

Labour market

The German labour market came through the massive slump in output during the financial and economic crisis without any substantial rise in unemployment. This was not only without precedent during earlier economic downturns in the history of the Federal Republic of Germany; it is striking in comparison with other countries, too. The finding may be explained by enterprises seeing the decline in demand primarily as a cyclical phenomenon and by the fact that only a relatively limited need for structural adjustment had built up in the German economy. The additional costs associated with the temporary hoarding of labour were reduced by employers and employees making use of the extended scope for reducing actual working hours that is available under collective pay agreements, even if this involved a perceptible loss in wages. These efforts were flanked by government measures providing improved opportunities for the use of short-time work. Furthermore, many firms were in a favourable financial position before the outbreak of the crisis.

During the crisis there was nevertheless a marked fall in employment in manufacturing, the transportation and storage sector and, above all, temporary employment. This did not have a significant impact at the aggregate level, however, as there were either no perceptible negative employment effects in sectors geared to domestic activity or even – as in the healthcare and education sectors – increases in staffing levels. From the fourth quarter of 2008, there was a rise in unemployment for a short time, but this has now receded again. This is all the more remarkable given that the trend growth in labour market participation continued notwithstanding the crisis and that the pace of structural change towards the tertiary sector picked up again.

The reform steps taken in collective pay agreements and in labour market policy in the first half of the past decade not only laid the foundation for enhancing the activation of unemployed persons and for improved labour market matching. Along with years of wage moderation, this resulted in the costs and risks of staff planning being lower. The fact that the response of temporary employment was very marked compared with that of core staffing levels is nevertheless an indication of the continuing segmentation of the labour market. Potential for reform exists in this respect, as there does with regard to the still excessively high number of unemployed who currently have little prospect of gaining a job in the non-assisted labour market.

Remarkable cyclical resilience of the German labour market

Labour market response very subdued compared with earlier periods and other countries

The German labour market has not only coped well with the slump in output caused by the financial and economic crisis, its stability has also played a substantial part in rapidly overcoming the severe recession. In the history of the Federal Republic of Germany, there was no previous cyclical downturn in which the labour market appeared in similarly robust shape. In comparison with other countries, too, the mild response of employment and unemployment is striking, even though the German economy suffered very heavily from the global slowdown in demand. For example, between the cyclical low in the first quarter of 2008 and the third quarter of 2010, the standardised unemployment rate went up by a total of almost 3 percentage points to 10% in the euro area as a whole and by 4¾ percentage points to 9½% in the United States. By contrast, there was an overall decline in Germany during the same period of ¾ percentage point to 6¾%, even though there had since been a slight rise, too. (For more detailed information on differences between developments in the German and US labour markets, see pages 58 and 59).

Primary effect dampened by labour hoarding

One key factor in this was that many enterprises in the particularly affected sectors of the economy continued to gear their core staffing levels more to the labour requirements they saw as appropriate to normal economic circumstances. This was based on the expectation that the considerable fall in demand during the crisis would be largely temporary in nature and that the medium-

term outlook for sales would therefore be far less affected. The structural need for adjustment was, by contrast, evidently regarded as low. The fact that many firms encountered difficulties in recruiting sufficient skilled labour towards the end of the previous upswing undoubtedly played a role in this context, too.

Labour hoarding was made easier by the fact that contractual pay settlements in the preceding years had created scope through in-house agreements for adjusting working hours and remuneration to changing economic circumstances.¹ At the same time, early retirement for older employees – an important and cost-effective adjustment strategy for enterprises in earlier recessionary periods – had been made unattractive by changes in the conditions for drawing pensions and unemployment benefit. Moreover, economic policy assisted employers' and employees' efforts to safeguard employment through the extension of short-time work. Even so, there was a notable decline in hourly productivity and a considerable rise in unit labour costs. Notwithstanding these cost-cutting measures, firms were able to hold on to workers only because balance sheet resilience had been substantially improved in earlier good years and owing to the fact that economic activity began to pick up again before financial reserves had been exhausted by the crisis-induced losses.

Scope for flexibility and accompanying economic policy measures with significant impact

¹ For more details, see Deutsche Bundesbank, Greater flexibility on the German labour market, Monthly Report, September 2004, pp 43-57.

No additional downward pressure through interaction between labour market and domestic demand

From the outset, the labour market's cyclical robustness prevented the underlying recessionary trend from spreading – through interaction between the labour market and domestic demand – to those sectors of the economy geared primarily to the home market and thus becoming entrenched. Besides measures to stabilise the economy, it also helped that the Federal government had earlier created the underlying statutory and financial conditions for the increased provision of healthcare and education services, which led to an expansion of employment in this sector throughout the crisis.²

Employment stable overall with sectoral differences and reduced working hours

Hardly any reduction in employment overall ...

The most striking finding with regard to the labour market is that there was no significant fall in aggregate employment during the financial and economic crisis. Employment in Germany fell by no more than 0.4% year on year in the 12 months starting from October 2008. This followed a seasonally adjusted rise of 4% up to that point solely in the employment-intensive phase of the preceding upswing since the start of 2006. In employment subject to social security contributions, the decline was somewhat larger at 0.8%; nevertheless, the prior increase in this case was as high as 6%. Very soon after economic activity had bottomed out, not only were there identifiable stabilisation tendencies in the labour market; in the current year, in fact, there has even been a growth in employment. Employment at the current end exceeds the cyclical peak of the final quarter of 2008. The number

of jobs subject to social security contributions has been higher than the fourth-quarter level of 2008 since the second quarter of this year.

Owing to marked sectoral discrepancies and the widespread use of working hours as an adjustment parameter, aggregate employment gives no more than an incomplete picture of the quite visible imprint which the financial and economic crisis has left on the labour market. In the sectors primarily affected by the demand shock, there were perceptible job losses and it is only in the past few months that these appear to have run their course. Between the fourth quarter of 2008 and the first quarter of 2010, for example, a seasonally adjusted 4½% of jobs subject to social security contributions were lost in manufacturing. In the transportation and storage sector, which was likewise hit hard cyclically, the corresponding figure at its peak was 2¼%. Furthermore, between the second quarter of 2008 and the second quarter of 2009, the temporary employment sector – which probably hired out a large part of its personnel resources to industry during the prior upswing – shed around one-quarter of its jobs that are subject to social security contributions. By contrast, notwithstanding the crisis, there was a continued expansion of employment in the health and social work sector (+8¼% since the first quarter of 2008)

... but marked sectoral differences

² In the health and social work sector, the 2008 nursing care reform with expansions of benefits and the acceleration of benefit claims is likely to have had the effect of boosting demand. The same is true of the health reform steps of the past few years. Relevant factors in the education sector were the agreement between the Federal and state government on tertiary education and the programmes for expanding all-day schools as well as other day care options for children with regard to legal entitlement from 2013.

The labour market response in Germany in comparison with the USA

By international comparison, the German labour market proved to be exceptionally robust in the crisis. To pinpoint the specific nature of the German labour market's response and its possible causes, a comparison is made here with developments in the United States. The USA is a country that is particularly suited as a reference, above all owing to its economic significance and its role as the starting point for the global slowdown.

The standardised unemployment rate virtually doubled in the USA over the course of the recent recession, which the National Bureau of Economic Research (NBER) estimates as lasting from the end of 2007 to mid-2009. By contrast, the corresponding rate in Germany even fell slightly between the first quarter of 2008 and the first quarter of 2009, which can be regarded as the last cyclical highs and lows in Germany. However, to a greater extent than US enterprises, German enterprises reduced the number of hours worked per employee in order to retain staff. Therefore, the total number of hours worked is better for modelling developments in labour input than the number of employed or unemployed. Nevertheless, Germany's performance is comparatively favourable in this respect, too. With a decline of 4½%, the number of hours worked by employees in German enterprises during the recession was cut back only about half as much as it was in the US private sec-

tor.^{1,2} This is all the more remarkable, as real GDP in Germany contracted significantly more sharply (–6½%) than it did in the USA (–4%). Accordingly, hourly productivity, ie the ratio of output to labour input, developed very differently in the two economies. This becomes even clearer in a sectoral analysis.

The shock to confidence triggered by the collapse of Lehman brothers in the late summer of 2008 resulted in a slump in global demand, particularly for durable consumer and capital goods. The strongly export-oriented manufacturing sector in Germany could not escape from the downward slide and, like in the USA, there was an exceptionally sharp cutback in the total number of hours worked. The influence of global factors is likewise evident in the generally similar productivity developments in this economic sector. Enterprises in the manufacturing sector usually endeavour not to adjust their staffing levels proportionately in line with cyclical fluctuations in output, which are especially marked in this sector. A clear indication of labour hoarding in the recession is that hourly productivity fell perceptibly in the USA during 2008, even though it declined much more sharply in Germany. When sales picked up, a strong recovery in hourly manufacturing output also began in both countries in the second quarter of 2009. One key difference, however, can be seen for the winter months of 2009, when – in contrast to the USA – output per hour worked by all persons in the German manufacturing sector fell sharply. German enterprises, which had largely shut down production at that time, were evidently willing to accept a considerably lower utilisation of their staff, at least temporarily.

At the same time, the enterprises outside the manufacturing sector, too, took widely differing decisions. While enterprises in Germany adjusted the total number of hours worked only to the lower output, considerably greater cuts were made in the USA. Consequently, hourly productivity there rose sharply,⁴ while in the German business sector, not including the manufacturing sector, it remained more or less unchanged. Therefore, in Germany, the manufacturing sector played a crucial role in the development of productivity in the business sector as a whole, whereas, in the USA, this role was played by the other firms, as becomes clear from calculating the contributions of these subsegments to aggregate productivity growth.

One plausible explanation for the observed diverging responses of Germany and the USA are differences in the interpretation of the fall in aggregate demand by enterprises in the two



1 In the definition used here, the business sector in Germany comprises the production sector (including the construction industry), trade, hotels and restaurants and transport, financing, renting and the business services sector, but excludes private service providers. — 2 US pri-

private sector, excluding agriculture. — 3 For the USA, 2009 Q2 compared with 2007 Q4; for Germany, 2009 Q1 compared with 2008 Q1. — 4 It may seem appropriate to make a direct link between the sharp rise in productivity in the US business sector, excluding manufacturing,

countries.⁵ In Germany, there was probably mainly a perception of a slump in export demand that would be confined to the manufacturing sector. Insofar as the drop in demand in Germany was essentially seen as only temporary, there was a strong incentive for enterprises to hold on to their staff, with flexible collective wage agreements, company-based agreements and short-time working arrangements cushioning the burden for them. The relatively weak response of labour input in the German manufacturing sector is, in turn, likely to have led to the external shock having hardly any impact on domestically-oriented sectors through the labour market channel, either.

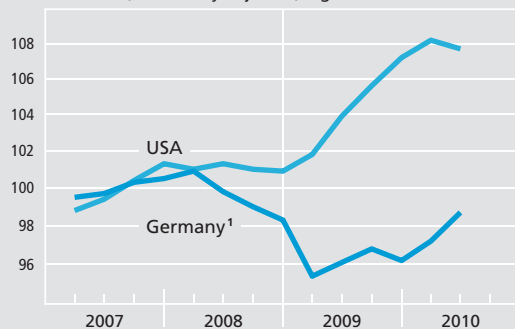
By contrast, in the USA, the fall in aggregate demand was possibly regarded more as a domestic, structural and persistent problem. As early as the start of 2006, a steep decline in housing construction had begun and, in the second half of 2008, households considerably reined in their consumption expenditure, which, in earlier years, had been a significant driving force behind the upward trend in the economy as a whole. The expectation of a long-drawn-out adjustment process, or even just heightened uncertainty about the outlook for the US economy, might have prompted enterprises on a broad front to minimise their labour input and exhaust productivity reserves. While, in Germany, the robustness of both the labour market and domestic demand meant that they supported each other, these interconnected factors are likely, if anything, to have reinforced the downturn in the USA. Domestic final demand is therefore likely to be a closer reference variable for enterprises' labour demand in the recession than aggregate output. Domestic final demand fell by 4½% in the United States during the downturn, while it declined by no more than 2% in Germany.

In actual fact, much of the slump in the demand for goods in the manufacturing sector has already proven to be temporary, and hourly productivity in this sector has picked up sharply as a result. However, the gap in productivity between Germany and the USA has also begun to close again because the ratio of the total number of hours worked to output in the US business sector excluding manufacturing has recently shown a perceptible increase. The productivity reserves are now likely to have been largely exhausted and thus – in contrast, for example, to the “jobless recovery” at the start of the new millennium – the continuation of the overall economic upturn is likely to lead to a marked expansion in labour input.

and the dramatic decline in labour input in the construction industry. However, this went hand in hand with a massive decline in construction activity. Furthermore, in many service sectors, the total number of

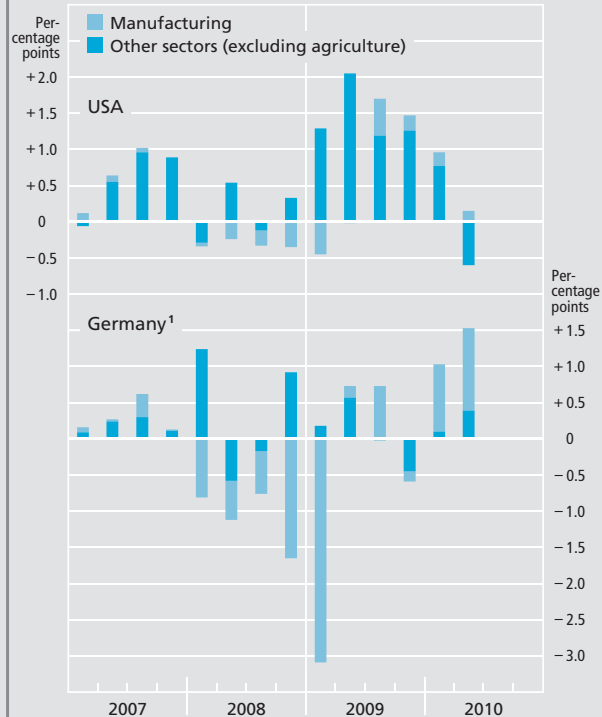
Output per hour worked by all persons in the business sector

2007 = 100, seasonally adjusted, log scale



Contributions to productivity growth in the business sector

Quarter-on-quarter change



Source: Bureau of Labor Statistics and Bundesbank calculations.

hours worked was cut back and probably also strong productivity gains were achieved. — 5 See Deutsche Bundesbank, “Labour markets in the global recession”, Monthly Report, November 2009, pp20-21.

Sectoral profile of employment subject to social security contributions

Economic sector	2008 Q2	2009 Q2		2010 Q2	
	Persons (thousand)	Persons (thousand)	Annual percentage change	Persons (thousand)	Annual percentage change
With cyclical impact on employment					
Manufacturing	6,516	6,412	- 1.6	6,256	- 2.4
Transportation and storage	1,415	1,400	- 1.1	1,408	0.5
Temporary employment	677	512	- 24.4	708	38.1
Without crisis-induced adjustment of employment					
Agriculture, mining, electricity, gas and water supply	759	766	0.9	773	0.9
Construction	1,553	1,553	- 0.1	1,605	3.4
Trade	4,029	4,037	0.2	4,003	- 0.8
Accommodation and food service activities	794	817	2.8	846	3.6
Financial and insurance activities	992	1,005	1.2	998	- 0.7
Other business services excluding temporary employment, including information and communication	3,626	3,675	1.4	3,739	1.7
Social and household services	5,323	5,507	3.5	5,667	2.9
<i>of which</i>					
Human health and social work activities	3,234	3,353	3.7	3,478	3.7
Education	1,032	1,072	3.9	1,096	2.2
Public administration	1,673	1,693	1.2	1,704	0.7

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as well as in the education sector (+7¾% in the same period). In addition, public administration increased its employment by 1¾% between the second quarter of 2008 and the third quarter of 2009, compared with no increase in the preceding (and, so far, the ensuing) period.

Actual working hours reduced considerably

Enterprises had to cut back their output drastically owing to the massive weakening of demand. The fact that they were able to reduce the actual working hours of their core workers helped to stabilise employment. In the initial phase of the downturn, this was done not only by cutting back overtime but also by reducing the sometimes considerable surplus accumulated on the employees' working time accounts. The scale of the slump in production made it additionally necessary for

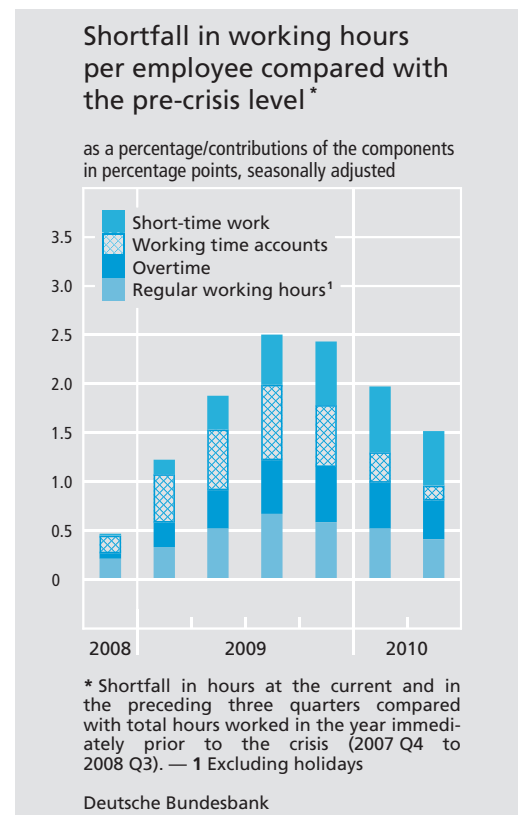
many firms to cut regular working hours under the provisions of collective pay agreements or declare short-time work. According to the IBA's calculation of working hours, the number of hours worked in the period from the fourth quarter of 2008 to the third quarter of 2009 was 2½% down on the 12-month period prior to the crisis.³ As much as 30% of this was due to the reduction of positive balances on working time accounts. The reduction of agreed or standard weekly working hours accounted for just over 25%, while short-time work and cutting back overtime each made up roughly 20%. From a cyclical perspective, however, employees have

³ This does not include the arithmetical effect of increasing part-time work on average working hours per employee. If this effect is incorporated, working hours per employee (including secondary occupations) fell by 3¼%.

been working longer again in seasonally adjusted terms since the low in the first quarter of 2009. Relative to the 12-month period from the third quarter of 2009 to the second quarter of 2010, hours worked were still 1½% below the pre-crisis level. Besides the reduction in short-time work, the (partially) rapidly advancing recovery has led in some enterprises to working time accounts being stocked up again and more overtime being worked as well as longer regular working hours.

Core staff retained for economic reasons ...

The temporary hoarding of labour, especially in manufacturing, had an economic rationale. Given the prevailing expectation in this sector that the slowdown in demand might be largely cyclical in nature, great weight was attached to the potential loss of firm-specific human capital involved in laying-off core workers. Above all, the acute shortage of suitably skilled workers in the final phase of the preceding upswing had evidently left firms with the impression that recruiting qualified staff would soon become time-consuming and expensive once activity in their sector picked up again. By contrast, the cost of safeguarding jobs was seen as lower than in earlier economic downturns since only partial or no compensatory pay had to be granted for reductions in working hours agreed with works councils under the more flexible pay agreements of the past few years. Additional factors which curbed costs were that the period of entitlement to short-time working benefits for economic reasons was extended in two stages to 24 months and that a greater share of the social contributions to be paid by employers during periods

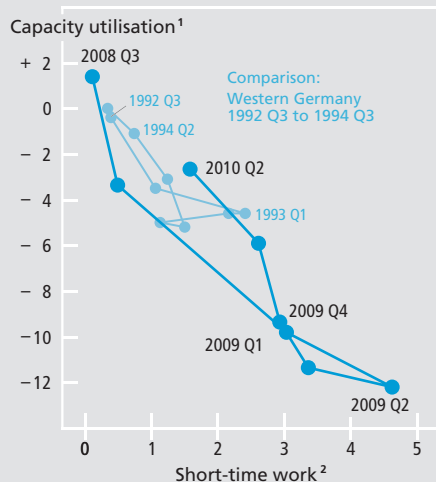


of short-time work was borne by the labour agencies.

There was indeed a massive increase in short-time work during the period of strongest recessionary pressure in the final quarter of 2008 and the first quarter of 2009, although the expansion was confined to the export-oriented industries. In May 2009, 1.44 million persons were officially registered as short-time workers for economic reasons, which was the peak figure during the crisis. In relation to the severity of the decline in output, this was by no means exceptionally high in historical terms, nor was the average loss of working hours per employee of just over 25% extremely large. One reason for the restrained use of short-time work is likely to have been the options for adjusting working

... made easier especially by improved conditions for short-time work

Short-time work in manufacturing in comparison with sectoral activity



1 Deviation from the longer-term average in percentage points according to Ifo Institute surveys. — 2 Short-time work for economic reasons (employment equivalents) as a percentage of employment subject to social security contributions.

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hours and pay contained in the collective pay settlements. The fact that roughly four out of every five short-time workers was employed in the manufacturing sector is evidence of such options being used for their economic policy “bridging” purpose.

Rapid reduction of short-time work in the recovery

More than its scale or sectoral profile, however, the duration of short-time work is an indication of whether it is being misused to defer necessary structural adjustments, especially as the favourable conditions for granting benefits have been extended – with little restriction – to March 2012. According to initial estimates by the Federal Employment Agency, 288,000 employees were still affected by short-time work for economic reasons in July 2010. This corresponds to a decline of four-fifths compared with the peak figure. The re-

duction in the level has so far been taking place – in terms of employment equivalents – essentially without a perceptible time lag in step with the pace of economic recovery. Since this finding can be verified for all major industrial branches despite considerable differences in terms of the progress achieved in the recovery process, there are no indications to date of short-time work becoming entrenched in the core sectors of the economy.

Short-time work has helped to safeguard employment in the crisis, even though – in contrast to the public perception – it has by no means played an outstanding part. This instrument, however, needs to be assessed by also taking into account the enormous fiscal strains and the induced distortion of incentives. Short-time work predominantly benefited those industries which had profited to a particular extent from the preceding upswing. The use of short-time work is predicated on the non-availability of other measures to reduce working hours. This is designed to avoid free-rider behaviour, but, in this context, it is generally also worth considering the goal of strengthening the independent responsibility of the wage-bargainers to cushion cyclical setbacks using their own resources. Not least with regard to the employment record of older employees, the crisis has revealed that suitable incentive structures are highly effective and that it is therefore possible to achieve economic policy aims with fewer financial resources than through government spending programmes.

Also drawbacks in short-time work, however

The steps taken in collective pay agreements to make working time more flexible as well

*Less volatility
in aggregate
employment
owing to labour
market
flexibility*

as the large-scale deregulation of temporary employment have extended the range of instruments with which labour input at firm level can be adapted to the current business situation. The response of temporary employment, which at present covers no more than 2½% of jobs subject to social security contributions, was strongly procyclical but fluctuations in core employment were substantially reduced. In the crisis, this had the advantage that, for the vast majority of employees, there was no more than a comparatively small increase in the risk of unemployment. Even so, the very unequally spread employment opportunities for core staff and temporary workers, especially in periods of an economic downturn, demonstrate the continuing strong segmentation of the labour market. This not only jeopardises the acceptance of flexible forms of employment, it can also distort the mix between permanent, fixed-term employment and temporary employment.

Procyclical hourly productivity and slower growth in wage costs

*Marked fall
in hourly
productivity in
the recession*

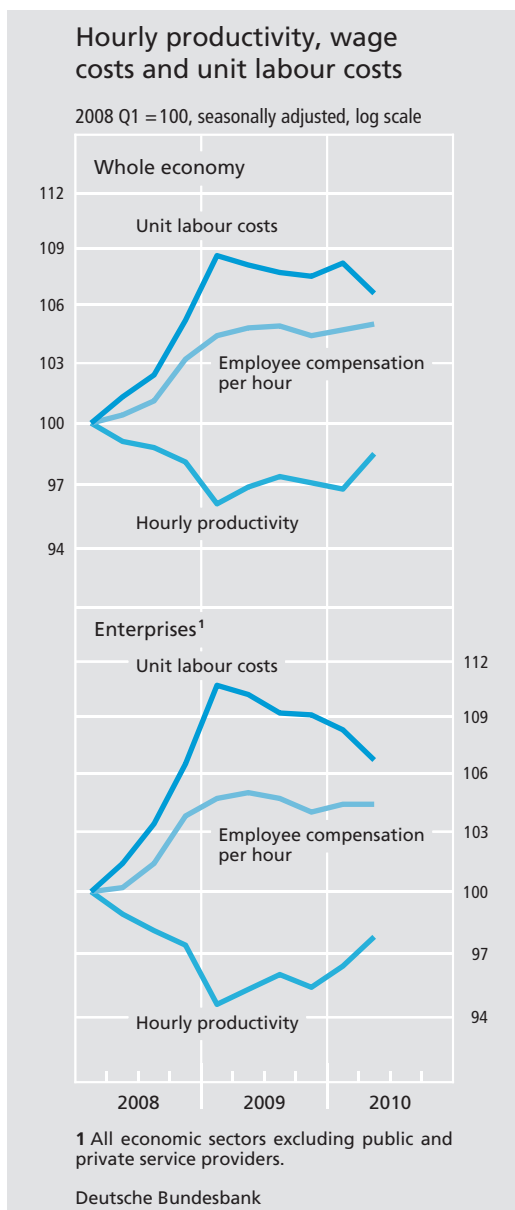
The many different measures taken by enterprises to manage the deployment of labour in line with the necessary cutback in production could not prevent a massive decline in hourly productivity in the wake of the financial and economic crisis. Taking the first quarter of 2008 as a point of reference, hourly productivity fell by an aggregate seasonally average of almost 4%⁴ within the ensuing 12-month period; in the corporate sector the figure was as high as 5%. Declines on such a scale had not been witnessed for decades. This could

be due to the fact that the working hours of staff working in firms' administration, sales and development departments were cut back much less than those of employees directly engaged in the production of goods. For example, the Ifo Investment Survey shows that, during the crisis, many enterprises made efforts to maintain sales markets and develop new customer bases, not least by means of product innovations. By contrast, there was a less marked closure of entire production sites – which would have affected not only production itself but also associated services. This is also suggested by the fact that, unlike in earlier economic downturns, corporate investment decisions were not focused on the rationalisation motive.

There was a marked increase in unit labour costs owing to the fact that labour costs did not decline as much as hourly productivity. In the whole economy, the increase peaked at a seasonally adjusted 3¼% and was significantly higher in the industrial sector at 4%. This was due not only to the costs incurred by employers as a result of partial compensatory pay in the case of reductions in weekly working hours and short-time working. Working time accounts also played a part in this: with a fixed labour income geared, say, to standard weekly working hours, flexible working arrangements along with a buoyant orders tend to result in more hours being worked than remunerated. In a cyclical downturn, this

*Labour costs
up on an hourly
basis*

⁴ A structural effect also played a part in the decline in aggregate hourly productivity. According to estimates, however, the increased weight of the generally less productive services sectors in the total number of hours worked in the whole economy accounts for no more than one-eighth of the overall change.



situation is reversed. The resulting changes in unit labour costs are temporary and automatically associated with additional or lower revenues for the employer, possibly subject to phase shifts. This does not affect enterprises' profitability *per se* in the medium term as long as the resulting fluctuations in liquidity can be absorbed on the financing side, especially during downturns (see pages 36 to 43).

Overall hourly productivity began to pick up slowly from the second quarter of 2009, but has been increasing quite sharply of late. Even so, no more than just over 60% of the earlier downturn has been recovered. The up-turn nevertheless had a perceptibly dampening impact on unit labour costs, especially as there has been a significant slowing of the growth in hourly earnings. The 2010 pay round focused on the objective of safeguarding employment. For the first time since the Second World War, the unions in a number of major manufacturing sectors, such as the metal-working and electrical engineering sector and in the chemicals industry, entered negotiations without any specific wage demands. In these sectors, like in the private and public banking sectors, no regular increases in pay rates were agreed for the current year. Instead, only one-off payments were arranged, which, in some cases, can be staggered according to firms' performance and profitability. At the time these settlements were concluded, there was an exceptionally high level of uncertainty about the future outlook for the economy. The social partners in the individual sectors countered this in different ways. The very short duration of the agreement in the chemicals industry makes no commitment for the coming year. By contrast, both parties in the metal-working and electrical engineering industry agreed a quite considerable increase in income in percentage terms. In the agreements concluded during the crisis, regular increases in pay rates were very moderate overall. The year-on-year rate of increase in the agreed basic rates of pay, which can be taken as an indication of the permanent component of

Normalisation of unit labour costs owing to recovery in productivity and moderate pay agreements

negotiated wages, therefore fell quite steadily from 3.0% in the first quarter of 2008 to 1.4% in August 2010. In manufacturing, they were no more than 0.6% up on the year at the current end, compared with 3.1% one year earlier.

Adjustment processes not yet at an end

The financial and economic crisis has brought about a huge change in the relationships between output, labour input and labour costs within a relatively short space of time. Econometric studies using a vector error correction model suggest that, despite substantial corrections since the second quarter of 2009, there is still a considerable deviation from the long-term relationships at the current end (for further information, see pages 66 and 67). The recovery in hourly productivity will probably persist for a time for purely cyclical reasons, while safeguarding the successes in employment in the longer term will depend, in particular, on whether the social partners continue acting with sound judgement.

Labour market matching in the context of accelerated structural change again and increasing labour market participation

Labour market matching has not suffered so far

In downturns, the labour market is usually not only usually placed under cyclical strain, there are also often structural shifts. The ability of the labour market to function smoothly then has to be demonstrated by matching, with as little friction as possible, the potential workforce to the enterprises' demand for labour, which may also be characterised by changes in required skills. This matching function was undoubtedly strengthened by the

resolute policy of reform adopted in the first half of the past decade. Nevertheless, an alleviating factor in the prior upswing was a temporary slowdown in the pace of structural change in favour of the tertiary sector.⁵ Owing to the financial and economic crisis, this process has picked up speed again. So far, the effects of these gradual shifts can be identified only in outline. It does seem, however, that labour market matching has not suffered significantly thus far. Given flexible forms of employment and improved job placement mechanisms, workers released in those sectors of the economy that were severely affected by the crisis generally have good prospects of being re-employed given a setting where these sectors are experiencing a rapid cyclical recovery. A considerable part of the increase in employment in the services sectors derived from the reservoir of persons who had previously been inactive.

During the financial and economic crisis, there was a noticeable rise in unemployment only in the period from the final quarter of 2008 up to the final quarter of 2009 based on the Federal Employment Agency's extended definition of underemployment, which was not subject to any methodological change in measurement in the period under consideration. The increase amounted to no more than around 450,000 in seasonally adjusted terms, which was significantly lower than in earlier recessionary periods. Roughly three-quarters of the increase in registered unemployment was due to persons receiving

Only short-term and subdued rise in unemployment

⁵ See Deutsche Bundesbank, Improved matching on the labour market? – Evidence from the Beveridge curve, Monthly Report, November 2008, pp 54-55.

Does the relatively moderate adjustment of hours worked during the crisis indicate a change in enterprises' demand for labour?

In the wake of the slump in demand in the fourth quarter of 2008 and the first quarter of 2009, German firms made a massive cutback in production. Given the extremely subdued adjustment of employment, not even the perceptible reduction in weekly hours worked by the employees was able to prevent a considerable decline in hourly productivity. At the same time, a further consequence of the crisis was an increase in hourly wage costs. Indeed, the cost-earnings ratio of a working hour deteriorated substantially within a few months. It is of particular interest in this context to ask why enterprises evidently departed from their earlier patterns of behaviour and did not respond in the short term with stronger adjustments to labour input.

Apart from short-term control mechanisms like temporary work and operating leasing, the allocation of the factors of production is planned in the medium to long term under uncertainty. The differences between actual demand and sales planning is a key factor with regard to the volatility of a firm's operating surplus because the future orders situation is generally less easy to predict than goods and factor prices. For instance, prior to the slump in earnings following the economic downturn, several sectors posted record results owing to unexpectedly high demand. Therefore, the relationship between output, labour input and wage costs should not be regarded as a "snapshot" but be examined, in a longer-term context, using a suitable criterion.

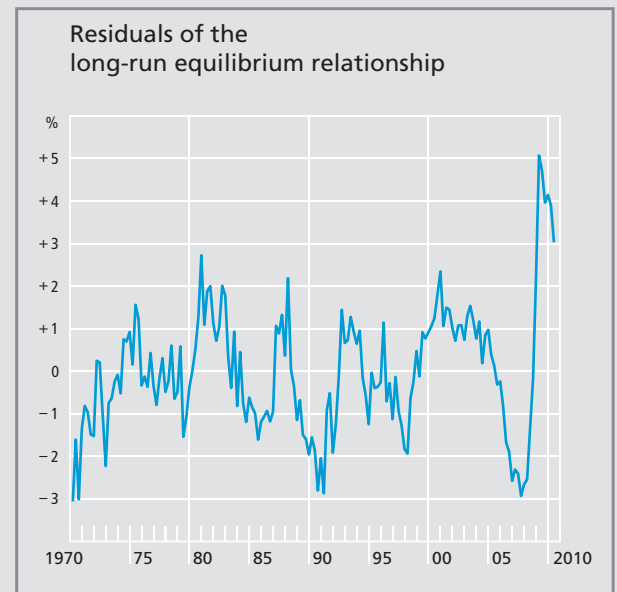
An established reference point of this kind is the labour demand function derived from a cost-minimisation approach which makes the plausible assumption that enterprises are in a position to determine the factor input required to produce a specific output at given goods and factor prices. Assuming further a production function with the time-invariant elasticity of substitution σ between the primary factors, labour and capital, as well as constant returns to scale and labour-augmenting technological progress, which grows at the unchanged rate θ per time unit, then the first-order conditions result in the following equation for determining labour input L , measured in hours worked during the period t

$$\ln L_t = \ln L_0 - \sigma \ln W_t + \ln Y_t - (1 - \sigma) \theta t,$$

where W denotes the real hourly wage and Y the output of goods.

1 The step dummy variable models the statistical break in the first quarter of 1991 which is connected with the linking of west and pan-German data. — 2 The standard errors of the parameter estimates are given in parentheses. In central parameters, such as the elasticity of substitution, the estimation proves to be robust to different estimation methods and sample variations. — 3 Under normal circumstances,

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In this context, the macroeconomic variables are regarded as endogenous and non-stationary. For the empirical study, which is based on the time series of hours worked, value added (at basic prices) and real compensation per hours worked – all series refer to the whole economy – it is therefore advisable to specify a vector error correction model, provided cointegration can be established. Statistical tests in the sample from the first quarter of 1970 up to the second quarter of 2010 support the hypothesis that there is precisely one linear combination between the time series, taking into account a linear trend and the step dummy variable s_{91} ,¹ from which stationary residuals result. The estimation of the cointegrating relation yields²

$$\ln L_t - \ln Y_t + 0.69 \ln W_t + 0.0025 t - 0.057 s_{91} + 1.14 = \varepsilon_t,$$

(0.08) (0.0005) (0.016) (0.19)

The long-run equilibrium relationship between the variables can thus be identified as the labour demand function derived from economic theory.

The positive long-term residuals ε since the beginning of the crisis may be interpreted as indicating that actual labour input was greater than the number of hours worked that should

enterprises would have further intensified their fixed capital formation. Furthermore, at that time, given the prevailing shortages in the labour market, there would probably have been more dynamic wage growth. These adjustments would then have been able to restore the long-run equilibrium in a scenario where output would have been unaffected by the crisis. — 4 Statistical tests provide evidence of a struc-

be needed to produce in terms of cost efficiency the demand for goods with the given production structures, especially the fixed capital stock, and real wages. At its cyclical low in the first quarter of 2009, hours worked exceeded this reference by 5% and the overhang of 3% at the current end is extremely high compared with the deviations observed prior to the crisis. The extent of labour hoarding in the past two years can therefore be described as exceptional. However, the residual analysis also illustrates markedly negative deviations from the long-run equilibrium at the end of the preceding upswing. This was due mainly to the fact that hours worked expanded so rapidly that it was not possible to adjust the capital stock sufficiently, which *per se* dampened the marginal productivity of labour.³ Taking the two observations together, it follows that around one-third of the rapid shift in the cost-earnings ratio in the fourth quarter of 2008 and the first quarter of 2009 is to be seen as a return to the long-term normal position.

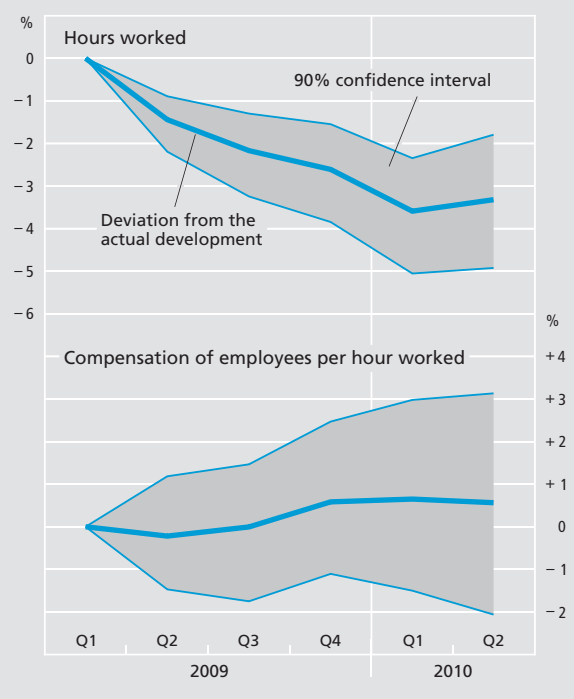
In purely statistical terms, the concentration of exceptionally high residual values at the end of the sample suggests that a structural break may have occurred in the long-run equilibrium relationship as a result of the crisis.⁴ It would, however, be premature to draw this conclusion insofar as the adjustment processes, which naturally take longer following a shock on this scale, are not yet over. To assess whether hours worked and wage costs are adjusting in a significantly different manner than hitherto, hypothetical response paths are simulated from the model structure for both variables starting at the beginning of the recovery in the second quarter of 2009. The results are conditioned on the observed time profile of output, meaning that the simulated path of both labour market variables is influenced not only by the decline in demand in the fourth quarter of 2008 and the first quarter of 2009 but also by the cyclical recovery which followed.⁵

The study clearly illustrates that hours worked in the crisis were not adjusted downwards to the extent that would have been expected according to the response pattern determined using the (conditional) vector error correction model. The difference, which – even if statistical uncertainties are taken into account – is different from zero, increased throughout 2009 and in the first half of 2010 accounted for 3½% of hours worked. By contrast, with respect to real hourly wage compensation there has so far been no significant divergence between actual developments and the simulated path.

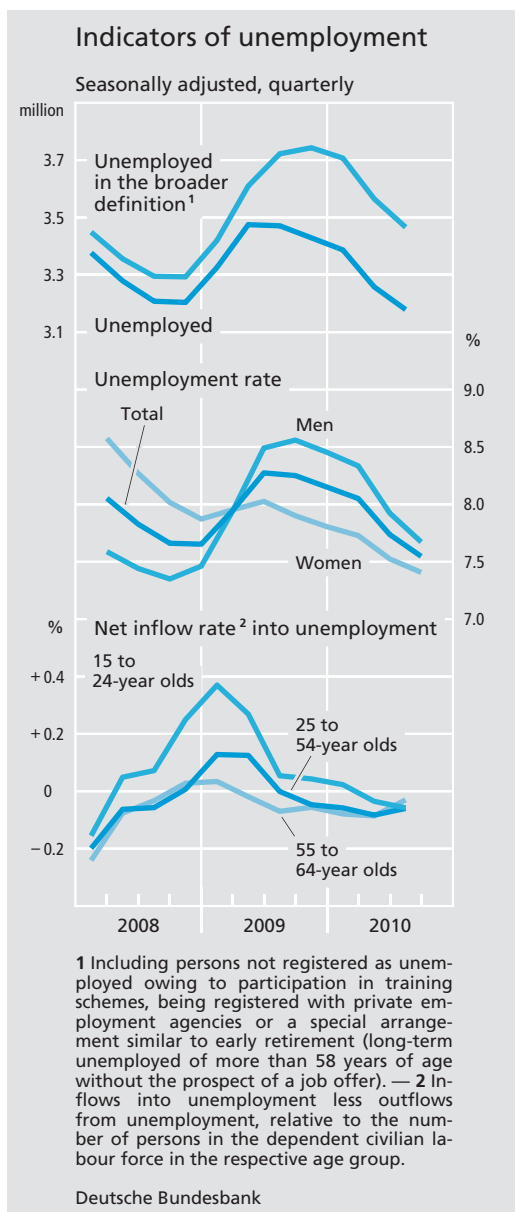
tural break in the cointegration relationship since the final quarter of 2008. For more information, see D W K Andrews and J-Y Kim (2006), Tests for cointegration breakdown over a short time period, *Journal of Business and Economic Statistics* 24, pp 379–394. — 5 The assumption made therein that the economic recovery and the crisis-induced slump in output were not affected in advance by developments in the labour

The analysis suggests that enterprises showed a relatively strong demand for labour in the crisis, not just from a cyclical perspective but also structurally. This may be due in part, first, to the greater scope afforded to firms as a result of making the labour market more flexible over the past decade, which is therefore incorporated only to some extent in the response pattern of the model, which is derived from developments over the past forty years. As a result, this additional room for manoeuvre has the effect of reducing staff planning costs, including the associated risks. Second, expectation effects are also likely to have played a part. Since the medium-term outlook for sales was evidently regarded as not severely affected, firms undertook little rationalisation. Moreover, the prospect of an increasing likelihood of shortages in the labour supply may have affected the demand for labour in advance.

Adjustment of hours worked and wage costs resulting from simulations with the vector error correction model



market can be justified by the fact that the pronounced fluctuations in the demand for goods were primarily the result of external factors. In addition, the time horizon of the simulation spans only five quarters; in this short time-frame the interaction between output and employment (not considered here), which generally only becomes apparent with a certain time lag, is probably of very limited importance.



unemployment benefits under the statutory insurance scheme and has now largely gone back down again, which suggests a largely cyclical effect. Furthermore, the number of unemployed persons receiving the basic allowance has shown comparatively little movement in the past two years. Even as things stand at present, the situation with regard to aggregate underemployment is more or less as favourable as in the third

quarter of 2008, even though only around three-fifths of the crisis-induced decline in output has been recovered so far.

This finding is also notable in view of the fact that the supply of labour increased throughout the crisis, with higher labour market participation being the key factor. There has been an observable trend rise in labour market participation for a long time, although cyclical downturns typically slow down this process temporarily. The unusual response of participation in this downturn is not inconsistent with the standard transmission channels; it is, in fact, a further consequence of the specific adjustment pattern in the labour market. The marginal rise in unemployment largely removed the basis for the “discouraged worker” effect, which is expected to be substantial under normal circumstances. Moreover, early retirement has become financially less attractive than it used to be. It was only in the final quarter of 2008 and the first quarter of 2009 that inflows into unemployment among the group of 55 to 64-year olds were slightly higher than the corresponding outflows. While the net inflow rate of workers aged between 25 and 54 was in positive territory only for a little longer, young members of the labour force, in particular, were again affected by unemployment during the crisis.

The growing demand for labour in the healthcare and education sectors benefited mostly women, which is also indicated by the rise in part-time employment, part of which was (re)activated from the latent labour force. There were opposing trends in male and female unemployment. The quite percep-

Further rise in labour market participation during the crisis

Growing female labour market participation a significant factor

tible loss of jobs in industry led to a seasonally adjusted rise in the male unemployment rate of more than 1 percentage point in the period from the fourth quarter of 2008 up to the fourth quarter of 2009. The corresponding female unemployment rate has been on a trend decline for years. In the first half of 2009, this process was interrupted for a short time. Even though more men have found employment again in the wake of the economic recovery, the unemployment rate among women is still lower than that of men.

*Further reform
potential in the
labour market*

It is due, above all, to the increased cyclical resilience of the labour market that unemployment is currently much lower than a few years ago, even though the economic slump has not yet been entirely overcome. It is also

notable that the sectoral reallocation processes have evidently not increased structural unemployment and are, furthermore, encouraging labour market participation. Even so, the number of persons in the labour force not obtaining a job in the non-assisted labour market is still too high. It therefore still remains a major economic policy task to adapt the general conditions so that additional employment opportunities are created by enterprises and incentives to take up employment are strengthened. This mainly concerns the low-skilled and long-term unemployed. A government guarantee of high sector-specific minimum wages is not a strategy that promises success. It runs counter to the desired recovery in the tertiary sector that is under way.