WDN Country Report: Germany

Daniel Radowski, Deutsche Bundesbank

Revised version: 1 February 2017

The euro crisis started in 2008 with a huge negative demand shock and financial disruptions that caused the Great Recession, resulted in a strong rise in unemployment rates, and triggered substantial adjustment processes in several euro-area countries. Germany recovered rapidly and strongly from the slump. This report gives a short overview on key elements that helped German firms rapidly overcome the Great Recession and presents major findings for Germany over the period 2010-13. These insights stem from a euro-area-wide harmonised survey on firms' wage setting behaviour and adaptation to economic shocks. In contrast to several European countries, the German economy was on a continuous growth path and unemployment figures declined over this period. For the majority of firms there was no need to adapt to negative shocks via adjustment channels. For this reason, no major institutional changes on labour and goods markets occurred in the sample period, while more recent reforms (in particular introduction of a general minimum wage, early retirement for long-time workers on full pension) tended to reduce labour market flexibility.

1. Introduction

The euro area was hit by a massive negative demand shock and a slump in output during the financial and economic crisis in 2008 and 2009. In the following years, developments across European countries differed markedly. Some European countries with strong imbalances that needed to be corrected underwent significant adjustment processes and experienced further deteriorations in labour markets, and unemployment was particularly high among specific segments, such as the young. By contrast, Germany already came out of the recession rapidly in the course of 2009 and recorded a steady decline in unemployment rates in the years that followed. Against that background the Wage Dynamics Network (WDN)[1] carried out a harmonised survey across European firms on their perception of the nature of the shocks driving the crisis, their response to these shocks, their adjustment behaviour in the context of national labour market and wage setting institutions, and the impact of possible financial constraints in each country. The period covered by the harmonised WDN survey is 2010-13.

This report provides an overview of institutional instruments that enabled companies to cope with the strong downturn and presents major descriptive survey results for Germany. Since Germany was on a solid growth path in the period 2010-13, the survey findings are on firms'

[1] The WDN is an ESCB research network which conducted a harmonised employer survey across 25 European countries. Its third wave was mainly carried out in late 2014.

wage setting and adjustment behaviour to the economic environment when Germany's economy experienced continuous growth.

In the wake of the global financial and economic crisis, the German economy suffered its sharpest decline in overall economic activity since World War II. German industry's pattern of specialisation meant that the global demand shock in the fourth quarter of 2008 and the first quarter of 2009 hit domestic activity very hard. This led to a significant decline in exports and in business investment. The domestically-oriented sectors proved to be comparatively robust, however. Private consumption, in particular, was relatively resilient to the shock supported by the relatively stable labour market. This discrepancy between external and domestic economic developments distinguishes Germany from other countries, which were characterised by major structural distortions.

Although economic activity had dropped by 5.6 % in 2009, it subsequently recovered quite rapidly. Most of the adjustment in the labour market between 2008 and 2010 took place via several working time channels, namely short-time work, working time accounts, and the reduction of working hours by contract.[2] There was a significant amount of labour hoarding. Overall, employment was quite stable, and there were just a few dismissals. Although in manufacturing some staff were laid off, during the recovery employment returned to the pre-crisis level in 2012. During the recession and afterwards, health, education and child care, in particular, as well as professional and other business activities (excluding temporary work) were characterised by rising employment.

Strongly affected by a huge negative external demand shock, firms were forced to cope with this unexpected situation very fast. It was of great advantage that the required adjustment instruments were already available, both from the political side and from the social partners. These tools enabled firms to react to the recession very quickly. In particular, clauses for times of crisis that had been settled in many collective agreements beforehand substantially facilitated a rapid and uncomplicated adaptation by firms to the sharp downturn.

Policy measures

Looking more closely at the specific policy measures that were implemented in Germany from the beginning of the crisis, the most relevant instruments were short-time work and changes in collective agreements. Additionally, some regulation for temporary agency workers was introduced. The *temporary* extension of short-time work focused on the manufacturing sector. In addition, it was quantitatively relevant only in the transport sector and among temporary agencies. Starting from early 2009, the conditions for employers to use short-time work were made more favourable with respect to entitlement duration, access and costs. Short-time work played a notable role in the recession, but was only one adjustment factor among others. The instrument was not excessively used compared with previous recessionary phases.

[2] See Deutsche Bundesbank (2010), Monthly Report, October 2010, Labour market, pp. 55-70.

A major factor for firms in coping with the crisis was that, during the German recession, social partners reacted quite flexibly and cooperated in a trustful way. They focused on safeguarding jobs and were willing to make concessions in wages. This means that, first, the scope for deviating from terms settled in standard collective agreements before the crisis was used and, second, wage policy was rather moderate. As an example, in 2010 the IG Metall started wage bargaining in the metal and electrical industry without any wage demand and in the end accepted a zero round in regular wages and salaries for one year. In the following years, after the Germany economy and its foreign markets had recovered surprisingly rapidly, employees received higher additional pay benefits above the general pay scale as a kind of compensation for those previous wage concessions. More flexibility at the company level was introduced during the crisis through a number of supplementary collective agreements to reduce weekly working time and by firm-level agreements on guaranteeing jobs. Many collective agreements that had previously been concluded provided for working time corridors, working time accounts, and opening clauses for times of crisis. Working time accounts were widespread in Germany (affecting about half of the employed) and in some branches there were working time corridors (i.e. regular working time can be adjusted to business needs). Opening clauses allowed firms to further reduce the regular working time (instead of short-time work), usually with a proportional cut in compensation.

During the period of extensive short-time work, employers often topped up legal short-time working benefits with additional supplements as stipulated in a number of collective wage agreements. In the chemical industry, for instance, these supplements raised the net earnings level up to 90 % of the regular wage level.

Temporary agency employment had increased significantly during the boom period, particularly in manufacturing, while it was greatly reduced during the recession. Afterwards, some firms were accused of evading collective agreements and unfair wage practices, for in some cases, employees had remained in the same jobs but had been redesignated as temporary agency workers who receive lower payment. A new legislative regulation has been in force since May 2011 which prohibits dismissing employees and hiring them again later as temporary workers via specialised temporary-employment agencies. Moreover, e.g. in the metal and chemical industries, social partners agreed on staggered wage benefits for temporary agency workers in order to close to some extent the wage gap between those workers and permanent staff.

In line with the economic recovery, sector-specific minimum wages became more widespread. The federal government decided to introduce a general minimum wage of € 8.50 per hour, which came into force in January 2015. Moreover, administration facilitated experienced skilled workers to retire on a full state pension at the age of 63. Both reforms limit labour market flexibility.

Wage setting system

The German collective wage setting system is characterised by a highly differentiated interplay between sector-level and firm-level regulations. Trade unions and employer associations agree on specific minimum conditions at the sectoral level. Management and works councils implement these agreements at the firm level and typically negotiate additional (social) benefits. Sectoral collective bargaining remains the predominant wage setting level in Germany.

The principle of autonomy of wage bargaining is laid down in the German constitution and implies that negotiations take place without the government exerting direct influence. Germany had no statutory minimum wage imposed by the political process over the survey period. Rather, an elaborate system of wage floors is negotiated periodically between trade unions and employer associations, typically at the industry and regional level.

This model of industrial relations has been successful in Germany, where negotiations with unions and participation of works councils in decision-making processes are regarded as an important basis in furthering common interests and possibly even improving productivity. As a consequence, bargaining is far more consensus-based and less confrontational than in some other countries.

In 2014, according to the IAB Establishment Panel,[3] overall collective bargaining coverage was 58 %.[4] A total of 50 % of all employees were covered by a sectoral agreement. Firm-level bargaining has grown in importance over the last few years and covers about 8 % of employees. According to the structure of earnings survey[5] of the Federal Statistical Office for 2014 bargaining coverage is somewhat lower: About 41 % of all employees are paid in accordance with a sectoral agreement and only about 4 % by a firm level agreement. However, a significant number of firms that are not formally subject to an agreement report that they apply sectoral agreements as a benchmark for their internal pay scheme.[6]

Over the past two decades, the German collective bargaining system has undergone a number of profound changes. After a period of differentiation and decentralisation, almost all relevant sectoral agreements now contain opening clauses. While at the beginning of this process the majority of trade unions opposed the employers' claims for more flexibility, they later changed their strategy and tried to use this decentralised bargaining to safeguard production sites and jobs at the local level. Germany’s system of industrial relations has

---

[3] The Institute for Employment Research (IAB), Nuremberg, carries out a voluntary representative employer survey of employment parameters at 16,000 individual establishments each year, the IAB Establishment Panel.

[4] Recent data for Germany in 2015 indicate that the level of overall bargaining coverage has not changed.

[5] The structure of earnings survey is a sample survey that covers 60,000 establishments for more than 1 million employees in 2014. It provides information on the distribution of earnings of employees and on the impact of important factors influencing the individual earnings level. According to the Earnings Statistics Act, employers are obliged to provide information.

[6] J.T. Addison, P. Teixeira, K. Evers, and L. Bellmann (2016), Is the Erosion Thesis Overblown? Alignment from Without in Germany, Industrial Relations, Vol. 55, No. 3, pp. 415-433.

adapted in an impressive way to strong challenges in the past (e.g. relocation of production to low wage countries, strong negative demand shock during the Great Recession) by gradual adaption.

2. Survey

The German version of the WDN survey covers the period 2010-13 (including all core questions)[7] when the domestic economy grew continuously. As the number of pages in the questionnaire was limited to two double-sided pages, only a few questions were also asked for 2008-09.[8] In addition, as there was not enough time to carry out an extended pilot study, our survey partner tested the questionnaire by asking a small number of selected firms directly. Then, specific formulations were adjusted to improve understanding and avoid misunderstandings in the German language. The survey was conducted in June 2014 by the ifo Institute mainly through the post and by fax. The respondents were CEOs, controllers or personnel managers. A polite reminder was sent by fax when firms had not answered by a previously announced deadline. Data were then collected and examined in July 2014.

The gross sample contains about 10,000 firms. All firms regularly belong to the monthly ifo Business Survey Panel. The survey covers firms in manufacturing, construction, and the services sector. Sampling by ifo is carried out “by purpose”, i.e. it is not wholly representative but still carefully designed to yield a balanced picture of the above-mentioned sectors. The ifo Institute regularly compares its stratification with other representative firm databases to provide a high-quality copy of the sectoral structure of the economy in terms of NACE 2 classification. Larger firms are somewhat overrepresented in the sample. Altogether, about 2,454 firms sent back a completed questionnaire. Thus, the overall response rate was about 24.5 %. The response rate differs between sectors. In construction it was about 36 %, and significantly higher than in manufacturing (25 %) and services (22 %).

The realised sample consists of the following sectors: 28.8 % of firms belong to manufacturing (including energy), 14.1 % to the construction sector, and the majority to services (57.1 %). A closer look at the services sector shows that, according to NACE Rev.2, about 32.7 % of firms are in business services (excluding trade), 22.9 % are in wholesale and retail, 1.1 % belong to financial intermediations, and 0.4 % are in non-market services. Financial institutions and non-market services are only included as ifo drew a sample in services using an older German-specific sector classification.

---

[7] This period covers the core version of the WDN questionnaire. To accommodate some countries’ restrictions regarding the length of the WDN questionnaire, it contains core questions to be asked by every country, and non-core questions that are asked on a voluntary basis. Core questions concern changes in the economic environment, labour force adjustment, wage adjustment, and firm-specific characteristics.

[8] A descriptive analysis of these additional answers reveals that German firms reacted quickly and resolutely to the massive negative demand shock in 2008-09. Moreover, in manufacturing there are differences in firms’ adjustment behaviour, depending on their individual assessment whether this demand shock would be structural or temporary. See Deutsche Bundesbank (2015), Monthly Report, July 2015.

If one considers all responding firms, the response behaviour differs from question to question, which may be related to their complexity and framing. Response rates vary between 99.6 % and 59.6 %. On average, they are significantly above 90 %. Most questions indicate a tolerable number of missing values. The majority of missing data issues are of minor importance for the empirical results, and, overall, the quality of data is good.

Results from a previous wave

The first wave of the WDN survey on wage and price setting was conducted in October 2007. It focused on wage setting practices, the frequency of price and wage changes, and the links between wage and price rigidities. It made available new evidence on the extent and reasons behind different types of wage rigidities. Moreover, it covered other margins of cost adjustment beyond base wages such as bonuses, flexible forms of employment, etc. Finally, the survey addressed differences in firms' adjustment behaviour to alternative shocks. The WDN I wave was also carried out in written form among the firms participating in the monthly ifo Business Cycle Survey. Altogether, about 4,600 German firms were asked to participate, 3,100 of which from manufacturing industries and 1,500 from service industries. The overall response rate in the survey was about 39 % and differed between 36 % in manufacturing industries and 44 % in services. In contrast to the third wave of the WDN, the construction sector was not considered, and – mainly due to a shorter questionnaire – response rates were significantly higher. Germany did not participate in the second wave of the WDN survey.

Coherence

Responses to the WDN III survey are consistent with the macroeconomic development mentioned in the introduction and the main institutional characteristics of the labour market. The labour market adjustment reported by the responding firms during the Great Recession matches the macroeconomic picture. The German economy had undergone fundamental reforms on labour and goods markets that created the foundations for a solid growth performance afterwards. This is reflected in the observation that, in many questions on changes in institutions, structural factors and barriers to growth, the most frequently ticked answer options are "unchanged", "not relevant" or "of little relevance". The negligible amount of finance restrictions reported by the firms is in keeping with the favourable economic development and insights from other data sources. The term of collective agreements is in line with the Bundesbank's negotiated pay rates statistics. Overall bargaining coverage of firms by collective agreements shows tendencies similar to the results from the IAB Establishment Panel and the Federal Statistical Office (Destatis), whereas firm-level coverage seems to be higher mainly due to overrepresentation of large firms in the ifo sample.

3. Main results on adjustment and wage setting changes

The following descriptive analysis covers all 2,454 firms and weights responses using employment as measured by the Federal Employment Office in order to adjust for firm size.[9]

Sources and size of shocks

The first question asks for firms' perception of changes in the economic environment between 2010 and 2013 (Table 1). The level of demand improved for about 42 % of respondents compared to pre-crisis levels. One-quarter of firms reported a strong or moderate decrease in demand. But volatility and uncertainty of demand increased for about 30 %. Almost 30 % of respondents mentioned that customers' ability to pay had worsened. Access to external financing and the availability of supplies were more or less unchanged.

From a sectoral perspective, demand is somewhat lower in trade than in other sectors, and construction has the lowest volatility or uncertainty. There are no significant differences in external finance opportunities, customers' paying behaviour or access to materials across sectors.

Table 1: Changes in the economic environment: How following factors affect firm's activity

	Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Level of demand	2.7	21.8	33.4	33.8	8.2
Volatility /uncertainty of demand	1.0	12.2	57.0	26.1	3.6
Access to external financing	3.9	16.2	65.0	13.5	1.3
Customers' ability to pay	2.6	25.7	58.6	12.5	0.6
Availability of supplies	0.6	7.4	82.0	9.7	0.4

Firms that experience severe external shocks are forced to react rapidly. Generally, there are several adjustment instruments and firms may apply specific measures depending on their expectations as to the duration of these shocks. Therefore, the survey focuses on those firms whose business operations were strongly affected, and on whether the effects were transitory, partly persistent or long-lasting (Table 2). Many firms answered this question although they did not report a strong increase or decrease in their business. Excluding these firms, only a small sample remains. It consists of 93 to 301 firms, depending on the specific

[9] Note that the ifo Institute applies a different method of weighting the macro level results: first, by company size (larger firms are given a higher weight for the results) and second, by the share of gross value added of the appropriate subsector in accordance with the German Classification of Economic Activities. As we do not have any information on individual firms' annual sales volumes, we apply sample weights from the Employment Statistic.

answer option. The large majority of the remaining firms assess the effects of these changes in their business segments as long-lasting. Only very few firms indicate the answer option "transitory". In particular, just 2.1 % of firms consider access to external financing through the usual financial channels to be transitory.

Turning to the sectoral perceptions of those firms whose business operations have been strongly affected, firms in services sectors regard these changes in the level of demand as long-lasting more frequently than firms in other sectors. While manufacturing and business services expect volatility and uncertainty in demand to be long-lasting, this is not the case for construction. The construction sector expects rather mid-term consequences in financing conditions, whereas all others anticipate long-run effects. Regarding customers' willingness to pay and meet contractual terms, all sectors predict mainly long-lasting changes.

Table 2: For those factors which affected your firm strongly, were the effects transitory, partly persistent or long-lasting?

	Transitory	Only partly persistent	Long-lasting
Level of demand	4.9	32.7	62.4
Volatility /uncertainty of demand	6.7	25.4	67.9
Access to external financing	2.1	22.1	75.8
Customers' ability to pay	6.0	13.5	80.5
Availability of supplies	12.6	26.7	60.7

Turning to the evolution of prices and demand during 2010-13, more firms reported an increase than a decrease in demand. This is also reflected in the corresponding development of prices in domestic and foreign markets. It can be seen from Table 3 that domestic demand for the main product increased between 2010 and 2013 for about 44 % of firms, whereas foreign demand increased for about 35 % of firms. This is in line with the picture saying that many more firms reported a moderate or strong increase in prices in domestic than in foreign markets.

Table 3: Evolution of prices and demand

	Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Domestic demand for main product	6.2	19.7	30.2	36.9	7.0
Foreign demand for main product	4.2	9.1	50.4	27.3	9.0
Price of main product in domestic markets	4.3	14.9	29.1	49.1	2.6
Price of main product in foreign markets	3.0	11.0	51.5	33.2	1.3

Table 4: Financial constraints

	Not relevant	Of little relevance	Relevant	Very relevant
Credit was not available to finance working capital	80.8	10.3	5.4	3.4
Credit was not available to finance new investment	78.5	12.5	5.6	3.4
Credit was not available to refinance debt.	83.8	8.3	4.3	3.5
Credit was available to finance working capital, but conditions (interest rate and other contractual terms) were too onerous	82.0	10.8	4.8	2.5
Credit was available to finance new investment, but conditions (interest rate and other contractual terms) were too onerous	82.8	10.5	4.4	2.3
Credit was available to refinance debt, but conditions (interest rate and other contractual terms) were too onerous	86.8	7.9	3.2	2.2

During the European crisis, firms in some countries may have experienced severe difficulties in accessing financial resources for their business operations or debt restructuring. In order to gain some insights in firms' perceptions on this issue, they were directly asked: "With regard to finance, please indicate for 2010-13 how relevant for your firm each of the following events were. Please choose ONE option for each line." Note that the term "credit" here refers to any kind of credit, not only to bank credit. Descriptive results in Table 4 show that financial restrictions were not an obstacle for the large majority of firms. Less than 10 % of respondents ticked the options "relevant" and "very relevant". This finding matches data from other sources revealing that most German companies did not suffer from significant credit supply constraints.

Methods of adjustment: cost/wages versus labour force size/composition

Over the observation period, Germany was in a favourable situation, which allowed firms to share rising valued added with their staff. In addition, many job seekers entered the market and were hired as new employees. About two-thirds of firms reported a moderate or strong increase in total costs (Table 5). According to almost three-quarters of responding firms, the major component behind this cost push shock is related to rising labour costs. Half of employers cited rising costs of supplies and "other costs". The latter category subsumes working costs, energy costs, rents, public fees and charges, leasing costs, and marketing expenditures. Financing costs seem to be unchanged or even decreasing for 80 % of firms.

Table 5: Total costs and their components

	Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Total Costs	2.5	12.4	19.4	52.5	13.2
Labour costs	1.7	7.0	19.2	54.9	17.2
Financing costs	9.4	23.7	48.5	13.7	4.7
Costs of supplies	1.0	7.5	42.1	42.1	7.2
Other costs	0.7	9.4	39.2	23.2	27.5

A closer look at the labour cost components reveals that the main adjustment was made by raising nominal wages. Base wages increased according to almost 80 % of firms, and about 10 % report even strong wage hikes (Table 6). Bonuses and fringe benefits were raised by more than 40 % of employers. All other labour cost components remained fairly unchanged for the vast majority. Note that in line with the economic upswing, one-third of firms hired new staff with a permanent contract. Significantly fewer firms hired temporary, fixed-term or agency workers. The answer category "Other components of labour costs" covers, e.g., travel expenses, company pension schemes, qualification costs, or costs due to a reclassification of the firm's internal pay scale.

Table 6: Labour cost components

	Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Base wage	0.6	2.5	18.8	67.8	10.3
Flexible wage components (bonuses, fringe benefits, etc.)	1.0	2.7	54.3	36.4	5.6
Number of permanent employees	1.6	7.6	59.8	27.5	3.5
Number of temporary / fixed term employees	1.8	6.6	69.1	19.7	2.8
Number of agency workers and others (free-lance work, etc.)	3.9	6.3	71.5	15.6	2.7
Working hours per employee	0.5	7.5	71.1	19.2	1.7
Other components of labour costs	0.3	1.6	71.5	15.6	11.0

Table 7: Labour force adjustment

	Not at all	Marginally	Moderately	Strongly
Collective layoffs	93.4	3.5	1.5	1.6
Individual layoffs	40.8	40.9	15.2	3.1
Short time work (financed by government or social partners)	69.3	13.9	11.6	5.1
Non-subsidised reduction of working hours	69.1	18.6	9.4	3.0
Non-renewal of temporary contracts at expiration	56.2	29.1	11.6	3.1
Early retirement schemes	75.2	18.5	4.4	1.9
Freeze or reduction of new hires	48.7	26.9	18.9	5.5
Reduction of agency workers and others	74.0	16.9	6.3	2.9

An alternative to cost adjustment are changes in the composition of the labour force. Thus, firms were asked whether they perceived the need to significantly reduce their labour input or alter its composition. Over the observation period, less than one-fifth of firms had to take some adjustment measures such as dismissals or short-time work (Table 7). As most firms experienced a period of economic expansion, the need to implement strong adjustment tools was quite low. About one-eighth of companies reduced their working hours by working time accounts or contract, mainly in manufacturing and construction. Short-time work was mainly relevant for construction to bridge the winter.[10] Collective lay-offs were not relevant and only a few firms dismissed individuals. About one-quarter of firms froze or lowered the number of hires. Temporary contracts were not renewed at 15 % of the firms. In contrast to the Great Recession, adjustment via temporary agency workers, mainly in manufacturing, was used more rarely and their stock was reduced by just 9 % of the firms.

Changes in wage setting

The harmonised WDN survey was designed to broaden our understanding of the effects of different labour market institutions on wage setting practices. Wage bargaining institutions have an impact on the extent to which and how quickly wages are adjusted in response to various economic shocks. In particular, they may impact key features of wage setting that determine the degree of real wage rigidity: the frequency of wage changes, the relative flexibility of the wage of newly hired employees, and the degree of wage indexation. The following describes the survey evidence on those features for Germany.

As already mentioned, the German collective wage setting system is dominated by sector-level agreements. This is in line with our survey results implying that 42 % of firms pay wages according to the conditions of a collective agreement (Table 8). The prevalence of collective wage agreements, however, is only a rough indicator of the limits to wage flexibility imposed by collective bargaining. About 6 % of respondents report that they evaded sectoral collective agreements and opted out. The significant decline in bargaining coverage is reflected by the fact that more than half of all firms do not apply any collective agreement. As an alternative, firm-level agreements are spreading quickly. In general, firm-level settlements are more flexible than those reached at the sector level and give employers greater manoeuvrability to react to economic circumstances. According to our survey, firm-level coverage is significantly greater than in other data sources, which is mainly due to larger firms being overrepresented in the ifo sample and not covering all industries of the economy.[11] Another reason for differences might be that "firms" and "establishments" are based on different concepts for the sample unit. About half of employees are covered by

[10] One may distinguish between regular and seasonal short-time work: *Regular* short-time work means that government compensates part of the wage of an employee when his employer needs to reduce wages and working times in periods of *economic distress*. *Seasonal* short-time work is different and usually applied in the *construction sector*: Workers have the availability to receive seasonal short-time allowance for a loss of working hours due to *weather conditions.* The German questionnaire does not distinguish between these two forms.

[11] The sample weights used from the Employment Statistic may not completely balance out this effect.

some kind of sector or firm-level agreement, which is below the number reported by the IAB Establishment Panel but above the figures of the Federal Statistical Office.

Table 8: Wage agreements, firms' coverage in percent

	Collective agreement	Firm level agreement
No, such an agreement does not exist.	52.5	76.4
No, firm opted out.	5.8	10.0
Yes	41.7	13.6

A further question focuses on the frequency of changes of collective wage agreements and reveals that about 40 % of respondents never change their wages according to collective agreements or do not apply them (Table 9). Regarding those firms under collective wage agreements, the contract is typically negotiated for a duration of between one and two years for 26 %. This is in accordance with data from the Bundesbank‘s negotiated pay rates statistics. The same fraction of firms has contract terms of either once a year or every two years.

Table 9: Frequency of changes in collective wage agreements

More than once a year	0.4
Once a year	12.4
Between one and two years	26.3
Every two years	13.5
Less frequently than once every two years	6.9
Never/Not applicable	40.5

The frequency of wage changes may provide an indication of the degree of wage stickiness. Typically, nominal wages are changed once a year, as around one-third of firms reported (Table 10). This is consistent with findings by the WDN I survey. A further 29 % adapt base wages between every one and two years. Note that this finding does not contradict the results on collective wage agreements. Information provided on collective agreements refers to the duration of contracts and obviously does not consider each stepwise wage increase under the agreement.

Table 10: Frequency of base wage changes of an employee

More than once a year	3.1
Once a year	35.6
Between one and two years	29.5
Every two years	10.6
Less frequently than once every two years	15.0
Never/Not applicable	6.2

In the WDN I survey, inflation stands out as the predominant factor triggering frequent wage adjustment (at an annual or infra-annual frequency). We further asked firms whether or not they have a policy that adapts changes in base wages to inflation. If they act this way, firms were asked to report whether or not the adjustment is subject to a formal rule. More than one-third of the firms surveyed replied that they have an internal policy that adjusts base wages to inflation. This is revealed by one-third of firms before 2008 and 42 % for the period 2010-13. Only a share of 5 % states that they adapted their wages in line with an indexation rule. In the first survey wave, about one-third of firms also mentioned that they consider inflation when they change nominal wages. One should bear in mind that the placement of these items in the printed WDN III questionnaire was not ideal and may be the main reason for a somewhat lower response rate on the adjustment of wages to inflation than for most other questions. The suboptimal framing may also be an explanation for the lower response rate on the indexation rule question (60 %).

Wage adjustment may prove to be a useful personnel instrument for firms to lower their costs under difficult economic circumstances. Although the adjustment of wages is hampered by some degree of rigidity, wages are expected to react to the shocks faced by the firm. The WDN III survey elicits some useful information on how firms adapted their wages to the European crisis.

German firms were asked whether they had kept regular wages and salaries constant over the observation period or even cut them instead of increasing them for economic reasons. More than one-fifth of firms surveyed admitted that they had frozen or cut nominal base wages between 2010 and 2013[12] (Table 11). Over this time horizon, nominal wages were much more frequently frozen than cut. The fraction of firms that froze nominal wages dropped significantly from 9.2 % in 2010 to 4.9 % three years later. More than 85 % of employees in these firms were affected. Only around 1 % of firms reduced nominal wages by about 9 % to 10½ % on average. In these firms, between 57 % and 70 % of employees were affected. Our results confirm previous WDN evidence suggesting that wage cuts are more widespread in manufacturing than in services. Moreover, wage freezes were more common

[12] To some extent, these firms are not identical and change over time.

in Germany than wage cuts.[13] Between 2010 and 2013, employers usually froze nominal wages more often in services than in manufacturing.

Table 11: Wage freezes or wage cuts in percent

	2010	2011	2012	2013
Wage freezes	9.2	5.5	4.9	4.9
Wage cuts	1.3	1.3	0.8	1.4

Changes in labour adjustment instruments and main obstacles to hiring

The severity and scale of the European crisis has left deep marks on the labour market in a number of countries. This may have motivated governments to push through institutional reforms. A priori it is very difficult to estimate the effects of these reforms on labour market dynamics and whether they have consequences for the recruitment behaviour of firms. Thus, personnel managers were asked to assess which instrument from a list of measures had become more or less difficult compared to 2010 (Table 12). According to the perception of most German companies, there were no major changes regarding these labour market adjustment measures.[14] However, if there were changes, they were usually ticked as “more difficult”. This is especially true of hires and wage adjustments. Half of respondents reported on problems with hires, and slightly more significantly in business services. Firms perceived stronger downward nominal wage rigidities last year than in 2010. About 36 % of employers state that adjusting wages of incumbent employees had become more or much more difficult. Half of firms claim that it had become much harder to implement lower wages for new hires. One-fifth considered it even much more difficult than in 2010.

[13] D. Radowski and H. Bonin (2010), Downward nominal wage rigidity in services: Direct evidence from a firm survey, *Economics Letters* 106 (2010), pp. 227-229.
[14] A further answer option “To lay off employees temporarily for economic reasons” in the harmonised questionnaire was not included as that choice does not exist in Germany.

Table 12: Have specific personnel actions become more or less difficult cf. to 2010?

	Much less difficult	Less difficult	Unchanged	More difficult	Much more difficult
Layoffs for economic reasons (collectively)	0.5	2.4	71.7	19.1	6.3
Layoffs for economic reasons (individually)	0.5	4.4	65.1	24.3	5.6
Dismissals for disciplinary reasons	0.4	3.7	61.9	28.0	6.0
Hiring (cost of recruitment, incl. administrative costs)	0.6	4.4	43.0	39.2	12.8
Adjusting working hours	0.4	8.2	58.6	29.1	3.7
Moving employees to positions in other locations	0.4	5.1	63.1	26.0	5.4
Moving employees across different job positions	0.4	7.0	66.1	23.4	3.1
Adjusting wages of incumbents employees	0.2	2.9	61.0	28.1	7.8
Lower wages for new hires	0.5	5.7	43.0	31.7	19.1

Some European countries report on obstacles in hiring new workers with a permanent and open-ended contract. This is quite different to Germany, where in the course of the economic recovery firms have steadily increased employment. One important political topic and key challenge for the labour market are skills shortages. Our survey data seem to confirm that there is a lack of qualified staff, at least in some industries, as 60 % of firms complained about the insufficient availability of skilled labour (Table 13). This is especially valid for the construction sector. Thus, skills shortages are the most important obstacle to hiring employees with a permanent contract. Further major impediments for hires in the perception of personnel managers are high wages (45 %) and some uncertainty about the economic conditions (40 %). It is striking that high wages are less often perceived as a very relevant obstacle for permanent staff in manufacturing than in other sectors. About 16 % of firms mention other costs as very relevant and cite as examples job protection, unreliable and unmotivated trainees, or the introduction of a legal minimum wage in January 2015. These expenditures seem to be less relevant for building companies than for others.

Table 13: Obstacles in hiring new workers with a permanent, open-ended contract

	Not relevant	Of little relevance	Relevant	Very relevant
Uncertainty about economic conditions	26.1	34.0	29.8	10.1
Insufficient availability of labour with the required skills	13.3	26.6	38.5	21.6
Access to finance	61.6	25.4	8.2	4.8
Firing costs	47.5	30.1	15.6	6.8
Hiring costs	42.6	40.0	15.6	1.9
High payroll taxes	26.5	36.5	28.8	8.2
High wages	21.4	35.2	31.7	11.7
Risks that labour laws are changed	30.7	38.7	20.4	10.2
Costs of other inputs complementary to labour	47.7	43.1	7.8	1.4
Other	69.2	14.2	2.9	13.7

4. Summary

In contrast to several other – notably periphery – countries, Germany rapidly overcame the Great Recession in 2008-09 and returned to a solid growth path with rising employment. Between 2010 and 2013, the period covered by the survey, the German economy was characterised by continuous growth and downward-trending unemployment figures. Thus, during the European sovereign debt crisis, the majority of German firms were not forced to adapt to strong negative shocks via adjustment channels like in some other countries. As a result, there have not been major institutional changes on labour and goods markets in the sample period. Rather, most adjustments at the firm level took place during the massive downturn in 2008-09. The resilience of the German economy during the crisis was due, not least, to the restructuring measures in the corporate sector and to structural reforms over the past decade. Recent reforms like the introduction of a general minimum wage may have reduced labour market flexibility.

NCB contact person:
Daniel Radowski
Email: mailto:daniel.radowski@bundesbank.de