



Germany: With strong tailwind into 2011

January 4, 2011

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One could be tempted to regard the contrasting trends in the ten-year government bond yield and the Dax up until a few weeks ago as the result of diametrically opposed growth expectations in the two markets. According to this logic, the pessimists in the bond market would have revised their inaccurate growth forecasts in recent days. This view tallies with both the continuing optimism in the German business sector and the hopes for stimulus to be generated by the pre-Christmas compromise on tax in the US and the surprisingly good US economic data of late.

Our forecast of 2% GDP growth in Germany in 2011 is indeed quite optimistic. Moreover, there are two articles in this issue of Current Issues which demonstrate that the financial and economic crisis has not dampened growth potential in Germany.

On the one hand, no structural imbalances developed prior to the crisis. Combined with the extraordinarily good performance of the German labour market this has prevented structural unemployment from rising, which would otherwise usually occur.

On the other hand, in particular the labour market reforms and successful company restructuring over the last decade have ensured that the German economy is in excellent shape on an international comparison. The adjustment processes had, however, resulted in weak growth in household income. This could now improve. Given the shrinking potential labour force and a medium-term rise in labour productivity of around 1 ½%, private consumption will in the medium term probably also only rise by just under 1 ½% – which corresponds roughly with the trend growth rate for the economy as a whole. This would, however, be a sustainable performance that is not based on debt and real estate bubbles – in sharp contrast with the considerably higher consumption growth in several countries before the crisis.

All in all, these are good reasons for expecting another rise in the Dax in 2011. The outlook for bond markets is far more complicated on account of the interventions by the central banks and the imponderables of the sovereign debt crisis. According to most scenarios, however, yields will probably continue rising slightly on growing expectations that central banks will curtail support for the markets.

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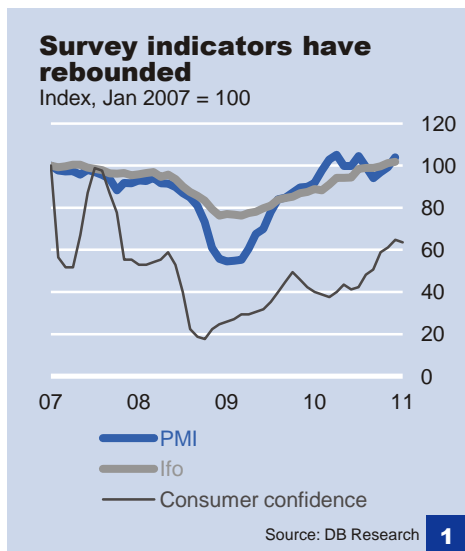
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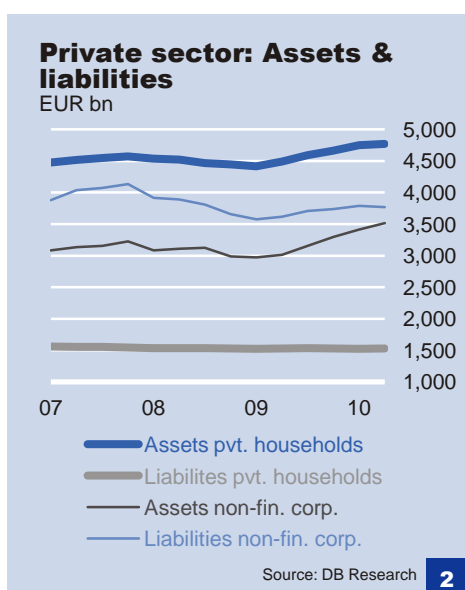
Germany: From zero to hero

- Economy to remain robust, with growth becoming more balanced
- Growth deceleration in winter half probably less pronounced than thought earlier
- Deficit reduction propelled by economic tailwinds benefit



After softening during the summer, leading indicators have rebounded. The PMI gained almost 3 points in December to stand at 60.9 – the highest level in the Eurozone. The Ifo index even reached a post-unification high, driven by very optimistic expectations. Export components in both the PMI and the Ifo index have drifted slightly lower in recent months, suggesting an increasing push from the domestic economy. During the winter half quarterly GDP growth will probably remain at around 2% (qoq, annualized).

As indicated in the survey data and in line with expectations about world trade we expect export growth in 2011 to come in at around 7.5%, about half of 2010's rate, which was boosted by strong catching-up effects. Such effects were also in part driving investment spending in 2010. Therefore, investment spending should, despite capacity utilization surpassing its long-term average in 2011 and ample cash flows, slow to more normal levels. We expect that private consumption will rise by 1.25%, thus contributing 0.75 pp to growth, the same amount as net exports. An important driver for consumption will likely be the labour market, with employment rising by another 0.5% in 2011, bringing average unemployment below 3 m. Despite a positive wage drift, we do not expect wage growth to accelerate strongly, as important wage agreements are up for renewal in 2012 only. In addition, the threat of off-shoring or outsourcing will likely remain strong.



With an expected growth rate of 2% Germany should again muster the strongest GDP growth among the major EMU countries. The reasons lie in the reforms implemented during the last decade (corporate tax reform, labour market and pension reforms) which together with a strong globalisation push of the corporate sector also changed wage-setting behaviour. Germany's transformation into leaner and meaner shape was accompanied by a decline in the labour income share and a more uneven income distribution, major factors behind the mediocre performance of private consumption during the last decade. These factors should become less of a burden. In addition, Germany is one of the two G7 countries where household indebtedness did not increase during the last 10 years. Moreover, the asset side of households' balance sheets has not suffered from bursting asset bubbles. Combined with the relatively comfortable fiscal position – the deficit should fall below 3% of GDP in 2011 – this should allow Germany to maintain healthy growth rates beyond 2011.

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Germany: Is something rotten in the state of the domestic economy?

Since the beginning of the financial crisis Germany's export-led growth model is increasingly under fire, with critics suggesting that the resulting systematic weakness of domestic demand is one of the causes of global imbalances.

Indeed, domestic use in Germany was up a very modest 0.3% p.a. over the past decade, expanding at less than half the rate of GDP (0.8%). In the same period (2000-2009), private consumption grew by only 0.6%, while recording average increases of 2% to 2.5% p.a. in the US, the UK, Spain, and even in France.

Even looking back to the longer term, there is virtually no evidence, though, to support the view that Germany's economic policy framework was conducive to exports, promoting via Samuelson effects the underdevelopment of the domestic sector.

Rather than corroborating these hypotheses, developments in the past decade are largely the result of reforms in social security, corporate taxation, and at the corporate level itself. Following reunification, the need for reform to tackle structural weaknesses had become essential. Other contributing factors were the demographic changes in Germany, along with intensifying globalisation.

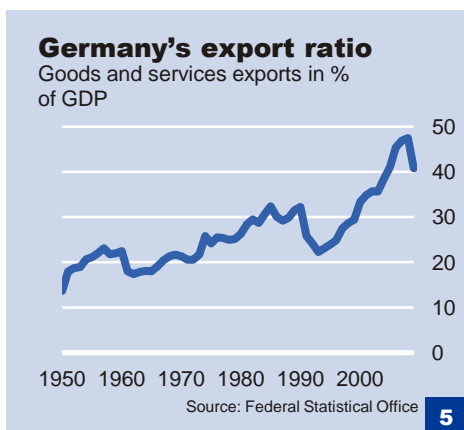
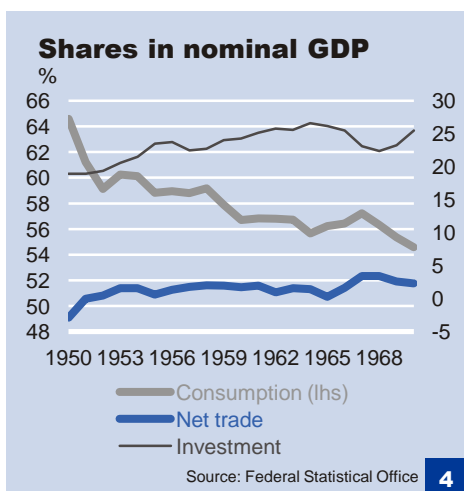
In fact, international comparisons reveal that the showpieces of dynamic domestic demand primarily "owed" their "success" to an unsustainable rise in household debt, which translated into bubbles in the housing sector and in parts of financial industry.

Looking ahead to the coming years, the reforms launched in the past decade will increasingly leave their positive imprint on German domestic demand. At the same time, the deleveraging efforts in countries with high current account deficits will act as a damper on German export activity, despite robust demand from the emerging markets. As a result, German economic growth is set to become more balanced.

Germany, along with a number of other countries, has come under international criticism for running persistently high current account surpluses. It is argued that a structurally underdeveloped domestic sector has led to underconsumption and thus higher capital exports in these economies, literally forcing the deficit countries to live beyond their means. In general, the arguments run along the following lines¹:

1. A focus on exports during the post-war reconstruction period.
2. The government's relatively strong role in the economy, preferring producers and financial institutions over consumers.
3. The strong interlinkage of companies and universal banks.
4. Households that are inclined to save rather than spend owing to their post-war experiences.
5. An underdeveloped domestic sector that records only moderate productivity gains owing to a lack of international competitive pressure, while lobbying politicians hinder competition.

¹ The overview is based on the elaborations of Raghuram G. Rajan in his book "Fault Lines".



6. High domestic prices, as a result of the wage-setting oriented towards export sector and below-average productivity growth, limiting domestic demand and job creation in the domestic sector.

On top of that, Germany is criticised by its EU partners in particular having kept for an excessive lid on wage growth to bring down unit labour costs, suggesting that this “unfair” real depreciation comes at the expense of market share for others in the euro zone.

In this study, we discuss the question as to what extent the general criticism of the surplus countries also applies to Germany, while also looking into the issue of whether Germany has a structural problem with domestic demand, as widely suggested. Our focus will be less on the historical and sociological aspects (items 1 to 4) but rather on whether the consequences implied in these 5 and 6 are, in fact, valid against the backdrop of economic developments in Germany.

Historical and institutional explanations

1. Focus on exports?

During the post-war reconstruction phase pent-up demand was high and rising higher yet with the arrival of millions of displaced persons. Against this backdrop, the liberalisation of foreign trade – for which Germany had been a trailblazer in Europe – initially provided a boost to imports of vital goods such as food and energy. But following the Korea Crisis the country regained its traditional role as an international supplier of capital goods, with the result that Germany started recording continuous export surpluses as of 1951, which, however, remained relatively modest during the entire 1950s.

While government action to promote export activity (tax breaks, credit insurances, export loans) certainly had a part in this development, it did not go beyond the endeavours of other European countries at the time.² The more so as the representatives of the Social Market Economy in Germany cherished the wealth-augmenting effect of the international division of labour, while having reservations about government intervention in general.³

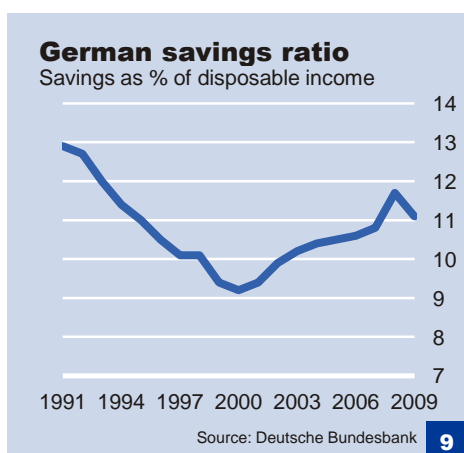
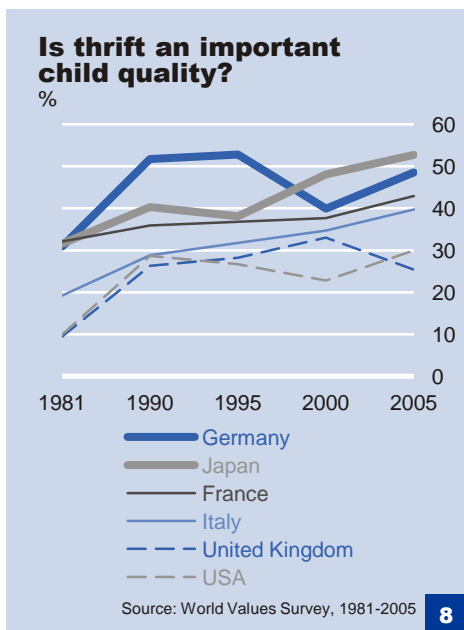
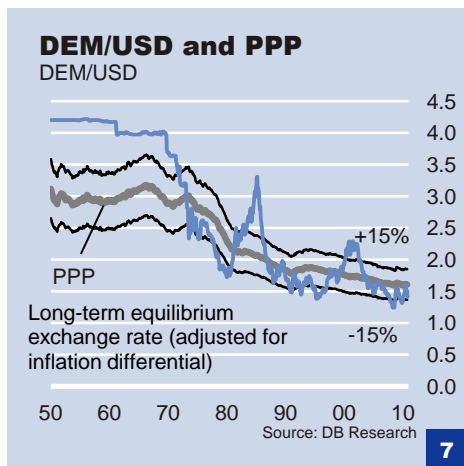
Indeed, the more important factor for Germany's success on the export markets seems to have been its conservative wage policy with its focus on job creation – as of the mid-1950s there was full employment in Germany – along with a monetary policy whose primary objective was price stability. As a result, price inflation was much lower than in the other European countries, leading to an undervaluation of the DM.

2. State influence / consumer discrimination

The neo-liberal model of the Social Market Economy actually stresses the role of companies, especially with regard to job creation. It cannot be denied, though, that the state initially maintained a high degree of influence in post-war Germany, after assuming control of nearly the entire economy during World War II. To shed more light on its role, we would have to study the complex institutional interlinkages between the government and business in an international comparative perspective, which would go beyond the scope of this study, not to mention the fact that according to our knowledge no quantitative assessment exist. However, the indicators commonly used in comparative analysis, e.g. the government expenditure ratio, government share of value-added and

² See Karl Hardach. „Wirtschaftsgeschichte Deutschland im 20. Jahrhundert“.

³ Müller-Armack. Wirtschaftsordnung und Wirtschaftspolitik.



employment, suggest that the degree of interlinkage was not higher in historical terms than in most of the European neighbouring countries. Moreover, the fact that, as a share of GDP, private consumption declined in the 1950s and 1960s for the benefit of a higher investment share, particularly in construction, was not the result of any government strategy but can be attributed to the inevitable reconstruction activities following the War.

3. Interlinkage of banks and business?

While it is virtually impossible to embark on an international comparative analysis in the light of the highly complex nature of potential interlinkages between banks, government and business, it seems safe to say that the ties were particularly close in Germany, especially during the decades of the "Economic Miracle". To some extent, this can be traced to the powerful part of banks in corporate financing and Germany's traditional principal bank system. After the War German banks did not only supply credit to the dynamically growing corporate sector, but also invested equity capital. In view of their central role, particularly in financing industry, some critics argue that banks implemented a quasi-informal industrial policy in Germany, a role that the government did not want to take given its social market convictions.⁴

Yet, the very fact that Germany's mid-sized companies stand out in the international comparison as the main pillar of the economy and as a major intermediate supplier to large corporations points away from tightly interlinked corporate structures. Moreover, interlacing between banks and the industrial sector has been reduced dramatically in the face of the increasing role of international supervision and regulation, but also thanks to the dissolution of "Deutschland AG" following the implementation of changes. Since the mid-1990s, capital interlinkages between German financial institutions and industry have been increasingly thinning, along with interlacing via supervisory board memberships, with a further push coming after capital gains when selling industrial holdings became tax-exempt in 2002.⁵

4. Private household thrift

Over the past 40 years, the savings ratio of German private households has been ranging in a narrow band from 10% to 15% of disposable income, dropping below the 10% mark only once in that period, when wealth effects led to a temporary decline during the New Economy boom. While this indicates that Germany's savings ratio is not particularly high by international standards, the straight comparison of household savings across countries might be misleading owing to institutional differences, for example in pension schemes. Nonetheless, international comparative surveys such as the World Value Survey suggest that Germany and Japan place a slightly higher premium on thrift than other developed countries. And last but not least, demographic change has also played a significant part in lifting Germany's savings ratio over the past decade. Firstly, the introduction of state-fostered funded pension provision (Riester) has prompted a structural re-evaluation of retirement income,

⁴ Müller, M.M. (2000). Die Banken zwischen Staat und Wirtschaft. Von der Hausbank zum „Global Player“. *Gegenwartskunde* 49(4), pp. 447–55.

⁵ Seventeenth opinion of the Monopolies Commission and Max-Planck-Institute. „Deutschland AG in Auflösung“. <http://www.mpifg.de/aktuelles/themen/d-ag.asp>, as of November 16, 2010.

providing a boost to private pension schemes⁶. Secondly, the baby boomers started entering their main saving phase.

5 and 6. Is Germany's domestic sector underdeveloped?

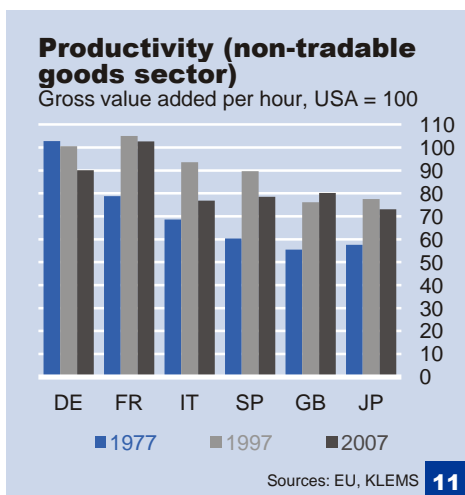
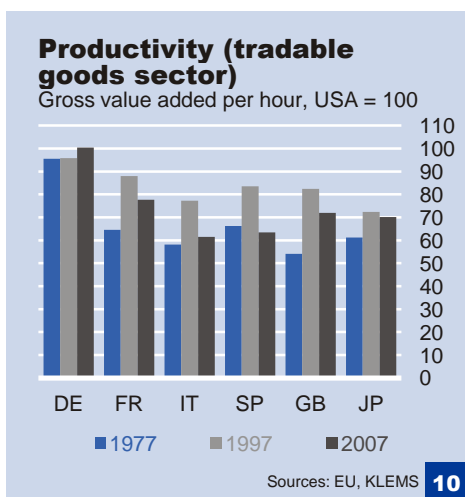
In an economy that is integrated into the international division of labour the export sector's exposure to international competition often translates into higher productivity gains relative to the domestic sector, resulting in an above-average rise in unit labour costs in the latter sector, if the export sector assumes the wage-setting role for the economy. On the back of higher labour costs, this so-called Samuelson effect can lead to lower profit growth and, as a result, declining employment potential in the domestic sector. In addition, there is a risk that prices will climb to elevated levels, particularly if domestic competitive pressure is weak, weighing on real consumer income.

In the period from 1977 to 1997 productivity in the tradable goods sector⁷ rose on average 3.2% p.a., while real hourly wages climbed at a faster rate of 4.2%. At 2%, productivity growth recorded in non-tradables (NTG) was lower than in tradables (TG), which fits in well with the Samuelson effect. However, the 3.2% increase in real wages – while also higher than productivity growth at the industry level – fell well below that of tradables. In addition, the gap between wage and productivity growth in the two sectors was nearly equal. Coming on the back of the rise in unit labour costs, some 1.5% jobs were lost every year in the internationally competing tradable sector. In non-tradables, on the other hand, employment actually increased by 1.7% - in stark contrast to the above hypothesis.

In the decade from 1997 to 2007 real wages in both sectors increased at a lesser rate than productivity (tradables: 0.8%/3.0%, non-tradables: -0.1%/1.1%), exerting strong downward pressure on unit labour costs in the tradable sector. Nonetheless, the job cuts in this sector continued, while employment in the non-tradable sector rose further – albeit moderately.

From 1977 to 1997 total gross value added in non-tradables (2.8%) rose three times as fast as in tradables (0.9%). Even during the 1997 to 2007 period, when German foreign trade enjoyed exceptionally strong growth, value added in the domestic sector (1.6%) was only marginally lower than in the export sector (1.9%). Following from this inter-sectoral comparison, there can actually be no question of the German domestic sector being notably underdeveloped, especially in the long-term perspective.

But Germany's domestic sector was also faring comparatively well by international standards, at least as far as the period from 1977 to 1997 is concerned, ranking among the top three in employment growth, productivity and real wages. The 1997-2007 decade is a different matter, though, with Germany ranked second-lowest in employment growth and value added. Only Japan scored worse, while the top three ranks in value added and employment were now claimed by Spain, the UK and the US. One reason for Germany's slip in performance was that productivity growth declined from 2.0% (1977 to 1997) to 1.1% (the possible causes will be discussed in the following chapter), which, however, was still on par with France's performance and only slightly below the international average. At



⁶ Deutsche Bundesbank. „Der private Konsum seit der Wiedervereinigung“. September 2007 monthly report.

⁷ In the following analysis, tradable goods (TG) comprise manufacturing and agriculture, while the other sectors (construction, services, etc.) are included in non tradables.



0.6% p.a., the drop in hours worked per employee was not exceptionally strong, either, and employment growth, while slowing from 1.7% to 1.0% in the past decade, was nonetheless considerably higher than in tradables (-0.7%). Taking into account all of the above factors, there is not much evidence that Germany's export orientation has played a role in the relatively weak growth performance of the non-tradable sector in the 1997-2007 decade⁸.

Employment, productivity, gross value added (GVA), real wages

% p.a.

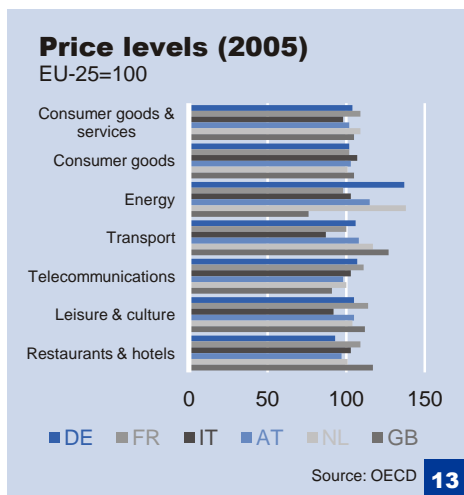
	1977-1997					1997-2007				
	Employment	Hours per employee	Output per hour	Real GVA	Real wages per hour	Employment	Hours per employee	Output per hour	Real GVA	Real wages per hour
Germany										
Total industries	0.7	-0.9	2.4	2.3	2.0	0.6	-0.5	1.6	1.6	0.1
Tradables	-1.5	-0.7	3.2	0.9	2.6	-0.7	-0.4	3.0	1.9	0.8
Non tradables	1.7	-0.9	2.0	2.8	1.7	1.0	-0.6	1.1	1.6	-0.1
France										
Total industries	0.2	-0.6	2.5	2.1	1.6	1.2	-0.6	1.7	2.3	1.9
Tradables	-2.3	-0.5	4.1	1.2	2.6	-1.2	-0.7	3.4	1.4	1.8
Non tradables	1.1	-0.6	1.8	2.3	1.0	1.7	-0.5	1.2	2.5	1.9
Italy										
Total industries	0.3	0.1	1.9	2.3	1.6	1.3	-0.2	0.4	1.5	0.2
Tradables	-1.9	-0.1	4.5	2.4	2.2	-0.2	-0.3	0.8	0.3	0.4
Non tradables	1.5	0.2	0.5	2.2	1.1	1.9	-0.2	0.2	1.8	0.0
Spain										
Total industries	0.6	-0.4	2.1	2.3	1.9	3.7	-0.7	0.7	3.7	0.7
Tradables	-1.8	-0.3	4.5	2.3	2.1	0.8	-0.8	1.5	1.4	0.8
Non tradables	1.8	-0.4	0.9	2.3	1.6	4.6	-0.6	0.5	4.4	0.5
UK										
Total industries	0.2	-0.3	2.3	2.1	2.4	1.1	-0.3	1.9	2.6	2.0
Tradables	-2.2	-0.2	3.3	0.8	2.4	-3.2	-0.3	4.2	0.5	2.7
Non tradables	0.9	-0.3	1.9	2.6	2.4	1.8	-0.2	1.5	3.2	1.9
US										
Total industries	1.8	-0.1	1.2	2.9	0.3	1.0	-0.1	2.0	2.9	1.8
Tradables	-0.3	0.2	3.0	2.9	0.0	-2.3	0.0	5.0	2.7	1.5
Non tradables	2.3	-0.1	0.7	2.9	0.5	1.5	-0.1	1.4	2.9	1.8
Japan										
Total industries	0.8	-0.6	3.6	3.9	1.6	-0.5	-0.5	2.0	0.9	0.4
Tradables	-1.0	-0.4	5.6	4.3	2.0	-2.5	0.0	3.7	1.1	0.7
Non tradables	1.7	-0.7	2.8	3.8	1.3	0.1	-0.6	1.4	0.9	0.3

Sources: EU, KLEMS **12**

In tradables, productivity levels⁹ were second highest in Germany after the United States during the entire 1977-2007 period, with value added per hour actually moving par with the US in 2007. As regards non-tradables, the picture is somewhat more differentiated.

⁸ The Conference Board. "Productivity, Performance, and Progress – Germany in international comparative perspective". March 2009.

⁹ While the previous analysis referred to real change rates, the comparison of productivity levels is based on nominal figures, which were adjusted for exchange rate and purchasing power effects, making them de facto real figures. Nonetheless, the results are slightly different from those indicated by real change rates.



While Germany was still taking the lead in the industrialised world in 1977 – outpacing even the US – the other countries started to catch up in the following years, leaving scars on Germany's relative position by 1997, which were deepened further by 2007.

Few signs of "excessive" price levels in the service sector

Although, with the exception of the past decade, Germany's domestic sector was not hit by across-the-board weak value-added and employment growth, the Samuelson effect could still have left its imprint in above-average inflation in the NT sector, causing losses in real consumer income. However, a comparison of selected consumer services across the EU reveals that relative to the other countries in the sample price levels are not elevated in Germany, if energy is discounted. Prices for transport, telecommunications, leisure and culture as well as restaurants and hotels are often lower in Germany than in the other large euro countries.

In fact, this finding is not entirely surprising as – if energies and the professions are left aside – regulation in the other non-tradables such as the retail and service sector is lower than in the rest of the surveyed countries, supporting lower prices.

Interim conclusion: Our analysis showed that the relative weakness of Germany's domestic sector in the past decade was not, or only to a very limited extent, attributable to its post-war trajectory. On the contrary: In the 1970s and 1980s the domestic sector was not only faring well relative to the export sector, but also ranked among the top worldwide. During the past decade, it fell behind, however.

Although, as regards Germany, the general assumption of a strong interrelation between wage and employment growth in the sectors (Samuelson effect) of export-oriented economies cannot be confirmed wide-spread criticism remains that by allowing lower-than-productivity-growth wage increases over the past decade Germany did not tap the income potential of its workers, giving its exports an – according to critics - unfair competitive edge.

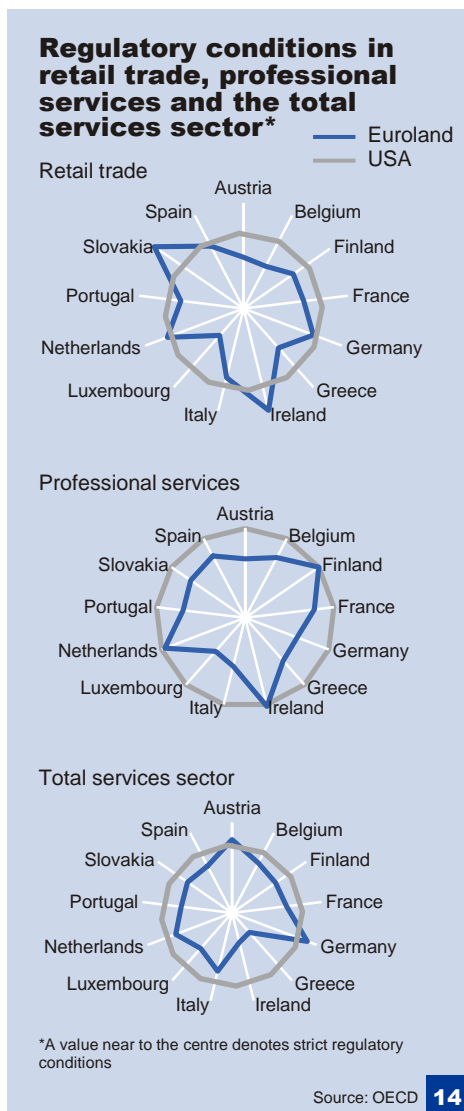
Secular decline in labour income share - not a typical German phenomenon

In a balanced economy real wages should increase at the same pace as productivity, with labour income share, i.e. the proportion of labour income in total national income, remaining stable.

In contrast, labour income share in Germany came down eight percentage points between 2000 and 2007, which was not an uncommon phenomenon in developed countries, though¹⁰. In the literature, a number of potential and, at times, contradictory reasons have been identified:

— **Increasing pace of technological progress**

On an inflexible, highly regulated labour market, accelerating technological change increases the risk of unemployment, as jobs are closely tied to the existing capital stock, resulting in job losses if the presently used technology is modernised (putty-clay capital). As a result, the bargaining power of labour is weakened and wage growth slows.

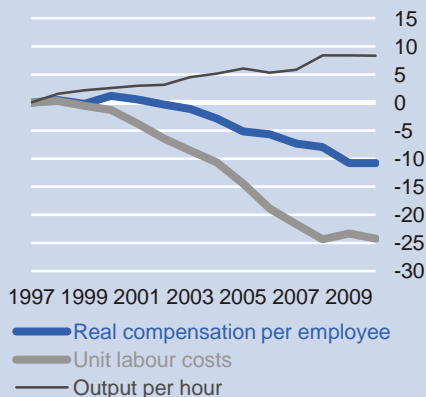


¹⁰ BIS Working Papers No. 231. The global upward trend in the profit share. July 2007.



Wage-, ULC and productivity gap

Germany minus EMU excl. Germany, 1997 = 100

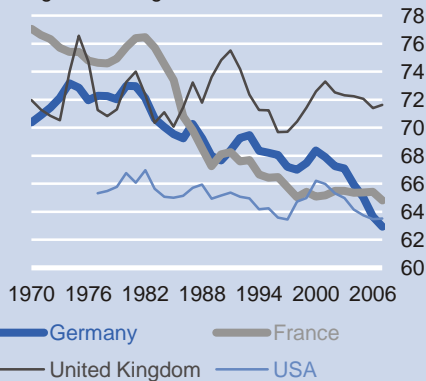


Source: EU Commission

15

Wage share

Wages in % of gross value added



Sources: EU, KLEMS

16

— Rising labour supply owing to the opening of Eastern Europe and Asia

While new sources of – mostly unskilled – labour emerged with the integration of Eastern Europe and Asia into the global economy, the capital stock was not expanded accordingly. Provided the change in relative factor prices is not completely offset via the substitution for the relatively cheaper factor labour, labour income share will start to decline. On top of that, concerns that companies might relocate parts of their production to less cost-intensive sites abroad could weaken the bargaining position of the unions.

— Deregulation and declining rate of unionization

Changes in labour regulation are usually aimed at decreasing the power of unions. However, a correlation analysis revealed that in countries with highly regulated labour markets, profit share rose at a faster pace than elsewhere. One possible explanation could be that strong labour market regulation often goes hand in hand with tightly regulated product markets, enabling companies to boost their profit share.

— More advantageous capital gains taxation

These changes in tax legislation create stronger incentives for the management to shift income from wages into profits.

— Rising capital input and intensity coming on the back of relatively low factor prices

In the past, prices for capital goods increased at a below-average rate, possibly leading to rising input of capital goods in production. If this resulted in higher capital intensity that goes beyond the substitution effect induced by the change in factor prices (capital deepening), profit share could have increased.

However, the German economy was far from balanced at the beginning of the decade. Following the reunification boom unemployment started to rise, up to 5 million by early 2005, with the rise only interrupted by the New Economy boom. This deterioration on the labour market was for the most part the result of wrong policy decisions, particularly in collective bargaining.

If nothing else, the bursting of the New Economy bubble eventually set off a paradigm shift in policy (Hartz reforms, corporate tax reform), as well as at the corporate (restructuring) and at the union level, with job safeguarding becoming the primary goal of collective bargaining¹¹. By restricting unemployment benefits to one year, in particular, the German government lowered “wage entitlements”, while job seekers’ willingness to make concessions when taking up new employment has improved markedly since the Hartz IV reforms took effect¹². In fact, these reforms may have played an important part in the remarkable upturn in service sector employment – even ahead of the economic and financial crisis. More likely than not, in keeping with the spirit of the reforms, these new jobs were created at the below-average productivity and pay end, which goes a long way to explain weak productivity and income growth in non-tradables.

Through outsourcing and off-shoring the value chains of German corporations became more international, giving the employers greater bargaining leverage, even in times of solid job growth, the more so as – unlike some governments in the neighbouring

¹¹ Council of Economic Experts. Annual Report 2010/11. November 2002.

¹² IAB Kurzbericht 19/2007. „Hartz-IV-Reform Impulse für den Arbeitsmarkt“.

countries – German politicians did not take action to fight relocation of production abroad. With wage agreements for the large export-oriented industries (automotive, metal, chemical) traditionally setting the pace for bargaining in the other sectors, wage growth remained moderate across the board. In this context, it should be noted, however, that the move towards wage restraint was not influenced or even induced by the government, but was solely negotiated autonomously by the private sector within the framework of bargaining sovereignty.

In our analysis, the developments that led to weak consumption growth in the past decade were not the result of a beggar-thy-neighbour policy, but the reaction to global trends, which affected Germany, in particular, along with a correction of wrong policy decisions made in the preceding decade. Our view is further augmented by the fact that German imports have risen at nearly the same rate as global trade over the past years. In other words, German impulses to other economies are on par with those coming from the rest of the world, despite the country's weak domestic performance. On top of that, the share of imported intermediate input in German exports has advanced to a good 40%, with central and eastern European countries once again the main beneficiaries of Germany's success on the export markets.

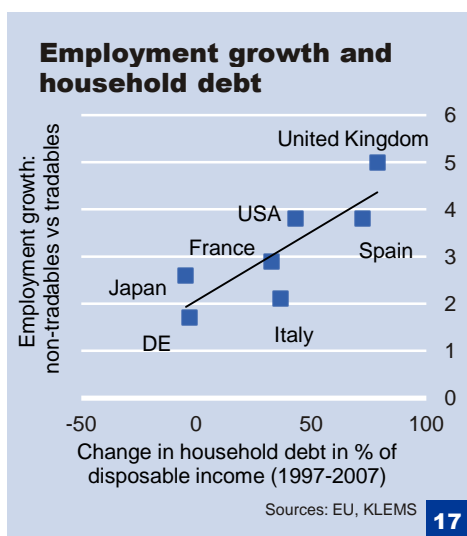
Developments in the non-tradable sector and imbalances

As we have mentioned at the outset, it is wide-spread belief that weak domestic demand in Germany, along with the structural weaknesses of the domestic sectors, is one of the causes of global imbalances. The chart below points to a different interpretation, though. When taking a look at the G7 countries, it becomes evident that the economies that posted stronger-than-average domestic employment growth in the past decade owed their better position vis-à-vis the other countries to a marked rise in private household debt. It does not come as a surprise that dynamic credit expansion did not only provide a boost to import demand, but also helped to stimulate domestic growth (retail sector, construction, financial industry). In the wake of the Economic and Financial Crisis, awareness has finally risen that this development could not be sustained indefinitely and is apt to weigh on the debt-ridden economies for years to come.

We do not want to suggest, of course, that Germany must not do everything it can to strengthen domestic demand. This includes investing in education to boost labour participation, particularly of the elderly and low-skilled, reinforcing deregulation of product markets and, in general, taking action to prepare its population for the impending shift in value-added models towards the project economy and for demographic change. This, after all, would primarily benefit the domestic sectors.

On the whole, however, German domestic demand is less “rotten” than is often suggested. Not surprisingly, in view of their current crises, the same cannot be said for the “impressive” expansion of domestic demand in the boom countries of recent years.

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Germany's growth potential: The financial crisis did little harm, but over the longer term demographics will

Debate has intensified again lately on Germany's potential growth rate. While some believe potential growth will remain lower permanently after the financial crisis, others project a higher growth potential thanks to successful reforms, particularly in the labour market.

GDP can be regarded as a combination of potential output and a cyclical component. The potential output of an economy refers to the total economic output that can be produced making use of the production factors labour and capital that are available at a given time. The calculation takes account of technological progress and assumes normal capacity utilisation. The cyclical component – by contrast – comprises fluctuations in the degree of factor utilisation around the potential output. For the purpose of economic analysis, as well as for monetary and fiscal policy, it is important to have a good assessment of potential growth, as it defines to maximum speed at which an economy can grow over a longer term without leading to tensions in the labour market and an acceleration of inflation. Once potential growth has been determined, other important indicators used in the analysis of the business cycle, the budgetary situation and inflationary risks, such as the output gap, i.e. the gap between potential and actual GDP, structural unemployment and the structural budget deficit, can also be calculated.

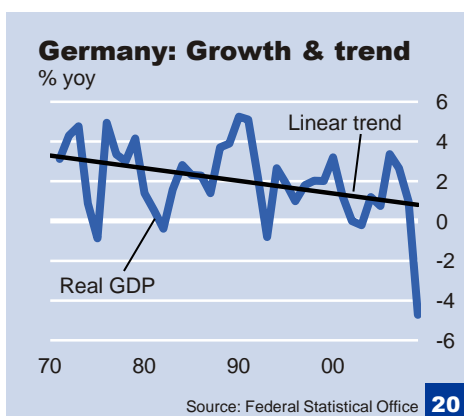
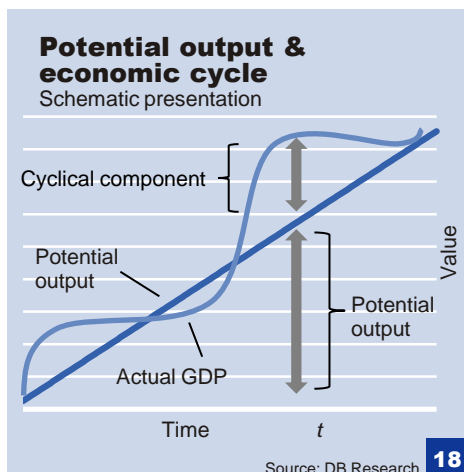
However, growth potential cannot be observed directly, like for instance the number of persons in gainful employment or prices for individual goods. Thus it must be estimated by means of statistical procedures which – depending on the method used – have advantages and disadvantages. In the following, we will present individual methods and their respective results.

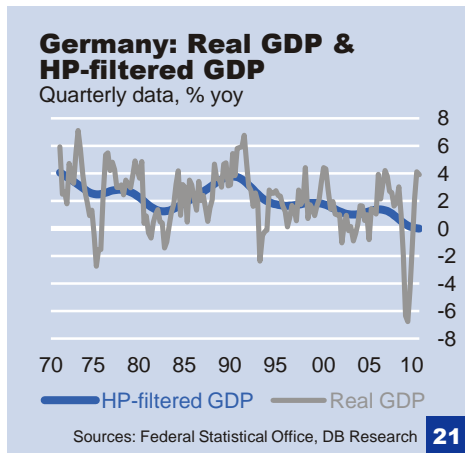
Arithmetic mean

The simplest way to determine potential growth is the arithmetic mean of the growth rates registered over past years. For this method, the period monitored should be relatively long and cover at least one complete business cycle. For Germany this would yield potential annual growth of 2.0% between 1970 and 2008. However, this is only a broad measurement as potential growth can change over time, which is reflected in only very rudimentary fashion in the arithmetic mean. During the 1975-1981 business cycle, for instance, the German economy grew at an average rate of approximately 3%, while the rate was only 1 ¾% between 1983 and 2002. The chart on the left shows that the growth rate displays a falling trend. This suggests that the current growth potential is probably considerably lower than 1 ¾% p.a.

Trend methods

To take account of such changes or long-term trends, the simple arithmetic mean can be replaced by a trend over the monitored period as an approximation of potential growth. In this method, the trend line is determined by means of the least squares method, with possible differentiation between various trend forms (i.a. linear, exponential and in logs). Calculated with a linear trend, Germany's potential growth came to just under 1% in 2009. This method suffers





from the end-point problem which is described in more detail in the following section.

Filter methods

Filter methods are more sophisticated ways of determining an economy's growth potential. They include what is probably the most frequently used method, the Hodrick-Prescott (HP) filter, which can be regarded as a quasi-infinite moving average and which can be used to separate the cyclical component from the trend in a time series. Even though the HP filter delivers plausible results for the past, it does have problems at the bounds – like all moving averages with finite time periods. Hence there are distortions both at the beginning and the end of a period under review. This is visible when calculating more recent potential growth. Applied to the period from 1970 the HP filter yields current potential growth in Germany in the order of 0%, which is hardly plausible. If one looks at the 2001-2008 period, however, which does not suffer from the margin problem, the HP filter arrives at growth potential of 1% to 1 ½% p.a., which we consider to be realistic.

The arithmetic mean, trend calculations and filter methods are all so-called univariate methods. They have the disadvantage of only using time-series information on output (GDP) itself to derive potential output, and do not allow any conclusions to be drawn about the reason for a change in potential output.

Production technology methods

This problem is avoided by production technology methods which explain and derive potential output in economic terms – i.e. by means of the factors involved in the production process. These methods are based on a production function and can be best explained by a standardised neoclassical production function.

According to this production function, production in period t , i.e. Y_t , is derived from a combination of the input factors labour (L_t = labour force at a given time t) and capital (C_t = capital stock), supplemented by the level of production technology, referred to in economic literature as technological progress or total factor productivity (TFP _{t}). While both the volume of labour and the capital stock reflect the quantitative inputs in production, total factor productivity reflects the qualitative components of these two measures as well as their combination.

$$(i) \quad Y_t = TFP_t * f(L_t, C_t)$$

Under the assumption of total competition in the factor markets and linear homogeneity, i.e. constant economies of scale in production, (i) can be expressed in rates of change as

$$(ii) \quad \Delta \ln Y_t = \Delta \ln TFP_t + \alpha \Delta \ln L_t + (1-\alpha) \Delta \ln C_t$$

with \ln = log and α = share of labour income in national product.

Hence, the growth potential of an economy is a combination of the rate of change in technological progress and the weighted rates of change of the input factors labour and capital.

While the univariate methods simply require the production time series to determine potential output, the derivation of growth potential by means of a production function means the latter has to be estimated first. For this estimate, information is needed on labour input (number of persons and average number of hours worked per person) as well as the capital stock. To derive potential growth, the trend rates for labour volumes, capital stock and factor productivity



are required. The latter are often determined by applying filters to the individual time series. This means that compared with univariate methods production technology methods are highly labour-intensive and complicated.

Germany: Potential output

	Potential output % yoy	Labour volume Contribution to growth (pp)	Capital stock Contribution to growth (pp)	Total factor productivity Contribution to growth (pp)
1971-80	2.7	-0.8	0.9	2.6
1981-90	2.3	0.0	0.6	1.8
1991-00	2.1	-0.1	0.6	1.6
2001-06	1.3	-0.1	0.5	1.0
2007	1.2	0.0	0.4	0.8
2008	1.2	0.0	0.4	0.8
2009	1.2	0.1	0.4	0.8
2010	1.3	0.2	0.4	0.8
2011	1.3	0.2	0.4	0.8
2012-16	1.0	-0.2	0.3	0.8

Source: German Council of Economic Experts

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Chart 22 shows the latest estimates for potential output and its individual components published in its recent Annual Report by the German Council of Economic Experts.

Germany: Estimates of potential output

Potential GDP, % yoy



Sources: OECD, IMF, German Council of Economic Experts

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Potential growth roughly 1 ¼% in 2010

There is little disagreement among the major economic institutes as regards potential growth for 2010. The Council of Economic Experts, like the IMF and the OECD, forecast 1 ¼% potential growth for the German economy in the current year. Our own analysis also arrives at roughly this rate. Hence the current growth rate of potential output is roughly in line with the average of the last five years.

Effects of financial crisis very limited

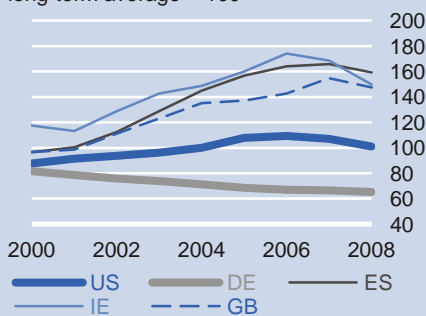
To be sure, the basis for determining potential growth for 2010 is currently still highly uncertain. Due to the end-point problem, which is merely shifted to the individual factors in the production function approach, frequent and sometimes extensive revisions may have to be made. Nonetheless, the preliminary analysis shows that growth potential has so far not been affected noticeably by the financial crisis. This may seem surprising at first glance as earlier financial crises did have an evidently negative impact on the rate of potential growth.

Prior to earlier banking and financial crises, many countries had experienced asset price bubbles, particularly strong economic growth and high current account deficits. High liquidity levels also led to general overinvestment (as for instance before the Asian crisis or during the so-called New Economy phase). In the wake of the crises, property prices dropped sharply and unemployment soared. Therefore, the decline in potential growth after such crises was the result of sectoral distortions and a related increase in structural unemployment.

Despite the extremely steep drop in business activity in 2009 we do not see any major effects on the trend regarding labour input and the capital stock, which can be attributed to the fact that the situation

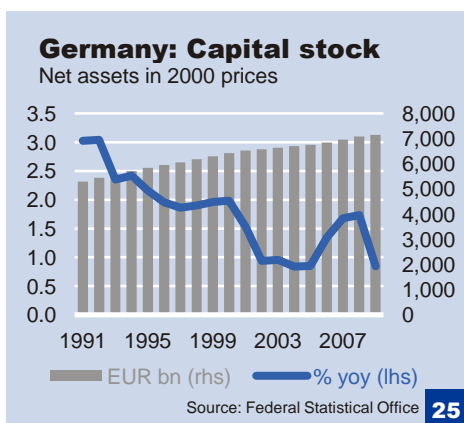
House prices

House prices in relation to income, long-term average = 100



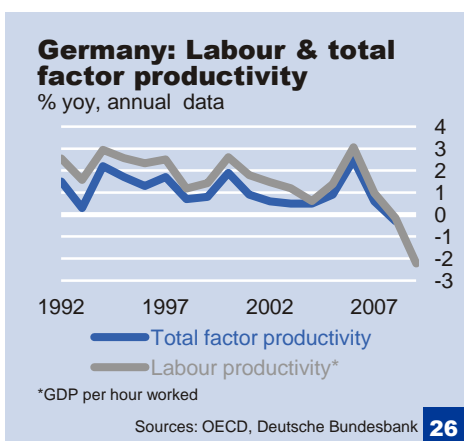
Source: OECD

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in Germany was entirely different in the run-up to the financial crisis than in earlier pre-crisis periods. Unlike the US, the UK, Spain and Ireland, Germany did not experience a property boom with a house price bubble.

All in all, we do not expect structural unemployment¹³ to rise on account of sector consolidation or due lasting high unemployment which usually results in higher structural unemployment. According to OECD estimates, structural unemployment in Germany is even lower at present than in mid-2000, while substantially higher structural unemployment and – as a result – lower growth potential is assumed for the countries which experienced serious bubbles in their property markets and considerable sectoral adjustments when these bubbles burst.



The massive slump in investments during the latest recession (2009: -22% for machinery and equipment, -10% for total fixed capital investment) has pushed down growth of the capital stock in Germany to below 1%. However, investment activity has meanwhile picked up again and the growth of the capital stock is likely to have returned to its longer-term trend. Moreover, risk aversion has could lead to a more pronounced home bias on the part of investors and thus reduced the cost of capital, which could support investment in Germany.

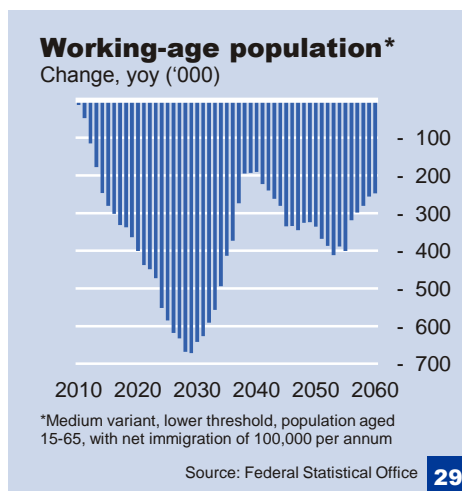
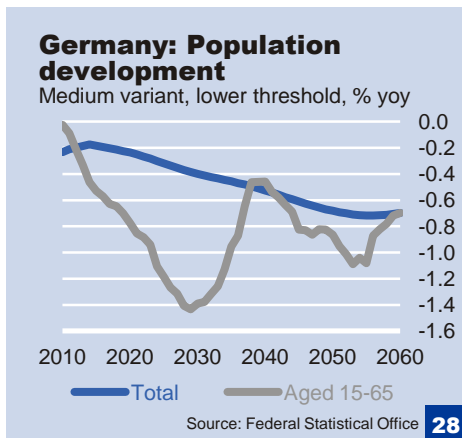
By contrast, the financial crisis may have had adverse effects on total factor productivity. Labour productivity (GDP per hour worked), for instance, fell by 2 ¼% in 2009 due to the slump in production, which usually leads to a drop in total factor productivity. However, labour productivity has already risen by 1 ¾% from its low in Q4 2009, so we can probably assume that the discontinuation of certain financial innovations did not substantially hurt factor productivity in Germany in the longer run.



Potential growth: Expected to be markedly lower over the longer-term

Even if the financial crisis has not severely harmed Germany's growth potential, demographic changes mean there are still enormous challenges ahead. The coming decades will see a marked decline and ageing of the German population. According to the Statistical Office's population projection, Germany's population will shrink by 20% by 2060. At the same time, the population aged between 15 and 65 years will decline by no less than 35%, as the baby-boom generation will start to reach retirement age and be replaced only partially by the cohorts born in years with low birth rates. The shrinking of the working-age population will accelerate considerably and exceed more than 1% per annum between 2020 and 2035. All other things being equal, this would imply stagnation in

¹³ A cyclical increase in unemployment does not reduce the potential supply of labour or thus the economy's growth potential as potential labour supply is comprised of all gainfully employed and unemployed persons as well the hidden reserves of persons outside the labour force. Together they form the potential labour force which would be available to the labour market under certain circumstances. As a result, only changes in structural unemployment actually have an impact on an economy's growth potential. The different kinds of unemployment are as follows: 1. frictional (i.e. between jobs), 2. seasonal (caused by seasonal fluctuations in production (e.g. in agriculture) or demand (e.g. peak and off-seasons in tourism)), 3. related to business activity (caused by fluctuations in the degree of capacity utilisation of potential output), and 4. structural unemployment. Structural unemployment is the result of ongoing structural change and its effects on the labour market. It describes the loss of jobs as a result of lasting changes in demand in individual sectors due to the use of new technologies or changes in the world market.



potential output. Potential measures to alleviate the effects of demographic change are an (other) increase in the retirement age, an earlier start to the working life, boosting participation rates – particularly of women and older people – as well as more labour immigration. In this context it should be considered that – under realistic assumptions – one measure alone will be nowhere near enough to offset the dampening effects of demographic change. If the demographics-related decrease in the labour force potential were to be offset by via immigration alone, Germany would need between 500,000 and 750,000 immigrants between 2020 and 2035. Instead, a whole package of measures is called for. Germany is though on the right track with regard to many of these possible measures.

However, it is not only labour volume that will suffer from demographic change, but also investment activity. If the results of overlapping generations models are to be believed, the return on capital will fall by up to 1 percentage point over the coming decades when the labour supply shrinks and capital becomes more readily available – also in view of increasing personal retirement provision. With the return on capital on the decline, it is hardly conceivable that the declining workforce will have access to the increased capital required to keep growth potential constant via more efficient and capital-intensive work processes. However, one must bear in mind that lower interest rates growth usually also means a lower cost of capital.

The question as to whether demographic developments will impair labour productivity cannot be answered conclusively. To be sure, several factors suggest that an ageing and shrinking population will dampen productivity. Scientific and technological progress, for instance, are being achieved mostly by young people, while physical fitness declines with age, knowledge becomes obsolete, younger people tend to be more willing to take risks and older workers are likely to be less open to technological innovation. In a shrinking population, the number of top performers and innovative minds will also decline. But there are other arguments suggesting that physical fitness is becoming less and less important in today's and, above all, future knowledge-based working society and that the promotion of life-long learning will offset the loss of knowledge due to longer working lives. In addition, innovation and thus progress can also be imported.

Conclusion: Decline in growth potential probably inevitable in the long run

A decline in Germany's growth potential appears inevitable. The Council of Economic Experts, for instance, forecasts labour volumes to make a negative contribution to potential growth of -0.2 percentage point in the period 2012-2016 owing to the shrinking workforce. It also expects the capital stock to provide a slightly lower contribution of 0.3 percentage point. With total factor productivity expected to contribute an unchanged 0.8 percentage point, the Council arrives at potential growth of a mere 1% per annum between 2012 and 2016. Just how sharply Germany's growth potential will fall over a longer-term horizon, when the dampening effects of demographic change will be strongest, will depend on how society decides on issues such as the start of the working life, the retirement age, gainful employment, annual working hours as well as immigration.

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