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Low productivity growth in Germany

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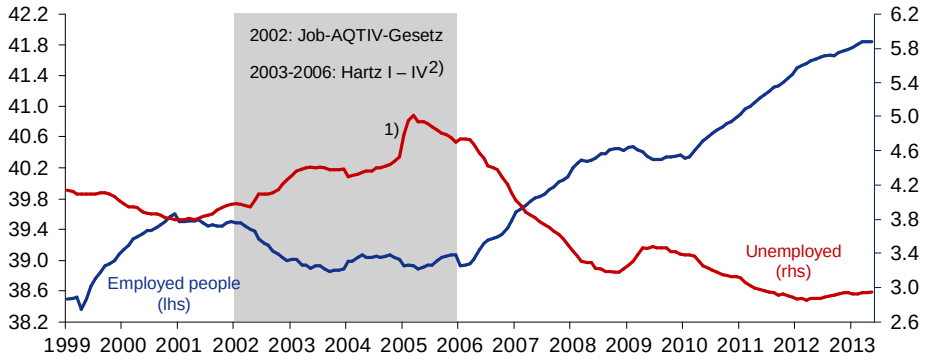
LOW PRODUCTIVITY GROWTH IN GERMANY

An economy's growth rate is determined by the extent to which labor productivity and the volume of labor grow. As a result, successes on the labor market, which are reflected in an increasing volume of labor – defined as the number of hours worked by all people in work – are a key source of growing prosperity. The same, however, applies to rising levels of labor productivity. A steady increase in both parameters is the marker of an economy on a stable growth path.

Since the labor market reforms implemented in the first half of the last decade, Germany's labor market has been on a marked upward trend. In 2012, there were 2.6 million (+6.8%) more people in work than in 2005 and the volume of labor was up by 2.4 million hours (+4.3%) on 2005.

Germany: Labor market trends and labor market reforms

in millions



1) Welfare benefit recipients capable of work redefined as registered unemployed.
2) Hartz I and II (2003): Liberalization of temporary work; tightening of job suitability rules, Me Incs, job centers, new rules for minijobs and midijobs.
Hartz III (2004): Restructuring of Federal Labor Office, employment protection in small companies.
Hartz IV (2005-2006): Merging of unemployment and welfare benefit, tightening of entitlement requirements, shorter entitlement period for unemployment benefit.

Source: EcoWin.

But the focus on this economic success, which has also earned Germany a great deal of recognition on the international stage, makes it easy to overlook the fact that productivity growth in the German economy has continued to slacken. Whereas the increase in labor productivity per person in work was still averaging 1.0% a year between 1995 and 2005, the average annual increase in the period between 2005 and 2012 was only 0.5%. The slowdown in the pace of labor productivity growth, measured per hour worked, is even more pronounced. The average growth rate of 1.6% between 1995 and 2005 had slipped back to 0.9% between 2005 and 2012.

What is more, the average figures for the past seven years could actually be masking the emergence of an even more unflattering labor productivity trend of late. Last year's trend was more or less tantamount to a stagnation in productivity (-0,4% per person in work, +0.4% per hour worked). In 2012, however, the slowdown in productivity growth was a global phenomenon. The Conference Board found that global productivity per person in work increased by only 1.8% in 2012[1]. With the exception of the 2008/09 recession, this is the lowest rate of growth seen in the last ten years.

So is the productivity slowdown in Germany no more than a symptom of a global phenomenon or is it rooted in specifically German causes? Within this context, it would

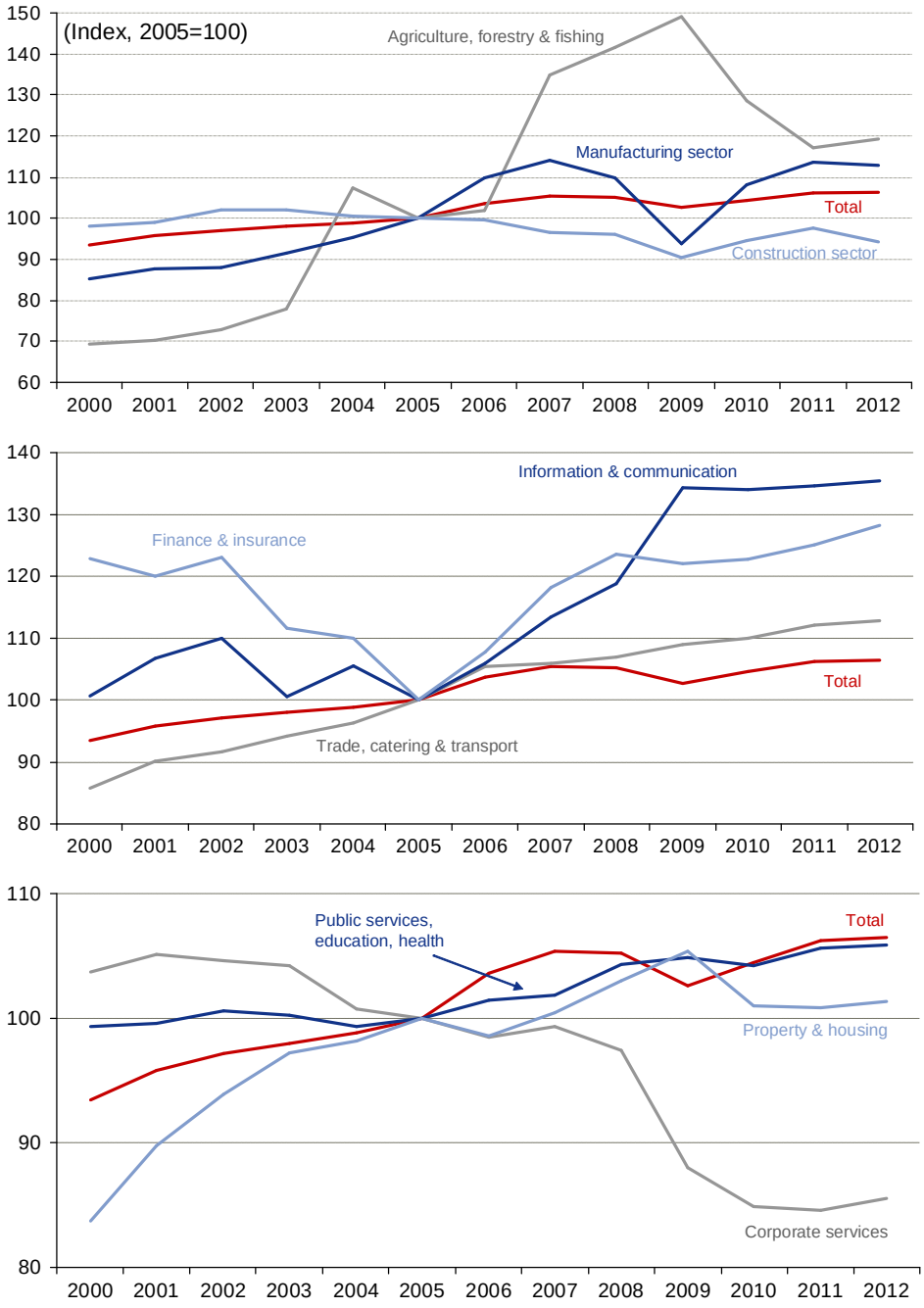
[1] The Conference Board, 2013 Productivity Brief-Key Findings, Global Productivity Slowed in 2012, with Little Scope for Improvement in 2013.

appear to make sense not only to look at macroeconomic productivity, but also to take a look at developments in the individual sectors.

Development in labor productivity in key sectors

Since 2005, productivity development has varied considerably in Germany from sector to sector. With growth of 35.4% in the space of only seven years, the development in the information and communications sector was around 50 percentage points better than for corporate service providers (-14.4%). Above-average growth

Economic sectors: Labor productivity per hour*



* Gross domestic product or gross output (price adjusted, chain index 2005=100) per employee hour worked (converted to index figures 2005=100).

Source: Statistisches Bundesamt.

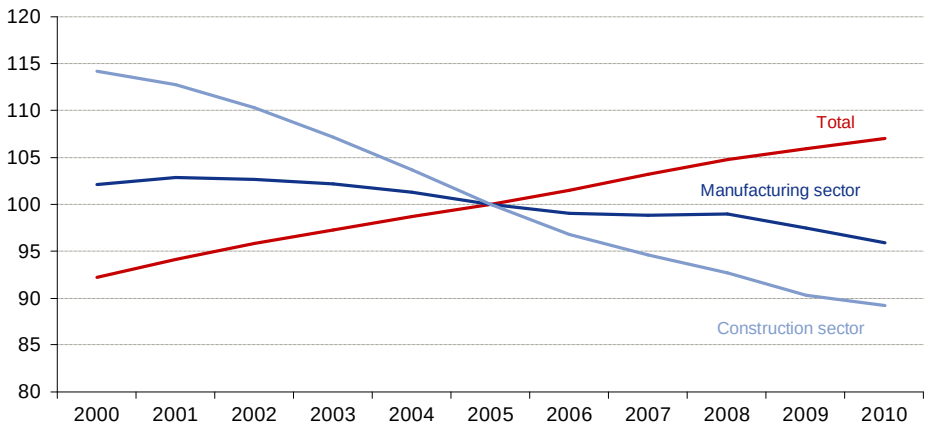
was also reported by financial and insurance service providers, the agricultural sector,

industry and commerce, transport and the hotel and catering trade. The construction sector joined the ranks of the corporate service providers, reporting a drop in productivity (-5.7%). Given the downward trend in macroeconomic productivity growth, it is particularly interesting to consider why two sectors, the construction sector and corporate service providers, actually reported negative productivity growth.

A glance at the development in real capital stock shows that the latter has been contracting in the construction industry for years now. Although this does not necessarily equate to lower capital utilization in construction activity, it is likely to have placed a burden on productivity development in the sector. Nevertheless, the construction industry employs a mere 6% of the labor force in Germany, meaning that it can hardly be seen as the main cause of the poor macroeconomic productivity development.

Capital stock

Gross fixed investment at year-end (price adjusted, chain index 2005=100)



Source: Statistisches Bundesamt.

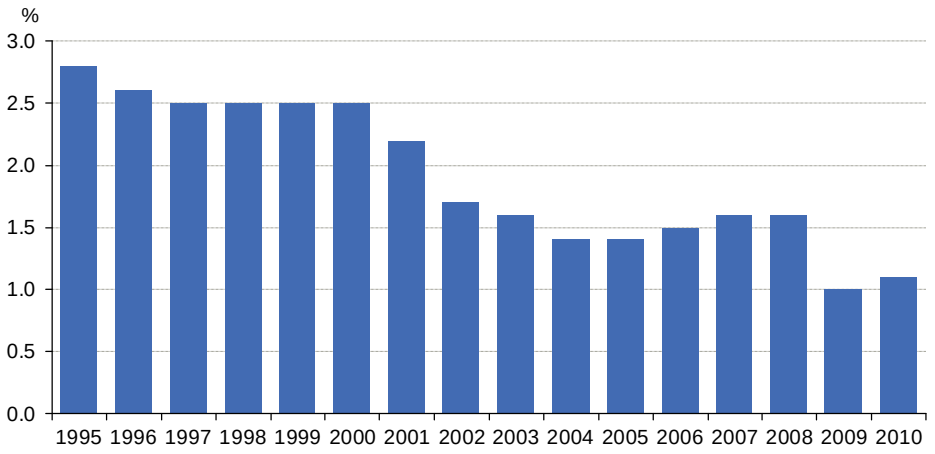
The drop in productivity among corporate service providers is striking. This sector, which accounts for around 13% of all people in work (5.5 million people), is however, very heterogeneous in its make-up. It includes freelance legal and tax consultancy services, architecture and engineering firms, as well as copy shops, call centers, building cleaning providers and the entire temporary employment business. It is safe to assume that the proportion of employees in the "low-wage sector" is now fairly high in the latter sectors, while the level of value creation is relatively low. Consequently, part of the productivity drop in this sector is likely to be owing to changes in wage structure and wage levels.

At the macroeconomic level, too, many factors suggest that the wage restraint has resulted in more labor-intensive production in general, although this was associated with lower labor productivity growth. The increased use of labor force may also have put a damper on the need for capital. Nevertheless, the slowdown in the growth rate of the real capital stock is so pronounced that it appears impossible to explain by a change in the factor-price ratio. While the real capital stock (price-adjusted gross fixed assets) was still growing at a rate of 2.8% in 1995 and 2.5% in 2000, this rate had fallen back to 1.4% by 2005 and to as little as 1.1% by 2010. In 2011 and 2012, too - years

for which no official data is available as yet, the capital stock is expected to have grown by only 1.0% to 1.2% given the persistently sluggish investment behavior.

Capital stock growth (total)

Gross fixed investment at year-end (price adjusted, chain index 2005=100)



Source: Statistisches Bundesamt.

One development that is particularly striking is the fact that the real capital stock in the manufacturing industry has been shrinking year in, year out since 2001. Although wage restraint has probably taken some of the rationalization pressure off and technical advancements, particularly in the information technology segment, are also likely to have helped save capital on the whole, the fact remains that investment activity and the expansion of physical resources in the industrial sector are insufficient. This is a matter of great concern considering how important industry is to Germany's international competitiveness.

Explanatory information on the capital stock

The term "capital stock" is used to refer to price-adjusted gross fixed assets. This gross concept reports the facilities at their replacement value, without taking any depreciation into account. In the case of capital goods, a useful life is estimated, i.e. the period during which these goods can be used. The net concept makes deductions for any depreciation and write-downs applied since the time of the investment.

In order to show the real (quantitative) development in gross fixed assets, the capital goods are valued, irrespective of what they actually cost, at the replacement price for the previous year. Linking the index figures calculated as set out above allows time series to be established for price-adjusted fixed assets. Another method is to calculate the fixed assets based on replacement prices. This involves using the amount that would have to be paid if all facilities had to be replaced in the year under review.

Source: German Federal Statistics Office, national accounts, 2012, series 18, volume 1.4, Erläuterungen zum Inhalt und Aufbau der Volkswirtschaftlichen Gesamtrechnungen (explanatory information on the content and structure of the national accounts)

As far as the euro area is concerned, we calculated a (highly significantly negative) elasticity of real exports in respect of the real effective exchange rate of 0.30. This means that every 1% increase in the real exchange rate slices a total of 0.3% off real exports after a

period of five quarters.

Capital factor making less of a contribution to growth

The analyses shown above suggest that the capital factor is now making much less of a contribution to economic growth in Germany than in the past, thus also putting a damper on labor productivity growth. In order to find even more evidence to support this theory, we have analyzed German economic growth in the period from 2005 to 2012 using a Solow analysis and compared the results with an analysis performed by the German Bundesbank, using a similar method, for the period from 1992 to 2001[2]. In doing so, we have broken economic growth down into the contributions made by labor, capital and a residual amount. This residual amount - known as the "Solow residual" or total factor productivity - stands for the element of economic growth that cannot be explained by growth in employment and the capital stock. Ideally, it measures the contribution to growth made by technical progress, but in actual fact, it would appear to reflect measurement uncertainties, too. We have assumed a Cobb-Douglas production function in which the output elasticities of labor and capital correspond to the distribution shares (wage share, profit share). As far as the labor factor is concerned, we have looked at the volume of labor – the number of hours worked in the economy as a whole. In respect of the capital factor, we have applied the price-adjusted gross fixed assets (chain index for 2005 =100) and have assumed that the performance of the capital stock is commensurate with its level.

Since the bulk of the labor market reforms came into force - in 2005 - the German economy has been growing at an average rate of 1.5% a year. Based on the growth accounting process, the capital stock delivered a growth contribution of 0.4 percentage points, with the volume of labor also contributing 0.4 percentage points. This means that total factor productivity contribute 0.7 percentage points to growth. So if the volume of labor and capital stock were to stagnate, Germany could only expect to achieve economic growth to the tune of 0.7% a year.

Growth breakdown

	Growth breakdown 2005-2012 (own analysis)		Growth breakdown 1992-2001 (Bundesbank study)[5]	
	Annual average growth 2005-2012 in %	Growth contribution in percent. points[4]	Annual average growth 1992-2001 in %	Growth contríbution in percent. points[6]
Gross domestic product	1.5		1.5	
Labor productivity[1]	0.9		2.0	
Capital stock[2]	1.3	0.4	2.6	0.9
Labor volume[3]	0.6	0.4	-0.5	-0.4
Total factor productivity		0.7		1.0

1) Gross domestic product per employee hour worked.
2) Gross fixed investment at year-end (price adjusted, chain index 2005=100), increase 2011 estimated at +1.2% and 2012 at +1.0%.
3) Employee hours worked (Institut für Arbeitsmarkt- und Berufsforschung, Nürnberg).
4) Growth contributions calculated on the basis of share of employee compensation (2012: 68%) and property & entrepreneurial income (2012: 32%) in national income.
5) Deutsche Bundesbank, Zur Entwicklung der Produktivität in Deutschland, Monatsbericht September 2002.
6) 30% income share of factor labor.

The results of our own growth accounting process for the period from 2005 to 2012 differ considerably from those that the Bundesbank arrived at for the period from 1992 to 2001.

[2] Bundesbank, Productivity Developments in Germany, monthly report for September 2002

Although gross domestic product also grew by 1.5% on average during that period, labor productivity growth came in at 2.0%, more than twice as high as the growth rate for the 2005 - 2012 period. Between 1992 and 2001, the contribution to growth made by the capital stock, namely 0.9 percentage points, was much greater than that made in the period from 2005 to 2012; by contrast, the growth contribution delivered by the volume of labor was actually negative in the former period, at -0.4 percentage points, and 0.8 percentage points lower than between 2005 and 2012. This could allow us to draw the conclusion that the labor market reforms boosted economic growth by 0.8 percentage points a year. Although there is no doubt that this conclusion is something of a simplification, the sheer extent of the difference supports the theory that the labor market reforms had a marked positive impact on growth. In the period between 1992 and 2001, total factor productivity contributed 1.0 percentage points to growth, 0.3 percentage points more than between 2005 and 2012. This tends to suggest that the growth contribution delivered by technical progress is slightly on the wane.

Comparing the two periods, the decline in the growth rate for total factor productivity is far less pronounced than the decline in the growth rate for labor productivity. This is most likely due to the fact that the expansion of the capital stock has slowed considerably, which explains why an estimated 0.5 percentage points have been shaved off its annual contribution to economic growth. In light of the demographic developments in Germany, which will allow for only very limited growth in the volume of labor, assuming it does not actually contract, investment activity will have to be stepped up considerably if Germany wishes to remain on a satisfactory economic growth trajectory.

The finding that the weaker productivity growth in Germany is due, to a considerable extent, to the insufficient expansion of the capital stock and, consequently, to excessive restraint in terms of investment activity, suggests that there is a widespread cause, and one that is not specific to Germany, that is putting a stranglehold on the German productivity trend. By way of example, the US has also seen its productivity growth plummet of late. The Conference Board attributes the drop in working hour productivity growth in the US to 0.2% last year to a combination of slow investment growth and low efficiency gains (measured in terms of total factor productivity growth)[3]. It comes as little surprise that the crises of recent years have shattered the corporate sector's confidence as it looks to the future, prompting a reluctance to invest. The hope remains, however, that especially Germany - a country that has managed to get to grips with the crisis fairly well in an international comparison - will be able to return to more dynamic investment activity as soon as possible.

[3] The Conference Board, 2013 Productivity Brief-Key Findings, Global Productivity Slowed in 2012, with Little Scope for Improvement in 2013.

These assessments are, as always, subject to the disclaimer provided below.

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