

Labour Cost and Price Adjustment Practices of Bulgarian Firms in the Period 2009–2013

Wage Dynamics Network Firm-level Survey Evidence

Desislava Paskaleva



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SUMMARY:

This paper summarizes the main results from the third wave of the Wage Dynamics Network survey, conducted in Bulgaria in the second half of 2014. In the period 2009–2013 Bulgarian enterprises were negatively affected mostly in terms of demand and customer's ability to pay shocks with their effect being stronger in the construction sector. Labour costs were reduced mainly through employment and flexible wage components. Base wage cuts were also taking place, particularly in firms that were severely negatively affected by the crisis. Individual lay-offs and reduction of hiring have been more frequently used as measures to reduce labour input during the period 2010–2013 than collective lay-offs and working time reductions. Hiring is stated to have been hampered mainly by the uncertainty of economic conditions and high payroll taxes and wages.

Keywords: *labour market adjustment, wage-setting, price-setting, firm survey evidence*

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1. Introduction

In the period 2009–2013 Bulgarian enterprises experienced a substantial change in their macroeconomic environment. Cost and price adjustments remain key mechanisms to address shocks and determine firms' ability to remain profitable and competitive. Labour costs are a key component of total costs and their changes have additional social implications. Available macro data provide insufficiently detailed evidence on the applied adjustment channels of costs and prices and the relative contribution of macroeconomic shocks, financial constraints and changes in institutions for the observed adjustment.

Macroeconomic data reveal that labour cost adjustment in Bulgaria seems to have happened mostly through employment declines. Average wage growth only slowed down throughout the period, without turning negative. Moreover, on an aggregate level employment decline was more prolonged than the shock in total gross value added. Composition effects, and in particular the sectoral and size structure of enterprises and the skill structure of their employees seem to have played a role for the observed firms' reactions. Therefore, micro-level data is expected to improve the understanding of preferred cost and price adjustment channels by firms over the cycle and of the role of changed macroeconomic conditions and institutional factors for firms' reactions.

This paper presents the main results of a firm-level survey on the macroeconomic and institutional environment during the crisis (2009) and the post-crisis (2010–2013) period and the respective labour cost and price adjustment practices of Bulgarian companies. More detailed aspects of the survey, both in terms of national and international research projects, will be explored in other materials. The survey was developed within the Wage Dynamics Network (WDN) coordinated by the ECB and was conducted by 25 EU central banks in 2014. The dataset contains information on a number of firm self-reported characteristics, institutional features as well as sources and size of shocks and labour cost adjustment strategies and therefore offers an unprecedented possibility to analyze adjustment strategies by various firm subgroups.

Survey results suggest that the period 2009–2013 in Bulgaria was signified by a deterioration in both demand and customers' ability-to-pay conditions, which was more pronounced in 2010–2013. Cost and price reductions were more widespread in the companies, experiencing negative shocks. The worsened macroeconomic conditions increased as well the need to reduce labour input or alter its composition. The analysis of labour cost

adjustment channels in Bulgaria shows stronger downward flexibility of employment and flexible wage components relative to base wages during this recent economic cycle. Besides for the reduction in employment, freezes of new hires were also one of the most widespread measures to reduce labour input. The high macroeconomic uncertainty was stated as one of the main reasons for the reduction of hiring and was reflected in less frequent price and wage changes.

The paper is structured as follows. The next section provides macro data evidence on the environment firms were operating in, and the institutional features of the labour market. The section further makes an overview of main institutional changes over the period covered by the survey. The third section introduces the survey sample and describes its composition. The fourth section makes an overview of the main results from the survey related to changes in the macroeconomic environment for different sub-groups of firms. The fifth section summarizes the changes in companies' cost structures and their labour cost practices in particular. The section devotes special attention to wage-setting practices, measures to reduce labour input and hiring conditions and obstacles. Furthermore, the main changes in price-setting practices are presented. Comparisons to other data sources and to previous survey waves are integrated in each of the relevant sections.

2. Labour market performance and institutions

2.1. Labour market performance in the period 2009–2013

Following a period of strong and job-rich growth from 2003 to 2008, the global crisis bursting out in September 2008 hit the Bulgarian economy through a shock in foreign demand and foreign direct investment, which caused real GDP and employment declines in 2009 (at first mostly in the export oriented manufacturing sector). Thereafter GDP started to recover, growing at much slower than the pre-2009 rates, whereas employment continued to decline, which reflects the gradual propagation of the shock throughout the sectors of the economy and some long-term trends such as the decreasing labour intensity of some production processes (see the Research Topics section in Economic Review, issue 4/2014 (ER4, 2014)). Evidence from soft data indicators of the business climate survey of the European commission suggests that the main limiting factors to firms' activity in the period 2009–2013 were an increase in economic uncertainty, as well as a deterioration in demand and financing conditions.

Table 1: Main macroeconomic indicators, % change

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Real GDP	5.1	6.6	7.2	6.8	7.7	5.6	-4.2	0.1	1.6	0.2	1.3
HICP inflation	2.4	6.2	6.0	7.4	7.6	12.0	2.5	3.0	3.4	2.4	0.4
Gross operating surplus/ mixed income	3.5	11.3	13.6	14.6	24.4	9.9	0.7	-1.3	12.2	-2.1	-3.5
Productivity	2.1	3.9	4.4	3.3	4.4	3.2	-2.6	4.1	3.9	2.8	1.7
Compensation of employees	8.0	9.2	13.4	10.9	17.4	19.6	5.8	5.1	5.1	5.8	7.6
Employment	3.0	2.6	2.7	3.3	3.2	2.4	-1.7	-3.9	-2.2	-2.5	-0.4
Compensation per employee	4.1	6.2	9.3	6.3	12.7	16.8	8.1	9.9	6.8	7.7	8.8

Source: National Statistical Institute (NSI)

HICP inflation, which was growing strongly prior to 2009, slowed down substantially in 2009 and remained relatively low in the period 2010–2013. As in other EU28 countries, in Bulgaria industries were unevenly affected by the shock. Whereas the agricultural, manufacturing, construction and trade sectors were more adversely affected in terms of gross value added, the impact on the non-public market services sectors was smaller. As a result, the adjustment in terms of labour cost changes was more pronounced in the sectors, where the negative impact was stronger. Moreover, the duration of the negative shocks and the length of their prevalence varied by sector. In the manufacturing sector the decline in real gross value added (GVA) was concentrated in 2009, while the construction sector continued to shrink in terms of GVA until 2013.

Macro-level data suggest that labour cost adjustment in Bulgaria throughout the period 2009–2013 have been mostly facilitated by a reduction in employment, whereas wage indicators have continued to grow at lower rates compared to the pre-crisis period. Labour costs, measured by compensation of employees, slowed down their growth rate significantly in 2009 (to 5.8% from 19.6% in 2008, Table 1) and continued to grow, although at lower growth rates throughout 2010–2013. The slowdown was due to simultaneous deceleration in compensation per employee growth rate and an aggregate employment decline, continuing throughout 2009–2013. Therefore, micro-level evidence on a sectoral level may be valuable for understanding firms' labour cost policy. In particular, WDN data may reveal whether individual firms' reactions in terms of labour costs were indeed limited to employment reductions, whether and how wage-setting practices actually changed and which factors limit hiring in the post-crisis period.

2.2. Labour market institutions

Labour market institutions may play an important role for shaping labour outcomes and firms' reactions to changes in the macroeconomic environment. The Bulgarian labour market is characterized by relatively low levels of employment security, intermediate-to-high labour flexibility and intermediate to-high taxation (see Commission Staff working document (2012)). The levels of employment protection legislation are lower than in the Mediterranean group of countries (Spain, Italy, Portugal, Greece, Cyprus and Malta) and the provision of social assistance is also weaker. Bulgaria tends to have relatively high long-term unemployment rates (on average 7.5% for the period 2000–2008 and around 5.6% for the period 2009–2013) relative to EU28 countries.

Temporary employment contracts (around 5% of the employees in 2013) and part-time work (around 3% of the employees in 2013) are relatively less widespread than in other EU28 countries. Previous WDN findings suggest that formal agreements of inflation indexation are less common as well.

Overall trade union membership in Bulgaria is relatively low and has fallen since the late 1990s. This is mostly due to a reduction in the size of the manufacturing sector in terms of employment, where unions are traditionally stronger, a decrease in the size of the public sector and an expansion of the number of smaller businesses, where trade unions find it much harder to organize¹.

Collective bargaining in Bulgaria takes place at three levels: industry level, company level and municipal level. The varying estimates of the proportion of employees covered by collective bargaining in Bulgaria point to relatively low coverage with evidence of substantial differences between industries and between the public and private sectors (Table 18). Existing evidence suggests that the Bulgarian wage bargaining system is rather decentralized - predominantly organized at the firm level (covers around 24% of the employees), possibly because many companies, particularly larger ones, are reluctant to be part of industry level agreements (covering only around 7% of the employees). Since agreements bargained at the firm and occupational levels are expected to be more flexible than those bargained at sector or national level, the existing wage bargaining system

¹ Official trade union census data points to a decline in union members and union density from 777,000 and 39% in 1998 to 499,000 and 27% in 2003 and 364,000 and 19.8% in 2009 respectively (Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts), see Fulton (2013).

is likely to give firms a greater margin of manoeuvre to react to changes in economic circumstances.

Bulgaria has a minimum wage level, set by the government in consultation with employers and trade unions in the National Council for Tripartite Cooperation. The Tripartite Council involves trade unions, employers' associations and the government and meets regularly. The minimum wage coverage (around 6.3% of the employees for the period 2009–2013 on average according to Short term statistics, NSI data) and the minimum-to-average-wage ratio (at about 39% in 2013) in Bulgaria are relatively low.

In addition to the practice of setting a national minimum wage, the minimum social security threshold system² was introduced in 2003 to prevent the common practice of employers paying social security contributions on the basis of the national minimum wage, rather than employees' actual (much higher) wages. The minimum social security thresholds are agreed annually by the social partners within the Tripartite Council. The minimum thresholds were applicable for 85 economic activity units (based on NACE Rev. 2 classification) in 2013 (compared to 48 in 2003).

WDN results allow to identify not only the institutional features of the surveyed Bulgarian firms, but also the role of labour market institutions on labour market outcomes. In particular, higher overall wage demands or compression of wage differentials associated with collective bargaining and wage-setting institutions (e.g. minimum wage) may increase companies' incentives to reduce other cost and labour cost components or increase prices. This need may be highly dependent on other factors, including the changes in the macroeconomic environment, also explored by the WDN survey.

2.3. Reforms and changes in labour market institutions and policies

Bulgaria has experienced relatively few changes in labour market institutions throughout the period 2009–2013 compared to other EU28 countries.

Some measures were taken to allow employers to cope with negative shocks and to enable them to react more flexibly in terms of labour input, particularly in terms of making the adjustments on the intensive margin (number of hours worked) easier. Such are the measures embedded in the National Action Plan for Employment for 2009 and 2010 that compensated

² These thresholds represent the minimum monthly income on the basis of which social security contributions are calculated.

employees for switching to part-time work. The introduction of flexible working hours and specific unpaid leave for economic reasons were also measures aimed at preserving employment in companies experiencing difficulties.

Companies, which experienced worsened macro conditions and some structural issues and had to cut employment were offered compensation schemes. Workers affected by mass lay-offs (particularly elderly and disabled persons)³ were offered different motivational, training and re-qualification programs, temporary subsidized employment schemes in order to mitigate the negative effects of job loss.

Other changes to labour market institutions may not have been favoured by companies. In particular, between 2010 and 2012, four industry agreements, covering water supply, brewing and the paper, pulp industry and mineral processing, were extended to all employers and employees in those industries⁴. According to a provision in the legislation an industry agreement, which has been signed by all the representative trade unions, employers' associations, and the government can, at all the parties' request, be extended to all the employers in the industry⁵. Until 2009 no industry level agreements had been extended in this way.

In terms of labour taxation, following a period of gradual reduction in employers' social security contribution rates, in 2009 they were additionally cut by 11pps, in 2010 by 2pps and later in 2011 increased by 2pps. In general the decrease in employers' social insurance burden could have had a job retention effect. However, the practice of increasing each year the social security base for particular industries within a tripartite agreement, taking place in Bulgaria since 2003, has continued throughout 2009–2013. Moreover, even though there were no minimum wage increases in 2009 and 2010, thereafter minimum wages have been increased several times.

³ As in the case of Kremikovtzi AD (Bulgaria's largest metal working company, 6979 employees); PortLom EAD; BDZ EAD (The Bulgarian State Railways, around 17867 employees) and the related companies, PortBurgas EAD.

⁴ The extension of the wood and furniture agreement was withdrawn because of procedural errors.

⁵ In general, only members of the trade union that has signed an industry level agreement are covered by it. Other employees can ask to be covered by it, but is up to the unions and employers who signed the agreement to agree the terms.

In order to mitigate the negative social effects of unemployment, unemployment benefits were increased several times in the period 2009–2013. However, the increases have favoured mostly higher paid laid-offs⁶.

In terms of active labour market policies a number of measures has been introduced to increase the activity rate as well as to improve the skill structure of the labour force⁷.

3. The WDN Survey Data for Bulgaria

This section presents the main features of the realized sample of firms interviewed in the third wave of the WDN survey (WDN3), its composition in terms of key characteristics such as firm size, sector of economic activity, as well as in terms of autonomy, structure and type of ownership of the companies. The similar structure of the WDN3 dataset to the population of firms, covered by the survey, makes it applicable for providing further and more detailed information on firms' reactions throughout the crisis and post-crisis period.

The WDN3 survey was conducted in Bulgaria in the period August–November 2014 and the final realized sample comprises 528 enterprises (14 545 employees). The companies were selected by random stratification, with the strata being the harmonized size and sector sub-groups. Besides the manufacturing (sector C, NACE rev.2), trade (sector G, NACE rev.2) and non-public market services sectors (sectors H–J, L–N, R, S, NACE rev.2), which were represented as well in WDN2, the WDN3 survey sample additionally covered the construction sector (sector F). The design of the survey covered firms with 20 or more employees in the manufacturing and construction sectors, and firms with at least 5 persons in trade and non-public business services.

The sample composition is broadly similar in terms of sector and firm size with the composition of the population of firms in these sectors, based on NSI data as of 2012 (Tables 2 and 5). Around 10.6% of the firms in the sample operate mainly in the manufacturing sector (around 11.5% of the respective population), 4.2% are in the construction sector (as opposed to 3.8% in the respective population). The sample in the survey comprises

⁶ From 2010 the maximum limit has been removed and replaced with an upper limit of 60% of the average insurance income for the past 18 months and since 2012 set at 60% of the income for the past 24 months

⁷ Overall, special attention of the active labour market policy measures was given to persons who became unemployed after 01.11.2008, as well as registered unemployed aged 50 years and above, unemployed up to 29 years old, long-term unemployed, disabled persons and inactive persons.

235 trade firms (44.5% as opposed to 43% in the population) and 215 firms with operational activities in the business services sector (40.7% as opposed to 41% in the population). In terms of firm size, small companies (with less than 20 employees) dominate, accounting for nearly 69.9% of all firms in the sample and 68.6% of the firms in the population. For the purpose of the analysis presented in the paper individual weights following a common procedure within the WDN have been calculated for each firm to make the sample representative of the population of firms in Bulgaria and in some cases to account for the share of workers that the firm represents in the population.

Table 2: Population and WDN3 sample composition, percentage of firms

Sector (NACE Rev. 2)/ Number of employees	5-19	20-49	50-199	200+	Total
Population (2012), NSI, 39 925 firms					
Manufacturing		6.4	4.1	1.0	11.5
Construction		2.4	1.2	0.2	3.8
Trade, transport	35.1	5.8	1.9	0.2	43.0
Non-public market services	33.5	5.5	2.1	0.5	41.7
Total	68.6	20.1	9.4	2.0	100.0
WDN3 survey sample (2014), 528 firms					
Manufacturing		5.7	3.6	1.3	10.6
Construction		2.8	1.1	0.2	4.2
Trade, transport	37.1	5.7	1.3	0.4	44.5
Non-public market services	32.8	5.5	2.1	0.4	40.7
Total	69.9	19.7	8.1	2.3	100.0

Source: NSI, WDN3 survey, Bulgaria

The firms in the sample are mainly parent companies. Subsidiaries constitute around 3.7% of firms and employ around 9.1% of employees, with this share being higher in the business services sector, Table 7. Most of the firms are domestically owned. Only 2% of the firms are foreign-owned, employing around 7.2% of the employees. Around 10.5% of the firms are multi-establishment companies and employ approximately 20% of the employees. Firms relying mostly on foreign revenues are concentrated mainly in the manufacturing sector, which typically has a higher share of exported output in the manufacturing production.

WDN3 evidence is broadly in line with official statistics and evidence from previous WDN waves of the survey in terms of compositions of the workers in the surveyed firms. The share of temporary and part-time workers,

as well as balance between low and high-skilled workers, the composition of the sample broadly resembles the composition of the population, according to available Eurostat data, Table 18. In terms of skill structure of the employees, the share of low-skilled workers is higher in the industry sub-sectors in the sample and lower in the business services sector.

Industry-level agreements are less common than firm-level agreements in line with Eurostat data and cover around 7.3% of the employees in 2013 (7.4% (WDN2, 2009), 7% of the employees (Eurostat, 2010)) as opposed to around 23% of the employees, covered by firm-level agreement (around 16.3% (WDN2, 2009), 24% of the employees (Eurostat, 2010)) (Table 18). Moreover, WDN3 evidence suggests that firm-level collective agreements are more common in larger companies (between 50 to 199 employees), since union structures are not widespread among smaller companies and they are less likely to sign company-level agreements.

WDN3 results suggest that around 20% of the employees are paid the minimum wage, with this share being higher in the manufacturing sector (around 30%), as well as in smaller firms (with less than 50 employees), as reported in Tables 7. Around 40% of the employees are insured at the minimum social security threshold and this share is again higher in the manufacturing and trade sectors, as well as in domestic firms.

4. Results on main shocks

This section summarizes the main shocks, which affected companies in the period 2009–2013 according to WDN3 survey results. As mentioned previously, the deterioration in the external environment started to affect Bulgarian enterprises in the second half of 2008. After the severe initial shock in 2009, in the period 2010–2013 both domestic and external economic conditions remained relatively subdued. The WDN3 survey explores in-depth the size and direction of five types of shocks for two sub-periods - 2009 and 2010–2013, and how firms' policies changed as a result. These are a demand shock, volatility of demand shock, external financing shock, customers' ability to pay shock and access to usual suppliers. Moreover, the questionnaire⁸ explores explicitly whether the source of the demand shock is domestic or external and how firms changed the price of their main product on the domestic and foreign markets. Therefore, evidence from the WDN3 survey could complement hard and soft data indicators in providing a broader overview on the nature and sources of shocks.

⁸ The WDN3 survey questionnaire can be found in the Appendix.

WDN3 results suggest that in 2009 most of the firms continued to experience an increase in both domestic and external demand and prices, whereas only a few firms experienced a decline in these indicators (see Figure 1). The main sources of negative shocks in 2009 were clients' ability to pay and to a lower extent the reduced demand and its volatility. In 2010–2013 the conditions under which firms operated worsened both in terms of clients' ability to pay and demand conditions. A higher percentage of firms experienced either a moderate or a strong decline in the respective factors. The worsening of domestic demand conditions in the period 2010–2013 was more pronounced and likely reflects the slow propagation of the external shock in the domestic economy. Additionally, in the period 2010–2013 more firms were negatively affected by external financing and access to suppliers shocks. Only around 4% of the companies were negatively affected by all types of shocks (see Table 3). The most common combination of shocks that companies experienced was a simultaneous negative demand and customers' ability to pay shock (around 31.2% of the companies). About 29.5% of the firms experienced a combination of a decline in demand and demand volatility, whereas only 23.9% experienced the three shocks simultaneously.

Figure 1: Sources of shocks, 2009–2013, firm weighted

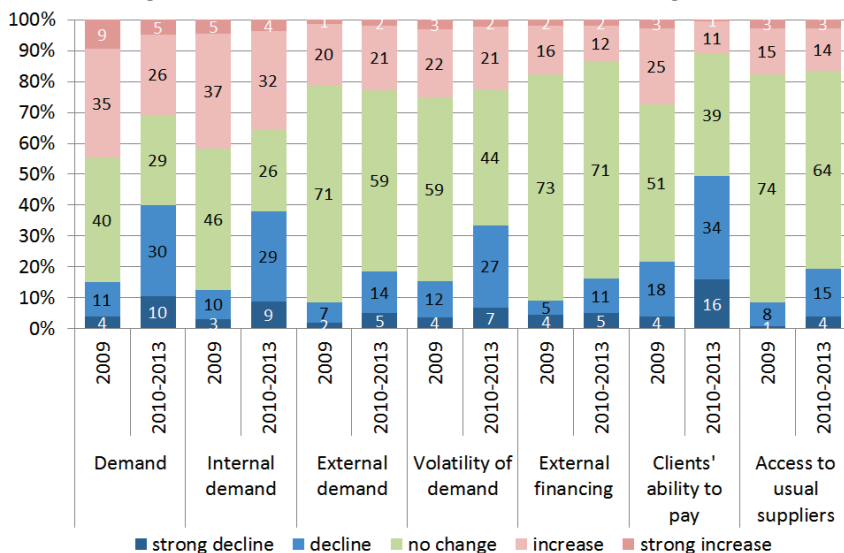


Table 3: Combinations of shocks, 2010–2013, firm weighted

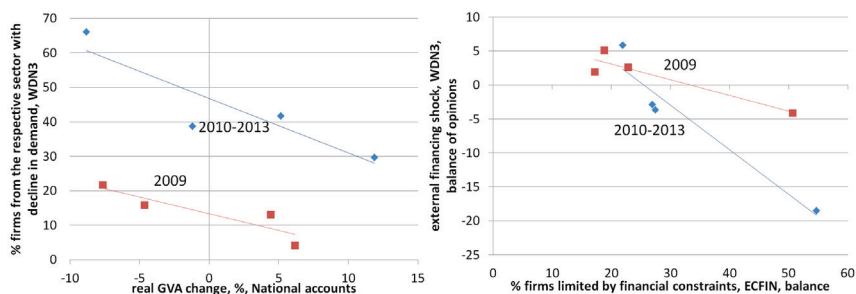
Sources of shock	Firms negatively affected
Demand/Customers' ability to pay	31.2
Demand/Volatility of demand	29.5
Volatility of demand/Customers' ability to pay	26.9
Demand/Volatility of demand/Customers' ability to pay	23.9
Customers' ability to pay/Access to suppliers	16.5
External financing/Customers' ability to pay	13.8
Demand/Access to suppliers	12.2
Volatility of demand/Access to suppliers	11.7
Demand/External financing	10.3
Volatility of demand/External financing	9.9
External financing/Access to suppliers	7.5
Demand/Volatility of demand/External financing/ Customers' ability to pay/Access to suppliers	4.4

Source: WDN3, Bulgaria

In line with national accounts data and available soft data indicators, the conditions under which companies were operating vary by sector of economic activity (Tables 10 and 11)⁹. Comparisons of national accounts real gross value added changes by sector and the percentage of firms in the WDN3 survey sample, negatively affected by a demand shock for the main sectoral aggregates of the economy (manufacturing, construction, trade and other non-public market services) show an overall correspondence between macro and micro data evidence for the relevant survey period (Figure 2). In particular, stronger real gross value added declines in the respective sectors are associated with a higher percentage of firms from the respective sector negatively affected by a demand shock for each of the sub-periods, covered by the survey (2009 and 2010–2013 respectively). What is more, a higher balance of firms experiencing a negative external financing shock in the WDN3 sample (calculated as a weighted difference between the percentages of positive and negative responses) is observed in sectors with a stronger relevance of financial problems to their firms' activity, measured by the balance of opinions of firms from the business climate survey (including clients' ability to pay, credit availability and conditions) in the respective sub-period.

⁹ The main variables used in the tables and regressions in this paper are summarized in Table 6

Figure 2: WDN3 results (firm weighted) compared to official statistics for main sectoral aggregates



WDN3 results suggest that in 2009 construction was among the more severely negatively affected sectors in terms of clients' ability to pay and external financing, even though demand and access to suppliers conditions in the sector were still more favourable relative to other sectors of the economy. Manufacturing firms, on the other hand, were experiencing slightly more frequently than other sectors a worsening in demand and volatility of demand conditions in 2009, Table 10.

In the period 2010–2013 conditions deteriorated for all sectors of the economy, but the construction sector experienced the strongest negative shocks in terms of percentage of negatively affected firms. Access to external financing as well as a stronger decline in domestic demand and clients' ability to pay were factors particularly limiting economic activity in the sector, Table 11.

Although various firm size groups were similarly affected by negative shocks in 2009, larger firms in the sample seem to have recovered faster from the demand and clients' ability to pay shock in 2010–2013.

Looking at responses to shocks grouped by autonomy and structure of the companies, subsidiaries were more likely to be negatively affected by a demand shock, whereas multi-establishment companies were less likely to face a negative external financing shock in 2009.

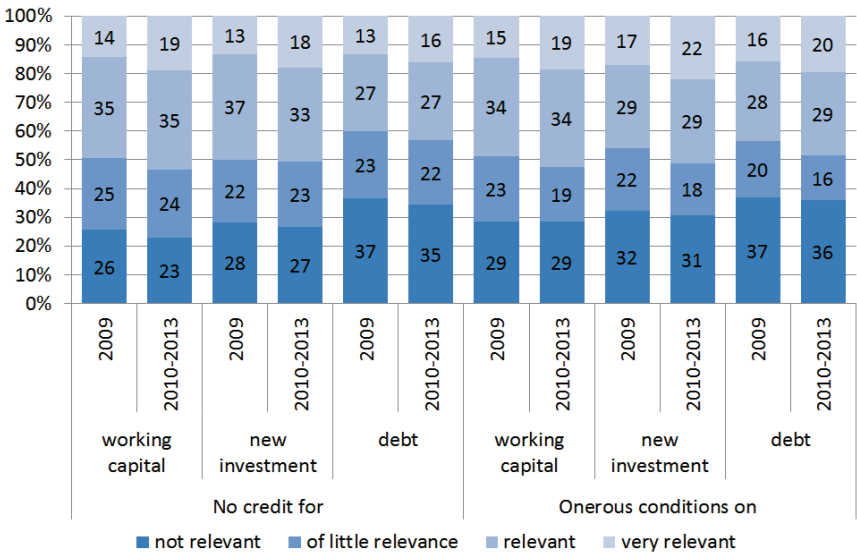
Whereas variations by type of ownership are not so pronounced, firms, relying to a greater extent on foreign revenues, were more likely to be negatively affected by a demand and access to suppliers shock in 2009.

However, the situation reversed in 2010–2013, when conditions deteriorated more for those firms exposed mainly to the domestic market.

The regional dimension of the data shows that particularly northern and the south-eastern regions were more likely to experience demand and clients' ability to pay shocks in both sub-periods.

Credit restrictions were also affecting a relatively high percentage of companies in the period 2009–2013. The questionnaire explores the relevance of the availability and conditions on credit for firms' activity. The most relevant financing restrictions for companies were the availability of credit for working capital and the onerous conditions for such credit as well as the availability of new investment credit, Figure 3. The credit availability problem seems to have been less relevant for refinancing debt. The financing conditions in 2010–2013 are reported to have worsened only slightly relative to 2009.

Figure 3: Financing conditions, 2009–2013, firm weighted



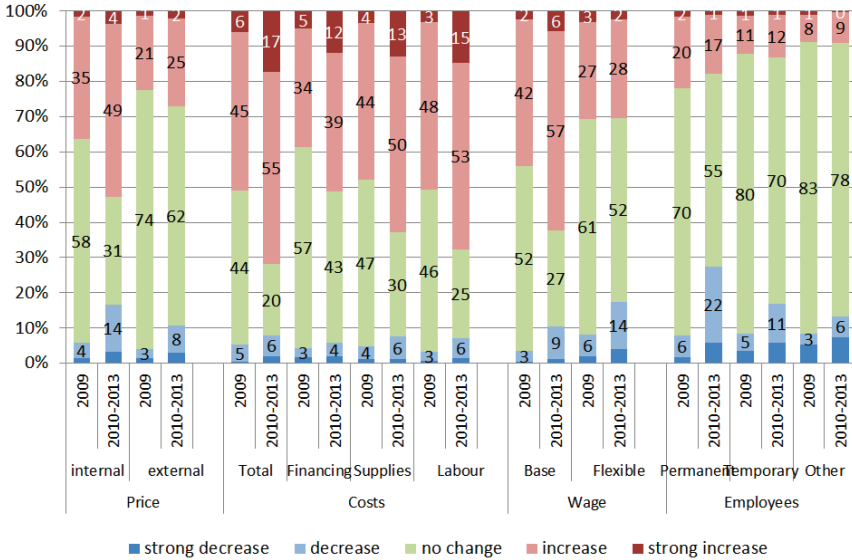
Firms' perception of the financing conditions varies by sector of economic activity, Table 12. Non-public market services companies were less likely to be negatively affected by onerous financing conditions on working capital in 2009–2013. Manufacturing companies on the other hand were more likely to experience the availability of working capital and debt refinancing credit as relevant for their activity in 2009. A significant difference is

observed in the stated favourability of credit conditions between foreign and domestically owned firms. Foreign-owned firms state to have experienced less frequently the unavailability and onerous conditions on credit as relevant for their activity. Firms relying mostly on external revenues were more likely to experience onerous conditions on credit for new investment and debt refinancing as relevant for their activity in 2010–2013. Credit unavailability and onerous credit conditions seem to have been more relevant for the south-western region of the country.

5. Results on cost and price adjustment practices

This section summarizes the main results on cost and price adjustment strategies in the period 2009–2013. A flexible reaction in terms of costs and prices to the changes in the macroeconomic conditions enables firms to remain profitable and competitive. Labour cost adjustment channels and preferred measures are explored more deeply within the section. Different important aspects of labour cost adjustment are covered: particularly explored are the direction and size of change of various labour cost components, the main wage-setting practices, including inflation indexation, wage change frequency, degree of downward nominal wage rigidities; the most common measures used to reduce labour input as well as hiring conditions and obstacles.

WDN3 results indicate that a relatively high percentage of firms faced an increase in their costs and raised prices (mostly on the domestic market). This was even more pronounced in the period 2010–2013 than in 2009 (Figure 4). Total costs increased for 72% of the firms in the period 2010–2013 relative to 51% in 2009 and this was due to more prevalent increases of both labour and suppliers' costs.

Figure 4: Changes in price and cost policies, 2009–2013, firm weighted

Even though price and cost decreases were not so widespread, firms' cost and pricing policies were closely aligned with the conditions under which they were operating (Table 4). In particular, cost and price decreases were more pronounced among those companies that were negatively affected by shocks. In 2009 costs and prices were more frequently reduced in case of a negative demand shock, while in 2010–2013 this was more frequently observed with negative financing and access to suppliers shocks. The stronger negative reaction of prices and costs for negatively affected groups is also reflected on a sectoral and size level with firms from the manufacturing and construction sectors and smaller firms reducing these components more often in periods of unfavourable demand conditions. In general, price decreases in the period 2010–2013 were more prevalent on the domestic market.

Table 4: Percentage of companies reducing the respective indicator as a response to negative shocks, firm weighted

Firms with a reduction in	Demand		Demand volatility		External financing		Clients' payability		Access to suppliers	
	2009	2010–2013	2009	2010–2013	2009	2010–2013	2009	2010–2013	2009	2010–2013
Internal price	25.8	29.4	22.2	30.8	11.0	32.5	12.4	24.9	21.1	37.1
External price	14.2	17.2	12.9	19.2	7.7	28.1	8.0	16.6	15.4	25.7
Total costs	20.3	11.6	20.0	11.8	12.0	12.5	11.5	11.4	12.2	13.3
Financing costs	21.4	9.8	17.4	8.9	15.2	11.9	12.9	9.3	14.5	8.4
Costs of supplies	20.1	10.7	20.9	11.1	8.7	9.2	13.8	10.4	18.9	14.1
Labour costs	14.8	12.0	15.8	11.7	8.6	7.1	9.2	10.7	7.2	9.4
Base wage	12.8	16.5	13.9	15.3	8.4	12.6	8.0	15.9	7.1	20.3
Flexible wage components	31.5	28.5	27.9	28.9	17.5	30.4	22.9	29.6	23.5	35.1
Permanent employees	24.7	42.7	22.5	43.1	13.0	44.9	17.4	42.0	22.8	49.3
Temporary employees	12.3	20.8	12.8	20.7	31.7	28.8	20.7	22.5	19.5	33.4
Other employees	11.6	17.0	12.5	16.1	35.2	32.6	20.3	17.7	26.7	30.7
Hours worked	11.5	11.4	12.7	12.8	8.3	17	7	12.2	11.1	19.5

Source: WDN3 survey, BG (2014)

5.1. Labour cost adjustment

Labour costs constitute a key component of total costs (around 46.9% of total costs in 2013 (WDN3), as compared to 32.5% according to WDN2 data for 2009, Table 19). A higher share of labour costs, as in case of the more labour intensive construction (46.2%) and trade (47.8%) sectors (Table 9) may increase the need to adjust labour costs as a response to shocks and respectively the need for labour cost flexibility.

Roughly one in four (26.6%) companies in the sample had to significantly reduce labour input or adjust its composition in the period 2010–2013, with this share being higher for the construction sector at around 54%. The need for such labour cost decisions was reinforced mainly by the changed macroeconomic environment. Firms experiencing less favourable demand and external financing conditions more likely had to reduce labour input. The presence of an inflation indexation mechanism also increased the probability to reduce labour input or change its composition, Table 13. Institutional factors are not a statistically significant determinant of the need to reduce labour input, particularly after controlling for an external financing shock.

According to macro data, labour cost adjustments throughout the crisis were implemented mainly through reduction of employment. In contrast, wages continued to increase on an aggregate level, although at lower growth rates than prior to 2009, in most of the sectors of the economy. WDN3 micro data confirms that employment was a preferred channel of downward adjustment and adds additional insights into firms' wage-setting practices. Even though in 2009 employment was reduced more frequently than base wages (temporary employees were reduced by around 9% of firms, permanent and other employees by 8% respectively, while only 3% of firms reduced base wages), decrease in flexible wage components was also an important and widely used channel to reduce labour costs (by 8% of the firms). In the period 2010–2013 labour cost reductions became even more frequent. Employment cuts got even more widespread (28% of firms reduced permanent employment, 17% temporary employment), whereas 17% of firms reduced flexible wage components and 10% cut base wages (Figure 4).

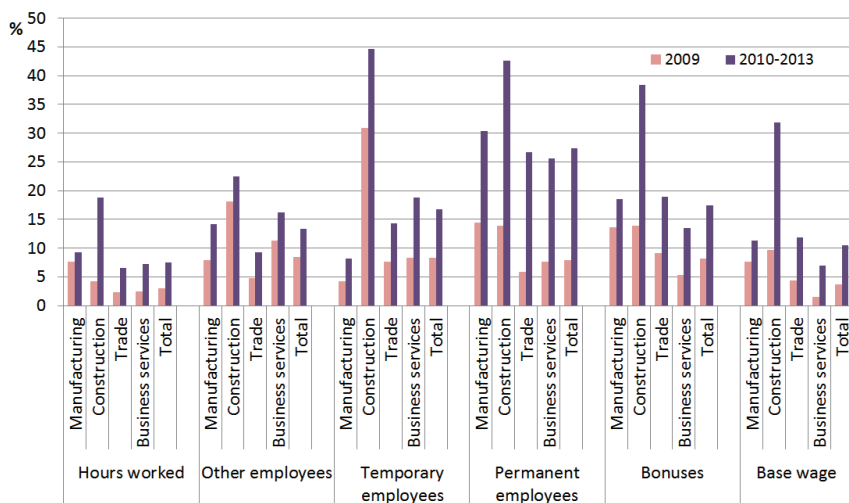
In general, companies more negatively affected by any of the shocks, were much more likely to cut wages, reduce flexible wage components and reduce employment and hours worked, Table 4. Around 40% of the firms, which were hit by a negative shock in the period 2010–2013, cut permanent employees and around 30% reduced flexible wage components as a reaction to negative shocks. Temporary employees were also frequently dismissed (by around 20% of the negatively affected firms). Base wages and hours worked were reduced less often as a reaction to shocks (by around 10% of the negatively affected firms). What is more, for some types of shocks (clients' ability to pay, external financing, access to suppliers), even positively affected firms seem to have applied labour cost optimization practices (particularly reduction of other employees). Companies, facing a higher volatility of demand were also more likely to be cautious in terms of labour costs and more frequently reduced them.

The strong relation between labour cost reductions and the direction and size of shocks is also reflected on a sectoral level. The sectors that experienced a stronger negative impact of the crisis, notably the manufacturing and construction sectors, reduced base wages, flexible wage components, as well as permanent employees and hours worked more commonly in 2009.

In the period 2010–2013, the construction sector faced more prolonged negative shocks compared to the other sectors of the economy. As a result, a higher share of firms in the sector resorted to across-the-board cuts in labour cost components, including reductions in temporary and other

non-permanent types of employees. The WDN3 survey evidence on the changes in the skill structure of the employees in 2013 relative to 2009 also suggests that the construction sector was the one to experience the most significant changes in the skill structure of employees, as the number of low-skilled employees was reduced more strongly relative to high-skilled ones. This is more likely related to the higher share of low-skilled workers in the sector, the higher labour intensity of the construction activity and the severity of the shocks that the sector experienced in the observed period, as compared to other sectors of the economy.

Figure 5: Reduction in labour cost components by sector in % of firms from respective sector, 2009–2013, firm weighted



The WDN3 answers in terms of labour cost changes are broadly in line with what could have been expected from the answers to the WDN2 survey questions about firms' hypothetical response to a slowdown in demand, increase in intermediate input prices and permanent increase in wages (e.g. due to an increase in the minimum wage). WDN2 results suggested that the components preferred by firms to reduce labour costs in a hypothetical situation of a demand shock would have been reductions of temporary or other than permanent employees (around 24% of the firms) or flexible wage components (around 20%) (Lozev et al., 2011). The realized permanent employment and wage cuts throughout the period 2009–2013, however, could not have been expected, given WDN2 results. A much lower percentage of the firms which answered the WDN2 questionnaire in

2009 would have reduced permanent employees (around 13%) or hours worked (around 12%). However, one should note that the labour intensive construction sector was not part of the WDN2 survey and this is one of the sectors which, together with the manufacturing sector, cut permanent employment most throughout the period covered by the WDN3 survey. Base wage cuts were the least frequently stated margin of labour cost adjustment to a hypothetical demand shock in WDN2 (only around 3% of the firms). In this respect the realized incidence of base wage cuts, as stated in WDN3, is even higher than expected. According to WDN2 survey results, many Bulgarian firms claimed they would refrain from choosing base wage cuts due to efficiency considerations, like deterioration in work morale, and self-selection effects of the most productive workers leaving the firm.

5.1.1. Changes in wage-setting

Wages stand as an important margin of adjustment to negative shocks. Firms' ability to adjust wages is a sign of labour market flexibility. The WDN3 explores (similarly to WDN2) several practices which could provide indications about the degree of wage flexibility like the prevalence of wage cuts and freezes, flexible wage payments, incidence of inflation indexation, as well as the frequency of wage changes.

Flexible wage components The reduction of flexible wage components has been stated as an important margin of labour cost adjustment in the face of adverse shocks, both according to WDN2 and to WDN3 survey evidence. This is likely related to the relatively high share of firms in Bulgaria paying performance-related bonuses - in 2013 their share was 58.2% according to WDN3 and in 2009 it was 49.9% according to WDN2. The practice is more common in larger companies, as well as in firms with mainly foreign ownership, subsidiaries and multi-establishments.

Downward nominal wage rigidity The degree and dynamics of downward nominal wage rigidity¹⁰ is explored more explicitly by investigating the prevalence of wage cuts and freezes in each of the years starting from 2009 up to 2013 and the percentage of workers affected by them, which is particularly relevant in periods of moderate levels of inflation¹¹. The share of firms cutting wages went up from 1.6% in 2009 to 4.2 percent in 2013 and the share of firms freezing wages increased only slightly for

¹⁰ Downward nominal wage rigidity (DNWR) relates to the inability of firms to implement nominal wage cuts. As suggested by Babecky et al. (2009) a higher share of firms answering that wages have been frozen would indicate higher downward nominal wage rigidity.

¹¹ As noted in Tobin (1972), higher inflation would allow easier wage adjustments

the whole sample from about 9.6% in 2009 to 10.2% in 2013 (Table 14). In general, firms more severely hit by a shock cut or freeze wages more often. Firms whose operating conditions were eased by positive shocks seem to adopt more benign adjustment strategies and rely more on wage freezes than wage cuts.

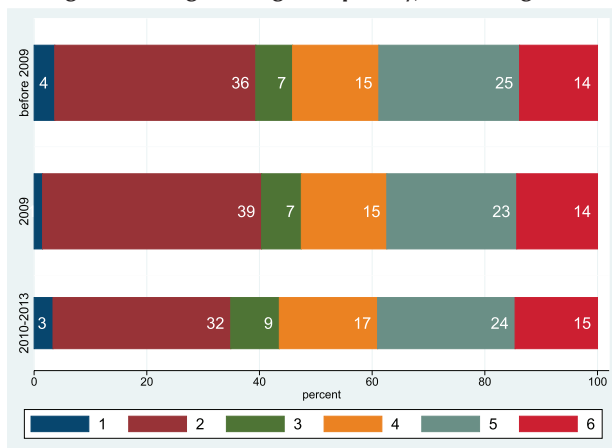
There are some notable sectoral differences in the prevalence of wage cuts and freezes, related to the strength of shocks sectors were hit by. Wage freezes and cuts were much more common in the severely affected construction sector. Around 40% of the firms in the construction sector froze the wages of their employees at least once in the period 2009–2013 and 15% cut them at least once (Table 7). The share of firms freezing wages in the sector was on the increase from 21% in 2009 up to 36% in 2012 and then decreased slightly in 2013 (Table 14). Wage cuts, on the other hand, were not taking place in the construction sector in 2009 and 2010, and started in 2011, with the share of firms applying them growing to 15% in 2013. Wage freezes were the least common in the trade sector (around 8.5% of firms) and wage cuts in the business services sector (around 3.7% of firms). The developments in the manufacturing sector, which was more strongly hit in the beginning of the survey period (2009–2010) and recovered subsequently, were also reflected in the changes of its wage-setting practices. Even though wage cuts in the manufacturing sector got less and less common till 2013, the usage of wage freezes declined up to 2011 (7.2% of firms) and increased again up to 2013 (8.5%). Apart from the influence of shocks for wage cuts and freezes, ownership type also played a role. Foreign-owned firms seem to have applied wage freezes and cuts more often in the period 2009–2013, Table 8.

Inflation indexation Even though inflation is expected to stand out as a dominant factor triggering frequent wage adjustment, previous WDN survey waves suggest that both formal and informal indexation of wages to inflation is relatively rare in Bulgaria. More recent WDN results confirm these findings. Around one quarter of firms (25.6%) applied some form of inflation indexation in the period prior to 2010 according to WDN3 data and the evidence is very similar to WDN2 results (around 25%). There is some variability across sectors. The practice of inflation indexation is more widespread in the construction sector and in the manufacturing sector (Table 7). Both sectors also face a slight decline in the prevalence of inflation indexation in 2009 relative to the period prior to 2009. In the period 2010–2013 inflation indexation practices became more common and 29.2% of the firms stated to have aligned their wage growth with inflation. The practice has become more common particularly in the construction

and services sub-sectors. Still, a relatively high share of firms has refrained from aligning wage growth to inflation, due to low inflation.

The frequency of wage changes The frequency of wage changes provides an indication of the degree of wage stickiness and therefore points to the possibility for firms to rely on this margin of adjustment as a response to changes in their environments. WDN2 evidence suggested that wages change relatively infrequently: the average wage duration¹² in 2009 was one year, as opposed to just below 8 months price duration (Lozev et al., 2011). WDN3 results point to a higher average wage duration (around 25 months for the period prior to 2009, 23 months for 2009 and 27 months for 2010–2013) relative to WDN2 results, which is also longer than the average duration of keeping prices unchanged, the latter standing at 15.7 months for 2010–2013 (Table 9). Wage change frequency seems to have increased slightly in 2009 and to have declined in 2010–2013 relative to the previous periods. About 32% of the firms surveyed report they typically change wages once a year and another 24% change them less often than twice a year in the period 2010–2013. A stronger temporary decrease in the frequency in 2009 is observed in the construction sector, which is reversed in 2010–2013.

Figure 6: Wage change frequency, firm weighted



Note: 1 “More often than once a year” 2 “Once a year” 3 “Once in year and a half” 4 “Once in two years” 5 “Less often than 2 years” 6 “Never”

¹² One of the adopted measures of wage rigidity (stickiness) in the survey is the average period during which under normal circumstances the basic wage remains unchanged (wage duration), calculated following Druant et al. (2009). The time span between two consecutive price changes, on the other hand, is termed price duration and longer durations are associated with higher price rigidity.

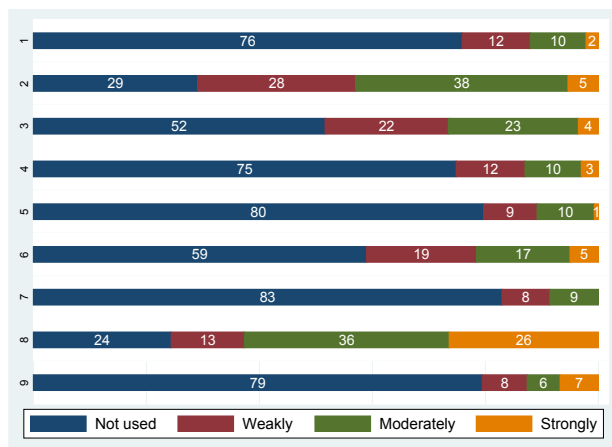
5.1.2. Measures used to adjust labour input

The strategies used to reduce labour input provide valuable information on the role of the institutional framework for maintaining labour market flexibility. The WDN3 questionnaire explores various strategies used by firms to reduce or change labour input in the period 2010–2013 and identifies the commonly preferred ones.

Individual lay-offs and reduction of hiring are stated to have been the most commonly used measures to reduce labour input during the period 2010–2013. Temporary lay-offs, as well as non-renewal of temporary contracts, were also popular measures. Companies chose to use relatively less frequently collective lay-offs, reductions of working time and early retirement schemes (Figure 7).

There are some variations in the preferred strategies by sector (Table 15). Manufacturing firms more commonly used collective layoffs compared to other sectors of the economy. On the other hand, construction firms, which have a higher share of temporary employees, relied more often on individual and temporary lay-offs, as well as non-renewal of temporary contracts.

Figure 7: Measures to change labour force composition, firm weighted



Note: (1) Collective lay-offs, (2) Individual lay-offs, (3) Temporary lay-offs, (4) Subsidized reduction of working time, (5) Non-subsidized reduction of working time, (6) Non-renewal of temp. contracts, (7) Early retirement schemes, (8) Reduction of hiring, (9) Reduction of temporary agency workers

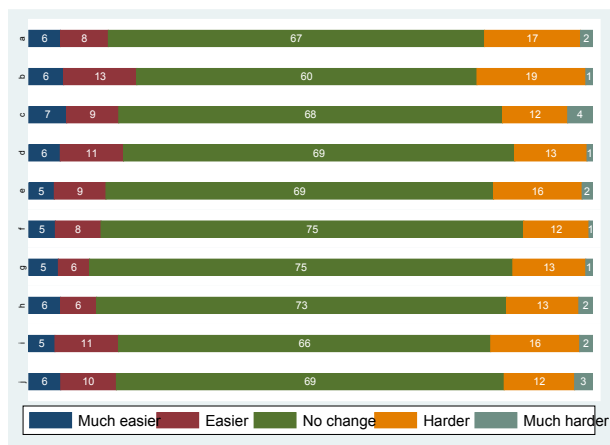
Larger firms (with more than 200 employees) seem to have relied on a broader scope of measures and have more commonly used all of the meas-

ures. Multi-establishment companies were more likely to use collective lay-offs, as well as subsidized reduction of working time and early retirement schemes.

Firms with a higher share of minimum wage and minimum social security threshold employees rely more often on collective lay-offs as well as on non-subsidized reduction of the working time. On the other hand, firms covered by an outside-the-firm collective agreement relied less commonly on a broad combination of measures and more typically reduced hiring.

The WDN3 also explores how companies perceived the change in ease to use the respective measures in the period 2010–2013 and the responses seem to rely strongly on the conditions the respective firm-groups were exposed to (Figure 8). Most of the firms did not experience a change in the usage of the measures. However, companies from the services sub-sectors, as well as larger companies (larger than 200 employees), which were either less hit by negative shocks or recovered faster, more often experienced that the usage of the explored measures has become easier. Foreign-owned firms and subsidiaries also perceived the usage of most of the measures to have become easier.

Figure 8: Changes in the usage of measures to change labour force composition, firm weighted



Note: (a) Collective lay-offs, (b) Individual lay-offs, (c) Disciplinary lay-offs, (d) Temporary lay-offs, (e) Hiring, (f) Changes in hours worked, (g) Regional allocation of workers, (h) Positional allocation of workers, (i) Incumbent wage changes, (j) Lower wages for newly hired

5.1.3. Hiring conditions and obstacles

Following a period of substantial employment decline, Bulgaria and other European countries experienced a jobless recovery and are still suffering from low hiring rates. Reduction of hiring is stated to have been one of the most widely used measures to reduce labour input during the period 2010–2013 in the WDN3 survey. Besides programs to stimulate investment, demand and production, revisiting the role of labour market institutions may be needed in order to explore and possibly reduce the extent to which they may hamper hiring.

Obstacles to hiring To investigate these issues, the WDN3 survey includes a question on the relevance of a set of factors as obstacles to hiring workers with a permanent, open-ended contract. The question explores not only the relevance of uncertainty about economic conditions, insufficient availability of skilled labour and access to financing, but also some institutional features such as firing and hiring costs, high taxes and wages, and the risk that labour laws may change.

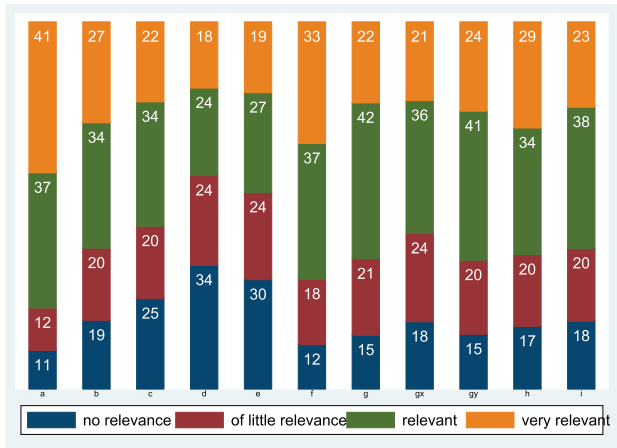
Both macroeconomic conditions and institutional labour market features were stated to have been the most relevant obstacles to hiring. In particular, the uncertainty of economic conditions and high payroll taxes and wages are chosen by most firms as the main drivers behind lower hiring (Figure 9). Labour shortages, as well as high minimum wages and social security thresholds, are also relevant hindrances in most of the sectors of the economy. Access to finance, hiring and firing costs, as well as costs of other inputs complementary to labour have been stated as less relevant obstacles to hiring.

Overall, most of the explored obstacles to hiring are more relevant in the south-western region of the country, which also has lower unemployment rates and higher labour demand (Table 16). Multi-establishment companies are less likely to experience obstacles like hiring costs as relevant to hiring. Companies, relying mainly on foreign revenues (mainly manufacturing companies) were more likely to be hindered by firing costs in their hiring decisions. Higher payroll taxes are a more relevant obstacle for larger companies (with more than 50 employees).

Some institutional characteristics of the labour market also play a role for the reluctance to hire new workers. In particular, the presence of an outside-the-firm agreement increases the likelihood most of the explored factors to be relevant for hiring. Companies with a higher share of minimum wage employees more often identify economic uncertainty, high payroll taxes and labour law changes as an obstacle to hiring.

The practice of adjusting wage changes to inflation as well as a higher share of bonuses in the wage bill are also associated with an increased relevance of some factors for hiring.

Figure 9: Obstacles to hiring, firm weighted



Note: (a) Economic uncertainty, (b) Labour shortage, (c) Access to finance, (d) Firing costs, (e) Hiring costs, (f) High payroll taxes, (g) High wages, (gx) High minimum wages, (gy) High social security thresholds, (h) Risks that labour laws are changed, (i) Costs of other inputs complementary to labour

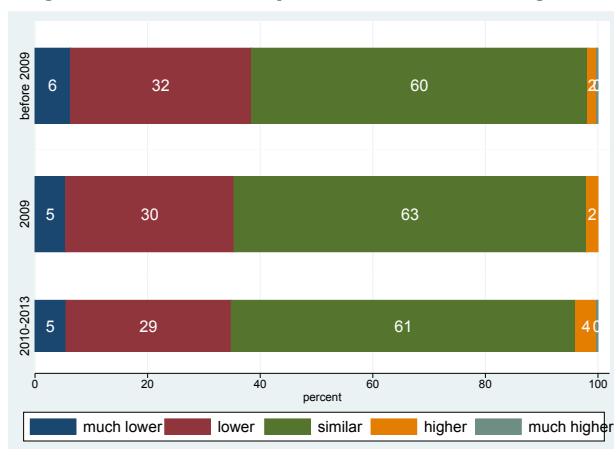
Wages of newly hired workers The distinction between wages of newly hired workers and incumbent wages could help to explain labour market flows and unemployment volatility, since wages of new hires are expected to be more responsive to unemployment rate changes (Pissarides, 2009). If wages offered to newly hired workers respond differently to aggregate labour market conditions compared to those of employees in ongoing employment relationships, the wage-setting practices concerning newly hired employees may be an important measure of adjustment to shocks and may be very relevant for hiring decisions. Previous WDN2 survey evidence, however, suggests that internal factors, particularly wages in the firm, are a more important driver of wages of newly hired workers than external factors, collective pay agreements or market conditions. The surveyed firms explained their reluctance to set-up lower wages for newly hired workers for considerations related to expected negative impact on effort and loss of reputation (Lozev et al., 2011).

WDN3 evidence confirms previous findings on the topic, including a question on firms' realized choice of newly hired wage level relative to

incumbent wages. Most of the firms (around 60%) preferred to set wages of newly hired workers close to those already prevalent for incumbent employees. A certain share of companies, however, set lower (around 30% of firms) or much lower hiring pay (around 5% of firms). Wage-setting policy in terms of wages of new hires does not seem to have changed much after 2009 relative to previous years. However, lower hiring pay has become slightly less common, while higher newcomers' wages have gained some prominence in recent years. The share of firms setting lower hiring pay has decreased from 38% prior to 2009 to 34% in 2010–2013, and the respective share of firms setting higher wages has increased from 2 to 4%.

The practice of setting lower wages to newcomers is associated mostly with firm-specific factors like the sector, region and ownership type of the firms and the structure of the employees, whereas the presence of a collective pay agreement does not seem to have affected hiring pay. Firms were less likely to set lower wages for newcomers in the business services sector, particularly in the period 2010–2013 and in the northern regions of the country (Table 17). Foreign-owned companies were more likely to set lower wages for newcomers in 2010–2013. More favourable demand conditions were less frequently associated with lower hiring pay, however some institutional factors were still binding. Firms with a higher share of low-skilled and minimum wage employees were less likely to set lower newly hired wages, whereas firms applying wage indexation were more likely to do so.

Figure 10: Wages of new hires compared to incumbent wages, firm weighted



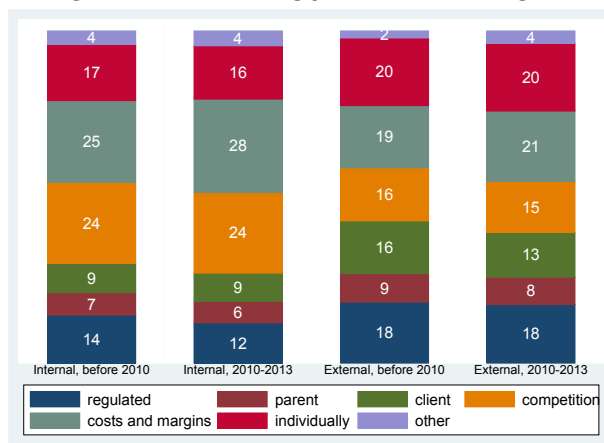
5.2. Changes in price-setting practices

Firms' **price-setting rules** play an important role in shaping the flexibility of prices in response to shocks. Respectively, higher price flexibility (as in an environment of perfect competition) lowers the adjustment costs when shocks hit the economy.

In the WDN3 survey companies were asked to indicate how they set the price of their main product or service, defined as the one that generated the highest turnover in the period prior to 2010 and in 2010–2013. A distinction is made between firms that do not/cannot follow an independent policy, and those that decide their prices autonomously. The first category includes entities whose price for the main product is either set by a parent firm, or regulated, or determined by the main customers. For companies in the second category the questionnaire identifies three distinct strategies: they could (i) be price followers of their main competitors, (ii) decide prices according to a mark-up on their costs, (iii) negotiate prices with individual customers. A more autonomous price-setting policy may be interpreted as a sign of price flexibility.

According to WDN2 results for Bulgaria, autonomous price-setting practices were prevailing in 2009. Around 40% of the companies followed competitors' prices, whereas another one third used the mark-up over costs as a base for price-setting. Results from the WDN3 survey provide similar evidence (Figure 11). Both for the period prior to 2010, as well as for the period 2010–2013, autonomous price-setting strategies were more widespread. Changes in costs and margins were the most relevant driver behind price-setting for 28% of firms in 2010–2013, followed by competitors' prices (for around 24% of firms). Another 16% of firms were setting the price individually. As in WDN2, the WDN3 results show that about one fourth of firms, setting the price on the internal market, have no independent pricing policy due to determination of the price by a parent company, price regulator or the main client. This share is even higher for companies setting the price of their main product/service on the external market.

Figure 11: Price-setting practices, firm weighted

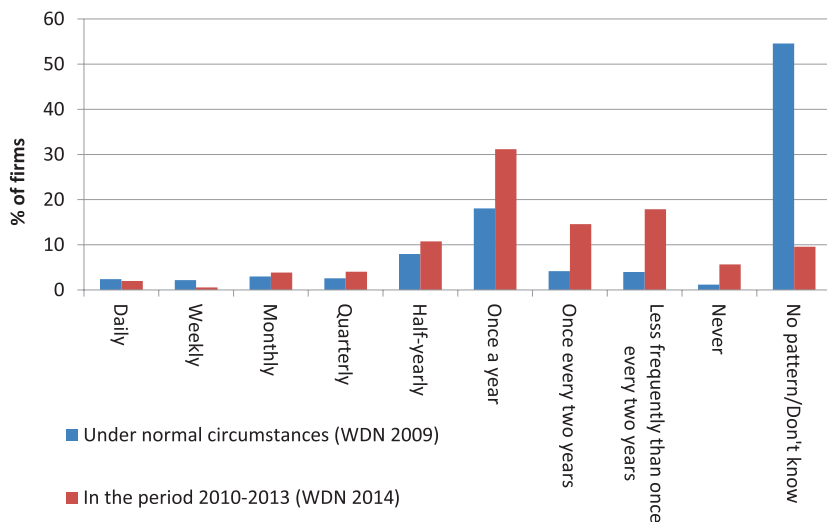


The **frequency of price changes** is one of the most widely used measures of price flexibility (even though a low frequency is not necessarily an indicator of price stickiness in case of absence of variability in the underlying factors).

WDN2 survey results revealed that 52.3% of Bulgarian firms generally do not follow a specific time-dependent pattern in their decisions for price changes, with almost no variation of this proportion across different sectors and firm sizes (Vladova, 2012). This result differs from WDN3 evidence, where a higher percentage of firms change prices annually (around 34%) or less frequently (around 36%) (Figure 12). Around 6% have stated to have never changed prices. Around 16% of firms change their prices on a quarterly-to-half-yearly basis.

Estimates of the duration of price spells (which is defined as the number of months for which prices remain unchanged) show that on average this duration is higher in the period 2010–2013 (around 16 months, Table 9), compared to estimates from the WDN2 survey in 2009 (7.7 months, Table 19). The average price duration however remains lower than the average wage duration, estimated from the survey results (around 27 months for the period 2010–2013). This average price duration is lower in the construction sector, which was more strongly hit by shocks over the period covered by the survey, and in the trade sector, which is likely to have faced greater uncertainty and increasing competition over the last years due to the extensive penetration of international competitors on the market and the eventual lowering of the market power of local firms.

Figure 12: How often is the price of the firm's main product or service typically changed? (WDN 2009 compared to WDN 2014)



6. Conclusions and future research

This paper summarized Wage Dynamics Network firm-level evidence on the main shocks that affected Bulgarian companies over the period 2009–2013, the main institutional features of the labour market and companies' reactions in terms of prices and costs, particularly labour cost components.

WDN3 results indicate that collective bargaining in Bulgaria is predominantly organized at the firm level and industry-level coverage is relatively low. Inflation indexation is applied by around one fourth of the companies. Around 20% of the firms have a prevalence of minimum wage employees and around 40% of the companies have a higher share of employees, insured at the minimum social security thresholds.

In terms of price-setting rules, most of the companies in the WDN3 sample followed independent policies (based on costs and profit margins, competitors' prices, or individual decisions) in the period 2010–2013. About one fourth of firms had no independent pricing policy due to determination of the price by a parent company, price regulator or the main client.

In the period 2009–2013 Bulgarian enterprises were primarily affected by a customers' ability to pay and a demand shock, with their effect being

stronger in the construction sector of the economy. Both prices and costs were reduced more frequently in companies, facing worsened economic conditions. The need to adjust labour input in particular was also reinforced by the changed macroeconomic conditions. WDN3 data results confirm and complement macro data evidence that the labour cost adjustment was implemented mainly by reducing employment and flexible wage components, and to a smaller extent through base wage cuts and reductions of hours worked. More strongly negatively affected sectors used all of these strategies more frequently. Respectively, individual lay-offs and reduction of hiring were preferred measures to reduce labour input during the period 2010–2013. Even though there are some sectoral variations, companies chose to use relatively less frequently collective lay-offs, reductions of working time and early retirement schemes. Institutional features did not seem to have been a significant determinant of the need to reduce labour input. However, it may be interesting to explore their role for the relative choice of some labour cost components over others in future projects, for example the importance of minimum wages and collective bargaining for the choice of employment relative to wage and hours worked channels of adjustment.

The paper further explored the factors behind low job creation. Even the companies, which did not directly state a need to reduce labour input or change its composition, faced obstacles to hiring. Besides for the uncertainty of economic conditions, high payroll taxes and wages are stated as other main obstacles to hiring. In this respect, institutional settings seem to have increased the relevance of some of the explored obstacles for hiring. Firms, applying an industry-level collective agreement were more likely to be constrained in their hiring decisions. Firms with a prevalence of minimum wage employees stated more frequently that economic uncertainty, high payroll taxes and changes in labour laws hinder hiring, and were less likely to set lower wage for newly hired workers.

The practice of wage indexation to inflation, on the other hand, was associated with a greater need to reduce labour input or change its composition, higher relevance of some of the obstacles to hiring and a higher probability to set lower wages for newly hired workers.

WDN2 and WDN3 results suggest that wages and prices change relatively infrequently. The determinants of price and wage-setting practices, as well as the relationship between them, need to be explored further, particularly in an environment of low inflation/deflation.

7. Appendix

7.1. The Wage Dynamics Network and the Survey

The research network Wage Dynamics Network (WDN) started operations in July 2006 and developed a survey in order to study in depth the features and sources of wage and labour cost dynamics in the European union and their implications for monetary policy.

The first wave of the WDN survey was carried out by 17 national central banks (NCBs)¹³ between the end of 2007 and the first half of 2008 (another four countries: Slovakia, Cyprus, Malta, Bulgaria launched the survey in the first quarter of 2009). Then, in order to understand firms' reactions to the initial stages of the crisis, ten NCBs¹⁴ conducted a more limited, second wave follow-up survey during the summer of 2009, for a summary of the main results see ECB (2009). Bulgaria launched the survey for the first time in 2009 (referred to as WDN2 in this paper), using the harmonized WDN questionnaire from the first wave, appended with some questions from the second wave follow-up survey.

Four years after the second WDN wave, the third wave was launched. The findings from the third wave of the survey refer to firms' behaviour during a period of relatively low growth and rates of inflation in the majority of the countries examined, as opposed to the macroeconomic conditions covered by the previous waves of the survey. It aims at assessing how the recent crisis and associated macro changes and labour market reforms are shaping the response of firms to shocks in the period 2010–2013 in terms of labour costs and price-setting. The third wave of the WDN-survey project involved all European Union countries except Denmark, Finland and Sweden and was conducted mainly in 2014. The group followed again a decentralized approach in which each national central bank was responsible for carrying out the survey within its country. However, strong coordination guaranteed that the national questionnaires, at least with respect to a subset of clearly pre-defined core questions, were almost fully harmonized. All national samples cover three common branches of activity for the purpose of joint empirical analysis: manufacturing, trade and market services. The Bulgarian survey sample covers additionally the construction sector.

¹³ Austria, Belgium, Czech Republic, Estonia, France, Greece, Hungary, Italy, Ireland, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Slovakia and Spain

¹⁴ Austria, Belgium, Czech Republic, Estonia, France, Italy, Luxembourg, the Netherlands, Poland, and Spain

The third wave of the WDN survey (WDN3) was conducted in Bulgaria in the period August–November 2014 by an external private company. Initially, the 509 companies which took part in the previous wave of the survey in 2009 (WDN2) were contacted to participate again in the WDN3 survey. Out of these, 73 firms agreed to participate in the WDN3 survey. The rest of the companies were selected by random stratification, with the strata being the harmonized size and sector subgroups. A representativeness was as well aimed on a regional level, with the structure of the sample following the population structure by the 28 regional districts of the country.

The survey was carried out mainly in the form of face-to-face interviews (487 firms); a supplementary approach was an online questionnaire (41 firms) reaching a final sample of 528 companies.

7.2. Tables with selected results

Table 5: Population and WDN3 sample composition, number of firms

Sector (NACE Rev. 2)/ Number employees	5–19	20–49	50–199	200+	Total
Population (2012), NSI					
Manufacturing		2558	1638	412	4608
Construction		952	483	64	1499
Trade, transport	14011	2312	758	90	17171
Non-public market services	13366	2210	857	214	16647
Total	27377	8032	3736	780	39925
WDN3 survey sample (2014)					
Manufacturing		30	19	7	56
Construction		15	6	1	22
Trade, transport	196	30	7	2	235
Non-public market services	173	29	11	2	215
Total	369	104	43	12	528

Source: NSI, WDN3 survey, Bulgaria

Table 6: Variables used in the tables and probit regressions

Name	Description
Sector dummies	Dummy variables (=1 if the economic activity sector is the one indicated, 0 otherwise). Based on NACE sector variable: 1 "Manufacturing", 3 "Construction", 4 "Trade", 5 "Business services"
Size dummies	Dummy variables (=1 if the size in terms of employees is the one indicated, 0 otherwise). Based on firm size variable: 1 "10-19" 2 "20-49" 3 "50-199" 4 "200+"

Name	Description
Regional dummies	Dummy variables (=1 if the region is the one indicated, 0 otherwise). Based on regional variable: 1 "North-west" 2 "North-central" 3 "North-east" 4 "South-east" 5 "South-west" 6 "South-central"
Foreign ownership	Dummy variable (=1 if foreign ownership, 0 otherwise). Based on ownership status variable: 1 "Mainly domestic", 2 "Mainly foreign"
Multi-establishment firm	Dummy variable (=1 if multi-establishment firm, 0 otherwise). Based on structure variable: 1 "Single establishment firm within the country", 2 "Multi establishment firm within the country"
Subsidiary	Dummy variable (=1 if subsidiary, 0 otherwise). Based on autonomy variable: 1 "Parent company", 2 "Subsidiary"
Mainly foreign revenues	Dummy variable (=1 if main source of revenue in 2013 foreign, 0 otherwise). Based on main source of revenue variable: 1 "Domestic", 2 "Foreign"
Decline in demand/ demand volatility/ external financing/ clients' ability to pay/access to suppliers	Dummy variable (=1 if demand/demand volatility/external financing/clients' ability to pay/access to suppliers decreases, =0 if demand is unchanged or increases), based on question 2.1.
Change in demand	Categorical variable, taking values from 1 = Strong decrease, to 5 = Strong increase, based on question 2.1.
Change in external financing	Categorical variable, taking values from 1 = Strong decrease, to 5 = Strong increase, based on question 2.1.
Unavailability of credit	Dummy variable (=1 if unavailability of credit for financing working capital, new investment or debt is a relevant or very relevant, 0 otherwise). Based on questions 2.3. Credit unavailable for financing working capital, new investment or debt: 1 = Not relevant, 2 = Of little relevance, 3 = Relevant, 4 = Very relevant
Onerous conditions on credit	Dummy variable (=1 if conditions on credit for financing working capital, new investment or debt is a relevant or very relevant for firms' activity, 0 otherwise). Based on questions 2.3. Credit conditions for financing working capital, new investment or debt: 1 = Not relevant, to 4 = Very relevant
Mainly minimum wage employees	Dummy variable (=1 if share of minimum wage employees in the end of 2013>50%, 0 otherwise).
Mainly MSST employees	Dummy variable (=1 if share of minimum social security threshold employees in the end of 2013>50%, 0 otherwise).
Mainly high/low-skilled	Dummy variable (=1 if share of high/low-skilled employees>50%, 0 otherwise).
Outside agreement	Dummy variable (=1 if share of collective bargaining agreement outside the firm is present in 2013>50%, 0 otherwise).
Firm-level agreement	Dummy variable (=1 if share of firm-level agreement present in 2013>50%, 0 otherwise).
High labour share	Dummy variable (=1 if labour share in 2013>50%, 0 otherwise).
Above 10% bonuses in wage bill	Dummy variable (=1 if share of bonuses in the wagebill in 2013=>10%, 0 otherwise).
Inflation indexation	Dummy variable (=1 if firm is applying inflation indexation, 0 otherwise).

Table 7: Selected indicators, percentage of surveyed firms from the respective sector (firm weighted)

Indicator	Manu- facturing	Construction	Trade	Business services	Total
Subsidiary	3.5	5.6	1.8	5.5	3.7
Mainly foreign-owned	1.4	5.6	1.3	2.6	2.0
Multi-establishment firm	14.3	5.4	11.1	9.2	10.5
Mainly foreign revenues	25.6	0.0	3.4	6.8	7.3
Mainly low-skilled, 2009	65.8	71.2	53.2	38.7	49.3
Mainly low-skilled, 2010–2013	67.7	66.6	52.4	38.4	48.8
Mainly high-skilled, 2009	39.2	38.4	52.7	68.4	57.1
Mainly high-skilled, 2010–2013	35.5	54.4	53.1	67.7	57.2
Wages frozen, 2009–2013	15.5	40.4	12.9	15.3	15.2
Wages cut, 2009–2013	5.6	15.0	6.6	4.2	5.8
Firms paying bonuses	55.0	59.6	55.7	62.1	58.2
Outside agreement	22.3	33.1	13.3	22.6	18.9
Firm-level agreement	3.2	10.0	5.2	10.3	7.3
Inflation indexation before 2009	32.2	46.9	24.3	23.2	25.6
Inflation indexation, 2009	29.1	33.0	24.6	25.0	25.6
Inflation indexation, 2010–2013	29.1	38.4	28.8	28.7	29.2
Mainly minimum wage employees	30.0	17.7	23.0	17.5	21.3
Mainly employees insured at the minimum threshold	43.6	35.0	40.4	38.7	39.8
	5-19	20-49	50-199	200+	Total
Subsidiary	3.1	3.2	5.1	23.0	3.7
Mainly foreign-owned	1.9	0.0	2.5	21.3	2.0
Multi-establishment firm	7.8	14.7	14.3	40.8	10.5
Mainly foreign revenues	96.1	88.7	84.1	56.1	92.7
Mainly low-skilled, 2009	44.6	62.1	52.4	65.4	49.3
Mainly low-skilled, 2010–2013	43.5	63.2	53.5	65.4	48.8
Mainly high-skilled, 2009	62.1	42.7	55.0	42.1	57.1
Mainly high-skilled, 2010–2013	62.7	41.4	53.8	42.1	57.2
Wages frozen, 2009–2013	12.8	21.5	18.1	23.3	15.2
Wages cut, 2009–2013	5.1	6.7	9.5	0.0	5.8
Firm-level agreement	15.3	23.1	38.4	8.2	18.9
Outside agreement	6.1	12.7	4.5	7.5	7.3
Inflation indexation before 2009	24.0	30.1	30.6	13.3	25.6
Inflation indexation, 2009	22.9	32.0	30.5	29.1	25.6
Inflation indexation, 2010–2013	28.2	29.0	40.1	13.3	29.2
Firms paying bonuses	57.5	56.5	67.3	56.5	58.2
Mainly minimum wage employees	23.3	23.9	4.8	10.6	21.3
Mainly employees insured at the	41.5	47.6	19.8	0.0	39.8

Source: WDN3, Bulgaria

Table 8: Selected indicators, percentage of surveyed from the respective column sub-group (firm weighted)

	Ownership type		Structure		Autonomy	
	Mainly domestic	Mainly foreign	Single establishment firm	Multi-establishment firm	Parent company	Subsidiary
Subsidiary	2.4	63.0	2.0	17.6		
Mainly foreign					0.8	34.9
Single establishment firm	89.8	56.3			90.7	48.2
Mainly foreign revenues	93.6	49.1	93.5	86.4	93.7	77.3
Firms paying bonuses	56.1	91.6	56.5	73.3	56.4	71.7
Mainly high-skilled, 2009	57.1	83.1	56.6	61.5	57.3	73.6
Mainly high-skilled, 2010–2013	57.3	83.1	57.1	57.8	57.6	72.5
Mainly low-skilled, 2009	49.7	16.9	50.0	43.6	49.5	31.9
Mainly low-skilled, 2010–2013	49.1	16.9	49.4	43.6	49.0	27.5
Mainly minimum wage employees	22.3	11.3	21.4	20.5	22.9	6.3
Mainly employees insured at the minimum threshold	41.9	14.9	39.3	44.3	41.7	25.5
Firm-level agreement	19.2	20.1	20.1	9.1	19.4	22.4
Outside agreement	7.3	0.0	7.7	3.7	7.2	11.0
Inflation indexation before 2009	24.4	19.3	26.2	20.9	25.2	10.6
Inflation indexation, 2009	24.2	29.8	25.7	24.7	24.1	25.8
Inflation indexation, 2010–2013	28.2	19.3	29.7	24.5	29.1	10.6
Wages frozen, 2009–2013	15.6	28.1	15.3	14.9	15.9	16.9
Wages cut, 2009–2013	5.9	10.5	5.3	9.4	6.1	5.8

Source: WDN3, Bulgaria

Table 9: Selected indicators, average of the respective indicator, firm weighted

Indicator	Manu- facturing	Construction	Trade	Business services	Total
Share of low-skilled, 2009	56.8	58.8	48.0	35.7	44.3
Share of low-skilled, 2013	59.4	54.1	47.5	36.2	44.4
Share of high-skilled, 2009	43.2	41.2	52.0	64.3	55.7
Share of high-skilled, 2013	40.6	45.9	52.5	63.8	55.6
Tenure below 1 year, 2009	8.3	6.6	9.3	10.5	9.6
Tenure below 1 year, 2013	6.2	8.2	6.9	8.6	7.6
Tenure 1 to 5 years, 2009	25.4	27.5	28.1	27.2	27.4
Tenure 1 to 5 years, 2013	28.8	29.9	27.1	27.2	27.4
Tenure above 5 years, 2009	65.2	62.0	66.0	64.2	65.0
Tenure above 5 years, 2013	66.3	66.0	62.6	62.3	63.0
Labour in total costs	45.4	46.2	47.8	46.5	46.9
Bonuses in wage bill	8.8	6.9	9.9	12.6	10.9
Share of employees covered by collective agreement	81.9	71.8	96.7	94.5	92.4
Share of minimum wage employees	20.2	22.5	12.1	17.8	19.9
Share of insured at MSST	45.6	34.5	38.7	37.6	38.9
Wage change freq. till 2009 (months)	29.5	18.3	24.7	23.5	24.6
Wage change freq., 2009 (months)	28.6	11.4	23.3	22.5	23.0
Wage change freq., 2010–2013 (months)	27.9	18.1	27.9	26.9	26.9
Price change freq., 2010–2013	16.0	9.7	14.4	17.6	15.7

Source: WDN3, Bulgaria

Table 10: Selected indicators, average of the respective indicator, firm weighted

Percentage of firms from the respective subgroup, which experienced a decline in:										
	Demand		Volatility of demand		Access to ext. financing		Customers' ability to pay		Availability of supplies	
	2009	2010–2013	2009	2010–2013	2009	2010–2013	2009	2010–2013	2009	2010–2013
Size										
5-19	14.4	44.8	13.7	35.5	9.2	15.1	21.0	52.2	8.5	20.7
20-49	15.9	32.4	20.0	32.0	8.8	21.1	24.3	45.8	7.9	14.2
50-199	18.6	29.2	16.8	22.8	7.4	9.8	20.9	37.0	8.8	19.3
200+	7.5	0.0	22.6	22.6	15.8	23.3	23.3	52.1	7.5	22.6
Sector										
Manufacturing	21.7	29.7	22.8	31.7	12.9	18.1	22.9	38.5	8.7	7.5
Construction	4.2	66.1	12.7	45.7	21.2	43.5	30.8	81.9	0.0	19.2
Trade	15.9	41.7	16.5	35.0	7.8	14.4	21.2	52.5	8.5	20.8
Business services	13.1	38.7	12.4	31.2	8.3	14.6	21.1	46.5	8.9	21.1
Ownership										
Mainly domestic	15.6	41.2	15.9	34.1	9.2	16.6	22.1	50.5	8.7	20.0
Mainly foreign	10.3	22.8	21.5	41.1	10.3	10.3	21.5	79.4	11.2	22.8
Structure										
Single establishment	14.3	40.4	15.1	33.3	10.0	16.4	22.0	48.1	8.6	20.1
Multi-establishment	20.8	36.3	18.6	34.3	1.9	13.1	19.6	61.9	6.9	12.3
Autonomy										
Parent company	14.6	41.4	15.3	34.4	9.0	15.9	21.8	50.2	8.6	19.8
Subsidiary	31.5	28.6	27.5	29.6	15.9	21.8	25.9	72.4	5.5	15.5
Main revenue source										
Domestic market	14.1	41.4	13.8	33.4	8.7	16.3	21.0	50.2	7.2	19.1
Foreign markets	24.8	22.2	35.4	33.9	13.5	12.8	31.4	43.2	24.3	23.0
Region										
North-Western	19.5	49.3	20.8	49.2	14.6	17.0	43.3	76.9	5.1	10.9
North-Central	38.1	50.8	34.9	47.4	7.2	9.7	27.8	43.6	14.7	22.8
North-Eastern	20.1	52.9	18.6	33.8	12.2	17.1	28.2	65.7	12.7	23.0
South-Eastern	26.7	45.1	30.5	47.7	12.3	24.8	36.6	60.9	12.6	24.5
South-Western	6.2	30.9	8.0	23.9	5.6	12.9	12.4	44.6	6.3	20.3
South-Central	11.1	40.6	7.9	32.5	12.1	18.6	16.9	33.5	5.6	12.0

Source: WDN3, Bulgaria

Table 11: Negative shocks by subgroups, probit regressions, average marginal effects

Decline in														
	Demand		Volatility of demand		Access to ext. financing		Customers' ability to pay		Availability of supplies		Internal demand		External demand	
	2009	2010-2013	2009	2010-2013	2009	2010-2013	2009	2010-2013	2009	2010-2013	2009	2010-2013	2009	2010-2013
Manufacturing	-0.0	0.0	-0.0	0.0	0.1	0.0	-0.1	-0.1	-0.1	-0.3**	-0.0	0.1	-0.1	-0.1
Construction	-0.2	0.4**	-0.1	0.2	0.2*	0.3**	0.1	0.4**	0.0	-0.0	-0.1	0.4**	-0.0	0.1
Business services	-0.0	-0.0	-0.1	-0.0	-0.0	0.0	-0.0	-0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.0
20-49	0.0	-0.2**	0.1	-0.1	-0.1	0.0	0.1	-0.1	0.0	-0.0	0.0	-0.0	0.1*	0.1
50-199	0.0	-0.2*	0.0	-0.2	-0.1	-0.1	0.0	-0.2*	0.0	0.1	0.0	-0.1	0.0	-0.0
200+	-0.1	0.0	0.1	-0.2	-0.0	0.1	0.1	-0.0	0.1	0.3	-0.1	-0.2	0.0	-0.0
Foreign ownership	-0.1	-0.1	-0.0	0.2	-0.1	-0.1	-0.0	0.1	-0.0	-0.0	0.1	0.0	0.1	0.0
Multi-establishment	0.0	0.0	-0.0	0.0	-0.1***	-0.1	-0.1	0.1	-0.0	-0.1	0.0	0.1	-0.0	-0.1
Subsidiary	0.3*	-0.1	0.2	-0.1	0.2	0.1	0.1	0.2	-0.0	-0.0	0.0	-0.0	0.0	0.0
North-Western	0.2**	0.2*	0.1	0.2**	0.1	0.0	0.3***	0.4***	-0.1	-0.2	0.1	0.0	0.0	0.0
North-Central	0.2***	0.2*	0.2***	0.2**	-0.0	-0.1	0.1	-0.0	0.0	0.0	0.1**	-0.0	0.1**	0.1
North-Eastern	0.1*	0.2***	0.1	0.1	0.0	0.0	0.2**	0.2**	0.1	0.0	0.2***	0.2**	0.1*	0.2**
South-Eastern	0.2***	0.1*	0.2***	0.2***	0.1	0.1*	0.2***	0.2**	0.1	0.0	0.2***	0.2***	0.1*	0.0
South-Central	0.1	0.1	-0.0	0.1	0.0	0.0	0.0	-0.1*	-0.0	-0.1	0.1	-0.1	0.1	-0.0
Mainly foreign revenues	0.1	-0.1	0.2*	0.0	0.1	0.0	0.1	-0.0	0.2*	0.1	0.1	-0.2*	0.1	0.1
N	490	481	481	486	472	472	490	490	468	491	490	489	456	456
pseudo R-sq	0.110	0.055	0.114	0.046	0.085	0.062	0.076	0.091	0.063	0.049	0.100	0.074	0.109	0.049
chi2	45.56***	36.10***	47.96***	28.74**	24.91*	26.18**	39.23***	61.85***	17.71	23.81*	37.68***	48.47***	28.99**	22.03

Note: (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively. Dependent variable takes values: 1=strong or moderate decline, 0=no change or increase. The referent category is a trade sector, small sized (5-19 employees), domestic, parent, single-establishment company from the south-western region of the country with mainly domestic revenues.

Table 12: Credit unavailability and onerous credit conditions. Probit results (average marginal effects)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Credit was not available for				Too onerous conditions on credit for							
	working capital 2009	working capital 2010– 2013	new investment 2009	new investment 2010– 2013	debt refinace 2009	debt refinace 2010– 2013	working capital 2009	working capital 2010– 2013	new investment 2009	new investment 2010– 2013	debt refinace 2009	debt refinace 2010– 2013
Manufacturing	0.2*	0.1	0.2	0.1	0.3**	0.1	0.2	0.2	0.2	0.1	0.1	0.0
Construction	0.2	0.2	0.2	0.1	0.0	-0.0	0.1	0.2	0.0	0.1	0.0	0.1
Business services	-0.0	-0.1	-0.1	-0.1*	-0.1	-0.1	-0.1*	-0.1*	-0.1	-0.1	-0.1	-0.1
20-49	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
50-199	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	-0.1	-0.1	-0.1	-0.1
200+	0.2	0.2	0.2	0.3*	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.1
Foreign ownership	-0.3	-0.3*	-0.3*	-0.3**	-0.3**	-0.4***	-0.5***	-0.5***	-0.3*	-0.4***	-0.3**	-0.4***
Multi-establishment	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.1
Subsidiary	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3*	0.1	0.0	0.1	0.0
North-Western	-0.1	-0.1	-0.2*	-0.1	-0.2*	-0.2*	-0.2	-0.2*	-0.2*	-0.2*	-0.1	-0.2
North-Central	-0.2*	-0.2	-0.3**	-0.2*	-0.2**	-0.2*	-0.2*	-0.2*	-0.2*	-0.2**	-0.2*	-0.3**
North-Eastern	-0.1	-0.1	-0.1	-0.1	-0.3***	0.0	-0.1	-0.2**	-0.1	-0.1	-0.2*	-0.1
South-Eastern	-0.1*	-0.1	-0.1	-0.1	-0.1	-0.1*	-0.1	-0.1*	-0.1	-0.1	-0.1	-0.1
South-Central	-0.2**	-0.2**	-0.1	-0.1*	-0.2***	-0.2***	-0.2***	-0.2***	-0.2***	-0.2***	-0.2**	-0.2**
Mainly foreign revenues	0.1	0.2*	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.3**	0.1	0.2*
N	488	485	486	488	481	481	482	484	482	482	480	479
pseudo R-sq	0.054	0.053	0.056	0.049	0.081	0.074	0.063	0.078	0.043	0.057	0.034	0.045
chi2	36.62***	35.75***	37.88***	32.96***	52.13***	48.84***	42.27***	52.05***	28.82**	37.81***	22.41*	30.02**

Note: (*), (**), and (***) denote statistical significance at 10, 5 and 1 percent, respectively. Dependent variable takes values: 1=credit unavailability or onerous conditions were relevant or very relevant for firm's activity, 0=not relevant or of little relevance. The referent category is a trade sector, small sized (5-19 employees), domestic, parent, single-establishment company from the south-western region of the country with mainly domestic revenues.

Table 13: Determinants of the need to reduce labour input or change its composition, probit regressions, average marginal effects

	(1)	(2)	(3)	(4)	(5)
Firm characteristics					
Manufacturing	-0.3	-0.2	-0.2	-0.2	-0.2
Construction	0.3	0.4	0.1	0.3	0.4
Business Services	-0.1	-0.1	-0.2	-0.2	-0.1
Northern regions	0.1	0.1	0.1	0.0	-0.0
South-Eastern	-0.1	-0.1	-0.2	-0.2	-0.3
South-Central	0.1	0.1	0.1	0.1	0.2
50+ employees	0.3	0.3	0.5	0.4	0.3
Foreign ownership	-0.5	-0.5	-0.6	-0.6	-1.1
Subsidiary	0.5	0.4	0.5	0.6	0.6
Multi-establishment firm	-0.1	-0.0	-0.1	-0.2	-0.2
Mainly foreign revenues	0.3	0.3	0.2	0.4	0.4
Macroeconomic environment					
Change in demand	-0.3***	-0.3***	-0.3***	-0.3***	-0.3***
Change in external financing			-0.4**	-0.3**	-0.3*
Unavailability of credit	0.2				
Onerous conditions on credit		0.2			
Labour market institutions					
Mainly minimum wage employees	0.0	0.0	0.1		
Mainly MSST employees				0.1	
Outside agreement	0.8*	0.8*	0.6	0.6	0.5
Firm-level agreement	-0.5*	-0.5	-0.2	-0.3	-0.4
Wage-setting practices					
High share of labour costs	0.0	0.0	-0.1	-0.1	
Above 10% bonuses in wage bill	-0.2	-0.2	-0.3	-0.3	
Inflation indexation	0.7***	0.7***	0.7***	0.7***	0.6***
N	379	379	361	368	454
pseudo R-sq	0.123	0.120	0.147	0.149	0.135
chi2	54.40***	53.25***	61.68***	64.34***	70.00***

Note: (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively. Dependent variable takes values: 1=company experienced a need to reduce labour input or change its composition, 0=did not experience such need.

The referent category is a trade sector, small sized (5-49 employees), domestic, parent, single-establishment company from the south-western region of the country with mainly domestic revenues.

Table 14: Incidence of wage freezes and cuts in any given year by sector (firm weight)

Percentage of surveyed firms					
Indicator	Manufacturing	Construction	Trade	Business Services	Total
Wage freeze, 2009	13.7	21.2	7.5	9.7	9.6
Wage freeze, 2010	10.0	30.8	7.8	7.9	9.0
Wage freeze, 2011	8.1	36.2	7.2	10.2	9.6
Wage freeze, 2012	8.7	36.2	8.8	11.1	10.8
Wage freeze, 2013	10.0	30.8	8.5	10.2	10.2
Wage cut, 2009	3.7	0.0	1.7	0.9	1.6
Wage cut, 2010	3.7	0.0	2.2	1.4	1.9
Wage cut, 2011	1.9	4.2	2.3	0.9	1.8
Wage cut, 2012	0.0	9.6	4.4	2.3	3.2
Wage cut, 2013	0.0	15.0	4.8	3.7	4.2
Share of affected employees in corresponding firms					
Wage freeze, 2009	72.9	29.0	86.0	90.5	81.0
Wage freeze, 2010	90.7	51.8	90.1	87.1	84.1
Wage freeze, 2011	88.6	76.6	87.6	89.6	87.0
Wage freeze, 2012	89.4	83.6	93.3	88.8	89.8
Wage freeze, 2013	90.7	90.4	93.5	90.5	91.6
Wage cut, 2009	60.2		7.1	55.0	33.6
Wage cut, 2010	17.5		23.8	69.9	36.1
Wage cut, 2011	30.0	80.0	50.8	60.0	53.0
Wage cut, 2012		40.9	39.3	78.0	51.2
Wage cut, 2013		64.9	32.3	77.5	53.4

Source: WDN3, Bulgaria

Table 15: Percentage of firms, applying the respective measure to reduce labour input or change its composition moderately or strongly by sub-groups of firms, firm weighted

	Collective lay-offs	Individual lay-offs	Temporary lay-offs	Subsidized reduction of working time	Non-subsidized reduction of working time	Non-renewal of temp. contracts	Early retirement schemes	Reduction of hiring	Reduction of temp. workers
Sector									
Business services	9.2	38.6	26.5	15.0	7.4	15.4	4.4	59.6	9.9
Construction	0.0	67.4	57.6	17.4	9.7	42.4	17.4	65.3	25.0
Manufacturing	47.3	32.4	29.6	17.5	19.2	23.6	14.8	56.0	14.8
Trade	9.4	44.7	20.4	9.4	12.7	23.1	9.5	66.3	12.3
Size									
5-19	10.1	36.9	22.6	13.9	12.4	15.7	5.5	70.9	12.2
20-49	11.9	51.9	29.3	11.4	9.4	30.2	11.2	52.1	7.8
50-199	15.5	60.4	28.6	14.3	7.3	24.3	7.3	32.1	14.3
200+	52.4	26.2	100.0	0.0	0.0	73.8	73.8	100	73.8
Structure									
Multi-establishment	17.9	40.9	19.2	17.8	0.0	27.1	19.2	75	19.2
Single establishment	11.5	43.1	27.3	12.5	11.9	21	7.5	61.4	12.0
Autonomy									
Parent	11.8	42.8	26.4	11.1	11.2	23.0	9.5	64.6	13.9
Subsidiary	16.3	37.5	16.3	19.9	0.0	21.2	0.0	78.8	0.0
Ownership									
Domestic	12.8	43.4	26	12.3	10.8	23	9.1	65.1	13.4
Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Main source of revenues									
Domestic market	10.2	43.3	26.9	13.4	9.4	21.3	7.1	62.5	12.3
Foreign markets	31.3	30.5	20.8	0.0	22.7	23.3	22.7	53.2	12.3
Share of minimum wage employees									
<50%	7.0	44.7	27.6	12.9	9.9	20.1	9.9	64	16.1
>50%	32.4	41.1	24.8	13.6	16.3	24.7	9.0	59.2	5.9
Share of minimum social security threshold employees									
<50%	7.8	42.5	25.3	13.7	7.2	20.4	11.1	63.9	17.5
>50%	20.1	44.9	31.6	14.6	16.0	23.9	6.9	60.7	6.9
Firm-level agreement									
No	9.5	65.7	39.9	24.1	20.1	37.0	25.0	46.0	24.7
Yes	12.6	39.3	23.6	10.3	9.3	19.1	5.8	65.2	10.6
Outside the firm collective agreement									
No	22.7	61.7	38.3	22.7	15.0	38.5	15.0	45.5	14.4
Yes	11.5	40.9	24.8	11.7	10.1	19.6	8.3	64.5	13.0
Region									
North-Western	0.0	22.6	11.3	0.0	0.0	9.2	11.2	43.3	30.1
North-Central	0.0	38.0	25.0	12.0	12.0	0.0	0.0	63.0	0.0
North-Eastern	15.6	51.9	14.6	14.6	5.1	26.1	4.7	61.0	0.0
South-Eastern	22.1	57.0	56.8	16.3	15.6	15.6	0.0	84.8	6.9
South-Western	11.7	44.2	21.8	19.4	14.2	15.3	8.2	60.9	14.9
South-Central	12.4	36.0	34.4	3.2	9.4	41.3	16.6	62.7	16.9

Source: WDN3, Bulgaria

Table 16: Determinants of relevant or very relevant obstacles to hiring, probit regressions, average marginal effects

	Economic uncertainty	Labour shortage	Access to finance	Firing costs	Hiring costs	High payroll taxes	High wages	Labour law changes risk
Firm characteristics								
Manufacturing	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1
Construction	-0.1	0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1
Business Services	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.0	-0.1
Northern regions	-0.1**	-0.1	-0.2***	-0.2***	-0.2***	-0.2***	-0.1	-0.2***
South-Eastern	-0.2**	-0.2*	-0.4***	-0.4***	-0.4***	-0.4***	-0.3***	-0.4***
South-Central	-0.1	-0.2**	-0.3***	-0.2***	-0.3***	-0.2**	-0.1	-0.1
50+ employees	0.0	0.1	0.1	0.0	0.0	0.2*	0.1	0.1
Subsidiary	0.1	0.0	-0.1	0.0	0.0	0.0	0.1	-0.1
Multi-establishmen firm	0.0	-0.1	-0.1	-0.1	-0.2**	-0.1	-0.1	-0.1
Mainly foreign revenues	0.1	0.1	0.1	0.3**	0.1	0.0	0.1	0.0
Macroeconomic conditions								
Change in demand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in external financing	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0
Labour market institutions								
Mainly minimum wage employees	0.1*	0.0	0.1	0.1	0.1	0.2**	0.1	0.2***
Outside agreement	0.0	0.4**	0.3*	0.3*	0.4**	0.4**	0.4**	0.3*
Firm-level agreement	0.1	-0.0	0.1	0.0	-0.0	-0.2*	-0.1	-0.0
Wage-setting practices								
High labour share	-0.0	0.0	0.1	0.0	-0.1	-0.1**	-0.0	-0.0
Above 10% bonuses in wage bill	0.1	0.1	0.1*	0.1*	0.1	0.0	0.1*	0.2***
Inflation indexation	0.2***	0.1	0.2***	0.2***	0.2***	0.1	0.2**	0.1
N	336	360	359	360	360	360	359	360
pseudo R-sq	0.104	0.082	0.230	0.215	0.192	0.141	0.135	0.180
chi2	38.22***	39.70***	113.9***	105.9***	95.69***	62.40***	63.55***	86.03***

Note: (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively.

Table 17: Determinants of lower or much lower wages for newly hired workers, probit regressions, average marginal effects

	(1)	(2)	(3)
	Lower wages of newly hired workers		
	Prior to 2009	2009	2010–2013
Firm characteristics			
Manufacturing	0.0	0.1	0.0
Construction	-0.2	0.0	0.0
Business Services	0.0	-0.1	-0.1*
50+ employees	0.0	0.0	0.0
Foreign ownership	0.0	0.1	0.5***
Multi-establishment firm	0.1	0.1	0.0
Subsidiary	-0.2	-0.1	-0.1
Mainly foreign revenues	0.1	0.0	-0.1
Northern regions	-0.1	-0.1	-0.2*
South-Eastern	0.1	0.1	0.1
South-Central	-0.0	0.0	0.0
Wage-setting practice and employment structure			
Higher labour share	0.0	0.0	0.0
Above 10% bonuses in wage bill	0.0	0.0	0.0
Inflation indexation	0.2**	0.1*	0.1
More low-skilled workers	-0.2***	-0.2***	-0.1**
Labour market institutions			
Firm-level agreement	0.0	0.1	0.0
Outside agreement	-0.1	-0.1	-0.1
Mainly minimum wage employees	-0.2***	-0.1*	-0.1
Macroeconomic conditions			
Change in demand		0.0	0.0
Change in external financing		0.1*	0.1*
N	368	348	349
pseudo R-sq	0.107	0.107	0.097
chi2	52.73***	48.11***	44.77***

Note: (*), (**) and (***) denote statistical significance at 10, 5 and 1 percent, respectively.

Table 18: Selected indicators, share of employees in the respective group in total employment

Indicator	Manu- facturing	Construction	Trade	Business	Total
Structure of Earnings survey (2010)					
Tenure below 1 year, 2010	20	28	25	28	22
Tenure 1 to 5 years, 2010	48	55	58	50	48
Tenure above 5 years, 2010	32	17	17	9	30
Fixed-term contract employees, 2010	9	14	5	12	9
Industry-level agreements, 2010	2	3	1	6	7
Firm-level agreements, 2010	24	11	7	21	24
LFS (2013)					
Subsidiary					3
Mainly foreign revenues	2	9	3	13	5
WDN3 survey					
Part-time employment share, 2013	5	0	2	4	3
Temporary contract share, 2013	4	9	2	6	5
Agency workers' share, 2013	3	1	1	2	2

Source: Eurostat, LFS (2013) and Structure of earnings survey (2010), WDN3 survey (2014)

Table 19: Selected WDN2 survey indicators

	Manu- facturing	Trade	Business services	Total
Percentage of firms				
Outside the firm agreement	10.0	5.0	7.1	7.4
Firm-level agreement	22.0	8.0	21.8	16.4
Mainly foreign revenues	49.6	2.1	10.7	22.9
Inflation indexation	24.9	26	22.8	24.9
Wage freezes	11.4	6.5	4.6	8.0
Wage cuts	6.4	5.7	5.0	5.9
Selected indicators, average of the respective indicator				
Price change frequency (months)	10.4	2.1	11.5	7.7
Wage change frequency (months)	12.6	10.6	13.6	11.9
Low-skilled workers	77.6	63.0	55.6	67.3
High-skilled workers	22.5	37.0	44.1	32.7
Tenure below 1 year	8.4	23.5	12.5	15.7
Tenure from 1 to 5 years	19.9	41.8	38.7	32.3
Tenure more than 5 years	79.3	50.1	74.0	66.7
Bonuses in wagebill	13.7	19.1	14.5	16.4
Labour costs in total costs	29.1	36.9	30.5	32.5

Source: WDN2 survey (2009), results are calculated for comparison purposes with WDN3 survey results

7.3. WDN Survey Questionnaire, Bulgaria, 2014

WDN SURVEY QUESTIONNAIRE, BULGARIA

C1. Information about the firm						
C1.1 – What is your main sector of activity? NACE2 sectoral classification.						
C1.2 – What was the first year of operation of your firm?						
C1.3 – What was the structure, ownership status and autonomy of your firm at the end of 2013?						
Structure:		Ownership:		Autonomy:		
Single establishment firm		Mainly domestic		Parent company		
Multi-establishment firm		Mainly foreign		Subsidiary/affiliate		
C2. Changes in the economic environment						
This section aims at assessing the main changes in economic environment your firm suffered during 2009 and 2010-2013 . When answering the questions please refer to <u>"the most significant changes"</u> taking place over this period.						
C2.1 – How did the following factors affect your firm's activity during 2008 –2009 and 2010-2013? <i>Please choose ONE option for each line.</i>						
		Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
The level of demand for your products/services	2009 2010-2013					
Volatility/uncertainty of demand for your products/services	2009 2010-2013					
Access to external financing through the usual financial channels	2009 2010-2013					
Customers' ability to pay and meet contractual terms	2009 2010-2013					
Availability of supplies from your usual suppliers	2009 2010-2013					

C2.2– For those factors which affected your firm strongly, were the effects transitory, partly persistent or long-lasting for 2009 and 2010-2013? <i>Please choose ONE option for each line.</i>		
		Transitory Only partly persistent Long-lasting
The level of demand for your products/services	2009 2010-2013	
Volatility/uncertainty of demand for your products/services	2009 2010-2013	
Access to external financing through the usual financial channels	2009 2010-2013	
Customers' ability to pay and meet contractual terms	2009 2010-2013	
Availability of supplies from your firm's usual suppliers	2009 2010-2013	

C2.3 – With regard to finance, please indicate for 2009 and 2010-2013 how relevant were for your firm each one the following happenings? Please choose ONE option for each line. Note: credit here refers to any kind of credit, not only bank credit

		Not relevant	Of little relevance	Relevant	Very relevant
Credit was not available to finance working capital	2009 2010-2013				
Credit was not available to finance new investment	2009 2010-2013				
Credit was not available to refinance debt	2009 2010-2013				
Credit was available to finance working capital, but conditions (interest rate and other contractual terms) were too onerous	2009 2010-2013				
Credit was available to finance new investment, but conditions (interest rate and other contractual terms) were too onerous	2009 2010-2013				
Credit was available to refinance debt, but conditions (interest rate and other contractual terms) were too onerous	2009 2010-2013				

C2.4- How did these components of total costs evolve during 2009 and 2010-2013?

Please choose ONE option for each line. See definitions in the Appendix.

		Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Total Costs	2009 2010-2013					
Labour Costs	2009 2010-2013					
Financing costs	2009 2010-2013					
Costs of supplies	2009 2010-2013					
Other costs (please specify _____)	2009 2010-2013					

C2.5- Please indicate how each one of the components of labour costs listed below has changed during 2009 and 2010-2013. Please choose ONE option for each line. See definitions in the Appendix.

		Strong decrease	Moderate decrease	Unchanged	Moderate increase	Strong increase
Base wages or piece work rates	2009 2010-2013					
Flexible wage components (bonuses, fringe benefits, etc.)	2009 2010-2013					
Number of permanent employees	2009 2010-2013					
Number of temporary/fixed-term employees	2009 2010-2013					
Number of agency workers and others (free-lance work, etc., not hired under employment contracts)	2009 2010-2013					
Working hours per employee	2009 2010-2013					
Other components of labour costs (please specify _____)	2009 2010-2013					

C2.6 - How did prices and demand for your main product evolve during 2009 and 2010-2013? Please choose <u>ONE</u> option for each line.		Strong	Moderate	Unchanged	Moderate	Strong increase
Domestic demand for your main product/service	2009 2010-2013					
Foreign demand for your main product/service	2009 2010-2013					
Prices of your main product in domestic markets	2009 2010-2013					
Prices of your main product in foreign markets	2009 2010-2013					

C.3. Labour force adjustments

C3.1. - How many employees did your firm have on the payroll at the end of 2013? How many agency workers and others workers did your firm have at the end of 2013? For definitions see Appendix

Total Number of employees _____	Temporary or fixed-term _____
Of which: Permanent full-time _____	Total number of agency workers and others _____
Permanent part-time _____	

C3.2 - At the end of 2009/2013, how were your firm's employees approximately distributed by occupational group or tenure? (See definitions of the ISCO occupational groups and the definition of tenure in the Appendix)

OCCUPATIONAL GROUPS, 2009		JOB TENURE, 2009	
Higher skilled non-manual (ISCO: 1, 2, 3)	____%	Below 1 year	____%
Lower skilled non-manual (ISCO: 4 and 5)	____%	Between 1 and 5 years	____%
Higher skilled manual (ISCO: 7 and 8)	____%	More than 5 years	____%
Lower skilled manual (ISCO: 9)	____%		
TOTAL (= 100%)		TOTAL (= 100 %)	
OCCUPATIONAL GROUPS, 2013		JOB TENURE, 2013	
Higher skilled non-manual (ISCO: 1, 2, 3)	____%	Below 1 year	____%
Lower skilled non-manual (ISCO: 4 and 5)	____%	Between 1 and 5 years	____%
Higher skilled manual (ISCO: 7 and 8)	____%	More than 5 years	____%
Lower skilled manual (ISCO: 9)	____%		
TOTAL (= 100%)		TOTAL (= 100 %)	

C3.3a - During 2010-2013 did you need to significantly reduce your labour input or to alter its composition?

Need to reduce labour cost or alter its composition in 2010-2013 YES NO

C3.3.bis. If YES, which of the following measures did you use to reduce your labour input or alter its composition when it was most urgent? Please choose ONE option for each line. See definitions in the appendix

	Not at all	Marginally	Moderately	Strongly
Collective layoffs				
Individual layoffs				
Temporary layoffs				
Subsidised reduction of working hours				
Non-subsidised reduction of working hours (including reduction of overtime)				
Non-renewal of temporary contracts at expiration				
Early retirement schemes				
Freeze or reduction of new hires				
Reduction of agency workers and others				

C3.4 – Have any of the following actions become more or less difficult, compared to the situation 2010? Please choose <u>ONE</u> option for each line.					
	Much less difficult	Less difficult	Unchanged	More difficult	Much more difficult
To lay off employees for economic reasons (collectively)					
To lay off employees for economic reasons (individually)					
To dismiss employees for disciplinary reasons					
To lay off employees temporarily for economic reasons					
To hire employees (cost of recruitment, including administrative costs)					
To adjust working hours					
To move employees to positions in other locations					
To move employees across different job positions					
To adjust wages of incumbents employees					
To lower wages at which you hire new employees					

C3.5- How relevant is each of the following factors as obstacles in hiring workers with a permanent, open-ended contract? Please choose <u>ONE</u> option for each line. At the end of 2013				
	Not relevant	Of little relevance	Relevant	Very relevant
Uncertainty about economic conditions				
Insufficient availability of labour with the required skills				
Access to finance				
Firing costs				
Hiring costs				
High payroll taxes				
High wages				
High minimum wage				
High minimum social security thresholds				
Risks that labour laws are changed				
Costs of other inputs complementary to labour				
Other (please specify _____)				

C4. Wage adjustments	
This section collects information on wage setting and the frequency of wage changes. Most of the questions refer to 2013, but some questions aim at assessing differences between before 2009, 2009 & and 2010-2013.	
C4.1 – In 2013: What percentage of your firm's total costs (all operating expenses) was due to labour costs (wages, salaries, bonuses, social security contributions, training, tax contributions, contributions to pension funds, etc.)? See definitions in the Appendix. Labour cost /Total cost _____ %	
C4.2 – What percentage of your total wage bill in 2013 was related to individual or company performance related bonuses and benefits? _____ %	
C4.3-In 2013, did your firm apply a collective pay agreement bargained and signed <u>inside</u> of the firm (at the firm level) and signed <u>outside</u> of the firm (at the national, regional, sectoral or occupational level)?	
	At the firm level
No, such an agreement does not exist	Outside the firm
No, the agreement exists but the firm opted-out	
Yes, such an agreement is in effect	
NON CORE: Proportion of employees covered by such an agreement (approx.) _____ %	_____ %
C4.3b- What is the proportion of your employees covered in 2013 by <u>any</u> collective pay agreement? _____ %	

C4.4-How often does the collective pay agreement applied at you firm typically change?						
More than once a year	Once a year	Between one and two years	Every two years	Less frequently than once every two years	Never/Not applicable	

C4.5 Did your firm adapt changes in base wages to inflation before 2009? And during 2009 and 2010-2013?			
Yes	Before 2009	During 2009	During 2010-2013
No	Inflation was too low so that indexation rules were no operative There were no legal or other types of indexation rules specifying such an adjustment		

C4.6-How frequently was the base wage of an employee belonging to the main occupational group in your firm (largest group in Question C3.2) typically changed in your firm? Please choose ONE option for each line						
	More than once a year	Once a year	Between one and two years	Every two years	Less frequently than once every two years	Never/Not applicable
Before 2009						
During 2009						
During 2010-2013						

C4.7 –Over 2013, did you freeze or cut base wages in a given year (please indicate in which years)?						
	Wages were frozen		Wages were cut			Wages were neither frozen nor cut
	YES	% Workers affected	YES	% Workers affected	(average wage cut)	YES
2009		_____%		_____%	(%)	
2010		_____%		_____%	(%)	
2011		_____%		_____%	(%)	
2012		_____%		_____%	(%)	
2013		_____%		_____%	(%)	

NC4.8 - How did the labour cost of a newly hired worker compare with that of similar (in terms of experience and task assignment) workers at your firm?					
	Much lower	Lower	Similar	Higher	Much higher
Before 2008					
During 2009					
During 2010-2013					

C5. Price setting and price changes

This section collects information on price setting and the frequency of price changes. Some questions aim at assessing differences in 2010-2013 with respect to the period before 2009.

If your firm produces (or sells) more than a single good or service, the answers should refer to the "main product" ("activity" or "service"), defined as the one that generated the highest fraction of your firm's revenue in the "reference year". For instance, if your firm produces (or sells) several types of hats and shoes, by "product" we mean "hats" and "shoes" (irrespective of the specific type), whereas by "main product" we mean the one that generated the highest revenue in the "reference year".

NC5.1 – In 2013, how was typically set the selling price of your main product, activity or service in its main market (both domestically and internationally)? Please choose ONE single option

	Domestic markets		Foreign markets	
	Before 2010	2010-2013	Before 2010	2010-2013
There is no autonomous price setting policy because:				
- the price is regulated				
- the price is by a parent company / group				
- the price is set by the main customer(s)				
The price is set following the main competitors				
The price is set fully according to costs and a completely self-determined profit margin				
Negotiated with individual customers				
Other (please specify _____)				

NC5.2 – In 2013 what share of the revenues from your firm's main products, activity or service was due to sales in domestic markets and what share in foreign markets?

Sales in the domestic market _____ Sales in the foreign markets _____

NC5.3 – In the period 2010-2013, how and how often did you typically change the price of your main product on a regular pattern?

Please choose ONE option for each line, the one that best describes the situation in your firm

More frequently than a year:

Daily
Weekly
Monthly
Quarterly
Half-yearly

Once a year

Between one and two years

Less frequently than once every two years

Never

Don't know

NC5.4 – How relevant is each of the factors for setting the price of the main product or service at your enterprise. ONE option for each line.

	Not relevant	Of little relevance	Relevant	Very relevant
Changes in wage costs				
Changes in investment costs				
Changes in input/suppliers' costs				
Change in product quality				
Change in competitors' prices				
Change in the demand for the main product				
Change in the regulated price				
Prices are indexed to inflation				
Change in productivity				
Other (please specify) _____				

Appendix

Question C1.3

Parent Enterprise: An incorporated or unincorporated enterprise, or group of enterprises, which has a direct investment enterprise operating in a country other than that of the parent enterprise.

Affiliate Enterprise: An incorporated or unincorporated enterprise in which a foreign investor has an effective voice in management. Such an enterprise may be a subsidiary, associate or branch.

[**Subsidiary Enterprise:** An incorporated enterprise in the host country in which another entity directly owns more than half of the shareholders' voting power, or is a shareholder in the enterprise, and has the right to appoint or remove a majority of the members of the administrative, management or supervisory body.]

Question C2.4

Total costs: all operating expenses, e.g. include telecommunications, insurance and maintenance of building and equipment, utility expenses, travelling and other miscellaneous expenses.

Question C2.5

Labour costs: wages, salaries, bonuses, social contributions, training, tax contributions, contributions to pension funds.

From the employers point of view these are often grouped as: direct remuneration (direct pay for time worked and bonuses); other direct cost (payments in kind, payment in capital and remuneration for non-working days); indirect cost (soc. sec. contributions, vocational training and miscellaneous taxes)

Base wage - direct remuneration excluding bonuses (regular wage and salary, commissions, piecework payments).

Bonuses / benefits (flexible wage components) - part of compensation different from the base wage and usually linked to individual's performance or firm's performance **Hourly, piece-rate and monthly base wage** - base wage per hour worked, per month worked, or per pieces produced.

Question C3.1

Employees - Include all type of employees, i.e. those with employment contracts. Agency worker and freelance are excluded

Permanent full-time - Those with employment contracts that do not set a termination date, and whose regular working hours are the same as the collectively agreed or customarily worked.

Permanent part-time - Those with employment contracts that do not set a termination date, and whose regular working hours are less than those specified for permanent full-time.

Temporary or Fixed-Term: Those with employment contracts that set a termination date or a specific period of employment.

Agency workers and others: These are workers and employees **not** on the payroll of the firm, such as consultants, employees being officially registered with a different company, etc...

Question C3.2

Occupational categories:

ISCO-08 Structure, Group Titles and Codes

Major Groups

- 1 **Managers**
- 2 **Professionals**
- 3 **Technicians and associate professionals**
- 4 **Clerical support workers**
- 5 **Service and sales workers**
- 7 **Craft and related trades workers**
- 8 **Plant and machine operators, and assemblers**
- 9 **Elementary occupations**

Job Tenure Job tenure (OECD definition) is typically measured by the length of time workers have been in their current job or with their current employer, and so refers to continuing spells of employment

Question C3.3

Regulations on **dismissals/lay-offs** (collective of individual) are those that impose legal restrictions on dismissals and set compensation to be paid to former employees being laid-off.

Subsidized **short-time work** we mean measures that subsidize hours reductions encouraging employers to reduce working time rather than laying off workers.

Early retirement schemes is to be understood as measures allowing persons being made redundant to receive a monthly pension and / or lump sum payment before reaching the statutory retirement age.

Question C4.1

Total costs: all operating expenses (same definition as in question C2.4)

Labour costs: wages, salaries, bonuses, social contributions, training, tax contributions, contributions to pension funds.

From the employers point of view these are often grouped as: direct remuneration (direct pay for time worked and bonuses); other direct cost (payments in kind, payment in capital and remuneration for non-working days); indirect cost (soc. sec. contributions, vocational training and miscellaneous taxes (same definition as in question C2.5)

Question C4.9

Freeze in base wage: base wage in nominal terms remains unchanged (from a revision to the next)

Cut in base wage: base wage in nominal terms decreases (from a revision to the next)

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