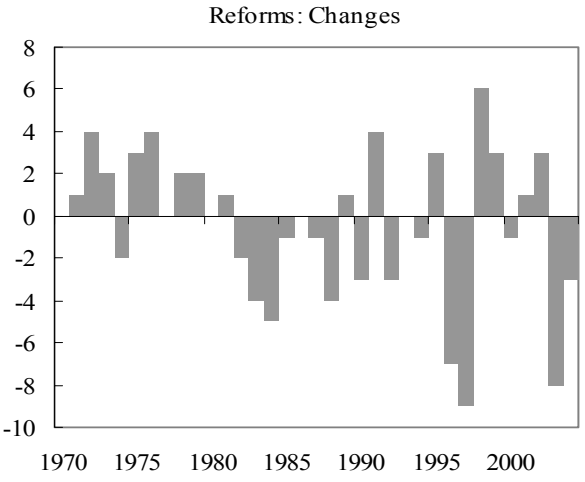
143. **The high degree of cooperation that has emerged is not considered the only form of federalism that is compatible with Germany's Basic Law**. As noted, the interpretation of the "same living standards" condition in the Basic Law and its economic content are subject to debate. Many argue that the Basic Law does not seek uniformity across Länder, nor does it tolerate divergences across Länder that risk undermining their legal and economic union. For economic policymakers this raises the issue of striking the right balance between equity and efficiency considerations, with the latter arguing for a measured degree of competition in fiscal federalism.

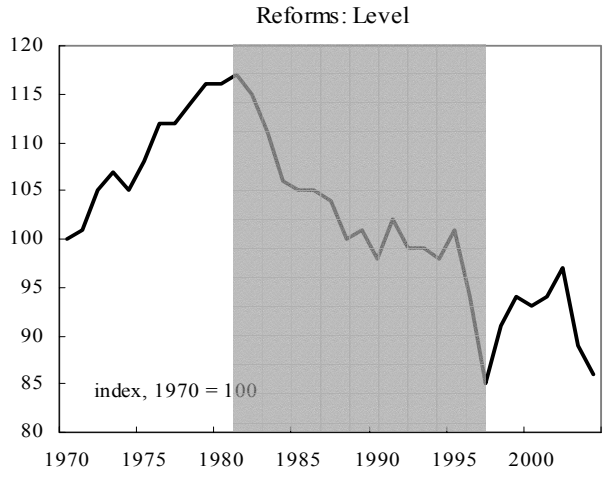
144. In conclusion, staggered regional elections have changed the majorities in the upper chamber between general elections. This has had implications for both fiscal consolidation and also structural reforms. This phenomenon puts greater emphasis on ensuring that budget institutions and intergovernmental fiscal relations provide better incentives for good fiscal management.

Indicator of Structural Reforms

145. To quantify the forces that influence reforms in Germany, an indicator of structural reform was constructed as a first attempt that can be refined over time. The sources are the chronologies of economic policy in annual reports of the Bundesbank, the Sachverständigenrat, Heilemann and others. (2003), and Steffen (2000). Laws and decrees that affect primarily the supply side of the economy are considered structural reforms. This sets them apart from changes, e.g., in interest rates and public spending that target the demand side. To quantify the scope of a reform, each measure is given a value from 1 to 4, where a higher number means a more wide-ranging reform. Finally, all reforms are classified as to whether they expand the role of the state (positive sign) or expand the role of markets (negative sign).

146. Table IV-1 shows a comprehensive list of structural reform measures from 1970 to 2004. The list is visualized in the figures below, which show the changes and the level of the reform indicator, respectively. While the 1970s experienced the last major expansion of the welfare state, the tide began to turn in the early 1980s. Since then, reforms mostly focused deregulating markets, privatizing and more generally reducing the role of the state. However, this trend was not uniform, and structural reforms became more erratic in the mid-1990s.





References

Alesina, A., and R. Perotti, 1995, "The Political Economy of Budget Deficits," *IMF Staff Papers*, Vol. 42, pp. 1-31.

Alesina A., G. Cohen, and N. Roubini, 1992, Macroeconomic Policy and Election in OECD Economies," *Economics and Politics*, Vol. 4, pp. 30.

Alesina A., G. Cohen, and N. Roubini, 1993, "Electoral Business Cycles in Industrial Democracies," European Journal of Political Economy, Vol. 9, pp. 1-25.

Baretti C., R. Fenge, B. Huber, W. Leibfritz, M. Steinherr, 2000, *Chancen und Grenzen des Föderalen Wettbewerbs*, IFO.

Bundesbank, Annual Reports 1970-2003. Frankfurt.

Daban T., E. Detragiache, G. di Bella, G. M. Milesi-Ferretti, and S. Symansky, 2003, "*Rules-Based Fiscal Policy in France, Germany, Italy, and Spain,*" IMF Occasional Paper No. 225 (Washington: International Monetary Fund).

Federal Ministry of Finance, 2003, *Bund-Länder Finanzbeziehungen auf der Grundlage der Geltenden Finanzverfassungordunung*.

Friedman, M., "Should There be an Independent Monetary Authority," in L.B. Yeager (ed.) *In Search of Monetary Constitution*, (Harvard University Press, 1962.

Heilemann, U., Gebhardt, H., Loeffelholz, H., (2003): Wirtschaftspolitische Chronik 1949-2002. (Stuttgart: Lucius & Lucius).

Lenk T., 2003, Finanzausgleich in der Bundesrepublik Deutschland, mimeo, University of Leipzig.

Perotti R., and Y. Kontopoulos, 2002, "Fragmented Fiscal Policy," *Journal of Public Economics*, Vol. 86, pp. 191-222.

Persson T., and G. Tabellini, 2004, Constitutional Rules and Fiscal Policy Outcomes, American Economic Review, Vol. 94, pp. 25-45.

Poterba J., 1994, "State Responses to Fiscal Crisis: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy*, Vol. 102, pp. 799-821.

Roland G., 2001, "*The Political Economy of Transition*," mimeo, University of California, Berkeley.

Roubini N., and J. Sachs, 1989a, "Political and Economic Determinants of Budget Deficits in Industrial Countries," *European Economic Review*, Vol. 33, pp. 903-938.

Roubini N., and J. Sachs, 1989b, "Government Spending and Budget Deficits in Industrialized Countries," *Economic Policy*, No. 8, pp. 99-132.

Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung: Jahresgutachten, 1971 to 2003. (Wiesbaden: DeStatis).

Spahn, P.B., 2000, Consensus Democracy and Interjurisdictional Fiscal Solidarity in Germany, mimeo, IMF.

Steffen, J., 2000, Sozialpolitische Chronik. (Bremen: Arbeiterkammer).

Von Hagen, J.,1992, "Budgeting Procedures and Fiscal Policy Performance in the European Communities," *Economic Papers*, European Commission.

Wendorff, K., 2001, "The Discussion on a National Stability Pact in Germany," in *Fiscal Rules*, Proceedings of the Research Department Public Finance Workshop on Fiscal Rules, Bank of Italy.

Wyplosz, C., (1993): After the Honeymoon: On the Economics and the Politics of Economic Transformation. *European Economic Review,* pp. 379-386.

V. Does Purchasing Power Parity hold in the Long Run? Evidence from Germany and Switzerland[63]

A. Introduction

147. **This chapter examines whether purchasing power parity (PPP) holds over the long run in Germany and Switzerland.** If this were the case, the equilibrium real exchange rate would be relatively constant, and fluctuations of the actual real exchange rate would reverse over time. If PPP does not hold, the equilibrium real exchange rate could display drift, and assessing misalignments would depend on estimating the equilibrium drift.

148. **Consensus opinion on PPP has shifted over time,** as illustrated in Lothian and Taylor (1996). Studies during the Bretton Woods system of fixed parities supported a fixed real exchange rate over the long run. The monetary approach to the exchange rate even claimed PPP in the short run. However, the transition to floating currencies led to large and persistent fluctuations in real exchange rates, and new studies postulated that real exchange rates followed random walks and might not have an anchor. However, theoretical "overshooting" models (Dornbusch, 1976) were developed to help explain the longer-term deviations, and recently, the pendulum has begun to swing back once more. A number of recent studies claim to find PPP in very long data series, arguing that the time horizon is crucial (Lothian and Taylor, 1996, Glen, 1992, Abuaf and Jorion, 1990). They point out that statistical tests for stationarity are biased against PPP, since they have low power over short horizons.

149. **This chapter finds that in the long run, PPP holds in Germany but not in Switzerland.** It presents 115 years of data from Germany and Switzerland, two countries with very similar economic structures. While the German real exchange rate seems to exhibit PPP, Switzerland witnessed almost a century of real appreciation. After a closer look at the time series and their properties, we test some possible explanations based on different saving rates in different countries, inflation differentials, and relative market power.

B. German and Swiss Real Exchange Rates—Some Stylized Facts

150. **Visual inspection of long-term time series suggests that PPP holds in Germany, but not in Switzerland.** Figures V-1 and V-2 show the real effective exchange rate (REER) and an estimate of the equilibrium REER (discussed below) for Germany and Switzerland, respectively. The German REER has moved in a fairly narrow band (except for the war periods), but the Swiss franc has been on an upward trend since around 1905. On average, the Swiss franc has appreciated by around 1½ percent per year in real effective terms during the last century.

---

[63] Prepared by Benedikt Braumann.

151. **To explore these findings more formally, this chapter will use *multilateral* (or trade-weighted, real effective) exchange rates, in comparison with the literature which often only focuses on *bilateral* real exchange rates**. Multilateral exchange rates allow a better assessment of PPP, as they consider actual trade patterns. The time horizon extends back to 1890, the earliest year for which there are sufficient data. Five countries are included as trading partners, accounting for about 80 percent of total foreign trade over the entire period. In the case of Germany, the trading partners are the U.S., France, the UK, the Netherlands and Italy. For Switzerland, the main trading partners are Germany, France, Italy, UK and the U.S. As partner country weights were fairly stable, Laspeyres indices of the real effective exchange rates were constructed (the Appendix presents a note on the data).

Figure V-1. Germany: Real Effective Exchange Rate

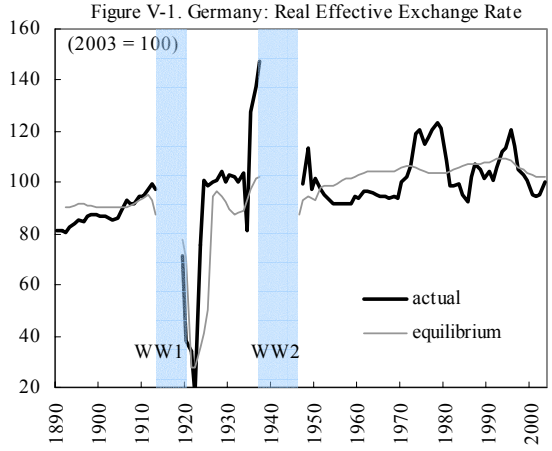
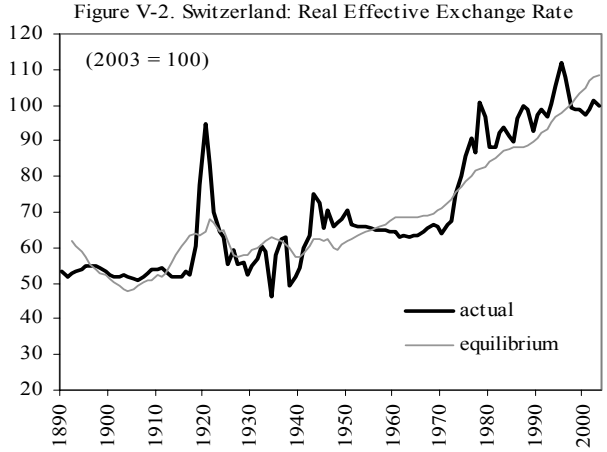


Figure V-2. Switzerland: Real Effective Exchange Rate



C. Time-Series Properties

152. **The persistence of REER fluctuations is moderate in Germany, but high in Switzerland.** Figures V-3 and V-4 show the autocorrelation functions for Germany and Switzerland, measuring the persistence of real exchange rate fluctuations. In Germany, the lagged autocorrelation coefficients quickly become statistically insignificant; in Switzerland, they become insignificant only after 20 years. This is a strong indication for a unit root, i.e., that the REER displays drift.

Figure V-3. Germany: Autocorrelation

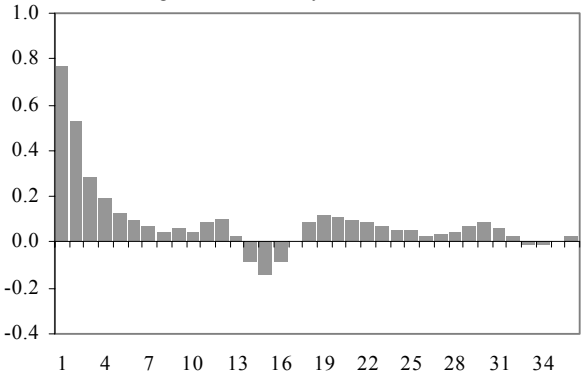
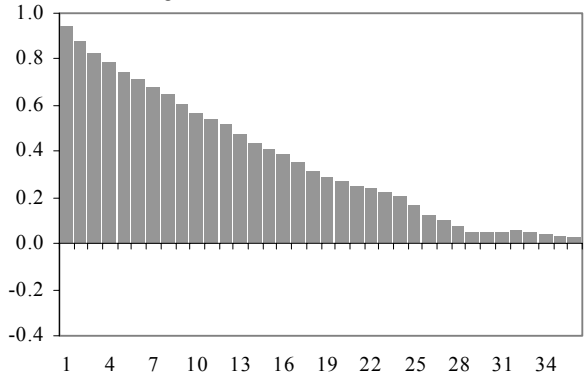
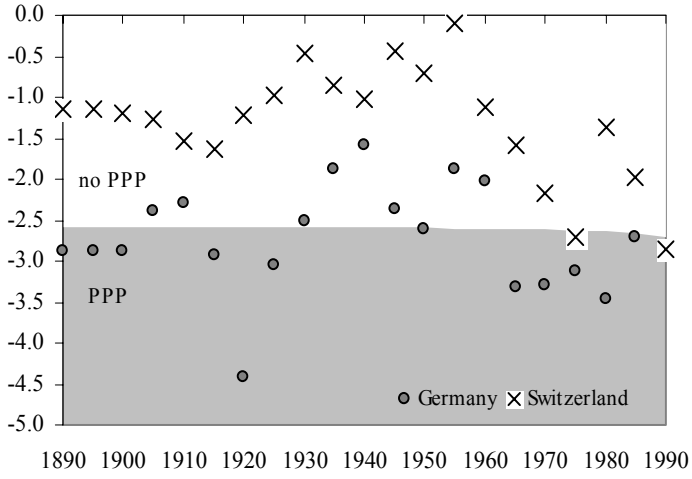


Figure V-4. Switzerland: Autocorrelation



153. **More formal tests confirm that Germany's REER reverts to a mean, while Switzerland's does not.** Figure V-5 plots the results of augmented Dickey-Fuller tests on unit root behavior for different sample lengths. From right to left, the length of the time sample increases. On the right border, data begin in 1990, on the left border, they begin in 1890. German data are consistent with PPP (reject the unit root hypothesis at the 5 percent level) in 14 out of 21 samples, but Swiss data only in 2. The figure also questions the claim that unit root tests yield different results over long time horizons. German data are consistent with PPP over short samples as well as very long ones, but less so in intermediate ones. The Swiss data reject PPP over the whole sample. This finding is in line with Engel (2000), who cautions against making the sample period the main criterion in testing for a unit root.

Figure V-5. Unit Root Tests



D. Why PPP May Not Hold in the Long Run

154. **Purchasing power parity holds only under some restrictive assumptions.** In particular, it relies on the assumption of one representative good in the economy. Trade and arbitrage will then equalize prices in all countries. A more realistic setting, however, recognizes differentiated goods. In this case, PPP does not need to hold. With two goods, one tradable (T) and one non-tradable (N), consumer prices are a weighted average of two prices P_T and P_N:

$$CPI = (P_T)^{\alpha}(P_N)^{1-\alpha}$$
$$CPI^* = (P_T^*)^{\alpha}(P_N^*)^{1-\alpha}$$

An asterisk (*) denotes prices of trading partners. If lower-case letters denote logs, the real exchange rate *r* is then defined as the price difference between the home and foreign country, corrected by the nominal exchange rate *e:*

$$r = cpi - cpi^* - e$$

Substituting the consumer price indices, this expression becomes

$$r = (p_T - p_T^* - e) + (1-\alpha)\,[(p_N - p_T) - (p_N^* - p_T^*)]$$

155. **Thus the equilibrium real exchange rate can vary with changes in the relative price of non-tradables.** In a two-good setting, the real exchange rate can vary because of (1) deviations from the law of one price for tradables, and (2) changes in the relative price of non-tradables across countries, known as the "Engel decomposition" (Engel, 1999). Only by coincidence will the relative price of non-tradables be equal in different countries. Burstein, Neves and Rebelo (2003) argue that including distribution costs and commercialization margins, the weight of non-tradables in the CPI is as high as 85 percent, which suggests ample scope for deviations from PPP.

156. **Considering this perspective, the evidence for PPP in long data series for Germany is quite striking**. Parallel changes in non-tradable prices require similar technology and preference parameters among trading partners, and also similar shocks to the economy. Germany indeed shared with its main trading partners some large shocks to the economy, e.g., a history of war destructions, reconstruction booms, oil price increases and economic integration.

E. Equilibrium Real Exchange Rates: Saving, Competition, and Inflation

157. **The long-run appreciation of the Swiss franc appears to confirm that equilibrium real exchange rates can drift.** In the Swiss case, the upward drift even coexisted with sustained and large current account surpluses suggesting that it is not a misalignment. One possible explanation that is sometimes offered is the "Balassa-Samuelson" effect, which arises if productivity growth is faster in the tradable sector than in non-tradables. Many studies on this effect were done for transition economies. Mihaljek and Klau (2004) survey them and conclude that the results are disappointing. Cross-country productivity trends turn out to be quite similar, possibly because the diffusion of technology is fast. The same conclusion emerges from the German and Swiss data that were used for this chapter: the labor productivity effects were found to be statistically insignificant.

Figure V-6. Relative Employment Ratio

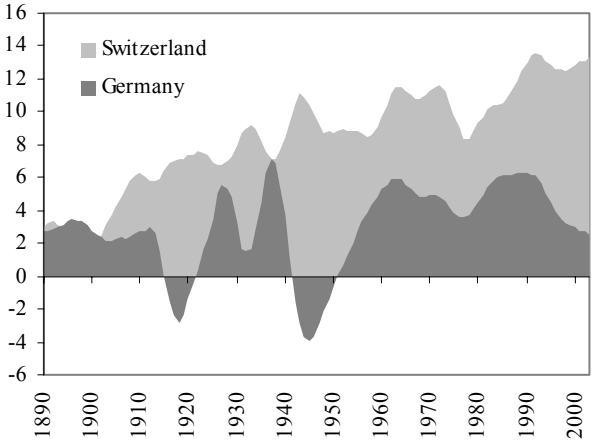
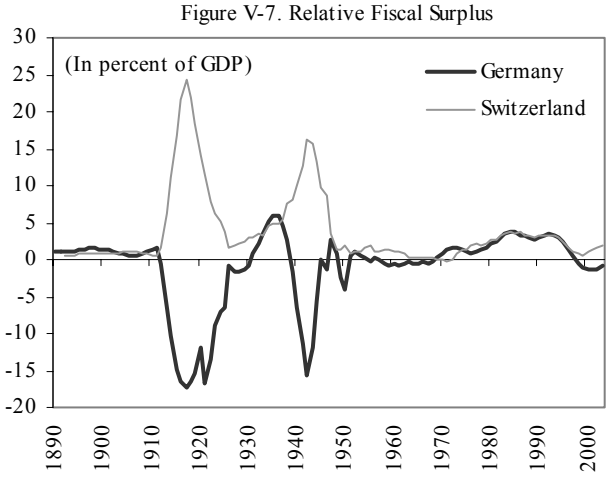


Figure V-7. Relative Fiscal Surplus



158. **An alternative explanation points out that Swiss household saving rates have been very high compared to other countries.** This approach suggests a closer look at preferences. A key parameter is the propensity to save, or the rate of *time preference*. Since there are no long time series on national savings, Isard and Farruquee (1998) propose an indirect measure: private savings are proxied by the share of the population at work. People at work generate the income that yields national saving, while all others dissave. Thus, their share in the population could be expected to correlate with national saving. Figure V-6 shows employment ratios for Germany and Switzerland, cast in relative terms, i.e., compared to trading partners. By this proxy, Switzerland is seen to have higher employment—and hence saving—ratios than their trading partners. Household saving ratios in Germany also were relatively high, but much less so than in Switzerland.

159. **Swiss public sector saving was also high, but Germany recorded some large deficits.** Public saving was proxied by relative fiscal balances (Figure V-7). During the world wars and hyperinflation, Germany had large deficits relative to its trading partners. Switzerland posted relative surpluses most of the time, in part because it stayed out of wars.

On balance, public deficits absorbed private savings in Germany, while public surpluses augmented private saving in Switzerland.

160. **High relative saving can lead to a trend real appreciation.** High saving fosters capital accumulation and favors the production of traded goods, which are more capital intensive. Rising wages in this sector attract labor away from non-tradables, where production declines. With unchanged demand, a declining supply of non-tradables leads to an increase in their relative price. The real exchange rate appreciates.

161. **High saving and the expansion of tradables sectors generate current account surpluses.** Switzerland has experienced persistent and increasing current account surpluses in the second half of the 20th century, rising to 15 percent of GDP. The corresponding capital exports led to the accumulation of net foreign assets of close to 150 percent of GDP (Figure V-8). In contrast, total savings in Germany broadly matched that of its trading partners and did not affect relative prices. The current account fluctuated around balance, and net foreign asset reached at most 10 percent of GDP.

Figure V-8. Net Foreign Assets

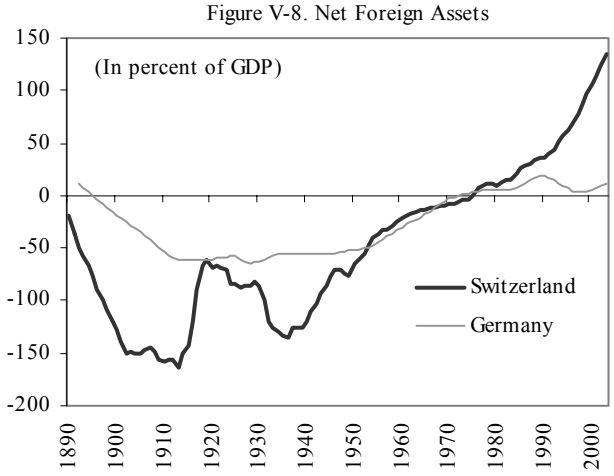
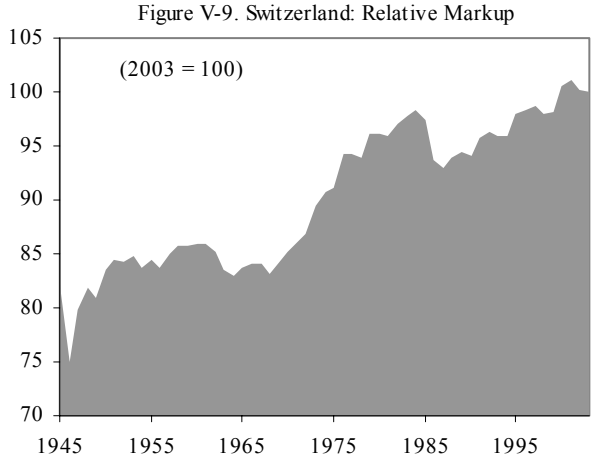


Figure V-9. Switzerland: Relative Markup

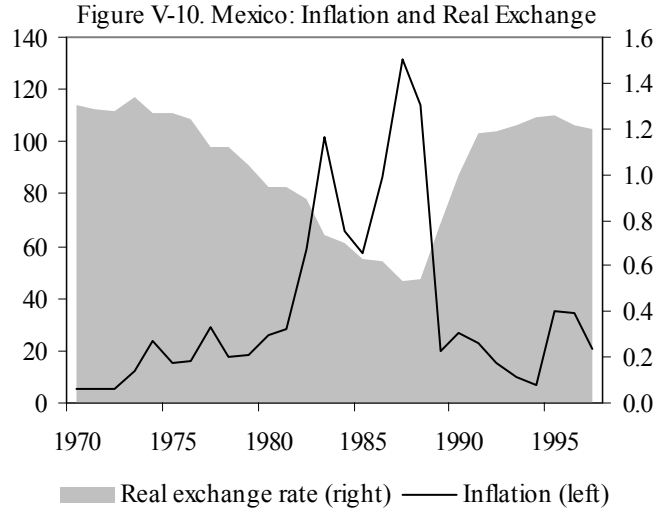


162. **Swiss markets were more monopolistic than Germany's, keeping prices high.** Market power differentials on domestic product markets may also affect the real exchange rate. While Germany has always been at the forefront of European economic integration, Switzerland mostly stayed out. Increased competition and strong antitrust regulation led to a decline in monopolistic pricing power in Germany and the EU, but not in Switzerland. This further restricted the supply of Swiss non-tradables and raised their relative price. Figure V-9 shows a proxy for the market power of Swiss firms, the ratio of consumer to producer prices. Compared to trading partners, this measure has increased by about 1/3 since the end of the second world war, while German markups remained flat.

163. **Finally, inflation differentials may explain the large "spikes" in the real effective exchange rates during the 1920s.** During the German hyperinflation the real effective exchange rate depreciated sharply, while it appreciated in Switzerland. It is known from

recent experiences in developing countries that high inflation depresses the real exchange rate. An example is Mexico (Figure V-11), and Braumann (2000) confirms this pattern in a wider sample of 23 inflation episodes. Calvo and Végh (1993) argue that high inflation leads to a temporary contraction of demand. Real money balances fall as inflation increases. This makes transactions more cumbersome and expensive, and households postpone consumption. While the resulting excess supply of tradables can be exported, the excess supply of non-tradables cannot. This leads to a fall in their relative price, and to a real depreciation. Switzerland experienced the flipside of this pattern as the German hyperinflation caused its currency to appreciate.

Figure V-10. Mexico: Inflation and Real Exchange



164. **Changes in these key parameters can be used to derive empirically the *Fundamental Equilibrium Exchange Rate* (FEER)** (e.g., Hinkle and Montiel, 1999). This method allows the long-run real exchange rate to depart from a flat PPP line if fundamental factors change. The *CGER* macrobalance method developed at the IMF by Isard and Farruquee (1996) is closely related. Table V-1 present the results of FEER estimations for Germany and Switzerland that use the above proxies for relative saving, competition, and inflation differentials as regressors. All coefficients have the expected sign and are statistically significant, with exception of net foreign assets in Germany. This is not surprising in light of their modest magnitude. The coefficients are then applied to 5-year moving averages of the regressors to derive the equilibrium real exchange rates in Figures V-1 and V-2.

Table V-1. FEER Estimation Results (OLS)

Dependent variable: Real effective exchange rate. T-values in brackets.

Regressor	Germany		Switzerland	
Constant	32.06*	(2.39)	-31.46	(1.93)
Employment ratio	1.53*	(2.42)	0.78*	(3.09)
Fiscal surplus	0.86*	(3.29)	0.35*	(2.73)
Net foreign assets	-0.09	(1.65)	0.13*	(7.26)
Inflation differential	-6.73*	(2.51)	-14.90*	(2.31)
Markup	0.66*	(4.66)	1.11*	(6.65)
Adj. R^2	0.44		0.81	

165. **The FEER analysis suggests that Germany's real effective exchange rate is close to equilibrium, while Switzerland's has room to appreciate**. These results are very similar to those obtained in the CGER macrobalance analyses, which use the current account instead of the real exchange rate as the endogenous variable. As discussed in chapter II.B of the 2002 Selected Issues Paper on Germany (IMF country report No. 02/240), Germany's current account can be considered in equilibrium at a surplus of around 2 percent of GDP at this time. The actual surplus is somewhat higher, but taking into account cyclical slack would bring it close to the FEER. The same can be said for Switzerland, where estimates of the equilibrium current account are around 5 percent of GDP, as compared to over 10 percent actual value.

166. **In sum, there is evidence that PPP held over the past century in Germany, but not in Switzerland.** Germany's fundamental production and preference parameters have stayed close to those of its main trading partners, keeping relative prices in line. In contrast, Switzerland's high saving and its sheltered, monopolistic product markets have put constant pressure on the real exchange rate to appreciate. Calculations of the German fundamental equilibrium exchange rate suggest that the current REER is close to its equilibrium level. How to reconcile this external and quite competitive equilibrium with dormant domestic demand and low labor utilization is a challenge that requires further research.

Data Sources

167. **Consistent data sources are crucial for long-run studies**. The period after World War II is covered by standard databases from the OECD and the IMF (International Financial Statistics). Peacetime and some wartime data before this time were taken from Mitchell (2003, financial data and prices) and Maddison (1991, real variables). Gaps remained for real activity in Switzerland before 1930, and general macro information on the world wars for France and Germany, and the German hyperinflation. Specialized academic literature was used to fill those gaps: Gerlach and Gerlach (2002) for Swiss GDP, INSEE (1977) for French wartime data, Braun (1990), Hoffmann (1965), and Sommariva and Tullion (1987) for Germany. A particular problem was the reconstruction of public sector balances during the 1930-40s for Germany, as budget data were a state secret for most of these years and few records remain. Braun (1990) provides below-the-line financing estimates for this time.

References

Abuaf, N., Jorion, P., (1990): Purchasing Power Parity in the Long Run. *Journal of Finance*, No. 45, pp. 157-174.

Braumann, Benedikt, 2000, "Real Effects of High Inflation," IMF Working Paper 00/85, (Washington: International Monetary Fund).

Braun, H. (1990): The German Economy in the Twentieth Century. (London: Routledge).

Dornbusch, R., (1976): Expectations and Exchange Rate Dynamics. *Journal of Political Economy*, No.84, pp.1161-1176.

Engel, C., (1999): Accounting for US Real Exchange Rate Changes, *Journal of Political Economy,* No. 107, pp.507-538.

Engel, C., (2000): Long-run PPP May Not Hold After All. *Journal of International Economics,* No. 57, pp. 243-273.

Gerlach, S., Gerlach-Kristen, P. (2002), Estimates of Real Economic Activity in Switzerland, 1885-1930. *CEPR Working Paper No. 3427*.

Glen, J., (1992): Real Exchange Rates in the Short, Medium and Long Run. *Journal of International Economics,* No. 33, pp. 147-166.

Hinkle, L., Montiel, P., (1999): Exchange Rate Misalignment: Concepts and Measurement for Developing Countries. (Washington: World Bank Publishing).

Hoffmann, W. (1965): Das Wachstum der Deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts. (Berlin: Springer).

INSEE (1977): Séries Longues des Comptes Nationaux. (Paris: INSEE).

Isard, P., Farruquee, H., (1998), *Exchange Rate Assessment: Extensions of the Macroeconomic Balance Approach,* IMF Occasional Paper No. 167. (Washington: International Monetary Fund)

Lothian, J., Taylor, M., (1996): Real Exchange Rate Behavior: The Recent Float from the Perspective of the Past Two Centuries. *Journal of Political Economy,* No. 104 (3), pp. 488-509.

Maddison, A. (1991): Dynamic Forces in Capitalist Development. (Oxford: Oxford University Press).

Mihaljek, D., Klau, M., (2004): The Balassa-Samuelson Effect in Central Europe: A Disaggregated Analysis. *Paper presented at the EUI Conference in Florence, May 2004.*

Mitchell, B. (2003): International Historical Statistics, 1750-2000. (London: Palgrave McMillan).

Sommariva, A., Tullion, G. (1987): German Macroeconomic History, 1880-1979. (New York: St. Martin's Press).