The development of production potential in Germany

Overall production potential and the output gap derived from it are key variables of economic analysis. That applies just as much to an assessment of the cyclical situation as it does to the calculation of structural budget balances. Furthermore, the two variables make it easier to assess the medium-term prospects for growth and incomes and to identify inflationary tensions at an early stage. Estimates show that the increase in German production potential in the second half of the 1990s was slower than in earlier periods and in comparison with other industrial countries. During the past year, production potential is likely to have grown by no more than around 1½% and the negative output gap amounted to around 1½%. In the current year, the output gap is likely to go on widening.

The present situation in Germany is thus characterised not only by a marked slowdown in the economy but also by slow trend growth. Since this gives rise to serious problems, the present article also discusses economic policy approaches for enhancing the growth path. It becomes apparent that further economic reforms are needed – especially on the labour market – to create the conditions for renewed and sustained dynamic growth.

The concept and significance of production potential

Major analytical importance

Production potential and the relative deviation of real gross domestic product (GDP) from that potential – known as the output gap – are key concepts in macroeconomic analysis. Ignoring seasonal and irregular effects, GDP may be broken down conceptually into production potential and a cyclical component.

With a given provision of natural resources, potential – in the sense of overall production potential – is determined by the available production factors of labour and capital, the state of technology as well as policies governing the organisation of the economy and growth. It thus indicates how many products in the form of goods and services can be produced in a given period if the production factors are deployed under prevailing conditions in line with the longer-term average. Production potential which displays sharp growth is therefore generally regarded as a characteristic feature of a vigorous and innovative economy, whereas low rates of potential output growth often point to structural problems. By contrast, the cyclical component, which is reflected in the output gap, provides information on the degree to which the potential supply is used. The output gap may therefore be employed as an aggregate tension indicator for the product market providing, along with other variables, information on demand-side inflationary pressure.

Owing to its construction, the output gap is, moreover, an important starting point for assessing cyclical effects on the government budget balance. Thus, this variable – interacting with the responsiveness of the labour market and the specific design of the government system of taxes, levies and transfers – determines the level at which the cyclically induced part of the budget balance is to be estimated and how important the automatic stabilisers are.[1] Neither potential nor the output gap can be observed directly, however. They have to be estimated. The calculations may rely either on methods which are purely statistical or on ones based more on economic considerations.

Many different estimation methods

Alternative estimation methods

Given its great importance, production potential has to be estimated as precisely as possible. There exists an almost untold number of methods and variants available for this purpose.[2] For the sake of simplicity, a distinction can be made between approaches that are more statistical or more theory-based. By surveying enterprises, it is also possible to obtain direct information on the utilisation of their plant capacity, but this cannot generally substitute for an estimate of the overall output gap. In Germany, such surveys exist only for industry and construction. These two sectors,

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1 See Deutsche Bundesbank, Problems associated with calculating "structural" budget deficits, *Monthly Report,* April 1997, pp 31-45, and Deutsche Bundesbank, Cyclical adjustment of the public sector financial balance in Germany – a disaggregated approach, *Monthly Report,* April 2000, pp 31-45.
2 An overview is provided by the European Central Bank, for example. See Potential output growth and output gaps; concept, uses and estimates, *ECB Monthly Bulletin,* October 2000, pp 37-47, and C Schumacher, *Alternative Schätzansätze für das Produktionspotential im Euroraum,* Baden-Baden (2002).

which together account for just under one-quarter of total value added, display very wide cyclical fluctuations, however, which are by no means typical of the economy as a whole.

Statistical methods

The statistical methods attempt to estimate the underlying trend of overall output from the time series. A simple log-linear trend is occasionally used, for example. As a constant trend growth over long periods is often not very plausible in economic terms, segmented trends with (specified) structural breaks are also employed. Alternatively, the trend may be construed as a purely stochastic variable. In this way, say, the cyclical component may be determined by using a Beveridge-Nelson decomposition.[3]

Besides the trend functions, statistical filters also come into consideration. The often-used Hodrick and Prescott method,[4] for example, makes two requirements of a separation of trend and cycle. First, the profile of the trend values should be as smooth as possible. Second, the actual values should deviate from the trend as little as possible. Since both criteria are in competition, the relative weighting of the smoothness and adjustment properties is set in advance. The higher the weighting of the smoothness criterion is set, the more strongly the trend values are smoothed. There is an intense debate on the appropriate selection of this parameter.[5] Essentially, this concerns the question of how long a typical business cycle is. For example, in the case of annual data, a smoothing parameter having the value of around eight corresponds to a reference cycle duration

of seven to eight years. The frequently used value of 100 corresponds to a reference cycle of 16 years.

The length of the reference cycle is also crucial for the band-pass filter as applied by Baxter and King.[6] The band-pass filter defines which fluctuations in the time series are to be assessed as cyclical and which as an irregular component or trend. For annual data, for example, it is customary to use a (2.8) filter, ie fluctuations which last for a minimum of two years and a maximum of eight years are regarded as cyclical.

The practical advantages of filter methods lie in the fact that they are straightforward in terms of their technical application and that they may be applied in the same way to different time series and are thus also suited to describing stylised facts. Moreover, they are highly transparent and easy to comprehend. Nevertheless, they also have major drawbacks: they are not explicitly anchored in economic theory, for example. Furthermore, at

Advantages and drawbacks of statistical methods

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3 The cyclical component matches the predictable changes in the time series; the trend is produced by a series of unpredicted shocks. The frequently used univariate decomposition often results in implausibly variable trend profiles and is not examined in further detail below. On the procedure, see S Beveridge and C R Nelson (1981), A New Approach to Decomposition of Economic Time Series into Permanent and Transitory Components with Particular Attention to Measurement of the "Business Cycle", Journal of Monetary Economics 7, pp 151-174.
4 See R J Hodrick and E C Prescott (1997), Postwar U.S. Business Cycles: An Empirical Investigation. Journal of Money, Credit, and Banking 29, pp 1-16.
5 See M Mohr (2001), *Ein disaggregierter Ansatz zur Berechnung konjunkturbereinigter Budgetsalden für Deutschland: Methoden und Ergebnisse,* Discussion paper, Economic Research Centre of the Deutsche Bundesbank 13/01.
6 See M Baxter and R King (1999), Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series, *Review of Economic and Statistics 81,* pp 575-593.

least the filter methods are predicated on the cyclical phenomenon being describable in terms of a symmetrical, comparatively regular fluctuation around a trend. Diagnosis of cases of very long-lasting overutilisation or under-utilisation is ruled out owing to their construction. Finally, applying such methods harbours the risk of creating only spurious cycles, which play no more than a minor role in the unadjusted series.

Economic approaches

In the more theory-derived methods, the production potential is based explicitly on its economic determinants. Such methods include, say, the approaches oriented to the capital stock used by the German Council of Economic Experts and the German Institute for Economic Research. These methods are based on the simplified concept of an aggregate production function with a limiting production factor. Estimates based on aggregate production functions with more than one factor are also usual. This is the way in which the European Commission makes its estimates for the countries of the EU.[7] For a long time, the Bundesbank also based its estimates of German production potential on a – somewhat more flexible – production function.[8] The relevant vector-autoregressive models may also be counted among the structural approaches. In these models, shocks which drive the business cycle are identified by long-term restrictions. Such calculations have their theoretical basis in models of aggregate supply and demand.

Assessment of theory-based methods

The advantage of such theory-based methods is that they allow more detailed information to be gained concerning the factors under-lying potential growth. They thus yield more in terms of both analysis and economic policy. By decomposing the components, the causes of decelerations or accelerations in growth can be identified and defined more closely. Nevertheless, the distinction between statistical and theory-based approaches is, in practice, less strict than it may first appear. Filters and trend adjustments are also needed in structural approaches, for instance. That applies, say, to the approximation of technical progress, which is not directly observable, and to the rate of structural unemployment. In the single factor approach as well, potential capital productivity is determined using a trend adjustment.
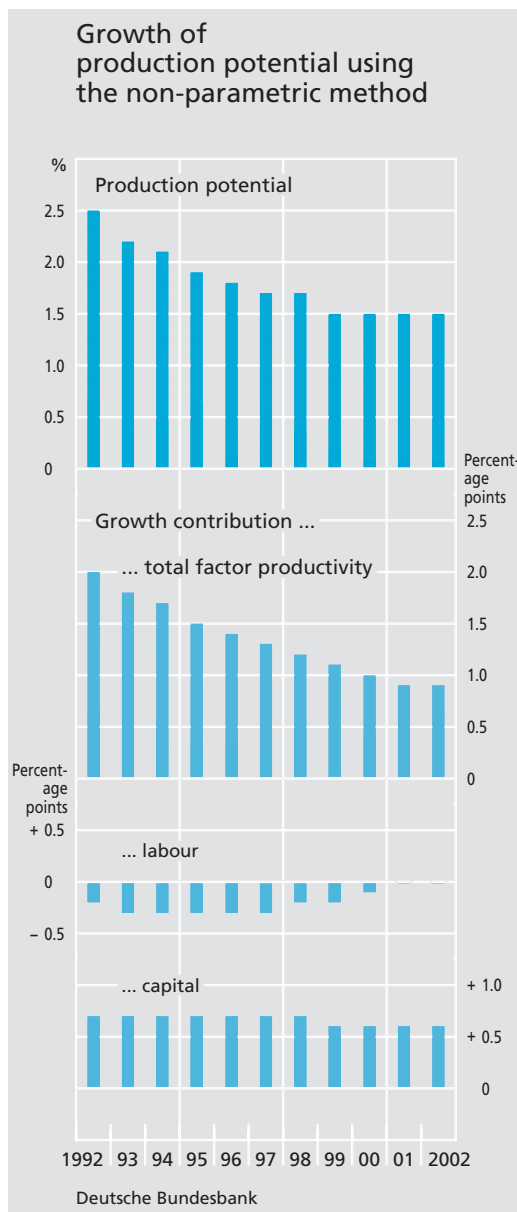
Estimation results

As mentioned above, the Bundesbank used to base its estimation of potential on an aggregate production function,[9] in which overall output depends on the input factors of labour and capital and on technology. Production potential was calculated by estimating the function parameters and by inserting potential values for the input factors. Following German reunification, however, the im-

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7 The Commission applies a Cobb-Douglas function based on the assumption of a substitution elasticity of one between the production factors of labour and capital. See C Denis, K McMorrow and W Roeger (2002), Production function approach to calculating potential growth and output gaps – estimates for the EU member states and the US. European Commission, Economic Paper No 176, http://europa.eu.int/comm/economy_finance
8 A CES production function was used. In this type of function, the substitution elasticity is not *a priori* set at one.
9 See Deutsche Bundesbank, Recalculation of the production potential of the Federal Republic of Germany, *Monthly Report,* October 1981, pp 30-36 and Production potential in Germany and its determinants, *Monthly Report,* August 1995, pp 39-53.

Growth of production potential using the non-parametric method

%

Production potential

Growth contribution ...

... total factor productivity

Percentage points

... labour

... capital

1992 93 94 95 96 97 98 99 00 01 2002

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proximations. For the purposes of calculating the potential, this procedure proves to be not very robust, however.

Below, therefore, potential will be determined using a non-parametric approach which combines economic concepts and statistical methods. Using a growth decomposition, the rate of change in GDP ($\Delta\ln(Y)$) is distributed among the contributions made by the input factors of labour (L) and capital (K) and the change in total factor productivity ($\Delta\ln(A)$). The symbol α denotes the income share of the factor labour.[11]
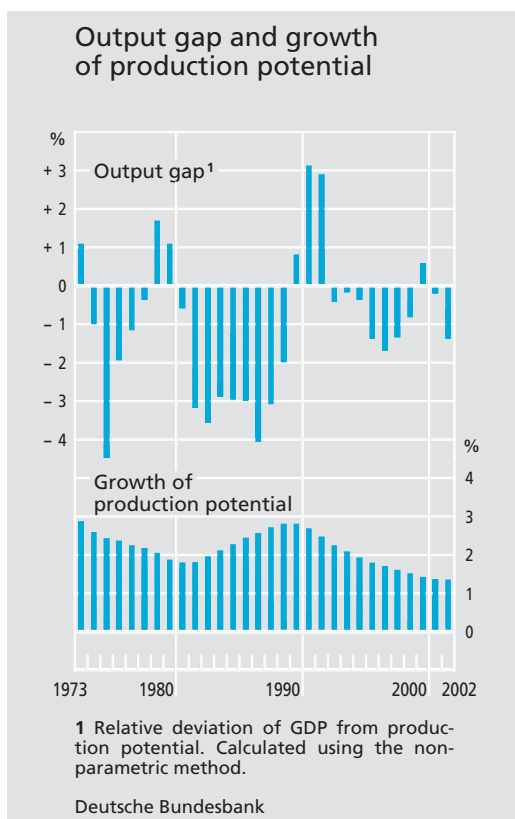
Non-parametric approach

$$\Delta\ln Y_t = \Delta\ln A_t + \alpha_t \Delta\ln L_t + (1-\alpha_t)\Delta\ln K_t$$

When calculating the potential growth rate, potential values are inserted for the production factors and total factor productivity. These are produced by means of a statistical procedure employing a Hodrick-Prescott filter with a smoothing factor of 100. Furthermore, the income share of the production factors is not a *priori* constant. This allows the calcula-

plementation of this concept produced considerable practical problems. Attempts to estimate a CES-type production function in a self-contained approach showed implausible parameter values, for example. Furthermore, the function proved to be structurally inconstant. It is true that an attempt can be made to eliminate these estimation problems[10] by determining the coefficients using multistage approaches or on the basis of linear ap-

10 See M A Dimitz (2001), Output gaps and technological progress in European Monetary Union, Bank of Finland Discussion Papers, No 20 and W Bolt and P J A van Els (2000), Output Gap and Inflation in the EU, DNB Staff reports No 44, Amsterdam.
11 See K-H Tödter and L von Thadden (2001), *Ein nichtparametrischer Ansatz zur Schätzung des Produktionspotentials,* mimeo. Frankfurt am Main, and K Kamada and K Masuda (2001), Effects of Measurement Error on the Output Gap in Japan, Monetary and Economic Studies, pp 109-154. In the cyclical adjustment of general government fiscal balances, a purely statistical trend adjustment procedure is used as part of a "disaggregated approach". See Deutsche Bundesbank, Cyclical adjustment of the public sector financial balance in Germany – a disaggregated approach, *Monthly Report,* April 2000, *op cit* and C Bouthevillain *et al,* Cyclically adjusted budget balances, An alternative approach, ECB Working Paper, September 2001.

Output gap and growth of production potential

1 Relative deviation of GDP from production potential. Calculated using the non-parametric method.

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of data availability and comparability, the following comments relate to the national economy as a whole. Owing to the end point problem when using filter methods, a consensus forecast is used below.
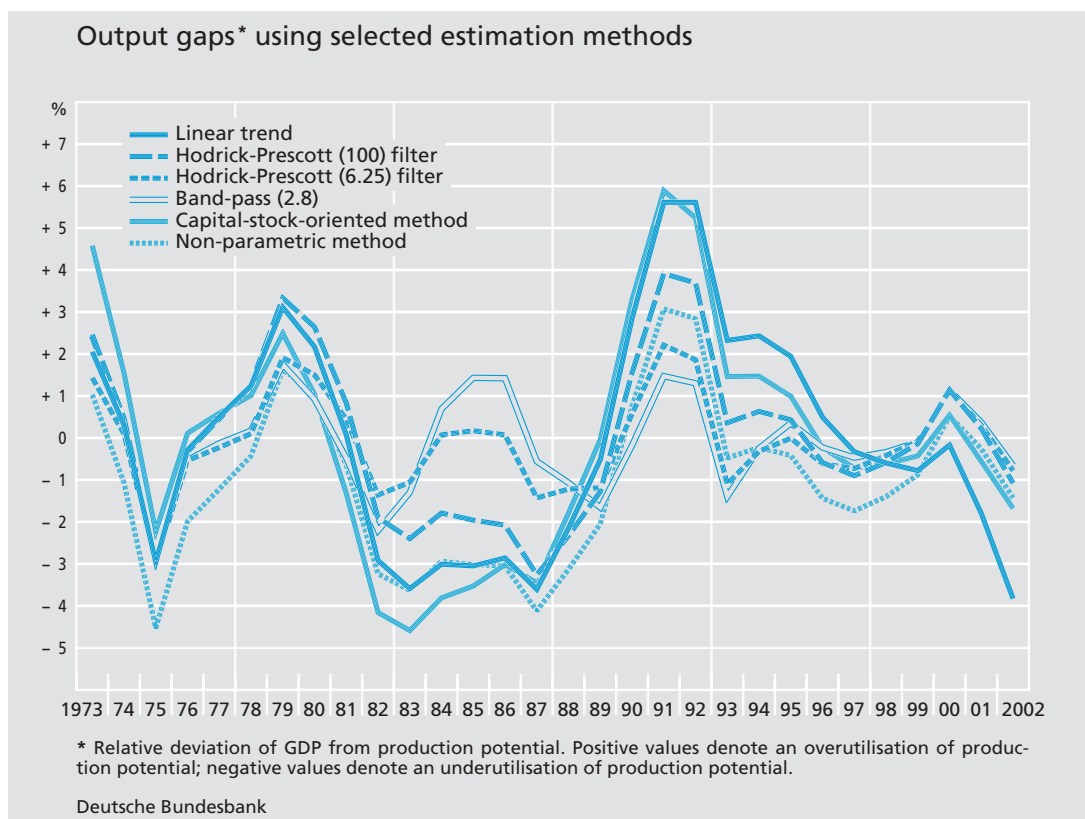
The results of the non-parametric method are shown in the adjacent chart. For 2002, growth in production potential is thus around 1½% and the output gap is roughly -1½%. A comparison over time reveals that the growth rate of production potential may be rated as decidedly low. Overall capacity utilisation is also low, although its figure last year was still above the level typical of periods of recession. This means that, at present, a period of cyclical slowdown is coinciding with only moderate trend growth. Seen in this light, the German economy is suffering from a chronic weakness of growth and sluggish demand.

Comparison with other methods

The scientific literature has proposed a number of criteria for assessing output gaps.[13] These criteria may be adopted for the purpose of comparing the results of the non-parametric method with the values produced by other approaches. According to those criteria, the estimates of the implied output gap

tion to be based on a broad class of production functions.

Data problems Nevertheless, a number of problems arise with regard to the data. At present, for example, data on fixed assets for the period before 1991 calculated in accordance with the new standard – ie based on ESA 95 – do not exist. The same applies to the number of hours worked. In both cases, therefore, the rates of change according to the old calculation standard were used as a stopgap. The break in the statistics resulting from German reunification may be eliminated by chaining the time series. This is based on the assumption that, at the time of unification, GDP in eastern Germany roughly matched potential. In the light of more detailed studies, too, this would appear to be plausible.[12] On grounds

12 See T Westermann (1995), Das *Produktionspotential in Ostdeutschland,* Economic Research Centre of the Deutsche Bundesbank, Discussion paper 4/1995, Frankfurt a.M.
13 See, for example, G Gamba-Mendez and D Rodriguez-Palenzuela (2001), Assessment Criteria for Output Gap Estimates, ECB Working Paper No 54, Frankfurt am Main, and G Rünstler (2002), The Information Content of Real-Time Output Gap Estimates: An Application to the Euro-Area, ECB Working Paper No 182, Frankfurt am Main.

Output gaps* using selected estimation methods

* Relative deviation of GDP from production potential. Positive values denote an overutilisation of production potential; negative values denote an underutilisation of production potential.

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should not be in stark contradiction with the available findings of surveys on enterprises' capacity utilisation. Although such surveys, as explained above, are not, by themselves, an appropriate criterion for determining the overall output gap, they do constitute the only information which is ascertained directly and not just estimated. For that reason, it is an obvious matter to check whether the cyclical turning points implied by the estimation methods match those of the surveys. The chart on this page does show, in fact, that the cyclical turning points of all the methods under consideration here bear quite similar dates.

Time series properties

Statistical properties of the time series are also important for assessing the estimates. The fluctuation intensity of changes in poten-

tial should, on average, be smaller than those in GDP, for instance. Furthermore, the implied output gaps, when viewed over the long term, should not deviate significantly from zero. Above and beyond that, the output gap should not display any trend since a business cycle, by definition, can only have a limited duration. Calculations using selected procedures show that the cited criteria are mostly fulfilled. There are exceptions, however. The fluctuation intensity of survey-based potential is just as high as that of GDP itself, for example. This is not the case for the other methods used.

The output gap is also regarded as an indicator of inflationary tensions. What information content its estimated value has for future price developments may be examined using

Indicator property for price pressure

the triangle model,[14] which explains overall price developments as follows:

$$\pi_t = \beta_0 + \beta_1\pi_{t-1} + \beta_2(y_{t-1} - y_{t-1}^*) + \beta_3 z_t + e_t$$

In this, π stands for the inflation rate, $(y-y^*)$ for the output gap and z is a measure of supply shocks (in this instance, the rate of change in the HWWA Raw Materials Price Index in national currency). The parameters β_0, β_1, β_2 and β_3 denote the coefficients to be estimated. Studies show that most of the output gaps display a significant unidirectional influence on the inflation rate. However, this does not apply to those methods which assume a very flexible trend profile.

The usual methods of calculating the output gap are, in themselves, quite useful indicators of inflationary pressure. Nevertheless, by way of qualification, it has to be pointed out that the output gap is no more than one explanatory factor among several for general inflation. Surges in costs (wage-price spirals) or liquidity overhangs are often also an important factor. Moreover, the calculation above gives the results of an in-sample forecast. The out-of-sample forecasting properties of such equations are generally less satisfactory.

Sensitivity of the estimates

For a cyclical analysis and any monetary or fiscal policy conclusions that may be drawn from it, it is important to know the unavoidable margin of error when calculating potential and the output gap and to keep it as small as possible. One indication of the stability of the underlying relationships is if newly added values do not essentially change the estimate of potential for the past.[15]

In order to test the sensitivity or robustness of the methods used here with regard to additional data, the procedures investigated were applied step by step to the 1990s. Revisions of the original data were ignored[16] and forecasts were left aside when using the filter methods. The results show that the estimated values change – in some instances, significantly – with all the methods if additional values are incorporated into the estimate. The calculations for the end of the series are therefore invariably to be interpreted with caution. There are no apparent qualitative differences between the various methods, however.

All things considered, there exists a notable margin of uncertainty concerning the current size of the output gap. Which of the various estimation approaches is to be preferred is not the only factor. A certain margin of error remains, in fact, even if the dataset and the estimation method are not at issue.[17] This does limit the value of potential calculations but, even so, the calculations of potential provide significant points of reference for

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14 See R J Gordon (1997), The Time Varying NAIRU and its Implications for Economic Policy, Journal of Economic Perspectives 11, pp 11-32. It would also be possible to use the P-star model.
15 See A Orphanides (2002), Monetary Policy Rules and the Great Inflation. American Economic Review 92, pp 115-120. See also L Ball and R R Tchaidze (2002), The FED and the New Economy, American Economic Review 92, pp 108-114.
16 In the terminology of Orphanides and van Norden, these are thus "quasi-real-time" data. In order to form a final judgement, an analysis of a complete "real time" dataset on the Orphanides and van Norden model would also be needed for Germany. See A Orphanides and S van Norden (2002), The Unreliability of Output Gap Estimates in Real Time, The Review of Economics and Statistics 84, pp 569-583.
17 See European Central Bank, Potential output growth and output gaps ..., *op cit,* p 47 ff.

macroeconomic analysis and thoughts on economic policy.

Implications of decelerating potential growth

Importance of potential growth …

Irrespective of the specific estimation method applied, most of the calculations for Germany show a noticeable slowdown in potential growth since the mid-1990s. A continuation of this trend would have far-reaching implications.

… for assessing the economy, …

Low trend growth will not lead *per se* to the German economy becoming more susceptible to fluctuations – in other words, the size of the trend deviations will not necessarily increase. Instead of the growth cycle typical of the post-war period, however, periods of (absolute) decline in the overall output level would occur more frequently than before. This might intensify pressure on monetary and fiscal policymakers to take discretionary measures even in the event of only minor deviations from the trend as a fall in level has often been a sign of severe economic crisis.

… the labour market …

Persistently low potential growth would also have serious consequences for the labour market. The connection between the labour and product markets may be illustrated by a relationship which has entered the literature as Okun's Law. This states that an increase in employment (or a decrease in unemployment) takes place only when there is perceptible growth in overall output. The long-term potential increase in employment depends on the "employment threshold".[18] This value de-

notes the growth rate of overall output at which, with a given supply of labour, employment starts to increase (or unemployment starts to decrease). If the production potential growth rate cannot be increased, the employment threshold has to fall if unemployment is to be reduced. Real wage moderation can play a substantial part in this.

… and wage formation

Low potential growth also restricts the scope for distribution in wage policy. Further weakening of potential growth may lead to an increase in the structural unemployment rate if the smaller scope for distribution is not taken fully into account in the wage formation process. A study for the United States[19] attributes the extremely positive development on the US labour market in the 1990s to a phenomenon of this kind in reverse. The rapid productivity growth in the United States was reflected only very slowly in the wage formation process, although the increased issuance of share options to employees admittedly also played a part in this. This resulted in a period of real wage moderation which reduced trend unemployment. As empirical corroboration for this hypothesis, reference is made to the fact that the trend in the unemployment rate and the trend rise in labour productivity in the USA moved in opposing directions, ie unemployment tended to fall in periods of high productivity growth and *vice versa*.[20]

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18 See Deutsche Bundesbank, Productivity developments in Germany, *Monthly Report,* September 2002, pp 47-61.
19 L Ball and R Moffitt (2001), Productivity Growth and the Phillips Curve, NBER Working Paper No 8421, Cambridge MA.
20 See J Stock and M Watson (2001), Prices, Wages and the U.S. NAIRU in the 1990s, http://ksghome.harvard.edu/~.JStock.Academic.Ksg/pdf/sage2.pdf.

*Production
potential and
fiscal policy*

Potential growth is also of major importance for fiscal policy since it represents the scope for growth in spending if the tax and social security ratio or the deficit ratio are to remain unchanged. Furthermore, potential growth has a substantial impact on the long-term relationship between the deficit and debt ratios. In the long run, the debt ratio (ratio of government debt to GDP) converges to a value measured by the relationship between the deficit ratio and the nominal rate of growth. Thus, a constant 60% debt ratio (the ceiling as envisaged in the Maastricht Treaty), given, say, a nominal 5% growth rate, would be compatible with a 3% deficit ratio. Given real potential growth at 1.5%, keeping the general inflation rate below 2% (in line with the stated objective of the ECB) yields an average nominal growth rate of, at most, 3% to 3.5%. The mathematical deficit ratio for a debt-to-GDP ratio of 60% that is stable in the long term would have to set lower accordingly. What also has to be taken into account is that the Stability and Growth Pact contains a more far-reaching commitment to achieving a budget which is structurally "close to balance or in surplus" so as to lower the debt ratio on a permanent basis.

Economic policy approaches to strengthening potential growth

*Weak growth
not predomin-
antly cyclical in
origin*

Irrespective of the method of calculation, what has been written above leads to the conclusion that the rate of increase in production potential in Germany is, at present, slow in comparison with western Germany before reunification and other industrial countries,

especially the United States (see chart on page 51). The ECB estimates potential growth for the euro area to be between 2% and 2½%. Although potential growth in western Germany in the early 1980s was not much higher than now either, it later accelerated again markedly.

Now, Germany has been in a period of quasi-stagnation for more than two and a half years and future prospects are quite subdued. At the same time, countries showing a cyclical profile similar to that of Germany in the 1990s have been able to achieve higher economic growth and a significant reduction in unemployment. This points to a structural growth weakness in Germany. In this connection, the slump in investment over the past couple of years has to be a cause for increasing concern, particularly as fixed asset formation was by no means broadly based or buoyant anyway. Capital expenditure on replacement and renovation now accounts for three-quarters of total gross asset formation and the net investment ratio is currently at no more than 3½% of GDP. Apart from replacement and renovation, only investment in rationalisation continues to play a significant role. Given an increase in the capital stock (excluding dwellings) of less than 2% annually, this means that there is virtually no scope left for creating additional jobs.

The problems besetting a unified Germany have undoubtedly also played a considerable part in the growth slowdown of the German economy. Unity did offer numerous advantages as well as fresh possibilities, but the indiscriminate adoption of many west German

*Coping with
a unified
Germany
curbing
growth ...*

regulations and of a pay policy that placed an excessive strain on east German firms' productivity meant that a lot of opportunities were not used. As a result, the restructuring process and the adjustment crisis in construction in eastern Germany as well as the high level of west-east transfers are weighing on growth in the German economy as a whole.

...but economic policy is the crucial factor

A large number of empirical studies – such as that by the German Council of Economic Experts[21] – show that the medium-term growth differentials between economies are due to differences, first, in the factors which promote growth (fixed asset formation in the corporate sector, formation of human capital, research and development, price stability, degree of openness of the economy and public sector investment) and, second, in factors impeding growth (direct and indirect taxation, government debt, social security contributions, rigidities on the factor and product markets). This widely held view is shared, for example, by the authors of a working paper published by the OECD.[22] This paper uses a cross-section study to show that privatisation and liberalisation on product and labour markets tend to enhance the growth of total factor productivity – the most important element influencing overall potential growth.

Significance of labour market rigidities

From an economic point of view, high unemployment represents a major unused production potential. The inadequate deployment of the production factor labour may be traced back, not least, to rigidities on the labour market, which result in a high level of structural unemployment. Conditions on the labour market are the key to understanding

Production potential in selected economic areas

1991=100

Source: OECD.

Deutsche Bundesbank
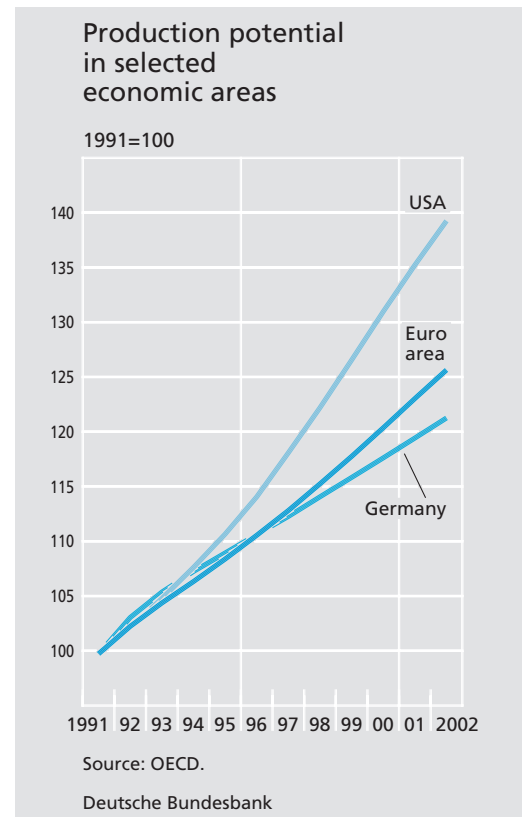
the weakness of growth. Thus, the factor labour has made only a minor contribution to economic growth in Germany over the past few years in comparison with other European countries and, in particular, the United States. According to IMF calculations, the low degree of wage moderation exercised for a long time in Germany was a contributory factor in this.[23] In contrast to other countries, substantial wage substitutes, including generous regulations on early retirement, have led over time to a high reservation wage. There has also been insufficient differentiation in pay.

21 See German Council of Economic Experts (2002), Annual Report 2002/03, "Twenty proposals for employment and growth", Wiesbaden.
22 See G Nicoletti and S Scarpetta (2003), Regulation, Productivity and Growth: OECD Evidence, OECD Working Paper No 347, Paris.
23 See IMF (2002), Germany: Selected Issues, Washington D.C.

Moreover, the effective marginal burden of the factor labour has increased. It is essential to correct such undesirable developments and make the labour markets significantly more flexible if the pace of growth is to accelerate.

Strengths of the German economy

Weak growth can be overcome with resolute reforms, especially as the German economy still has its strengths. Its products continue to be very competitive in terms of price and quality, for example. German exports' world market share is clear evidence of this.[24] Also, Germany is a country with a generally good infrastructure. Analyses of technological efficiency and innovative capacity show that the German economy – notwithstanding all its specific problems – still has comparative advantages. This means that essential underlying conditions for faster growth continue to be in place.

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24 See Deutsche Bundesbank, Germany's world market shares, *Monthly Report,* November 2002, p 40.