



HRVATSKA NARODNA BANKA

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**Adjustment of labor costs in Croatia during the crisis –  
results from WDN survey**

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## Introduction

In the second half of 2014, the Croatian National Bank (HNB) conducted a firm survey on the labour market and wage setting. The survey was conducted within the European Central Bank's Wage Dynamics Network (WDN) and Croatia participated for the first time. The WDN is a research network consisting of economists from the European Central Bank (ECB) and the national central banks (NCBs) of the EU countries. The WDN aims at studying the main features of wage formation process and other labour costs determinants, with particular emphasis on impact of labour cost dynamics for monetary policy. An additional goal of WDN is to investigate the relationship between wages, labour costs and prices both at the firm and macro-economic level. As labour costs are a significant component of the total costs of a firm, their timely adjustment to fluctuations in the economic activity is a key to the successful performance and competitiveness of any firm. High total labour costs in the economy may harm a country's competitiveness, which is particularly evident in small open economies where the ability to conduct an active exchange rate policy is limited by the high degree of euroisation.

The first round of firm surveying within the WDN was carried out in the second half of 2007 and in the first half of 2008. The main objectives of the survey were to examine the phenomenon of downward nominal and real wage rigidity, examine the frequency of change in wages and prices and whether there was a link between wage and price setting in firms, analyse the alternative strategies of reducing labour costs, analyse wage setting of the newly hired workers and the adjustment of firms to the hypothetical shocks. As the economic crisis broke out in late 2008, an additional survey was conducted within the WDN in 2009 to examine how firms effectively adjusted to the new business environment due to the financial crisis and a sharp decline in economic activity, and whether the phenomenon of downward wage rigidity was still valid during economic turmoil.

In early 2014, decision was taken to conduct a survey on wage setting and labour market within the WDN research network for the third time to collect detailed information on the changes in the economic environment firms were exposed to (change in demand, access to external financing, customers' ability to pay, etc.) and their impact on firms' activity and to analyse main methods of labour cost adjustment<sup>1</sup> firms have implemented in 2010 -2013 period (for some countries also in 2008 -2009 period). The survey explores the most important labour cost adjustment practices distinguishing between labour input adjustment and wage and price adjustments implemented by firms as a response to changes in macroeconomic environment, with particular emphasis on the role of downward nominal wage rigidity. An additional, specific objective of the third wave of the survey was also to give a deeper insight into the concrete determinants of labour legislation having a direct impact on the firms' labour costs. This enabled assessment of effective labour market

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<sup>1</sup> Previous surveys have shown that labour cost adjustment is a dominant strategy by which firms reduce their total costs. For more detail see Fabiani et al. (2015).

flexibility, as perceived by employers, in countries that have implemented labour law reforms, and the collection of information on the optimal direction of further reforms that would facilitate the future adjustments to economic fluctuations for firms. Given that most firms significantly reduced labour input during the crisis, the firms' evaluation of the most important obstacles in hiring workers with permanent contracts (e.g. uncertainty about economic conditions, hiring and firing costs, high payroll taxes, difficult access to financing, etc.) analyzed in the survey is also very important for economic policy makers and future labour market developments.

According to the survey results, three quarters of firms in Croatia were exposed to some adverse economic shock in 2010 – 2013 period, with the most widespread shocks being illiquidity shock, prolonged demand shock and unfavourable financing conditions. The main method of firm adjustment to the prolonged economic crisis was decrease in total costs of the firm, mainly by decreasing labour costs. Labour cost adjustment was primarily implemented through the adjustment of the labour factor in the production process, by non-renewal of temporary contracts at expiration, reduction of number of employees or a freeze on new hires. Survey results show that in the early years of the economic crisis, a relatively small share of firms in Croatia reduced nominal wages, trying to adjust to negative economic shocks, but this share increased year-on-year. The percentage of workers affected by wage cuts also increased over time. Although this indicates a reduction of wage rigidity in Croatia, additional indicators suggest that the wage setting in Croatia still cannot be considered flexible. Frequency of wage changes is below once a year, one third of the firms index wages to inflation and collective agreements apply for half of the employees in the private sector.

## **1. The design of the survey**

In the period from September to November 2014, the HNB conducted a survey on the labour market and wage setting in Croatia on a sample of firms with five or more employees in the manufacturing, construction, trade and business services sectors. In view of the prolonged economic crisis, present in the Croatian economy from 2008, the aim of the survey was to collect detailed information on various strategies firms used to adjust their activity to long-lasting unfavourable economic conditions in the period from 2010 to 2013. The survey questionnaire was prepared within the WDN and it was harmonised among the EU countries, which enables the comparison of the obtained data. During 2014 and at the beginning of 2015, the survey was carried out by other EU member states, except Finland, Sweden and Denmark. The survey was complex and it contained a total of 35 questions. The questionnaire contained a set of questions common to the surveys of all countries (core questions), a part of standardised questions that were not obligatory so that each country could include them if it considered them to be important (non-core questions) and country specific questions for Croatia. The verification of the appropriateness and comprehensiveness of the questions was enabled by a pilot survey of firms that were not been selected in the gross sample.

The survey was carried out by the market research agency Ipsos Puls. The sample was formed by Ipsos Puls and consists of 4548 firms of which 648 firms in construction, 1361 firms in manufacturing, 1365 firms in trade sector and 1174 firms in the segment of business services. The population covered by the survey included all firms registered in the Republic of Croatia, while the sample framework itself was taken from the Financial Agency's (FINA) database of annual financial statements for 2012. The final gross sample of firms was a two-stage stratified sample, i.e.:

a) by activity (four of the above mentioned segments);

b) by firm size (four sizes: 5 to 19 employees, 20 to 49 employees, 50 to 199 employees and over 200 employees).

Within each of the sixteen strata, firms were selected by random choice.

The survey was carried out by the on-line and telephone survey. Ipsos Puls sent an e-mail invitation to all firms from the gross sample to participate in the survey, with the explanation of the objectives of the survey itself. In order to increase the response to the survey, a copy of the invitation letter signed by Governor Boris Vujčić on behalf of the HNB was enclosed with the survey. The questionnaire was to be sent to respondents from the senior management of firms taking part in the setting of wages and prices, first of all to the executive directors of firms or directors of human resources departments, or finance directors and members of management boards. The surveying procedure was designed in such a way that each firm received a link to the web address with the on-line version of the questionnaire in the invitation e-mail. Seven days after sending invitation e-mails, additional e-mails were sent to firms as reminders of the survey. As the initial response to the on-line survey was relatively low, firms were also contacted by telephone. A total of 301 firms responded to the survey, of which 199 surveys responded by telephone and 102 on-line. This means that the response rate was relatively low and stood at 7%.

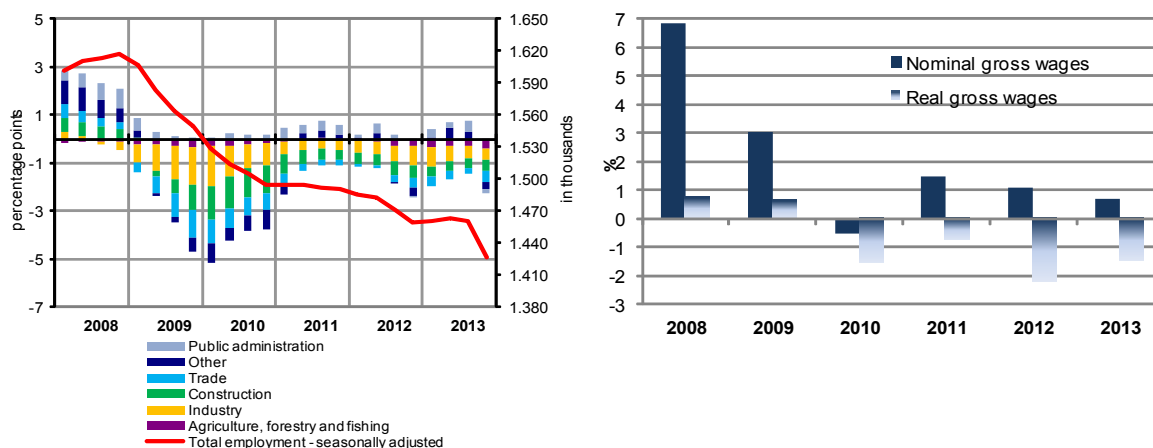
## **2. Main features of the Croatian labour market**

In the period from 2010 to 2013, developments in the labour market in Croatia were under the influence of a prolonged economic crisis. Following a sharp fall in GDP in 2009 (-7.4%), its decrease continued in the following years, so that at the end of 2013, the cumulative decline in GDP stood at 12%. Extremely negative trends were recorded in construction, manufacturing and trade, which recorded a decline in gross added value by 41%, 19% and 16%, respectively, while stagnant developments in gross added value were recorded in service activities. In the past five years, economic developments in Croatia were very unfavourable when compared with other EU countries since Croatia, along with Greece, was the only country that had not recorded a single year of growth in economic activity from the beginning

of the crisis in 2009 until the time when the survey was conducted. Also, the cumulative decrease in GDP in Croatia was the second strongest among EU countries, after Greece.

Such trends resulted in a significant worsening of all labour market indicators. The number of employed persons fell by over 10% in the period since the beginning of the crisis until 2013. The number of employed persons was particularly evident in the private sector (−14%), i.e. in construction (−34%), manufacturing (−18%) and trade (−15%). Tourism and other services recorded stagnant developments in the number of employed persons. In accordance with the sharp decline in the number of employed persons, the number of unemployed persons increased, and the unemployment rate doubled from the average 8.5% in 2008 to 17.3% in 2013.

Figure 1 Labour input trends and developments in nominal and real wages, 2008 – 2013



Note: Total employment and contributions to the year on year change in employment by sector.

Sources: CPII, CBS.

Despite a sharp decline in the number of employed persons, as regard labour prices, nominal gross wages continued to rise during the crisis, with the exception of 2010. However, when compared with the pre-crisis growth in wages of over 6% annually, the dynamics of the growth in nominal gross wages slowed down significantly. On the other hand, real net wages decreased constantly, starting from 2010, so that the purchasing power of the household sector decreased cumulatively by 4% during the crisis.

### 3. Changes in the economic environment

As the survey on the labour market and wage setting was carried out for the period from 2010 to 2013, which for Croatia represents the period of prolonged economic crisis, a proper interpretation of the obtained results is not possible without the quantification of the main changes in the economic environment and their direct impact on firms' activity.

The unfavourable impact of the prolonged crisis on firms in Croatia is clearly evident from the survey results. In the period from 2010 to 2013, around three-quarters of firms recorded a moderate or strong decrease in activity, which was due to some of the following adverse factors: changes in customers' ability to pay and meet contractual terms (55%), changes in the level of demand for products/services (46%), volatility/uncertainty of demand (44%), availability of supplies from usual suppliers (23%) and access to external financing through the usual financial channels (21%). 35% of the firms consider that the impact of at least one of the above mentioned factors on the activity of the firm was very strong. Furthermore, those firms that indicated at a strong decrease in activity mostly believe that the factors causing the fall were long-lasting (73%), which is in line with the recorded macroeconomic developments.

Table 1 Impact of customers' ability to pay and meet contractual terms and impact of the level of demand for products during 2010 – 2013 on firm activity, by NACE and size share of firms in %

	Customers' ability to pay and meet contractual terms			Level of demand for products/services		
	Moderate/strong decrease	Unchanged	Moderate/strong increase	Moderate/strong decrease	Unchanged	Moderate/strong increase
Manufacturing	46	40	14	47	18	35
Construction	82	17	1	76	12	11
Trade	57	39	4	43	9	48
Market services	55	36	10	36	30	34
Micro (5-19)	74	21	6	63	16	21
Small (20-49)	58	33	9	63	14	23
Medium (50-199)	51	41	9	44	22	34
Large (≥200)	49	41	10	36	20	44
Total	55	36	9	46	19	35

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Data on changes in the economic environment clearly reflect the most important economic problems Croatian firms are faced with. For the majority of respondents (55%), the customers' ability to pay and meet contractual terms had a negative impact on firm's activity (Table 1). The unfavourable effect of customers' declined ability to pay was obvious for those firms whose activity was directly exposed to the negative demand shock, but also for firms that did not directly suffer a decline in demand for their products/services, so that unfavourable changes in the economic environment had effect on such firms indirectly, due to high illiquidity in the economy<sup>2</sup>. Illiquidity shock was especially pronounced in construction sector, given its' extreme exposure to the crisis in Croatia. Moreover, micro and small firms were also disproportionally hit by illiquidity shock. This is probably due to the fact that micro and small firms usually have only few suppliers and delays in payments of only one of

<sup>2</sup> The adoption of the Financial Operations and Pre-Bankruptcy Settlements Act (GO 108/12) was an attempt to reduce the high illiquidity. The Act has been in force since October 2012, and prescribes that the deadline for meeting monetary obligations between business entities may be up to 60 days. According to preliminary results, it seems that this act has not succeeded in reducing the time for meeting monetary obligations significantly.

them could generate substantial shock for firms' performance and liquidity. Illiquidity problem was one of the major problems in Croatia during the transition into a market economy, especially in the 1998 – 1999 period. It was spurred by the high government arrears, banking sector problems, inefficient and sluggish judicial system etc. After the 1999 the illiquidity problem started to diminish significantly, primarily due to the notably improved governments' payment discipline and amended bankruptcy law. Illiquidity problem emerged in Croatia again during the recent recession. In 2012 the Financial Operations and Pre-Bankruptcy Settlements Act came into force to prompt timely reorganization of companies<sup>3</sup>. Thus far its success was limited.

After high illiquidity, the next most important economic shock suffered by Croatian firms was the demand shock – which was manifested as a decrease in demand for products and services of firms (46%) or as uncertainty/volatility related to future movements in demand (44%). The distribution of the demand shock reflects the economic developments recorded in individual NACE activities. Thus the negative demand shock had the strongest impact on firms' activity in construction (Table 1), which was in line with the recorded cumulative decrease in gross value added in that sector by over 40%. On the other hand, services and trade sectors have proved to be the most resilient to crisis, although in these sectors one third of the firms has felt the negative impact of the crisis. In total, the negative shock of domestic demand (recorded in 49% of the firms) was stronger than the shock of foreign demand, faced by about 24% of the firms. The decrease in demand reflected unevenly on firms in Croatia, also depending on their size. Almost 63% of the firms with less than 50 employees recorded a negative demand shock, when compared with 44% of medium-sized firms (50–199 employees) and 35% of large firms (+200 employees). In fact, among different size bins, only large firms perceived an increase in demand more often than a decrease in demand, showing that resilience to the crisis grew with the firm size.

With regard to the importance of financing as support to the development of firms' activity and economic activity in general, the survey investigates whether firms were faced with non-accessibility of loans, and whether the existing financing conditions (interest rate and other contract terms) were too onerous for an effective firm financing. Only 21% of the respondents think that reduced access to external financing through usual channels has had an unfavourable effect on firm's activity. Therefore, it seems that the shock of financing was much less evident when compared with the illiquidity and demand shocks<sup>4</sup>. However, the availability and conditions of different segments of financing were analysed in more detail in

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<sup>3</sup> Under the law, a company is required to initiate pre-bankruptcy settlement proceedings within 60 days of the onset of illiquidity and 21 days of the onset of insolvency. During the first phase, which is typically completed within 120 days, creditors are requested to submit their claims for verification. A restructuring plan is proposed that the creditors need to agree to. During the second phase, commercial courts need to approve the plan. Thus far, creditors have agreed on a restructuring plan for approximately one quarter of the businesses participating in the procedure. In the process, corporate debts of about 2 percent of GDP have been written off (IMF, 2014).

<sup>4</sup> These results, pointing to low incidence of financing shock are in line with Bank lending survey results for Croatia, showing that credit standards applied to approval of loans to enterprises become only slightly tighter during 2012 and 2013. For more information see HNB (2014).

further questions. The results show that although in comparison with other shocks firms relatively rarely perceive the adverse impact of the financing shock on firms' activity, 34% of the firms consider that non-accessibility of loans for the financing of working capital, new investment or debt refinancing was relevant or very relevant for firm activity, while as high as 52% of firms consider that the conditions of financing for working capital, the financing of new investment or debt refinancing were onerous.

Table 2 Relevance of financing components for firms, during 2010 – 2013  
share of firms in %

	Not relevant	Of little relevance	Relevant	Very relevant
Credit was not available to finance working capital	60	11	20	9
Credit was not available to finance new investment	52	20	20	8
Credit was not available to refinance debt	66	13	13	8
Credit was available to finance working capital, but conditions (interest rate and other contractual terms) were too onerous	49	11	27	13
Credit was available to finance new investment, but conditions (interest rate and other contractual terms) were too onerous	42	12	36	10
Credit was available to refinance debt, but conditions (interest rate and other contractual terms) were too onerous	55	14	20	11

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Finally, we continue by analysing correlations between different types of shocks (Table 3). Most of the shocks do not seem to be highly correlated. The highest correlation is found between changes in demand level and demand volatility. It is interesting to see that correlation between illiquidity shock and demand shock that are two most widespread shocks in Croatian economy is below 50%, confirming our previous finding that unfavourable changes in the economic environment caused high illiquidity in overall economy impacting on firms directly faced with decreasing demand but also on firms that have seen their demand increasing.

Table 3 Correlation coefficients among different types of shocks

	Demand shock	Volatility shock	Financing shock	Illiquidity shock	Supplies shock
Demand shock	1,00				
Volatility shock	0,73	1,00			
Financing shock	0,31	0,31	1,00		
Illiquidity shock	0,43	0,37	0,23	1,00	
Supplies shock	0,30	0,30	0,31	0,38	1,00

Source: The WDN survey conducted by the HNB.

#### 4. Adjustment of total costs of firms to unfavourable economic conditions

Results presented above clearly show that illiquidity and the prolonged demand shock were the main unfavourable economic shocks that Croatian firms faced in the period between 2010 and 2013. Also, the majority of firms faced unfavourable conditions (interest rates or other



conditions) in some of the segments of financing. For this reason, survey analyses how firms have adjusted their activity to unfavourable economic conditions. Previous surveys (Fabiani et al., 2015) have shown that a decrease in labour costs is the most important strategy of firms' adjustment, while a decrease in prices, production and profit is used less frequently. Below is the analysis of the movements in costs of the surveyed firms and with special emphasis on detailed cost components firms have adjusted during the crisis. Results show that slightly less than one third of firms (28%) recorded a moderate or strong decrease in total costs from 2010 to 2013, with a simultaneous decrease in labour costs in 27% of the firms.

If firms that suffered a moderate or strong negative shock in demand are analysed, it is obvious that adjustment by cutting their costs was more widespread: 41% of firms reduced their total costs, the dominant strategy being in the reduction of labour costs (42%). Firms exposed to the negative shock in demand also adjusted by reducing the costs of input used in production (27%), as well as by reducing the costs of financing (19%). On other hand, presence of moderate or strong illiquidity or financing shock does not seem to be crucial for firms' decision to adjust its costs (Table 4). The same is true for various size groups and sectors since developments in total costs, labour costs and other cost categories are mainly similar across size groups and sectors (Table B1, Appendix B). The only exception is is construction sector where 86% of firms managed to escape from an increase in labour costs, showing that moderation in labour costs was extensively used among firms in construction sector.

Table 4 Developments in total costs and labour costs for firms during 2010 – 2013  
share of firms in %

	Moderate/ strong decrease	Unchanged	Moderate/ strong increase
Total costs	28	13	59
Total costs for firms that recorded negative demand shock	41	13	46
Total costs for firms that recorded illiquidity shock	33	14	53
Total costs for firms that recorded financing shock	28	16	56
Labour costs	27	25	48
Labour costs for firms that recorded negative demand shock	42	30	28
Total costs for firms that recorded illiquidity shock	29	28	43
Total costs for firms that recorded financing shock	32	41	27

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

As the aim of the survey on labour market and wage setting is to examine the various strategies firms use to adjust their labour costs during crisis and, in general, to analyse the

impact of the crisis on outcomes in the labour market, the questionnaire further analyses how individual components of labour costs were developing in the period from 2010 to 2013. A detailed analysis of the individual components of labour costs is also in line with the fact that, according to survey results, the decrease in labour costs is the most frequently used strategy for the reduction of total costs in Croatia.

When asked about the developments in individual labour cost components in the period from 2010 to 2013, the majority of the firms considered that base wage costs remained unchanged or increased, while costs related to flexible wage components (bonuses, benefits) did not change significantly. On the other hand, costs related to the number of permanent employees in the firm decreased for a considerable share of the firms. The decrease in the costs of permanent employees indicates that the majority of firms reduced labour costs precisely by cutting the number of employed persons. According to the results of the second wave of the WDN, at the beginning of the crisis in 2009, labour input reduction (extensive margin adjustment) proved to be the most frequently used strategy for labour cost reduction implemented in the EU countries (Fabiani et al., 2015). At the same time, decrease in costs as a result of the reduction of working hours per employee was recorded in only 4% of firms in Croatia (intensive margin adjustment). The results of the second wave of the WDN (Kwapil, 2010) show that the reduction of working hours was a dominant adjustment strategy during 2009 for Austria (used in 33% of the firms), while in other EU countries this strategy was not frequently used<sup>5</sup>.

Reduction of labour costs was very important for firms hit by the negative demand shock, and the reduction of costs related to the number of permanent employees was again the most significant. Thus 64% of the firms that suffered from the demand shock at the same time reduced costs related to the number of permanent employees moderately or strongly (Table 5). The next most important category of reduction of costs for firms faced with the negative demand shock was related to the decrease in the flexible wage components (42%). Babecky et al. (2009) show that, in the case of nominal wage rigidity, firms use alternative means of adjustment (e.g. reduction of flexible wage components). For this reason, wage rigidity does not necessarily have to be related to the rigidity of total labour costs. However, Croatian firms exposed to the negative demand shock made also significant savings in base wage costs as 39% of these firms recorded a decrease in the base wage of its employees. Identical adjustment patterns, although slightly less pronounced were followed by firms hit by illiquidity shock. On other hand, firms that were hit by financing shock stand out as they have the most frequent use of base wage adjustments, compared to firms exposed to other sources of shocks.

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<sup>5</sup> According to Kwapil (2010), firms in Austria often used the reduction in working time at the beginning of the crisis since active labour market policy measures were implemented in that country, which included a wage subsidy for the working time not worked for employees.

Table 5 Developments in individual labour cost components for firms during 2010 – 2013 share of firms in %

	All firms		Firms that recorded a negative demand shock		Firms that recorded illiquidity shock		Firms that recorded financing shock	
	Moderate/strong decrease	Moderate/strong increase	Moderate/strong decrease	Moderate/strong increase	Moderate/strong decrease	Moderate/strong increase	Moderate/strong decrease	Moderate/strong increase
Base wages or piece work rates	23	38	39	23	36	34	43	15
Flexible wage components (bonuses, benefits, etc.)	24	18	42	11	33	14	31	3
Number of permanent employees	42	33	64	26	51	28	59	23
Number of temporary/fixed-term employees	25	31	39	9	35	23	45	13
Number of agency workers and others	11	6	14	2	15	6	22	3
Working hours per employee	4	7	8	3	5	9	6	9
Other components of labour costs	13	28	21	15	14	40	21	10

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Looking at different labour costs adjustment strategies with respect to the firm size it is clear that large firms opted for labour input adjustments through cuts in number of permanent and temporary employees more often than smaller firms. Sectoral analysis shows that firms operating in construction sector stand out as most frequent users of each available labour cost adjustment strategy compared to other sectors (Table B2, Appendix B).

#### 4.1 Labour force adjustment

In the remaining part of the survey firms were further asked in detail about the strategies and methods used for labour force adjustment. The adjustment of labour input in the production process can develop in two ways: by reducing the number of employees and by reducing the number of hours worked. From 2010 to 2013, 41% of firms needed to reduce labour input significantly or change its composition. A significant need to reduce labour input was more evident in firms directly hit by the demand shock (59%) than in other firms (26%). Those firms which reported a significant need to reduce labour input were asked about the strategies they used in it. The most frequently used strategies to reduce labour input were (Table 6): non-renewal of temporary contracts at expiration (49%), individual layoffs (48%) and freeze or reduction of new hires (40%). Reduction of working hours and temporary and collective layoffs did not prove to be significant strategies in Croatian firms.

Table 6 Overview of the strategies used by firms to reduce the labour input or alter its composition when it was most urgent

	Relevant and very relevant; in %
Non-renewal of temporary contracts at expiration	49
Individual layoffs	48
Freeze or reduction of new hires	40
Early retirement schemes	34
Reduction of agency workers and others	25
Collective layoffs	18
Non-subsidised reduction of working hours (including reduction of overtime)	18
Temporary layoffs	7
Subsidised reduction of working hours	2

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

In addition, firms were also asked whether during the reference period actions related to labour input adjustments in the firm, such as dismissals or hiring, adjustment of working hours or movement of employees across different job positions became more or less difficult in the reference period. Most firms in Croatia (around 75% on average) thought that there were no significant changes in these actions.

Table 7 Perceived difficulty in implementing labour force adjustments

	Have any of the following actions become more or less difficult, compared to the situation in 2010?		In the case you perceive some changes, to what factors would you attribute them?			
	Much less difficult/ Less difficult	Much more difficult/ More difficult	Reforms of labour laws	Jurisprudence/ law enforcement	Changes in trade unions behaviour	Changes in individual behaviour
To lay off employees for economic reasons (collectively)	7	13	50	6	23	20
To lay off employees for economic reasons (individually)	12	14	39	18	8	35
To dismiss employees for disciplinary reasons	13	13	22	46	4	28
To lay off employees temporarily for economic reasons	11	12	47	11	8	34
To hire employees (cost of recruitment, including administrative costs)	22	15	52	9	12	27
To adjust working hours	15	14	59	6	11	24
To move employees to positions in other locations	14	6	46	10	1	43
To move employees across different job positions	15	12	26	5	15	55
To adjust wages of incumbents employees	12	19	23	9	15	53
To lower wages at which you hire new employees	15	15	31	3	10	56

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Moreover, those firms indicating a change in difficulty of labour force adjustment were furtherly asked whether they attributed such changes to labour law reforms, changes in the implementation of legal practice/law, changes in the behaviour of trade unions or changes in the behaviour of individuals (Table 7). Results show that 50% of the respondents attribute the recorded changes in collective layoffs to the changes in the labour law<sup>6</sup>. In addition, more

<sup>6</sup> Amendments to the labour law from July 2013 considerably shortened the maximum permissible time for the delay in the implementation of collective layoffs (from 90 to 30 days), while amendments from August 2014 simplified the procedure of collective layoffs, as the obligation to prepare a redundancy social security plan was abolished.

than 50% of respondents attribute changes in difficulty of hiring and working hours adjustments also to changes in labour law<sup>7</sup>. On other hand changes in perceived difficulty related to reallocation of workers and adjustment of wages of incumbent and new employees are mainly attributed to changes in individual behaviour. This shows that workers accept more easily different working conditions (lower wages, or different job positions) in order to maintain their working place during the crisis. However, it should be emphasised that the total number of responses provided by the respondents that recorded changes in the difficulty of labour force adjustments is small (on average less than 25%) so that conclusions about the effectiveness of labour law reform or changes in individual behaviour due to the crisis should be interpreted with caution.

Small number of respondents perceiving changes in labour force adjustment difficulties could be related to labour market reform timing in Croatia since it was implemented only in the second half of 2013 and in early 2014. Given that the reference period in the survey refers to the period from 2010 to 2013, this makes the interpretation of the results on the impact of labour market reforms on individual activities in the labour market considerably more difficult. It is possible that a part of the firms in their responses took into consideration the impact of the labour law reform from July 2013, but they do not think that it brought significant changes in the implementation of activities related to the labour force adjustment. On the other hand, it is possible that firms evaluated the period from 2010 to 2013 as the period in which no labour market reform took place, as only a smaller part of labour market reforms was implemented as late as in 2013, while further reforms followed in 2014.

In the first phase of the labour law reform, the procedure and duration of collective layoffs was simplified, and use of fixed term contracts was made more flexible, while employment protection legislation for permanent contracts, hiring and firing procedures were not changed. Permanent contracts were made more flexible only in 2014, when some of the procedures for dismissing employees were simplified, and maximum compensation following unfair dismissal was decreased. Although dismissal of employees with permanent contract remained relatively complex, the overall reform in both phases made the Croatian labour market

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<sup>7</sup> For example, amendments to the labour law from July 2013 led to easier hiring of workers with fixed term contracts. Moreover, labour law reform introduced the reduction of minimum uninterrupted daily rest period from ten to eight hours, in order to better organise the work in agriculture, tourism and catering which, require split shift working time due to their specific nature. This change increased the flexibility of firms working hours organization. Additional changes to working time organization were introduced with new labour law that entered into force in August 2014. The internal flexibility of employers with regard to hours of work has been increased thanks to labour law amendments concerning part-time work, amendments related to hours of work and the adoption of new regulations on overtime work. The use of part-time work has been facilitated so that under the new labour law, in addition to salaries, other benefits to employees on part-time status are determined in proportion to working hours. The uneven distribution of working hours has been extended from the previously allowed 48 hours a week to 50 hours a week; the same extension is applied to overtime work, which is now capped at 180 hours a year.

considerably more flexible and the employment protection legislation neared the average of other countries.

Table 8 Employment protection legislation index and its sub-components before and after labour law reform

	Index of employment protection for regular contracts (EPR)	Index of employment protection for collective dismissals (EPC)	Index of employment protection for temporary contracts (EPT)
Croatia in 2013, before labour law reform	2,55	3,75	2,21
Croatia in 2013, after the adoption of the first phase of labour law reform	2,55	3,00	1,96
Croatia in 2014, after the adoption of second phase of labour law reform	2,28	2,25	1,96
OECD countries average, 2013	2,04	2,91	2,08

Note: Indicator values can range from 0 to 6. The value of 0 denotes extremely flexible, and the value of 6 denotes extremely rigid labour law.

Sources: HNB 2013; Kunovac M., 2014; HNB 2014; OECD 2013

Since the second phase of the labour law reform (later implemented and adopted in August 2014) was only announced at the time when the survey was prepared, without any additional information about its potential content, and taking into consideration the observed inflexibilities in the labour force adjustment, respondents were additionally asked whether they considered labour law reforms in Croatia necessary in specific areas (Table 9). Interestingly enough, about 50% of the respondents considered those labour law reforms that would reduce hiring and firing costs to be necessary. This result is in line with a relatively high employment protection legislation of permanent contracts (EPR), which characterised the Croatian labour market before and after the adoption of the first phase of the labour law reform in 2013 (Table 8).

Table 9 Overview of the answers to the question "Do you consider labour law reforms in Croatia necessary, which would include the following changes?"  
share of firms in %

	Moderate/strong decrease	Moderate/strong increase
Layoff costs	52	6
Hiring costs	52	8
Working hours flexibility	28	36
Early retirement costs	37	18
Minimum wages	7	49
Costs arising from collective agreements	39	13
Contributions for unemployed	17	28

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

The survey also investigates the main obstacles which firms face in hiring workers with permanent contracts. Since the number of employed persons has been constantly decreasing for six consecutive years, any information on possible obstacles in hiring workers has a significant value. Some of the given answers directly refer to the developments of the business cycle, while others have a primarily structural character. Results show that the main obstacles faced by firms in hiring workers are directly related to the development of economic activity, as 77% of the firms cite uncertainty about economic conditions as a relevant or very relevant obstacle in hiring workers (Table 10). In addition, more than a half of the surveyed firms agree that the following structural rigidities act as an obstacle in hiring workers: high payroll taxes, high costs of other inputs complementary to labour, risks that labour laws are changed, insufficient availability of employees with the required skills and high firing costs.

Table 10 Main obstacles in hiring workers with permanent contracts

	Relevant and very relevant; in %
Uncertainty about economic conditions	77
High payroll taxes	71
Costs of other inputs complementary to labour	62
Risks that labour laws are changed	61
Insufficient availability of labour with the required skills	59
Firing costs	59
Hiring costs	49
Access to finance	48
Other	45
High wages	44

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

## 5. Wage adjustment

After the analysis of firms' labour cost adjustment through the reduction of labour input in the production process, the survey further examines whether firms, and in which way, adjusted the wages of their workers during 2010-2013. The results of the previous two waves of surveys showed that firms were mostly reluctant to cut wages of their employees in efforts to adjust to adverse economic shocks<sup>8</sup>. In addition to the analysis of the frequency of freezing or reducing wages, detailed information about the process of wage setting in firms is collected in this section of the questionnaire, from institutional characteristics such as the collective pay agreements coverage and wage indexation, to the frequency of change in wages and

<sup>8</sup> Results of the first wave of the survey show that on average 2.3% of EU firms would reduce the wages of their employees due to a hypothetical economic shock (WDN Final Report, 2008). Results of the second wave of the survey show that 3.2% of the EU firms effectively reduced wages of their employees as a response to the beginning of the financial crisis in Europe (Fabiani et al., 2015).

information on wages of newly hired workers, as this information gives an insight into the different aspects of rigidity in wage setting in the labour market.

## 5.1 Collective bargaining

Before the analysis of wage dynamics during 2010-2013, the survey collects information about the use of collective agreements in Croatian firms. Empirical studies have shown that there is a positive relationship between the coverage of employees by collective agreements and downward real wage rigidity<sup>9</sup>, or that higher coverage of collective agreements in the economy leads to increased rigidity of real wages. The share of employees covered by collective agreements is the key indicator of the incidence of collective bargaining. Results of the survey among firms show that in Croatia in 2013 wages for about 47% of those employed in the private sector were regulated by collective agreements (implemented at national, regional, sectoral or occupational level or at the firm-level). The coverage of workers by collective agreements in large firms reached 66%, while in smaller and medium-sized firms it was much lower, ranging between 26% and 34% (Table 11).

Table 11 Coverage by collective agreements in 2013

	Share of firms that applied collective agreements in 2013, in %		Share of employees covered by collective agreements, in %
	agreed at firm-level	agreed at higher* level	
Total	35	23	47
<i>Sector</i>			
Manufacturing	39	13	41
Construction	29	27	65
Trade	25	31	42
Market services	42	27	51
<i>Firm size (number of employed)</i>			
Micro (5-19)	24	17	26
Small (20-49)	21	14	32
Medium (50-199)	30	16	34
Large (≥200)	46	32	66

\*at national, regional, sectoral or occupational level.

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

According to survey results, the indicator of the incidence of collective bargaining does not deviate significantly from the assessment presented by Bagić, D. (2010), according to which about 55% of employed persons in the private sector are covered by collective agreements. It is worth mentioning that the formal level of coverage of workers by collective agreements in Croatia is relatively high, but that it does not credibly reflect a real situation and the development of collective bargaining in the private sector. The sectoral level of collective bargaining is not developed and not up-to-date<sup>10</sup>. Its importance is overly emphasised in the

<sup>9</sup> See, for example, Dickens et al., 2007 and Babecky et al., 2009.

<sup>10</sup> Collective agreements in the private sector are on average much older and have a smaller number of amendments than contracts in the public sector.



total coverage by collective agreements owing to collective agreements whose term has been extended by the administrative decision of the line minister, which particularly refers to trade and construction.

The results of the survey show that collective bargaining in Croatia is decentralised to a significant degree, and that collective agreements signed at the firm-level dominate. It results that among firms in which collective agreements are applied, 48% of them signed the agreement only at the firm-level, 22% only at the sectoral level and 30% at both levels. The above mentioned results also comply with Bagić, D. (2010), who, in analysing the system of collective bargaining in Croatia points out that an important feature of this system is its high level of decentralisation, that is, collective bargaining is predominantly at the firm level (between union representatives of sectoral trade unions or the trade union leadership at the firm level and the firm's management). For this reason, the majority of valid collective agreements are applied at a single employer or a group of connected employers (holding), while a relatively small number of collective agreements that regulate work conditions at a larger number of employers at the sectoral level. A high fragmentation of the trade union movement<sup>11</sup>, poor presence of sectoral unions in specific activities and inadequate organisation of employers in individual activities contribute to the underdevelopment of collective bargaining at the sectoral level. In addition, it is also contributed by a widespread system of trade unions to focus on negotiations with the management because they think they can achieve more than if they negotiated with the association of employers, as a result of which, they have no need to insist on sectoral agreements.

## **5.2 Nominal and real wage rigidity**

The survey has further attempted to examine the extent to which downward (in)flexibility in base wages<sup>12</sup> is present in the Croatian economy, since numerous research works have shown that it is one of the main reasons why, in adverse economic conditions, the burden of cost adjustment is placed on the reduction of the labour input<sup>13</sup>. Notwithstanding the crisis, the average wages in the Croatian economy increased, although the intensity of the increase slowed down significantly when compared with the pre-crisis period.

The share of the firms that froze and/or reduced base wages in a specific period is used as an indicator of downward nominal wage rigidity (DNWR). Survey results (Table 12) show that in the first years of the economic crisis (2010) relatively few firms (7%) in Croatia resorted to wage cuts in efforts to adjust to the adverse economic shock. However, this share grew year-on-year and reached 16% in 2013. The share of firms that cut wages during the mentioned

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<sup>11</sup> There is a relatively large number of trade unions in which trade unions at the firm level have a considerable share.

<sup>12</sup> Other strategies to reduce labour costs include: reduction of bonus payments, freeze of the rate at which promotions are filled, early retirement, recruitment of new employees at lower wages, etc.

<sup>13</sup> Fabiani et al. (2015).

period increased mostly in construction and in large firms. In addition, the percentage of workers covered by wage reduction increased significantly (from 76% in 2010 to 96% in 2013 in firms that had cut wages).

By contrast, a significant and relatively stable share of firms (approximately 13%) froze wages during the crisis years and the percentage of covered workers in all years was above 90%. This means that downward nominal wage rigidity was quite strong in Croatia but abated to some extent during the crisis.

Table 12 The share of firms that froze or cut base wages

	Wage freeze		Wage cut	
	Share of firms that froze wages, in %	Covered workers*, in %	Share of firms that cut wages, in %	Covered workers*, in %
2010	13	91	7	76
2011	13	92	11	85
2012	14	93	14	83
2013	13	93	16	96

\* in firms that had frozen/cut wages

Note: The base wage is direct remuneration excluding bonuses. The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

On average, 17% of the firms froze wages and 26% of the firms cut wages at least once during the 2010 - 2013 period (Table 13). The results of the survey show that the share of firms that froze wages is higher among firms applying some form of collective agreement (22%) than for those not covered by collective agreements (14%). On the other hand, as expected, downward nominal wage flexibility measured by the share of firms cutting wages during the same period is higher for firms without collective agreement (36% compared to 16%). Among firms without collective agreement the highest share of firms that cut wages is found for construction sector (64%) and for large firms, where 54% of firms cut wages during the 2010 – 2013 period. In firms that have cut wages, the share of workers with more than five years of tenure is higher in comparison with firms that did not cut wages during 2010 – 2013 (Table 14).

Table 13. The share of firms that froze/cut base wages at least once during 2010 - 2013 (in %)

	Share of firms that have implemented wage <b>freeze</b> at least once during 2010-2013	Share of firms that have implemented wage <b>cut</b> at least once during 2010-2013
<i>All firms</i>	17	26
with collective agreement	22	16
without collective agreement	14	36
<i>Sector</i>		
Manufacturing	19	19
with collective agreement	20	23
without collective agreement	19	17
Construction	11	49
with collective agreement	16	27
without collective agreement	8	64
Trade	24	18
with collective agreement	39	5
without collective agreement	14	27
Market services	13	30
with collective agreement	15	14
without collective agreement	11	49
<i>Firm size (number of employees)</i>		
Micro (5-19)	11	27
with collective agreement	10	16
without collective agreement	12	32
Small (20-49)	21	12
with collective agreement	30	17
without collective agreement	18	11
Medium (50-199)	21	23
with collective agreement	22	25
without collective agreement	20	21
Large ( $\geq 200$ )	18	30
with collective agreement	23	13
without collective agreement	11	54

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Table 14. The share of employees by occupational groups and job tenure in firms that froze/cut wages in comparison with firms that did not freeze/cut wages during 2010 - 2013

	Wages were not frozen	Wages were frozen	Wages were not cut	Wages were cut
<i>Occupational groups</i>				
Higher skilled, in %	38	33	37	38
Lower skilled, in %	62	67	64	62
Higher skilled non-manual, in %	21	14	20	19
Lower skilled non-manual, in %	28	41	32	26
Higher skilled manual, in %	17	19	17	19
Lower skilled manual, in %	34	26	32	36
<i>Job tenure</i>				
Below 1 year, in %	7	3	6	5
Between 1 and 5 years, in %	21	16	21	16
More than 5 years, in %	73	81	72	79

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

Downward real wage rigidity was estimated on the basis of the use of wage indexation, i.e. the practice of firms to adapt changes in base wages to inflation<sup>14</sup>. The results of the survey (Table 15) show that the share of firms that had indexed wages to inflation in both periods was higher among firms applying some form of collective agreement than for those without collective agreement<sup>15</sup>. It was found that before 2010 a major share of firms (42%) had indexed wages to inflation, while this share dropped to a still high 34% between 2010 and 2013. The largest adjustment or reduction in real wage rigidity was recorded in trade and manufacturing as well as in large firms. The share of firms that had indexed wages to inflation decreased in the 2010 – 2013 (in comparison with the period before 2010) for both types of firms (with and without collective agreement).

Table 15 The share of firms that adapted changes in base wages to inflation

	Share of firms that indexed wages, in %	
	before 2010	2010-2013
All firms	42	34
with collective agreement	51	41
without collective agreement	37	29
<i>Sector</i>		
Manufacturing	54	43
with collective agreement	63	53
without collective agreement	47	36
Construction	21	15
with collective agreement	34	23
without collective agreement	13	10
Trade	55	35
with collective agreement	77	49
without collective agreement	41	25
Market services	28	31
with collective agreement	32	31
without collective agreement	23	31
<i>Firm size (number of employees)</i>		
Micro (5-19)	36	44
with collective agreement	30	37
without collective agreement	39	46
Small (20-49)	44	36
with collective agreement	67	65
without collective agreement	37	26
Medium (50-199)	38	30
with collective agreement	50	33
without collective agreement	30	27
Large ( $\geq 200$ )	46	31
with collective agreement	54	40
without collective agreement	35	19

Note: The presented results have been weighted by employment adjusted weights.

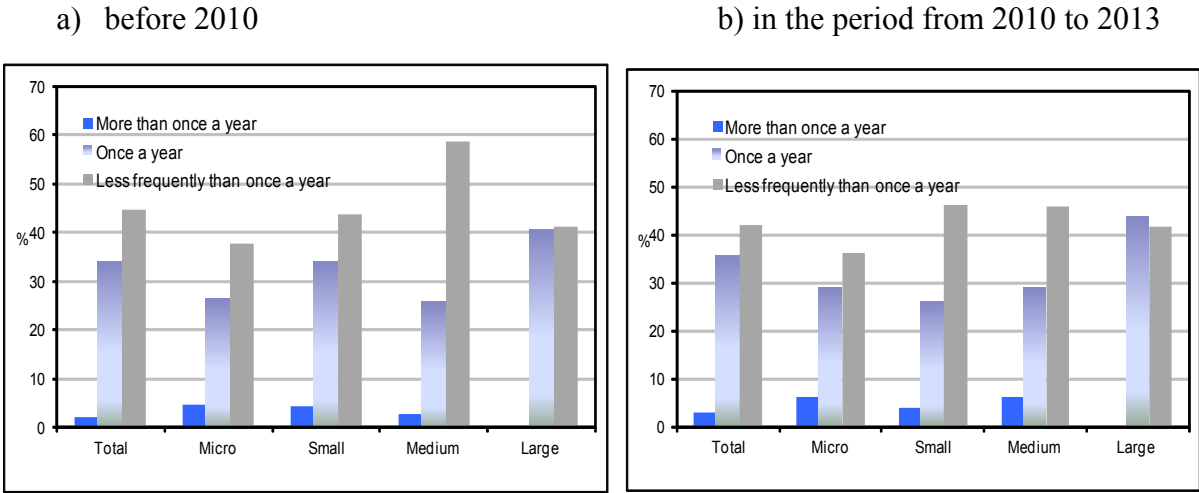
Source: The WDN survey conducted by the HNB.

<sup>14</sup> For more details on downward nominal and real wage rigidity see Babecky et al. (2009).

<sup>15</sup> In the literature, downward real wage rigidity is associated with the widespread use of collective agreements which may contain indexation rules (Babecky et al., (2009); Fabiani et al. (2010)).

The frequency of the change in wages in firms is analysed<sup>16</sup> as an additional indicator of a possible existence of wage rigidity. If firms change the wages of their employees very rarely, it indicates at a possible presence of rigidity in wage setting in the economy. Survey results show that in the period between 2010 and 2013 there was the largest share of firms (42%) in which wages were changed less frequently than once a year<sup>17</sup> (Figure 2). The share of firms (35%) that changed wages once a year was significant, while the share of firms that changed wages more frequently than once a year was very small. In comparison with the period before 2010, these shares did not change significantly, i.e., during recession, the frequency of the change in wages did not change significantly.

Figure 2 Wage change frequency share of firms in %



Note: The presented results have been weighted by employment adjusted weights.  
 Source: The WDN survey conducted by the HNB.

Furthermore, the survey of firms was aimed to identify<sup>18</sup> the most important reasons why firms were reluctant to cut base wages in efforts to adjust to adverse economic shocks. The survey offered a list with nine economic theories of downward wage rigidity, each summarised in one sentence, easily understood by the general public. The respondents could select several theories they found relevant for their firm.

<sup>16</sup> For results related to the frequency of wage and price changes obtained on the basis of earlier WDN survey see Druant et al. (2009).

<sup>17</sup> This answer includes firms that change wages in intervals between one year and two years (8% firms), every two years (14%) and less frequently than once in two years (20%),

<sup>18</sup> This question was included in the WDN survey conducted in the previous rounds of surveying, but because of its importance, it was also included in the WDN survey conducted by the HNB in 2014.

Table 16 The main theories of wage rigidity – reasons for giving up on base wage cuts

	Relevant and very relevant; in %
1. In presence of the wage cut the most productive employees might leave the firm.	78,5
2. Employees compare their wages to that of similarly qualified workers in other firms in the same market.	71,0
3. It would have a negative impact on employees' morale.	69,5
4. It would reduce employees' efforts, resulting in less output and poorer service.	60,4
5. It would create difficulties in attracting new workers.	60,0
6. A wage cut would increase the number of employees who quit, increasing the cost of hiring and training new workers.	56,4
7. Workers dislike unpredictable reductions in income. Therefore, workers and firms reach an implicit understanding that wages will neither fall in recessions nor rise in expansions.	55,6
8. It would damage the firm's reputation as an employer making it more difficult to hire workers in the future.	54,8
9. Labour regulation/collective agreements prevent base wages from being cut.	47,7

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

The survey results (Table 16) suggest that downward wage rigidity in Croatia is best explained by the theory according to which the most productive employees would leave the firm if there were a wage cut, the theory according to which employees compare their wages to that of similarly qualified workers in other firms, and the theory according to which a cut in the base wage would have a negative impact on employees' morale. The first and the third ranked theories belong to a group of efficiency wage theories. The first ranked theory claims that employers would rather resort to dismissing employees as this is effected selectively so that less productive employees are laid off. The theory according to which a cut in the base wage would have a negative impact on employees' morale implies that the wage level directly affects employee productivity, which means that a wage cut might have a negative effect on employees' morale and lead to a decrease in production. Furthermore, the theory according to which employees compare their wages to that of similarly qualified workers in other firms is based on the assumption that employee productivity and efforts depend on the extent to which employees believe that their wages are fair for the type of job they do. On the other hand, institutional obstacles to wage cuts, such as labour regulation and collective agreements, were found to be somewhat less significant reasons for downward wage rigidity in Croatia.

### 5.3 Wage rigidity for newly hired workers

The survey also examines the existence of wage rigidity for newly hired workers, which in this case implies the tendency that entry wages of newly hired workers do not deviate significantly from the wages of the existing employees with similar qualifications and work experience in the firm. Research papers show that the cyclical volatility of wages is more expressed in newly hired employees when compared with the already existing employees (Pissarides, 2009), while the absence of flexibility in wage setting of new employees indicates at a rigid wage setting in the economy. Survey results of Croatian firms show that the cost for a new worker before 2010 in 77% of the firms was similar to the cost for the existing workers of adequate qualifications and work experience, while in the rest of the recession period (from 2010 to 2013), this share fell to 66%, but still remained relatively high. This points to the existence of a considerable rigidity of wages of newly hired workers in Croatia.

In addition, the respondents were asked to name the main factor<sup>19</sup> that influenced the level of the entry wage of a newly hired worker with the following offered options: a collective pay agreement, wages of employees with similar qualifications in the firm or outside the firm and the availability of workers with similar qualifications in the labour market, so that the first two factors were included in internal factors, and the other two in external factors. Survey results indicate that in the majority of Croatian firms (68%) internal factors have the most significant influence on determining the entry wage of newly hired workers (Table 17). The largest share of firms (43%) stated that wages of the existing employees in the firm with similar qualifications and experience were the most significant internal factor. The share of firms in which the collective agreement is the most relevant internal factor in setting the entry wage for the newly employed workers is much smaller (25%). Large firms in which collective agreements are the most significant factor that influences the setting of wages of the newly hired workers are an exception. The mentioned result is in line with the significant share of large firms that apply collective agreements (Table 11). External factors, or the situation in the labour market, have the largest impact on the setting of entry wages of newly hired workers in a smaller share of firms (24%). A much higher share of firms emphasised the importance of labour supply, i.e. the availability of workers with similar characteristics in the labour market (17%), when compared with the share of firms that mentioned the wage of similar employees outside the firm (7%),

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<sup>19</sup> This question was included in the WDN survey conducted in the previous rounds of surveying, but because of its importance, it was also included in the WDN survey conducted by the HNB in 2014.

Table 17 The significance of the impact of internal or external factors on setting the entry wage for a newly hired worker  
share of firms in %

	Collective agreement	Internal factors		External factors			Other factors
		Wage of similar employees within the firm	Total	Wage of similar employees outside the firm	Availability of similar workers in the labour market	Total	
Total	25	43	68	7	17	24	8
<i>Sector</i>							
Manufacturing	29	48	77	0	18	18	5
Construction	18	70	88	3	4	7	5
Trade	9	32	41	14	37	51	8
Market services	33	36	69	10	7	17	14
<i>Firm size (number of employees)</i>							
Micro (5-19)	11	44	55	8	27	35	10
Small (20-49)	10	58	68	4	19	23	9
Medium (50-199)	23	53	76	3	11	14	10
Large (≥200)	35	33	68	9	16	25	7

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

#### 5.4 Demonstrative effect of wage cuts in the public sector

For the purposes of fiscal consolidation, the Croatian government adopted the decision on wage cuts in the public sector by 3% in February 2013. A specific question was included in the survey, which referred only to Croatian firms, i.e., whether the wage cuts in the public sector had a direct or indirect impact on the average wage in a specific firm? Survey results indicate that the movement in wages in the public sector in Croatia has a very small demonstrative effect on the movement in wages of surveyed firms. The majority of the firms, 91% of them, stated that the wage cut in the public sector did not have any effect on the movement in wages of their employees, only 9% of the firms claimed that it stimulated the employee wage cut (Table 18). This result is not surprising given that Croatian government adopted decision on wage cuts in public sector only in February 2013; which is the last year of the reference period and fifth consecutive year of economic crisis.

Table 18 Impact of a wage cut in the public sector on developments in wages of surveyed firms  
share of firms in %

	Total
Yes, it helped us justify wage cuts in the firm	7
Yes, it reduced the attractiveness of employment in the public sector	2
No, it did not have any impact	91

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.



## Conclusion

Data collected during the carrying out of the survey on labour market and wage setting in Croatia, which was conducted during the second half of 2014, show that as many as three quarters of firms in Croatia were exposed to some sort of adverse economic shock, which had a negative impact on the activity of the firm in the period from 2010 to 2013. The most widespread economic shocks were the illiquidity shock, the demand shock, and unfavourable financing conditions. With regard to the distribution of economic shocks, firms adjusted to the newly created conditions by reducing total costs, i.e. primarily by reducing labour costs.

The dominant strategy for the reduction of labour costs was the reduction of the labour input, i.e. through individual layoffs, but also through the non-renewal of temporary contracts at expiration and freeze and reduction of new hires. Despite the strong reduction of the labour input, survey results show that hiring will probably not follow even after the start of the economic recovery. Although a large majority of firms consider that unfavourable developments in the business cycle prevent the hiring of workers with a permanent contract, a very high share of firms consider high payroll taxes, high costs of other inputs complementary to labour, risks that labour laws are changed, insufficient availability of employees with the required skills and high firing costs as the obstacles in hiring new workers. The reduction of high firing costs was also mentioned as one of the priorities, which, according to respondents' opinion, future labour law reforms should take into consideration.

Although the reduction of labour input was the dominant strategy of labour cost adjustment in Croatia, one third of firms also implemented the reduction or freeze of wages of their workers, in the adjustment to the crisis. In the first years of the crisis (2010) relatively few firms (7%) in Croatia resorted to nominal wage cuts in efforts to adjust to the adverse economic shock. However, this share grew year-on-year and reached 16% in 2013. The percentage of workers covered by the reduction of wages increased significantly (from 76% in 2010 to 96% in 2013). Although this data indicates at a reduction of wage rigidity in Croatia during the reference period, other additional indicators suggest that despite this, the wage setting in Croatia cannot be considered flexible. Thus a significant share of firms change wages less frequently than once a year, one third of the firms index wages in relation to inflation and collective agreements regulate wages for about a half of the employees in the private sector, in which the coverage of workers by collective agreements in large firms is much higher. Survey results also show a relative rigidity of wages of new employees that in the majority of firms is similar to those for the existing workers with the respective qualifications and work experience. On the other hand, despite the observed rigidities, the collected data show that the intensity of rigidity, related to the incidence of the nominal wage cuts and the indexation of wages, and to the wages of new employees decreased in the period from 2010 to 2013, when compared with the period before 2010.

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## Appendix A

**Table A1 Selected indicators**

	Total	Manufacturing	Construction	Trade	Market services	Micro (5-19)	Small (20-49)	Medium (50-199)	Large (≥200)
<i>Total number of employees, average</i>	326	239	117	414	420	11	38	109	626
<i>of which:</i>									
Permanent full-time	267	220	106	343	313	10	34	88	513
Permanent part-time	12	2	0	46	1	0	1	2	25
Temporary or fixed-term	47	16	12	25	106	1	4	20	88
Total number of agency workers and others	3	1	4	1	7	0	3	6	3
<i>Occupational groups</i>									
Higher skilled non-manual, in %	20	18	22	17	23	37	21	20	13
Lower skilled non-manual, in %	30	22	11	42	35	18	24	24	39
Higher skilled manual, in %	17	24	38	5	12	19	20	15	17
Lower skilled manual, in %	33	35	29	35	30	26	35	42	31
<i>Job tenure</i>									
Below 1 year, in %	6	5	2	9	6	3	3	10	6
Between 1 and 5 years, in %	20	15	12	28	21	24	20	21	17
More than 5 years, in %	74	80	86	63	73	72	76	69	77
<i>Share of firms' labour costs in total costs, in %</i>	39	34	37	30	51	48	37	35	37
<i>Share of firms' bonuses in total wage bill, in %</i>	4	5	2	6	4	6	4	4	4

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.

## Appendix B

**Table B1. Developments in total and labour costs for firms during 2010 – 2013 period, in %**

	Moderate/ strong decrease	Unchanged	Moderate/ strong increase
<b>Total costs</b>	28	13	59
<i>Sector</i>			
Manufacturing	32	12	56
Construction	24	19	57
Trade	27	9	63
Market services	26	14	60
<i>Firm size (number of employees)</i>			
Micro (5-19)	33	19	48
Small (20-49)	35	18	47
Medium (50-199)	24	16	60
Large (≥200)	26	8	66
<b>Labour costs</b>	27	25	48
<i>Sector</i>			
Manufacturing	30	20	50
Construction	18	69	14
Trade	16	27	57
Market services	34	15	51
<i>Firm size (number of employees)</i>			
Micro (5-19)	29	35	37
Small (20-49)	25	31	44
Medium (50-199)	20	30	50
Large (≥200)	29	18	53

Table B2. Developments in labour costs components for firms during 2010-2013 period, in %

	All firms	
	Moderate/ strong decrease	Moderate/ strong increase
Base wages or piece work rates	23	38
<i>Sector</i>		
Manufacturing	22	44
Construction	51	9
Trade	13	51
Market services	24	33
<i>Firm size (number of employees)</i>		
Micro (5-19)	23	33
Small (20-49)	18	28
Medium (50-199)	28	32
Large (≥200)	23	46
Flexible wage components (bonuses, benefits)	24	18
<i>Sector</i>		
Manufacturing	26	20
Construction	48	3
Trade	11	18
Market services	24	21
<i>Firm size (number of employees)</i>		
Micro (5-19)	20	13
Small (20-49)	20	8
Medium (50-199)	23	14
Large (≥200)	28	25
Number of permanent employees	42	33
<i>Sector</i>		
Manufacturing	49	36
Construction	59	14
Trade	26	38
Market services	41	33
<i>Firm size (number of employees)</i>		
Micro (5-19)	31	26
Small (20-49)	37	29
Medium (50-199)	26	35
Large (≥200)	55	36
Number of temporary/fixed-term employees	25	31
<i>Sector</i>		
Manufacturing	24	27
Construction	42	13
Trade	21	47
Market services	23	29
<i>Firm size (number of employees)</i>		
Micro (5-19)	16	16
Small (20-49)	22	18
Medium (50-199)	17	33
Large (≥200)	32	40

Table B2. Developments in labour costs components for firms during 2010-2013 period, in % (cont.)

Number of agency workers and others	11	6
<i>Sector</i>		
Manufacturing	4	4
Construction	38	0
Trade	12	3
Market services	10	14
<i>Firm size (number of employees)</i>		
Micro (5-19)	9	4
Small (20-49)	4	4
Medium (50-199)	2	4
Large (≥200)	19	9
Working hours per employee	4	7
<i>Sector</i>		
Manufacturing	2	7
Construction	3	0
Trade	3	2
Market services	7	13
<i>Firm size (number of employees)</i>		
Micro (5-19)	4	3
Small (20-49)	5	5
Medium (50-199)	5	7
Large (≥200)	3	9
Other components of labour costs	13	28
<i>Sector</i>		
Manufacturing	5	26
Construction	0	39
Trade	7	30
Market services	25	27
<i>Firm size (number of employees)</i>		
Micro (5-19)	12	20
Small (20-49)	5	17
Medium (50-199)	15	20
Large (≥200)	14	34

Note: The presented results have been weighted by employment adjusted weights.

Source: The WDN survey conducted by the HNB.