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Send your comments and opinions to:
Publications Division
Bulgarian National Bank
1, Knyaz Alexander I Square
1000 Sofia, Bulgaria
Tel.: (+359 2) 9145 1351, 9145 1978
Fax: (+359 2) 980 2425
e-mail: Dimova.L@bnbank.org
Website: www.bnb.bg

Contents

SUMMARY: This paper reports the main results of a representative survey on wage and price formation in non-financial enterprises in Bulgaria conducted in 2009. The survey design follows the questionnaire of the Wage Dynamics Network project of the Eurosystem and is also supplemented with additional questions from the earlier Inflation Persistence Network research project. One of the main objectives of the paper is to analyze the characteristic features of wage-setting practices in Bulgaria and to draw some conclusions on their relevance for the overall flexibility of the economy and the competitive position of enterprises in the case of adverse shocks. The survey results indicate that wage rigidity in Bulgaria could be considered as relatively low and the wage-price link is comparatively weak. In line with the findings for other EU countries, higher competition tends to have a positive effect on labour market flexibility.

Keywords: wage setting, price setting, wage dynamics network.
JEL Classifications: E30, D40, J30.

Ivan Lozev, Ph.D. student at the University Carlos III de Madrid at present, email: iivanov@eco.uc3m.es. The author prepared the main part of the paper during his work as an expert at the Economic Research and Forecasting Directorate, Bulgarian National Bank.

Zornitsa Vladova, Bulgarian National Bank, Economic Research and Forecasting Directorate, Vladova.Z@bnbank.org

Desislava Paskaleva, Bulgarian National Bank, Economic Research and Forecasting Directorate, Paskaleva.D@bnbank.org

I. Introduction

This paper summarizes the results of a representative survey on wage and price setting mechanisms in Bulgarian enterprises from the manufacturing, trade and market services sectors. The survey questions follow the harmonized questionnaire of Eurosystem's Wage Dynamics Network (WDN)[1] project. The survey was appended with additional questions from the earlier Inflation Persistence Network (IPN) research project in order to investigate in more detail the pricing behaviour of Bulgarian firms.

The following paper aims to document and analyse the main characteristic features of wage-setting practices of Bulgarian firms. It also attempts to draw conclusions on the relevance of wage-setting behaviour for the overall flexibility of the Bulgarian economy and the competitiveness of enterprises in the case of adverse shocks (e.g. slowdown in demand, increase in intermediate input costs) and within the context of the processes of nominal and real convergence[2]. In particular, the survey results are valuable in the process of examining different aspects of wage rigidity in Bulgaria, including not only the frequency of wage changes, but also the rigidity of wages of new hires, downward wage rigidity and the responsiveness of wages to price changes. Determining the degree of wage rigidity and the frictions in the labour market is crucial for understanding possible sluggishness in firms' marginal cost and their price setting behavior.

The figures for Bulgaria are compared with those included in the ECB's WDN Final Report for other European countries[3] and several papers presenting the various results from the WDN survey[4]. The importance and rationale behind the main findings for Bulgaria are presented and conclusions about the main features of the economy are suggested. The implications for the economic policy are outlined and discussed.

The survey in Bulgaria was conducted in the period September-October 2009 at a time of intensification of the effects of the global economic and financial crisis on the economy, while the national surveys within the WDN

[1] The Wage Dynamics Network (WDN) is a research network consisting of economists from the European Central Bank (ECB) and the national central banks (NCBs) of the EU countries, which aims at studying in depth the features and sources of wage and labour cost dynamics and their implications for monetary policy in the euro area.

[2] The nominal convergence refers to the process connected with fulfilling the criteria, established by the Maastricht Treaty, a country has to satisfy to be admitted to the euro area. The process of real convergence comprehends different aspects such as long-run economic evolution in per-capita incomes and productivity, convergence in labour markets and homogenization of economic structures.

[3] When comparing the results one should bear in mind that the sectoral coverage of the WDN survey differs by countries.

[4] Druant et al. (2009), Galuscak et al. (2010), Babecký et al. (2009), Bertola (2010).

project in the other countries took place under different macroeconomic conditions (the main part of the WDN project was conducted in the period 2007-2008). Notwithstanding these differences in the observation periods, most of the regularities and stylized facts found by the Eurosystem's WDN project for other European countries can be traced in the Bulgarian data as well. Regarding the different aspects of wage rigidity, the following main findings can be derived from the Bulgarian data:

• Bulgarian firms are characterized by a low degree of wage indexation (24.2 per cent), a low coverage of collective wage agreements (14.2 per cent of the employees) and a low labour cost share (32.5 per cent).

• Wage rigidity as measured by wage change frequency and time concentration tends to be lower in Bulgarian firms, especially compared to euro area countries.

• The wages of newly hired workers follow mainly the internal pay structure of the firm rather than external or market conditions.

• As in other non-euro area countries, downward nominal wage rigidity seems to be more important, compared to downward real wage rigidity. The opposite is true for the euro area countries.

• Compared to the figures of other EU firms surveyed, both downward nominal wage rigidity and downward real wage rigidity tend to be more modest in Bulgaria.

• The reasons why many firms refrain from resorting to base wage cuts are related to efficiency considerations, like deterioration in work morale, and self-selection effects (most productive workers decide to leave the firm).

• Various labour cost reduction strategies (employment, hours worked, flexible wage components and base wages) as a reaction to wage and cost-push shocks seem to be more common in Bulgaria than in other EU countries, as opposed to non-labour cost reduction strategies, which seem to be less widespread.

• On a descriptive level, firms operating in a competitive environment, as well as large firms, appear to be more likely to use alternative margins of labour cost adjustment (bonuses, non-pay benefits, slowing promotions, etc).

• Highly competitive firms and those not involved in collective wage agreements tend to partially absorb input costs and wage shocks, mainly through lowering profit margins and reducing other costs.

• As a whole, the price-wage link in Bulgaria can be described as relatively weak compared to other EU countries. Wage changes due to inflation are not wide-spread and the latter is in striking difference from the EU, where inflation is the main driving factor of frequent changes in wages. The pass-through from wages to prices to be observed after a wage shock also

appears to be comparatively weak. The relatively weak wage-price link in Bulgaria is an indication for lower inflation persistence in the country and allows maintaining the competitiveness of the economy in case of negative shocks.

The paper is organized as follows. Section 1 describes the survey design, providing information on the questionnaire used, the sample of the survey and the implementation of the survey itself as well as a brief review of some of the firms' characteristics. Section 2 provides an overview of the survey results on the different aspects of wage rigidity, including frequency of wage changes, possible determinants of wage changes, time concentration of wage changes, wages of new hires, downward wage rigidities and alternative margins of labour cost adjustment. Section 3 reports the evidence of the response of firms to significant shocks with respect to demand, wage costs and raw materials prices. Section 4 summarizes the main conclusions of the paper.

2. The survey design

2.1. The survey questionnaire

The survey on wage and price formation in Bulgarian enterprises uses the harmonized questionnaire[5] applied within the WDN project of the Eurosystem. The first section focuses on wage setting practices, the frequency and time-concentration of wage changes and on firms' practices for determining wages of new workers. The second section deals with the issue of downward wage rigidity, by asking firms whether they have implemented wage cuts and wage freezes over the past five years and whether alternative strategies for labour cost adjustment have been applied. The third section collects information on the reaction of firms to unanticipated significant negative shocks (slowdown in demand, increase in the costs of intermediate inputs and permanent increase in wages) by investigating the importance of adjustments with respect to wages, prices, total costs, employment and margins. The fourth section concentrates on the price-setting behaviour of firms and on the frequency of price changes. The final section of the questionnaire examines some firm-level characteristics (e.g. the number of employees, workforce turnover, age and tenure characteristics of the employees and the share of labour costs in total costs).

The survey design has also adopted some questions from the follow-up WDN survey conducted in the summer of 2009 after the original survey during 2007–2008. The follow-up survey aimed to investigate the labour market

[5] The questionnaire is presented in the Appendix.

adjustment during the economic and financial crisis. In particular, the Bulgarian questionnaire was supplemented with a section on the effects of the crisis on firms' activities. In the original sections on downward wage rigidities and reaction to shocks it was also specified that when answering the questions respondents could draw on their experience during the time of the economic crisis. Specifically, the questions on wage freezes and wage cuts over the past five years were appended with an option asking whether firms are planning to do such adjustments in the future.

Most questions deal with firms' "normal conditions and practices" as in the original WDN questionnaire. For questions which required a reference period (e.g. the size and distribution of the workforce, the share of labour costs, etc.) 2008[6] was chosen. With a view on deepening the understanding of price-setting behaviour of firms in Bulgaria, the survey design additionally drew on the broadly comparable questionnaires applied within the framework of the earlier euro-area wide IPN project. In particular, the Bulgarian survey included questions on the importance of various factors for decisions on price increases/ decreases, possible reasons for price stickiness as well as questions on the speed of price adjustments after shocks and on firms' main customers. Due to the complex nature of the required information, the survey was intended for members of firms' senior management.

2.2. The sample and the implementation of the survey

The survey was conducted in the period September-October 2009 by an external private company. The implementation of the survey was based on a representative sample of 504 enterprises (19 463 employees) of 3 broad economic sectors: manufacturing, trade and market services. The design of the survey covered firms with 20 or more employees in manufacturing and firms with at least 5 persons in trade and business services. The following sectors of the statistical classification of economic activities (NACE rev.2) were targeted:

1) manufacturing (sector C);

2) trade (sector G Wholesale and retail trade; repair of motor vehicles and motor cycles)

3) services:

a. sectors H-J: Transportation and storage; Accommodation and food service activities; Information and communication

[6] This was the last year for which data was available at firm level.

b. sectors L-N: Real estate activities; Professional, scientific and technical activities; Administrative and support service activities

c. sector R93.2: Activities related to recreation and entertainment

d. sectors S95-96: Repair of computers, personal and household items; Other personal services

The survey was carried out mainly in the form of face-to-face interviews; a supplementary approach was email and traditional mail.

The parameters of the total population of firms in the three broad sectors specified above were drawn from NSI data as of end-2007. The composition of the total population of firms (by sector and firm size) is presented below.

Table 1

TOTAL POPULATION: NUMBER OF FIRMS BY SECTOR AND FIRM SIZE

	Number of employees				
Sector	5-19	20-49	50-249	250+	Total
Manufacturing	-	3076	2192	379	5647
Trade	11743	2349	758	57	14907
Services	9991	2073	940	161	13165
Total	21734	7498	3890	597	33719

Table 2

TOTAL POPULATION: PER CENT OF FIRMS BY SECTOR AND FIRM SIZE

	Number of employees				
Sector	5-19	20-49	50-249	250+	Total
Manufacturing		9.1	6.5	1.1	16.7
Trade	34.8	7.0	2.2	0.2	44.2
Services	29.6	6.1	2.8	0.5	39.0
Total	64.5	22.2	11.5	1.8	100.0

The parameters of the realized sample of 504 enterprises (targeted sample of 500) follow those of the total population of firms (i.e. a proportional representation of the population of firms under study is ensured), with a slight over-representation of the manufacturing sector. The sample in the survey comprises 97 manufacturing firms, 221 trade firms and 186 firms with operational activities in the business services sector. In terms of firm size, small companies (with less than 20 employees) predominate in the sample, accounting for nearly 60 per cent of all firms. The total number of employees

covered in the sample is 19463, with around 40 per cent of them in manufacturing and 40 per cent in the trade sector. In the analysis presented in the paper the results are employment-weighted (employment in the firm relative to the total number of employees in the sample) so as to ensure that a higher weight is given to the replies of larger firms as their decisions on wage and price-setting are more important for the economy[7]. Non-responses are excluded.

Table 3

REALIZED SAMPLE: NUMBER OF FIRMS BY SECTOR AND FIRM SIZE

	Number of employees				
Sector	5-19	20-49	50-249	250+	Total
Manufacturing	2	53	35	7	97
Trade	158	37	23	3	221
Services	139	28	19	0	186
Total	299	118	77	10	504

Table 4

REALIZED SAMPLE: PER CENT OF FIRMS BY SECTOR AND FIRM SIZE

	Number of employees				
Sector	5-19	20-49	50-249	250+	Total
Manufacturing	0.4	10.5	6.9	1.4	19.2
Trade	31.3	7.3	4.6	0.6	43.8
Services	27.6	5.6	3.8	0.0	36.9
Total	59.3	23.4	15.3	2.0	100.0

2.3. Main features of the surveyed Bulgarian firms

The Bulgarian survey results offer some useful information on a number of factors related to firms' characteristics and institutional settings such as production technology, labour compensation practices, market competition and some other factors. Table 6 summarises some of the main features of the surveyed Bulgarian firms which are also expected to be connected with their wage-setting practices.

[7] Employment-weighted results are also reported for the countries that participated in the WDN survey which allows comparison of results.

Table 5

SELECTED INDICATORS OF THE SURVEYED FIRMS (IN PER CENT)

	Manufacturing	Trade	Services	Total
Share of firms in which wage changes are automatically linked to				
past inflation	*0.9*	*3.4*	*1.2*	*5.6*
expected inflation	*0.5*	*0.2*	*0.4*	*1*
Share of firms in which there is no formal rule however wage changes take into account				
past inflation	*2.9*	*3.3*	*2.1*	*8.2*
expected inflation	*5.7*	*3.3*	*0.4*	*9.4*
Share of firms that do not use such policies	**90**	**89.9**	**95.9**	**75.8**
Applicaton of collective pay agreements				
share of firms applying collective pay agreements signed outside the firm	*9.8*	*5.1*	*7*	*7.4*
share of firms applying collective pay agreements signed at the firm level	*21.8*	*7.7*	*21.6*	*16.3*
share of employees covered by collective pay agreements	*17.93*	*7.05*	*20.37*	*14.18*
Employees by occupational group				
share of low-skilled blue-collar employees	*71.5*	*53.9*	*57.4*	*62.4*
share of high-skilled blue-collar employees	*15*	*26.4*	*23.1*	*20.9*
share of low-skilled white-collar employees	*9.9*	*27.4*	*17.4*	*17.5*
share of high-skilled white-collar employees	*6.9*	*10.8*	*20.6*	*11.4*
Use of performance-related bonuses				
share of firms paying bonuses	*48.7*	*60.9*	*31.3*	*49.9*
share of bonuses in total wage bill	*13.7*	*19*	*14.5*	*16.4*
Competitive pressure				
share of firms likely or very likely to follow the price reduction of the main competitor	*61.3*	*79.9*	*65*	*69.4*
share of firms exporting	*66*	*32.9*	*15.5*	*42.6*
share of revenues generated due to sales in foreign markets for exporting firms	*66.5*	*12.8*	*53.1*	*49.4*
Labour compensation principles				
share of firms paying hourly base wages	*25.2*	*2.3*	*12.8*	*14.2*
share of firms paying piece-rate base wages	*26.9*	*14.5*	*14.7*	*19.8*
share of firms paying monthly base wages	*47.9*	*82.4*	*71.7*	*65.6*
Share of labour costs in total costs	**29.1**	**37.1**	**30.5**	**32.5**

Source: BG survey

The survey questionnaire analyses specifically the pass-through from wages to prices, including a question (survey question No. 6) which examines the practice of wage indexation. Only 25 per cent[8] of the Bulgarian firms surveyed have a policy for adjusting wages to inflation, while the respective share of firms from the other seventeen EU countries in the WDN survey is 35 per cent. Among the firms which link wage changes automatically to inflation wage changes are mostly adapted to past rather than expected inflation. Relatively more prevalent is the use of informal (non-automatic) rules to account for inflation when adjusting wages. The share of Bulgarian firms applying wage changes automatically linked to inflation varies across sectors. Inflation indexation is more widespread in the trade (10.1 per cent) and manufacturing (10 per cent) sectors rather than in the services sector (4.1 per cent).

The labour compensation principles of Bulgarian firms are examined from different aspects in the survey. On the one hand, firms are asked directly about the compensation practices they apply; on the other, they provide information on the flexible wage share and the coverage of collective wage agreements of their employees. Regarding the first aspect, the most common practice in all sectors is the practice of paying monthly base wages. Almost one fifth of the firms use piece-rate remuneration and another 14.2 per cent of the firms use hourly remuneration as the main form of employee compensation. In the manufacturing sector, the distribution of remuneration practices is more evenly spread among the firms, while in the trade sector most of the firms are paying monthly (82.4 per cent) and only 2.3 per cent are paying hourly base wages.

Regarding the flexible wage share, firms provided information on the share of bonuses as a percent of the total wage bill paid. Performance-related bonuses are found to play a rather important role as a form of labour compensation in Bulgarian firms. Almost 50 per cent of the firms use flexible wage components (performance-related bonuses) which account for 16.4 per cent of the total wage bill. The highest share of wages paid through performance-related bonuses is observed in the trade sector (60.9 per cent of the firms) followed by the services sector (31.3 per cent).

The coverage of collective wage agreements is an important institutional factor which influences firms' wage-setting behaviour. In the surveyed Bulgarian firms collective agreement coverage amounts to 14.2 per cent of the

[8] This value differs from the respective value in Table 5 because not all firms which stated to index wages to inflation specified how their wages are linked to inflation.

employees[9]. The trade sector is characterized by the lowest coverage rate (7.1 per cent) among the surveyed firms. 16.3 per cent of all firms surveyed apply collective pay agreements signed at the firm level, while collective pay agreements are less common at the national level (7.4 per cent) which signifies a rather decentralized wage bargaining process in Bulgaria. These features of the surveyed Bulgarian firms could explain the low degree of wage indexation, because a high coverage of collective wage agreements and a high centralization of the wage bargaining process are associated with the practice of wage indexation in other European countries.

The survey questionnaire also gives some indications on the degree of competition faced by Bulgarian firms. The share of exports in total sales among the exporting firms could be used as an indicator of the degree of competitive pressures and of the international exposure the firms are facing (Druant *et al.*, 2009). This, on the other hand, could provide evidence on the external factors affecting wage changes. 42.6 per cent of the surveyed Bulgarian firms sell their products on foreign markets. Exporting manufacturing firms generate the highest share of their revenue (66.5 per cent) from exports, followed closely by exporting firms in the services sector.

Another important factor which could possibly indicate the degree of importance of competitive pressures is the share of firms that are very likely or likely to reduce prices when their main competitor does so. 69.4 per cent of the surveyed Bulgarian firms have reported to follow such a strategy. This behavior is most common in the trade sector (79.9 per cent) and less common in the manufacturing sector (61.3 per cent).

The labour force composition is also expected to be connected with firms' wage setting practices. In terms of occupational groups, most of the employees fall into the categories of low-skilled blue-collar employees (62.4 per cent) and this share is slightly higher for the manufacturing sector (71.5 per cent). White-collar employees are more common in the trade and services sectors.

[9] The coverage of collective wage agreements in Austria, Belgium, France, Greece, Italy, the Netherlands, the Nordic countries, Portugal and Slovenia is between 80 per cent and 100 per cent according to the WDN final report.

3. Indicators of wage rigidity

Labour market flexibility is an important precondition for maintaining and fostering the competitiveness of a small open economy like Bulgaria. Under a fixed exchange rate regime the ability to adjust costs, including labour costs, through prices and quantities becomes even more important. In the presence of more flexible responses to adverse shocks, the competitiveness of the economy would not be jeopardized and the second-round effects would be mitigated. In this respect higher wage flexibility contributes to curbing the unfavourable effects of increased unemployment and the associated destruction of human capital in the case of adverse shocks to the economy. Concerning this matter, this section provides an overview of the survey results on different aspects of wage rigidity, including not only the frequency of wage changes, but also the timing of these changes, as well as the wage setting practices for newly hired employees and the degree of downward wage rigidity of the surveyed Bulgarian firms.

3.1. Wage change frequency

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"). 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.

The main stylized facts about wage versus price stickiness, outlined in the WDN report, are present in the Bulgarian survey, as well. Wages change relatively infrequently – the average wage duration is one year, as opposed to just below 8 months price duration. The heterogeneity of price stickiness across sectors is higher than that of wage stickiness, as market factors are expected to be the main determinants of different pricing behaviour. The different degrees of wage rigidity across the EU countries could be explained by institutional characteristics like labour legislation, use of collective agreements, etc.

Table 6

ESTIMATED AVERAGE DURATION OF PRICE AND WAGE SPELLS (MONTHS)[10]

	EU		BG	
	Prices	**Wages**	**Prices**	**Wages**
Total	**9.6**	**14.9**	**7.7**	**11.9**
Manufacturing	10.2	14.9	10.4	12.6
Construction	9.1	13.3		
Trade	6.7	15.3	2.1	10.6
Market services	10.9	14.9	11.5	13.6
Financial intermediation	7.7	14.4		
Euro area	**9.6**	**15.0**		
Austria	9.1	12.5		
Belgium	9.9	12.6		
Spain	9.7	11.9		
France	10.1	12.0		
Greece	10.2	11.9		
Ireland	8.5	12.8		
Italy	9.5	20.3		
Netherlands	9.1	13.9		
Portugal	9.5	12.9		
Slovenia	9.6	11.8		
Non-Euro area	**9.6**	**14.7**		
Czech Republic	9.7	14.6		
Estonia	10.0	12.7		
Hungary	10.7	13.8		
Lithuania	8.4	11.4		
Poland	9.5	15.4		

Source: Druant (2009), BG survey

[10] The results from the questions on wage/price frequency form discrete distributions. Therefore, in order to obtain average durations, these distributions were approximated by continuous lognormal distribution, for more technical issues see Druant (2009). For the estimation of the duration of wage spells, a synthetic variable defined as the highest frequency of wage changes among the three types of reasons examined in the questionnaire is used (changes due to inflation, changes due to tenure and changes due to reasons other than inflation and tenure).

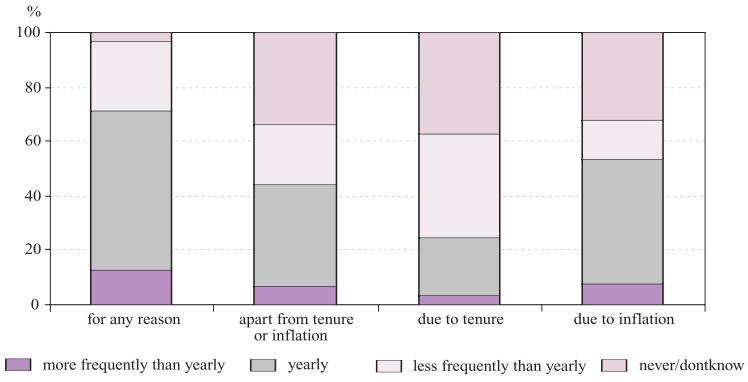
It should be noted, however, that prices in Bulgaria change more frequently than in other EU countries listed in Table 5 and this is especially pronounced in the trade sector. Wages also change somewhat more frequently in Bulgaria, but the difference is relatively small considering the overall heterogeneity of this indicator across countries.

The survey questionnaire features three reasons for implementing wage changes – due to inflation, tenure and other reasons. A major difference from the WDN Final Report results for the surveyed EU countries is that wages in Bulgarian firms are changed mainly because of tenure and reasons apart from tenure and inflation. As shown in Figures 1 and 2, wage adjustments due to inflation seem to happen more often in the other countries which conducted the survey within the WDN than in the surveyed Bulgarian firms. This is in line with the relatively low share of firms applying wage indexation as stated in the previous section.

Not only the wage duration in Bulgaria is shorter, as outlined in Table 6, but also the proportion of firms changing wages for any reason more frequently than once a year (27.7 per cent) is higher than the respective share of 12.1 per cent for the seventeen EU countries that have conducted the WDN survey (Figures 1 and 2). This is a sign of wage flexibility but can also be attributed to the process of nominal and real convergence associated with higher productivity growth and catching-up in price levels.

Figures 1

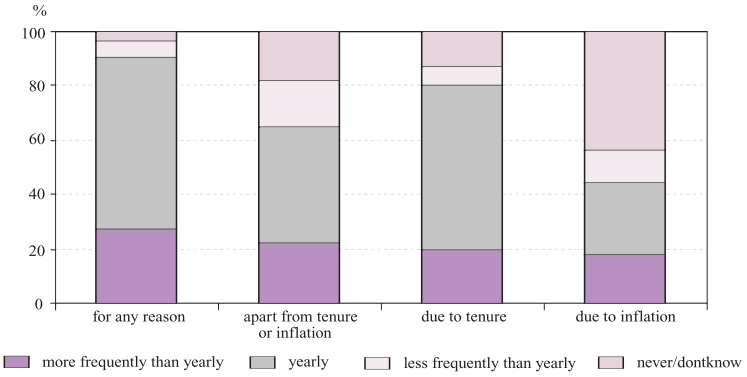
EU: HOW FREQUENTLY IS THE BASE WAGE TYPICALLY CHANGED IN YOUR FIRM?



Source: WDN final report, BG survey.

Figures 2

BULGARIA: HOW FREQUENTLY IS THE BASE WAGE TYPICALLY CHANGED IN YOUR FIRM?

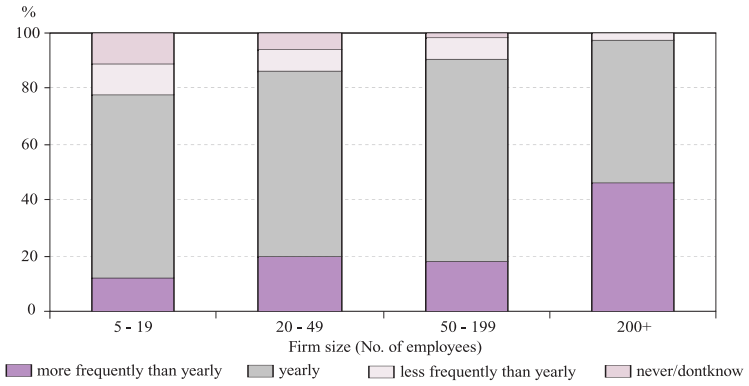


Source: WDN final report, BG survey.

Considering the findings of the WDN final report wages are expected to change less frequently when collective bargaining coverage is high and employment protection strong, and more often when bargaining takes place at the firm level and there is a formal or informal indexation scheme to inflation. In order to get a preliminary impression on the Bulgarian data, the link between the frequency of wage changes and some institutional characteristics is examined on a descriptive level. The frequency of wage changes in Bulgaria appears to depend positively on some individual firm characteristics, such as size (by number of total employees, Figure 3) and share of bonuses in total wage bill, which is also observed in the WDN final report for the surveyed EU countries. The frequency of wage changes seems to increase with the share of bonuses in total wage bill; especially for a share exceeding 10 per cent (see Figure 4) and does not seem to be influenced by the policy of inflation indexation (Figure 6), probably due to the relatively small significance of inflation as a reason for wage changes. Moreover, wage adjustments in the trade sector are more probable than in the other two sectors, probably due to the higher frequency of price changes in this sector (see Figure 5).

Figures 3

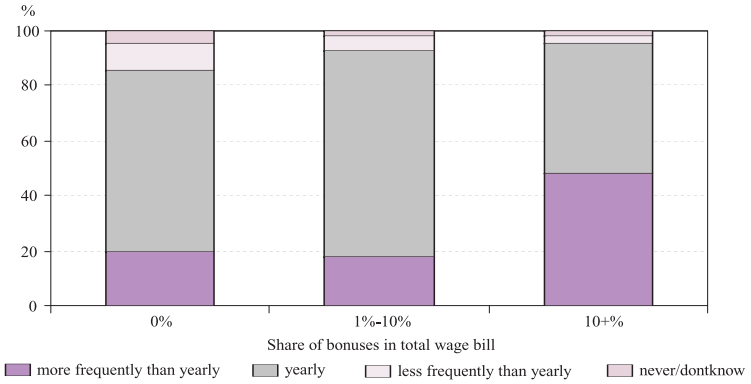
WAGE CHANGE FREQUENCY FOR ANY REASON



Source: BG survey.

Figures 4

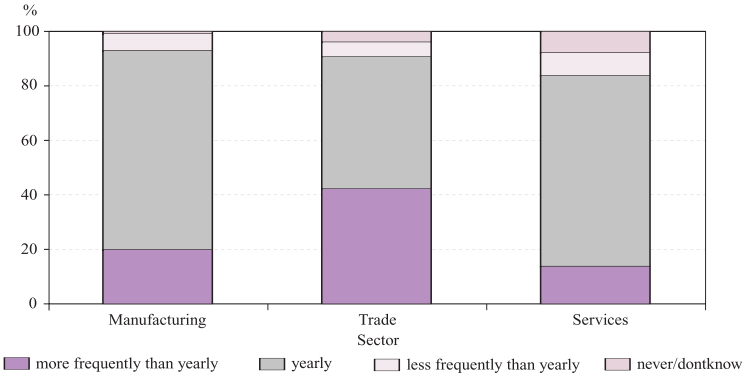
WAGE CHANGE FREQUENCY FOR ANY REASON



Source: BG survey.

Figures 5

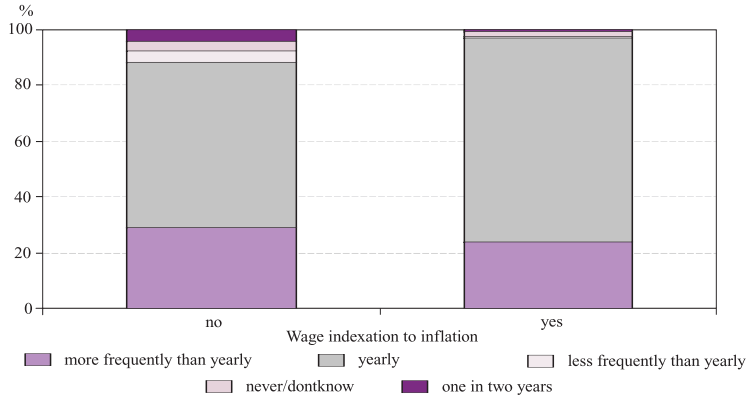
WAGE CHANGE FREQUENCY FOR ANY REASON



Source: BG survey.

Figures 6

WAGE CHANGE FREQUENCY FOR ANY REASON



Source: BG survey.

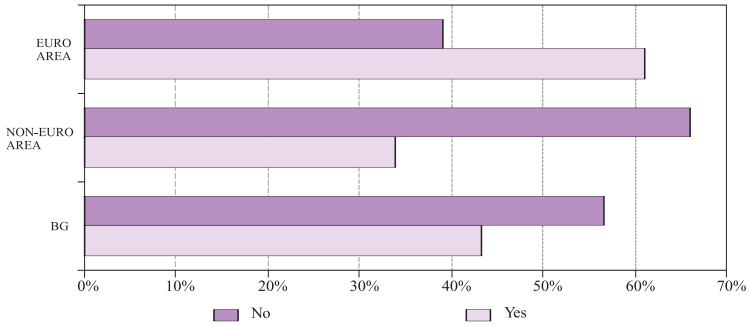
The link between institutional characteristics and wage change frequency needs further analysis in a multivariate framework in order to confirm/refute the literature findings.

3.2. Time concentration of wage changes

An important aspect of wage rigidity, apart from the frequency of wage changes, is the time dependence of these changes. If wage decisions are concentrated in a particular month, the speed of labour cost adjustment after a shock would depend on the particular time of the year when the shock is realized.

Figures 7

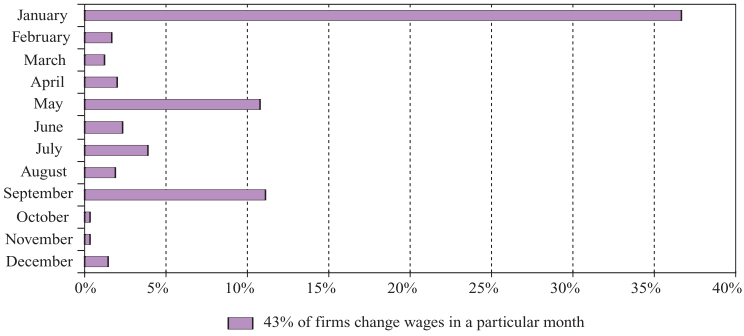
ARE BASE WAGE CHANGES CONCENTRATED IN ANY PARTICULAR MONTH?



Source: WDN final report, BG survey.

Figures 8

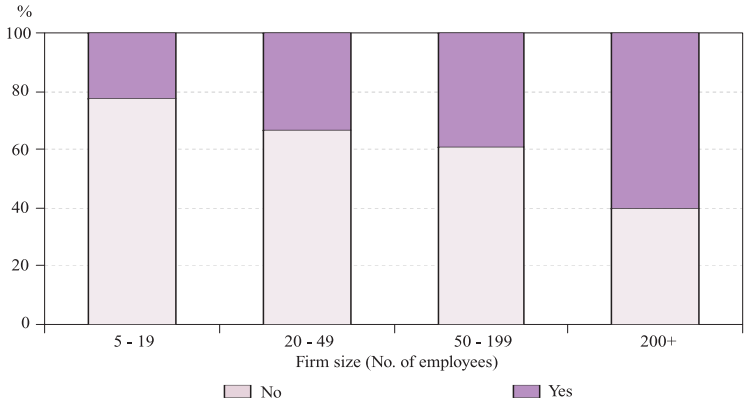
WAGE CHANGE CONCENTRATION



Source: WDN final report, BG survey.

Figures 9

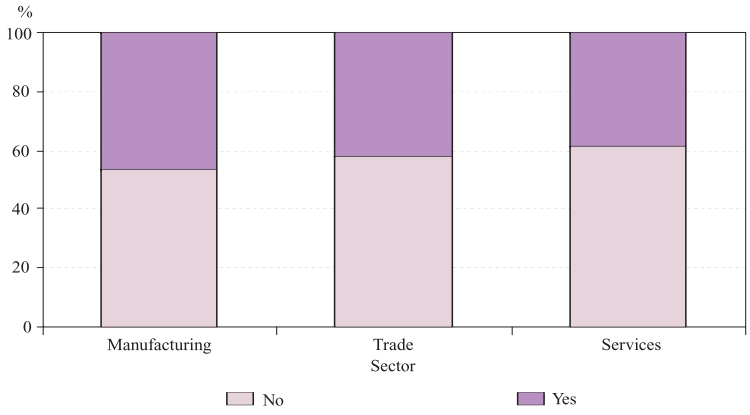
ARE BASE WAGE CHANGES CONCENTRATED IN ANY PARTICULAR MONTH?



Source: WDN final report, BG survey.

Figures 10

ARE BASE WAGE CHANGES CONCENTRATED IN ANY PARTICULAR MONTH?



Source: WDN final report, BG survey.

As Figure 7 shows, the degree of wage change concentration in Bulgaria (43 per cent) seems to be close to the non-euro area figures (34 per cent), while it is somewhat lower compared to the respective share (61 per cent) of the euro area firms surveyed that adopt time-dependent wage rules. As in most of the EU countries which conducted the WDN survey wage changes

tend to be concentrated in January (Figure 8). Larger Bulgarian firms, however, tend to concentrate more often their wage decisions in a particular month (see Figure 9). In accordance with the WDN final report results for the EU countries, the differences of wage concentration across sectors seem to be negligible (Figure 10).

3.3. Wages of new hires

As outlined in the previous sections, base wages of incumbents in Bulgaria and in the EU are relatively rigid, as compared to prices. In this context the flexibility of wages of new hires becomes more important, as it could serve as an additional margin of adjustment to economic shocks. Pissarides (2009) presents evidence that the elasticity of wages of newly hired workers to changes in unemployment is three times higher than that of incumbents' wages. Nevertheless, according to Bewley (2007) and Agell and Lundborg (2003) the wages of new workers depend heavily on firms' internal wage structure.

In order to provide new evidence in that respect, the WDN survey questionnaire and the Bulgarian survey include a question asking firms about the most relevant factor in determining the wages of new hires. In addition, firms are asked whether they would consider the existing conditions on the labour market when setting the wages of new workers.

The main results from these questions, as summarized in the WDN final report[11], can be traced in the answers of Bulgarian firms as well. As in most of the surveyed EU firms, 86.2 per cent of the surveyed Bulgarian firms consider internal factors as dominant in determining the wages of new hires (Table 7). In contrast to the Galuscak *et. al.* (2010) results for a sample of 12 EU countries, collective pay agreements do not seem to be a significant factor for Bulgarian firms when setting the wages of new employees. This can be explained by the low coverage of such agreements in the Bulgarian data, as was observed in the previous section.

[11] Almost 80 per cent of the firms surveyed within the WDN project report that internal factors like existing collective wage agreement(s) or the internal pay scale are more important in determining the wages of new hires than external labour market conditions. External labour market conditions are relatively more important in CEE countries (for 36 per cent of firms) than in euro area countries (for 15 per cent of firms) in part because of the lower collective wage agreement coverage. Similarly, for firms that face more competition, that employ more high-skilled workers and that have a higher turnover of employees, external labour market conditions matter relatively more.

Table 7

IMPORTANCE OF INTERNAL AND EXTERNAL LABOUR MARKET CONDITIONS IN HIRING PAY DETERMINATION (PER CENT OF FIRMS)

	EU	Sample EU[b]	BG
Factor[a]	(1)	(2)	(3)
Collective pay agreement	N/A	40.5	3.5
Wages in the firm	N/A	46	82.7
Internal factors	***78.3***	***86.5***	***86.2***
Wages outside the firm	N/A	6.5	7.0
Labour supply	N/A	7	6.0
External factors	***21.7***	***13.5***	***13.1***
Total	**100**	**100**	**100**

[a] Employment weighted averages.

[b] Sample EU: AT, BE, CZ, EE, GR, HU, IE, LT, NL, PT, SI, SP, see Galuscak *et al.* (2010) and the Appendix.

Source: Galuscak *et al.* (2010), BG survey.

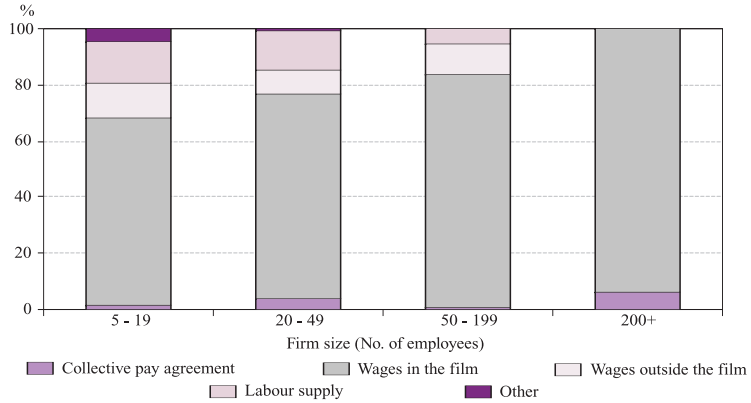
In addition, on a descriptive level larger Bulgarian firms seem to be more likely to use internal benchmarks in determining wages of new hires probably because wage-setting mechanisms are more formalized in larger organizations (see Figure 11).

As per Galuscak *et. al.* (2010), and according to the Bewley hypothesis external factors are used more often for wages of new hires in secondary-sector jobs[12]. The results from the Bulgarian survey tend to confirm these findings, showing that when the share of workers with tenure below one year is higher (more than 10 per cent), considering external factors for start-up wage setting is more wide-spread (see Figure 12).

[12] Bewley (1999) distinguishes between primary and secondary jobs. Primary jobs are usually long-term and full-time, whereas secondary jobs are often short-term and part-time.

Figures 11

WHAT IS THE MOST RELEVANT FACTOR IN DETERMINING THE ENTRY WAGE OF NEWLY HIRED EMPLOYEES?



Source: BG survey.

Figures 12

WHAT IS THE MOST RELEVANT FACTOR IN DETERMINING THE ENTRY WAGE OF NEWLY HIRED EMPLOYEES?

Source: BG survey.

The composition of labour force and competitive pressures should also be considered when accounting for the practices of wage-setting of new hires in Bulgaria. A higher share of high-skilled workers appears to be associated with a higher dependence of start-up wages on external factors, such as the abundance of job-seekers, and on wages prevailing on the market in Bulgaria (see Figures 13 and 14). In the survey the intensity of price competition is gauged indirectly by the question that examines whether firms are likely to decrease prices if their main competitor decreases its own prices. Bulgarian firms that answer positively to that question are deemed more competitive and at the same time less likely to align the wages of new hires with their internal pay structure (Figure 15).

Figures 13

WHAT IS THE MOST RELEVANT FACTOR DETERMINING THE ENTRY WAGE OF NEWLY HIRED EMPLOYEES?

Source: BG survey.

Figures 14

WHAT IS THE MOST RELEVANT FACTOR IN DETERMINING THE ENTRY WAGE OF NEWLY HIRED EMPLOYEES?

Source: BG survey.

Figures 15

WHAT IS THE MOST RELEVANT FACTOR IN DETERMINING THE ENTRY WAGE OF NEWLY HIRED EMPLOYEES?

Source: BG survey.

The firms surveyed both in Bulgaria and in the EU explain their reluctance to set-up different wages for newly hired workers by fairness and efficiency considerations. In Bulgaria the concern that lower wages of new hires would inflict on their work effort appears to be stated more frequently (51.2 per cent of firms) as a reason preventing such practice than in the other EU countries surveyed (36.2 per cent of the firms). On the other hand, higher wages of new hires are deemed unfair by more than half of the respondents (54.2 per cent, see Table 8).

Table 8

REASONS PREVENTING DEVIATION FROM THE GOING WAGE FOR NEW HIRES (per cent of firms)

	EU		BG	
Reasons preventing the payment of:	**lower wage**	**higher wage**	**lower wage**	**higher wage**
Unfair/bad reputation	32.9	39.2	36.6	54.2
Negative impact on effort	36.2	35.3	51.2	31.7
Labour regulation/Collective agreement	28.1	11.7	9.2	4.9
Unions would contest such action	1.6	–	0.0	–
Possible pressure for wage increases	–	13	–	7.4
Other	2.9	2.6	2.9	1.8

Source: Galuscak *et al.* (2010), BG survey.

3.4. Downward wage rigidities

Downward wage rigidity is an important aspect of wage responsiveness in the face of significant adverse shocks and in some cases could contribute to inflationary pressures. This issue is investigated in the questionnaire by asking firms if they had ever frozen/cut base wages of their employees. As suggested by Babecký *et al.* (2009) higher share of firms answering that wages have been frozen would indicate higher downward nominal wage rigidity. Real wage rigidity, on the other hand, is linked to the extent to which wages are updated (formally) with inflation. As Table 9 shows, downward nominal wage rigidity appears to play a more important role in Bulgaria because it seems to be more common than downward real wage rigidity in line with the results for non-euro area countries.

On a cross-country level, the practice of wage freezes seems to be implemented more often in countries such as the Czech Republic, Estonia, the Netherlands and Slovakia. The relatively rare incidents of wage freezes in Bulgaria might be attributed to the processes of real and nominal convergence

which renders such measures unnecessary. Wage indexation in Bulgaria, on the other hand, tends to be even more seldom than wage freezes. A lower respective share of firms adjusting wages to inflation could be observed only in Italy and Estonia.

Table 9

DOWNWARD NOMINAL AND REAL WAGE RIGIDITY ACROSS COUNTRIES

Country	Wage freezes (downward nominal wage rigidity)	Indexation (downward real wage rigidity)
Bulgaria	**8.0**	**6.6**
Austria	13.2	9.8
Belgium	11.8	98.2
Czech Republic	26.5	11.8
Cyprus	15.3	40.7
Estonia	21.7	4.4
Spain	2.4	54.8
France	7.1	9.6
Greece	12.5	20
Hungary	5.9	11.2
Ireland	8.7	9.5
Italy	3.9	1.7
Lithuania	19.9	10.8
Luxembourg	8.9	100
Netherlands	23.2	na
Poland	10	6.9
Portugal	15	9
Slovenia	2.9	23.5
Slovakia	20.9	21.1
Total	**9.6**	**17.1**
Euro area	**8.1**	**20.6**
Non Euro area	**13.4**	**8.5**

Source: WDN final report, BG survey. Notes: proportion of firms having frozen wages over the past five years and applying an automatic indexation mechanism.

Apart from using wage freezes as a measure of downward nominal wage rigidity, we adopt an additional measure of downward nominal wage rigidity – the incidence of wage cuts among the surveyed firms. A country with a considerably higher frequency of wage freezes compared to that of wage cuts should be associated with a higher degree of downward nominal wage rigidity than a country with more common wage cuts than wage freezes. In this respect, it is useful to compare the incidence of wage freezes with that of wage cuts. The employment-weighted share of surveyed EU firms indicating that wage cuts were implemented over the five years before the time of the

survey (2007–2008) is 2.3 per cent, while freezes were more common (9.6 per cent). The follow-up WDN survey in a smaller sample of EU countries conducted in the summer of 2009 reveals that even during the economic crisis wage cuts were not common. The share of firms cutting wages increased slightly to 3.2 per cent, while that of firms freezing wages went up considerably to 35 per cent with an additional 35 per cent reporting that they intend to freeze wages in the future. In Bulgaria, however, the two figures are comparable – 8 per cent wage freezes (additional 4 per cent plan to freeze wages) versus 6 per cent wage cuts (additional 1 per cent plan to cut wages). These figures suggest that downward nominal wage rigidity is still present in Bulgaria, but wages are relatively more flexible downwards compared to the EU countries which conducted the survey and this indicates that barriers to implement wage cuts are not higher than those for undertaking wage freezes in Bulgaria.

The survey questionnaire includes a specific question addressing the reasons for avoiding base wage cuts. In line with the WDN final report results for the EU, the reasons why many Bulgarian firms refrain from resorting to base wage cuts are related to efficiency considerations, like deterioration in work morale, and self-selection effects – most productive workers would decide to leave the firm.

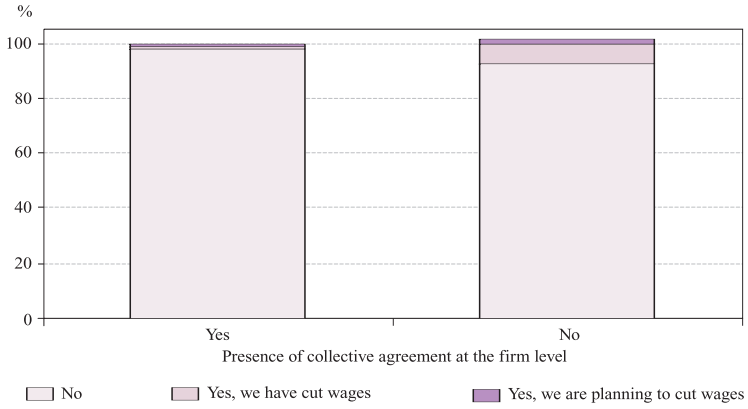
Figures 16

OVER THE LAST FIVE YEARS, HAS THE BASE WAGE OF SOME WORKERS IN YOUR FIRM EVER BEEN FROZEN?

Source: BG survey.

Figures 17

OVER THE LAST FIVE YEARS, HAS THE BASE WAGE OF SOME WORKERS IN YOUR FIRM EVER BEEN CUT?



Source: BG survey.

Figures 18

OVER THE LAST FIVE YEARS, HAS THE BASE WAGE OF SOME WORKERS IN YOUR FIRM EVER BEEN FROZEN?

Source: BG survey.

Figures 19

OVER THE LAST FIVE YEARS, HAS THE BASE WAGE OF SOME WORKERS IN YOUR FIRM EVER BEEN CUT?

Source: BG survey.

Other features which could also possibly be at play in creating downward wage rigidity are institutional restrictions. The presence of collective wage bargaining seems to be associated with higher downward nominal wage rigidity in Bulgaria (in the other EU countries the effect is on downward real wage rigidity). Surveyed Bulgarian firms which apply collective wage agreements seem to freeze wages more often than firms which are not covered by such agreements (Figure 16). Moreover, the practice of cutting wages appears to be less wide-spread among firms which apply collective wage agreements (Figure 17).

Contrary to the finding in Babecký *et al.* (2009), market competition seems to make wages more flexible downwards (see Figures 18 and 19). This feature is likely to facilitate a higher flexibility in wage adjustments after negative shocks (e.g. slowdown in demand).

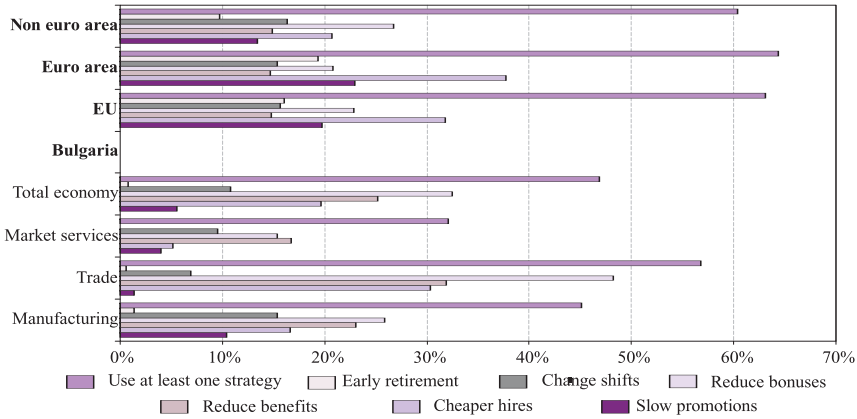
Firms' characteristics such as workforce composition (share of skilled employees and share of employees with permanent contracts) for example which are significant determinants of downward nominal wage rigidity in Babecký *et al.* (2009) for the other EU firms surveyed do not seem to influence downward wage rigidity in Bulgaria on a descriptive level of analysis. The literature findings concerning the link between such characteristics and downward wage rigidity in Bulgaria need to be verified in a multivariate framework.

3.5. Alternative margins of labour cost adjustment

In the face of adverse shocks firms can adopt alternative strategies for reducing labour costs apart from cutting base wages. The survey questionnaire lists several such approaches: reduction of bonuses and non-pay benefits, changes in shift assignments, slowing the rate of promotions, recruitment of new employees at lower wage than those who left (cheaper hires) and use of early retirement. These options were not mutually exclusive by the design of the survey and indeed many Bulgarian firms opted for more than one strategy which is also common for EU firms. In Bulgaria, 53 per cent of the firms in the three sectors have never used any of the enlisted strategies to lower labour costs. In the euro area and non-euro area countries this share is 36 per cent and 40 per cent respectively. The difference might be explained by the comparatively lower level of wage rigidity observed in the Bulgarian data.

Figures 20

ALTERNATIVE LABOUR COST ADJUSTMENT STRATEGIES



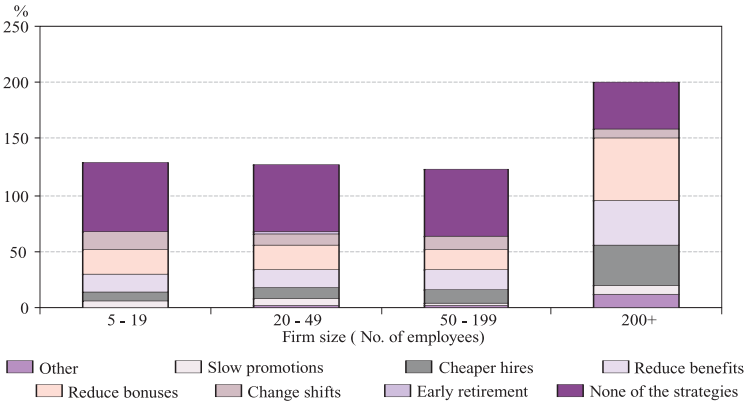
Source: WDN final report, BG survey.

As shown in Figure 20, the most frequently used alternative margin of adjustment in Bulgaria and the other non-euro area member states is cutting bonuses and benefits, while euro area firms rely more heavily on savings from cheaper hires. The cross-sectoral disaggregation reveals that in Bulgaria manufacturing firms make use of changes in shifts to lower wage costs more often compared to firms in the other two sectors as this margin is more flexible in the production process. On the other hand, the "cheaper hires" strategy is more common in the trade sector which can be related to the intensive hiring process in this sector in the years preceding the crisis.

Larger Bulgarian firms (above 200 employees) and those exposed to more intense competition seem to be more likely to use at least one of the alternative margins listed in the questionnaire (Figure 21 and Figure 22).

Figures 21

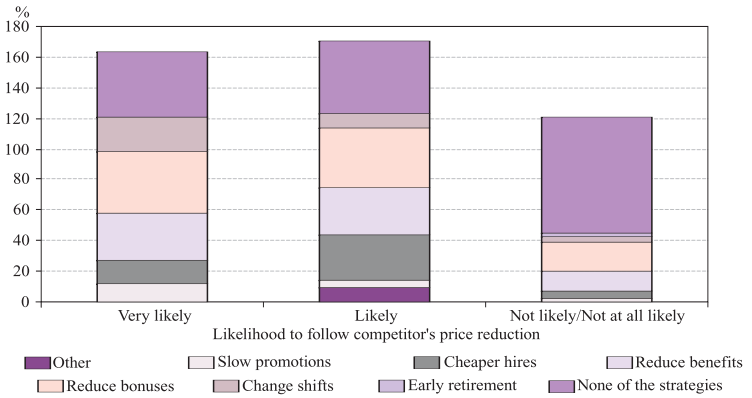
ALTERNATIVE LABOUR COST ADJUSTMENT STRATEGIES



Source: BG survey.

Figures 22

ALTERNATIVE LABOUR ADJUSTMENT STRATEGIES



Source: BG survey.

4. Responses to shocks

The survey includes explicit questions about the response of firms to three distinct shocks – slowdown in demand, increase in intermediate input prices and permanent increase in wages (e.g. due to an increase in the minimum wage). The options available for the responses are cutting costs (through lowering wages and bonuses, reduction of temporary/permanent employees or working hours, cutting other costs), reducing profit margins, adjusting prices or shrinking output. The answers would shed light on firms' adjustment strategies in the face of adverse shocks. The different alternatives of labour cost adjustment would have different implications for the welfare costs of these shocks, the speed of adjustment and price inertia. For example, higher pass-through of wages and other costs to prices could imply higher inflation persistence. On the other hand, adjustments in employment would incur additional costs if labour market frictions are sizable (e.g. when there are structural mismatches, firing/hiring costs, etc.). In case when temporary employees are dismissed, this might cause duality in the labour market[13].

[13] The dualism of the labour market in this case consists in its separation into a primary sector and a secondary sector. The first one relates to jobs characterized by high skill levels, medium-to-high rates of pay, job security, union coverage and other advantages. The second one, in contrast, is dominated by precarious employment, like casual or irregular work, which is less stable, with low rates of pay, mainly widespread in smaller enterprises and in firms with lower union coverage.

Table 10

ADJUSTMENT STRATEGIES TO SHOCKS

(per cent of firms answering relevant or very relevant, percentages)

	EU			Bulgaria		
	Cost-push shock	Wage shock	Demand shock	Cost-push shock	Wage shock	Demand shock
Reduce costs	67.6	59.0	78.0	69.0	56.2	77.8
Adjust prices	65.6	59.2	50.5	67.6	43.2	---
Reduce margins	53.5	49.8	56.6	79.3	65.4	84.4
Reduce output	21.4	22.5	49.9	40.9	17.7	50.3

Source: WDN final report, BG survey.

The reactions of the surveyed Bulgarian firms to the three shocks seem to resemble broadly those of the other WDN survey participants from the EU countries. The most notable exception is that Bulgarian firms tend to be much more willing to reduce profit margins after each of the shocks. This might be attributable to the good financial position of most enterprises in the years preceding the crisis. Another difference is that 56.8 per cent of Bulgarian firms do not pass-through wage increases to prices. These results signify a relatively weak wage-price link in Bulgaria that can be explained with the low labour share in the economy and also possibly with the low coverage of collective wage agreements in Bulgaria. Regarding the cost-push shock, 67.6 per cent of Bulgarian firms respond that they will increase prices if intermediate input prices rise (Table 10), which is slightly higher than the share of EU firms that will follow such a strategy (65.6 per cent) and is possibly connected with the relatively high energy intensity of the economy.

Table 11

COST ADJUSTMENT AFTER SHOCKS
(per cent of firms)

Cost-cutting strategy	EU			Bulgaria		
	Demand shock	Cost shock	Wage shock	Demand shock	Cost shock	Wage shock
Reduce non-labour costs	39.7	53.9	50.0	28.8	25.5	24.2
Adjust the amount of labour						
Reduce number of temporary/ other employees	25.1	17.9	19.9	23.9	25.3	26.7
Reduce number of permanent employees	15.1	10.6	11.1	12.8	14.0	14.9
Reduce hours worked per employee	8.4	6.9	7.4	11.6	7.2	12.9
Adjust wages						
Reduce flexible wage components	10.5	9.5	11.6	20.1	24.9	21.4
Reduce base wages	1.2	1.2	–	2.9	3.1	–

Source: WDN final report, BG survey. Averages across countries in the harmonized sample with the exception of Germany, Greece Luxembourg and Slovakia.

Overall, various labour cost reduction strategies (employment, hours worked, flexible wage components and base wages) seem to be more common in Bulgaria than in the EU as a reaction to a wage and a cost-push shock, as opposed to non-labour cost reduction strategies which seem to be less widespread.

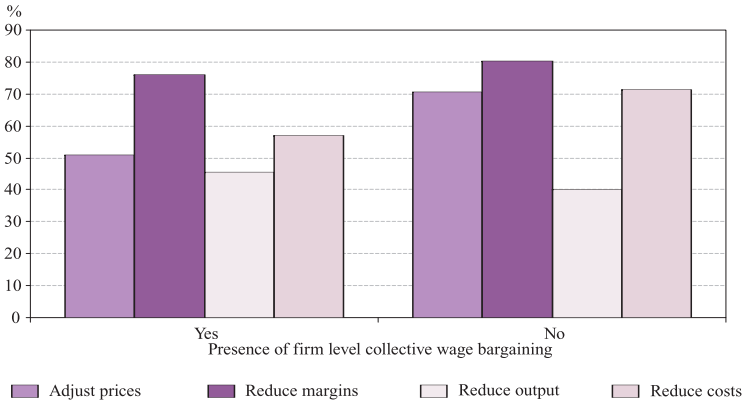
The finding from the WDN final report that temporary employees are bound to bear the brunt of the employment adjustment appears to be confirmed in the Bulgarian survey as well. On the other hand, firms very rarely cut costs by reducing base wages. As shown in Table 11, the share of Bulgarian firms surveyed which are willing to reduce flexible wage components in all of the three shocks is higher than that of EU firms. This holds true for the results of the follow-up WDN survey in 2009 as well, even though adjusting wages through reducing flexible wage components gains higher relevance compared to the original survey. The relatively high importance of the reduction of flexible wage components in Bulgaria further confirms the conclusion about the flexibility of total labour costs in the country. The use of changes in flexible wage components gives firms higher flexibility in adjusting total labour costs in response to negative shocks. At the same time, reduction in non-labour costs in Bulgaria as a cost adjustment strategy does not seem to

be as prevalent as it is in the surveyed EU firms. This holds true for the results of both the original WDN and the follow-up surveys.

In an attempt to explain the different responses to shocks across firms, Bertola *et al.* (2010) finds that institutional features like the presence of collective wage agreements tend to boost the pass-through from costs to prices. This result cannot be confirmed in the Bulgarian data at a descriptive level of analysis. Collective wage agreements tend to make firms more rigid in adjusting costs, prices and margins in the face of intermediate input cost and wage shocks (Figures 23 and 24). The pass-through to inflation is also found to depend on competitive pressures in the EU countries that conducted the WDN survey. In Bulgaria the effect of more intense competition seems to resemble the absence of collective wage agreements – it is associated with higher frequency of profit margin reduction strategies and at the same time with more frequent pass-through to prices as a response to intermediate input cost and wage shocks (see Figures 25 and 26).

Figures 23

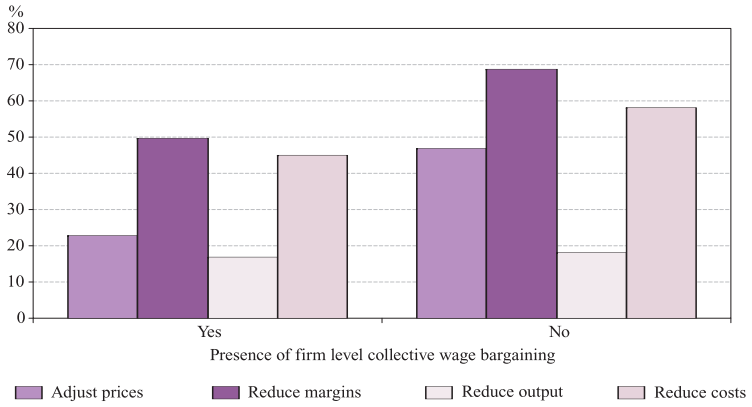
RESPONSE TO INTERMEDIATE COST SHOCK
(per cent firms stating that the strategy is very important/important)



Source: BG survey.

Figures 24

RESPONSE TO WAGE SHOCK
(per cent firms stating that the strategy is very important/important)



Source: BG survey.

Figures 25

RESPONSE TO INTERMEDIATE INPUT COST SHOCK
(per cent firms stating that the strategy is very important/important)

Source: BG survey.

RESPONSE TO WAGE SHOCK
(per cent firms stating that the strategy is very important/important)

Source: BG survey.

5. Conclusions

This paper reports the main results of a representative survey on wage and price formation in non-financial enterprises in Bulgaria conducted in 2009. The survey follows the questionnaire of the WDN project of the Eurosystem and is also supplemented with additional questions from the earlier IPN research project. The paper aims to analyse the characteristic features of wage-setting practices in Bulgaria and to draw conclusions on their relevance for the overall flexibility of the economy and the competitive position of enterprises in the case of adverse shocks. It also aims to compare the results with those for other EU countries which conducted the survey, as documented by the WDN project. To account for the different time periods for conducting the survey in Bulgaria and in the other EU countries and for potential effects of the economic crisis on the results on wage flexibility, the paper has also considered the findings of the follow-up WDN survey that was carried out in 2009 in a smaller sample of countries. Despite the fact that the Bulgarian survey took place in a different economic context of the WDN project, it confirms many of its key findings. Some important differences in the Bulgarian data are outlined in the paper.

The main findings of the paper on the features of the wage setting behaviour of Bulgarian enterprises can be summarized as follows:

Wage rigidity, as measured by wage change frequency and time concentration seems to be relatively low, especially compared to euro area countries. Additionally, both downward nominal and real wage rigidity are comparatively weak. In the context of the convergence process associated with higher productivity growth and catching-up in price levels, the incidence of wage freezes as a main measure of downward nominal wage rigidity compared to that of wage cuts indicates that although downward nominal wage rigidity is present in Bulgaria, wages seem to be relatively more flexible downwards compared to the average EU figures. Moreover, the use of adjustments in flexible wage components and base wages in response to negative shocks are relatively more wide-spread.

Furthermore, some of the main findings which can be derived from the survey responses point to the positive effects of higher competition on labour market flexibility, comparable with the EU findings on this issue. More specifically, firms exposed to higher competition seem to be more inclined to align their start-up wages with external market conditions (rather than with the most common practice of using the already existing wages in the firm). Firms operating in an environment of high competition also tend to be more likely to use alternative margins of labour cost adjustment apart from base wages in the face of adverse shocks.

The survey results indicate that the wage-price link is relatively weak in Bulgaria. Wage changes due to inflation are not wide-spread and the latter is in striking difference from the EU countries which conducted the survey where inflation is the main driving factor of frequent changes in wages. The pass-through from wages to prices also appears to be comparatively weak, considering the firms' reactions to a permanent wage shock.

The main results of the survey point to the conclusion that various labour cost components (employment, working hours, wages) in Bulgaria seem to be relatively flexible. This allows maintaining the competitiveness of the economy and limiting second-round effects in case of negative shocks. On a descriptive level of analysis, the survey results also seem to confirm a robust finding of the WDN project that higher competition increases labour market flexibility. Consequently, measures which stimulate competition in Bulgaria, are expected to further increase the overall flexibility of the economy with beneficial effects on the convergence process.

The analysis in this paper provides a basis for further investigation of the determinants of the different aspects of wage rigidity within the framework of multivariate models, through identifying the main factors influencing the frequency of wage changes, the wages of new hires, as well as downward wage rigidity and firms' responses to shocks.

Appendix

BULGARIAN
NATIONAL BANK

APPENDIX
SURVEY ON WAGE AND PRICE FORMATION IN THE NON-FINANCIAL ENTERPRISES IN BULGARIA

This survey is aimed at collecting information on wage and price setting practices in your firm and at identifying the relationship between wages and prices.

This survey is part of a project undertaken by the Eurosystem which includes the national central banks of euro area countries and the central banks of the other EU member states. The project uses a harmonized questionnaire, which is given to a sample of enterprises in each of the countries.

In Bulgaria the survey is funded by the Bulgarian National Bank (BNB).

The information collected through the questionnaire will be used exclusively for research and analysis purposes and will be disseminated and published outside the BNB only in aggregate format based on the answers by all firms included in the sample. Individual answers by each firm will be treated on a strictly confidential basis.

Participating firms will receive a summary of the main results of the survey.

Your cooperation is extremely valuable, but your participation is totally on a voluntary basis and your eventual refusal to cooperate and participate will not have any implication for your firm.

Instructions for filling the questionnaire:

1. *Who is the most suitable person for filling the questionnaire?* – Due to the complex nature of the questions, the questionnaire should be filled in by members of the senior management of the firm: executive director, finance director or human resource director.
2. *Questions that require answers with numbers* – if you have problems filling up exact numbers, please give your estimate with an approximate answer.

CONTACT DETAILS OF THE PERSON WHO HAS COMPLETED THE QUESTIONNAIRE:

Name: .....

Position: .....

Telephone number: .....

Date: .....

e-mail: * .....

Part 1 - Wage setting and wage changes

This part of the questionnaire collects information on wage setting practices and on the frequency and timing of wage changes in your firm. It also focuses on how the wages of new workers are set relative to existing workers.
Unless specifically indicated, answers should refer to "normal conditions and practices" in your firm.

1 - How were your firm's employees distributed across the following occupational groups in the end of 2008?

Please fill in one of the two columns according to your preference: number or %.

***Definition for employees:* employees are the people who have a labor contract with the employer according to the Labor code, based on which contract they receive remuneration in pecuniary form or in kind as a wage for work done with a certain quantity and quality, regardless of whether the labor contract is permanent or temporary, for full-time or for part-time.**

1. Management positions / Other (Class 1 according to the Labor code)	_____ %	_____ (give number)
2. High-skilled white collars/ Experts (Class 2 according to the Labor code)	_____ %	_____ (give number)
3. High-skilled blue collars/ Technical (Class 3 according to the Labor code)	_____ %	_____ (give number)
4. Low-skilled white collars/ Clerical (Class 4 according to the Labor code)	_____ %	_____ (give number)
5. Low-skilled blue collars/ Production (Classes 5, 7-9 according to the Labor code)	_____ %	_____ (give number)
TOTAL	**100 %**	_____ (total number)

Class 1 - Managers and Directors/Other

Class 2 - Analysts/ Experts

Class 3 - Technicians/ Technical

Knac 4 - Administrative positions/ Clerical

Class 5 - Employees providing services to the public, involved in trade or security/ Production

Class 7 -Qualified production specialists/ Production

Class 8 - Machine operators and fitters/ Production

Class 9 - Professions that do not require special qualification/ Production

2 - Does your firm apply a collective contract signed outside the firm (e.g. at the sectoral or occupational level)?

Please choose one answer!

1. No, it does not exist	□
2. No, we opt out	□
3. Yes, we apply it	□ If you have chosen this option, please also answer **question 4**

3 - Independently of what answered in 2, does your firm apply a collective contract signed at the firm level?

1. Yes	□ If you have chosen this option, please also answer **question 4**
2. No	□

4 - If yes in 2 or 3, what percentage of your firm's employees are covered by collective agreements (at any level) ?

_____ %

5 - What percentage of your total wage bill in 2008 was related to individual or company performance related bonuses or benefits?

Definition for bonuses/benefits (flexible wage components): additional material remuneration in the

form of monthly and quarterly bonuses; annual bonuses, 13-th and 14-th wages.	
_____ %	
6 - Does your firm have a policy that adapts changes in base wages to inflation? ***Definition for base wage: direct remuneration (for time worked or for work done) that excludes bonuses / benefits***	
1. No	□ →If you choose this option, **go to question 8**
2. Yes	□ → If you choose this option, **continue with question 7**
7 -Please choose among the options below, the one that reflects best such a policy. **Please choose one answer!**	
Wage changes are automatically linked to:	
1. past inflation	□
2. expected inflation	□
Wage changes take into account, without a formal rule:	
3. past inflation	□
4. expected inflation	□
8 - What is the principle of remuneration for the main occupational group (as defined in question 1)? **You may choose more than one answer!**	
1. Hourly wage	□
2. Piece-rate wage – article 247, paragraph 2 of the Labor code	□
3. Monthly wage (or other period-specific wage, e.g.weekly)	□
4. Other (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

9 - How frequently is the base wage of the main occupational group in your firm (as defined in question 1) typically changed in your firm?

Please give one answer on each row!

	more than once a year	*once a year*	*once every two years*	*less frequently than once every two years*	*never / don't know*
1. Wage changes apart from tenure and inflation	1	2	3	4	5
2. Wage changes due to tenure	1	2	3	4	5
3. Wage changes due to inflation	1	2	3	4	5

10 - Under normal circumstances, are base wage changes concentrated in any particular month / months? **You may choose more than one answer!**	
1. No □	
Yes: 2. January □ 3. February □ 4. March □ 5. April □ 6. May □ 7. June □	8. July □ 9. August □ 10. September □ 11. October □ 12. November □ 13. December □

11 - Considering the main occupational group in your firm (as identified in question 1), please indicate among the following options what is the most relevant factor in determining the entry wage of newly hired employees:

Please choose one answer!

1. Collective wage agreement (at any level)	□
2. Wage of similar employees in the firm	□
3. Wage of similar workers outside the firm	□
4. Availability of similar workers in the labour market	□
5. Other (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

12 - If there is abundancy in the labour market of workers you need to hire, do you give newly hired employees significantly lower wage than that of similar (in terms of experience and qualitfication) employees already in the firm?

Please choose one answer!

1. Yes	□
No, because (**please choose only one option, the most important reason**):	
2. It would be perceived as unfair and earn the firm bad reputation	□
3. It would have a negative effect on the work effort of the new employees	□
4. It is not allowed by labour regulation or collective wage agreement	□
5. Unions would contest it	□
6. Other reason (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

13 - If there is a shortage in the labour market of workers you need to hire and attracting new workers is difficult, do you give newly hired employees significantly higher wage than that of similarly qualified employees already in the firm?

Please choose one answer!

1. Yes	□
2. No, because (please choose only one option, the most important reason):	
3. It would be perceived as unfair by existing employees	□
4. It would have a negative effect on work effort of the employees in the firm	□
5. It is not allowed by labour regulation or collective wage agreement	□
6. It would generate wage demand by existing employees	□
7. Other reason (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

Part 2 - Downward wage rigidity and the adjustment to shocks

This part addresses the issue of the presence of (eventual) obstacles to downward wage adjustments and the reaction of firms to different shocks (including in this year in response to the economic crisis).

14 - Over the last five years, has the base wage of some workers in your firm ever been frozen (or are you currently planning to freeze it)?

***Definition of freeze in base wage**: the base wage remains unchanged in nominal terms from the moment of the last renegotiation of wages to the next renegotiation*

You may choose more than one answer! The last two options are not mutually exclusive!!!

1. No	□
2. Yes, we have frozen the base wage.	Indicate for what percentage of your employees _____ % →If you choose this option, **continue with question 15 and then with question 16**
3. Yes, we are planning to freeze the base wage.	□ → If you choose this option, **continue with question 15 and then with question 16**

15 - Over the last five years, has the base wage of some workers in your firm ever been cut (or are you currently planning to cut it)?

Definition of cut in base wage*: *the base wage is cut in nominal terms from the moment of the last renegotiation of wages to the next renegotiation

You may choose more than one answer! The last two options are not mutually exclusive!!!

1. No	□
2. Yes, we have cut the base wage	Indicate for what percentage of your employees _____ % →If you choose this option, **continue with question 16**
3. Yes, we are planning to cut the base wage.	□ → If you choose this option, **continue with question 16**

16 - If yes in either 14 or 15, what was the main reason for freezing or cutting the base wage?

Please choose one answer, the most important reason!

1. Profitability and/or sales went down	□
2. Other costs increased	□
3. Jobs were at risk	□
4. It was imposed by legislation or higher level collective agreement	□
5. Because the worker performance was not satisfactory	□
6. Other (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

17 - How relevant are the following reasons in preventing base wage cuts?

Please give one answer on each row!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. It is impeded by labour regulation/collective agreements	1	2	3	4	5
2. It would have a negative impact on employees' efforts	1	2	3	4	5
3. It would have a negative impact on employees' morale	1	2	3	4	5
4. It would have a negative impact on the firm's reputation	1	2	3	4	5
5. It would mean the best employees would leave the firm	1	2	3	4	5

6. It would imply high costs of hiring and training new employees	1	2	3	4	5
7. It would create difficulties in attracting new workers	1	2	3	4	5
8. Workers dislike unpredictable reductions in income	1	2	3	4	5
9. Employees are concerned with how their wage compares to that of similar workers in other firms in the same market	1	2	3	4	5

18 – Has any of the following strategies ever been used in your firm to reduce labour costs?

***Definition of labor costs*: wages, salaries, bonuses, costs for annual leave advances/ overtime work /seniority bonuses, social security contributions, indemnity payments, social benefits in cash or in kind, tax contributions, training costs**

Please select all the options that apply to your firm!

1. Recruitment of new employees (with similar skills and experience) at lower wage than those who left (e.g due to voluntary quits and retirement)	□
2. Use of early retirement to replace high wage employees by entrants with lower wages	□
3. Reduction or elimination of bonus payments	□
4. Reduction or elimination non pay benefits	□
5. Change in shift assignments	□
6. Slowdown or freeze of the rate at which promotions are filled	□
7. None of them	□
8. Other (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

19 – Has it become easier over the last decade to adjust wages to reduce labour costs?

Please choose one answer!

1. Yes	□ →if you choose this option, **continue with question 20**
2. No	□ → if you choose this option, **continue with question 21**
3. Do not know	□ → if you choose this option, **continue with question 21**

20 – If yes, why ?

Please choose one answer, the most important reason!

1. Competition has become more intense	□
2. There is larger availability of workers on the market	□
3. Trade unions have less power in collective bargaining	□
4. Market regulation has become less tight	□
5. Production is outsourced in markets where labour is cheaper	□
6. Price inflation and inflation expectations are lower and more stable	□
7. Other (please sepcify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

Part 3 - Reaction to shocks

The next questions investigate how your firm adjusts wages, prices, total costs, employment and margins to shocks (including in the current year in response to the economic crisis).

In answering, for prices you should think of the "main product or service, defined as the one that generated the highest fraction of turnover in 2008, and for employment and wages to the main occupational group in your firm (as identified in question 1).

21 - How does your firm react to an unanticipated (significant) slowdown in demand ?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Increase prices	1	2	3	4	5
2. Reduce margins	1	2	3	4	5
3. Reduce input	1	2	3	4	5
4. Reduce costs	1	2	3	4	5

22 - If the reduction of costs is of any relevance in your answer to question 21, please indicate the main channel through which this goal is achieved:

Please choose one answer, the most important reason!

1. Reduce base wages	□
2. Reduce flexible wage components (for example bonuses, benefits, etc.)	□
3. Reduce the number of regular employees	□
4. Reduce the number of temporary employees / other type of workers	□
5. Adjust the number of hours worked per employee	□
6. Reduce non-labour costs (for example) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

23 - How does your firm react to an unanticipated (significant) increase in the cost of an intermediate input (e.g. an oil price increase) affecting all firms in the market?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Increase prices	1	2	3	4	5
2. Reduce margins	1	2	3	4	5
3. Reduce output	1	2	3	4	5
4. Reduce other costs	1	2	3	4	5

24 – If the reduction of other costs is of any relevance in your answer to question 23, please indicate the main channel through which this goal is achieved:

Please choose one answer, the most important reason!

1. Reduce base wages	□
2. Reduce flexible wage components (for example bonuses, benefits, etc)	□
3. Reduce the number of regular employees	□
4. Reduce the number of temporary employees / other type of workers	□
5. Adjust the number of hours worked per employee	□
6. Reduce non-labour costs (for example) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

25 – How does your firm react to an unanticipated permanent increase in wages (e.g. due to an increase in the minimum wage) affecting all firms in the market?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Increase prices	1	2	3	4	5
2. Reduce margins	1	2	3	4	5
3. Reduce output	1	2	3	4	5
4. Reduce other costs	1	2	3	4	5

26 – If the reduction of other costs is of any relevance in your answer to question 25, please indicate the main channel through which this goal is achieved:

Please choose one answer, the most important reason!

1. Reduce flexible wage components (for example bonuses, benefits, etc)	□
2. Reduce the number of regular employees	□
3. Reduce the number of temporary employees / other type of workers	□
4. Adjust the number of hours worked per employee	□
5. Reduce other non-labour costs (for example) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**

27 – How does your firm react to an unanticipated (significant) increase in demand ?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Increase prices	1	2	3	4	5
2. Hire more people and/or do more overtime	1	2	3	4	5
3. Increase investment and/or buy new facilities	1	2	3	4	5
4. Reduce inventory rather than raising output	1	2	3	4	5
5. Other measures such as _____	1	2	3	4	5

28 - How does your firm react to an unanticipated (significant) decrease in the cost of an intermediate input (e.g. decrease in the price of raw materials, decrease in fuel prices)?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Reduce prices	1	2	3	4	5
2. Increase profit margins	1	2	3	4	5
3. Increase output	1	2	3	4	5
4. Other (please specify) _____	1	2	3	4	5

29 - If your firm undertakes changes in prices in the case of one or all of the changes in the external environment stated below, how much time passes before that change in prices takes place?

Please tick a box for each line!

Change in the external environment	*Time period for undertaking change in prices*
1. Decrease in demand	In: 1. week(s) – specify a number ..... 2. month(s) – specify a number ..... 3. prices are not changed □
2. Increase in demand	In: 1. week(s) – specify a number ..... 2. month(s) – specify a number ..... 3. prices are not changed □
3. Decrease in the cost of an intermediate input	In: 1. week(s) – specify a number ..... 2. month(s) – specify a number ..... 3. prices are not changed □
4. Increase in the cost of an intermediate input	In: 1. week(s) – specify a number ..... 2. month(s) – specify a number ..... 3. prices are not changed □

Part 4 - Price setting and price changes

This part collects some information on price setting and the frequency of price changes. The price should refer to the firm's "main product or service", defined as the one that generated the highest fraction of the firm's revenue/turnover in 2008. The main market should refer to the market that generated the highest fraction of revenues from sales of your main product or service.

30 - What share of the revenue generated by your firm's main product or service in 2008 was due to sales on:

1. Domestic market	_____ %
2. Foreign markets	_____ %
Total (= 100%)	100 %

31 - What is your market share on your main market?

1. 0% - 5%	□
2. 6% - 20%	□
3. 21% - 50%	□
4. Over 50%	□
5. I do not know	□
6. It does not apply	□

32 - How is the price of your firm's main product or service set on its main market?

Please choose <u>one answer</u>!

There is not an autonomous price setting policy because	
1. the price is regulated, or it is set by a parent company / group	□
2. the price is set by the main customer(s)	□
3. The price is set following the main competitors	□
4. The price is set fully according to costs and a completely self-determined profit margin	□
5. Other (please specify) _____	□

33 - To what extent does your firm experience price competition for its main product or service?

Please choose <u>one answer</u>!

1. Severe competition	□
2. Strong competition	□
3. Weak competition	□
4. No competition	□
5. Don't know / no answer	□

34 - Suppose that the main competitor for your firm's main product decreases its prices; how likely is your firm to react by decreasing its own price?

Please choose <u>one answer</u>!

1. Very likely	□
2. Likely	□
3. Not likely	□
4. Not at all	□
5. It does not apply	□

35 - In case your firm is a member of a sectoral /branch organization, do you consider the pricing policy of the other members of the organization when taking decisions about your prices?

1. Yes	□
2. No	□
3. It does not apply	□

36 - Under normal circumstances, how often is the price of the firm's main product or service generally changed?

Please select only one of the options below, the one that applies most closely to your firm!

1. daily	□
2. weekly	□
3. monthly	□
4. quarterly	□
5. half-yearly	□
6. Once a year	□
7. Once every two years	□
8. Less frequently than once every two years	□
9. Never	□
10. There is not a defined pattern	□

37 - Under normal circumstances, are these price changes concentrated in any particular month / months?

1. No □

Yes:

2. January □
3. February □
4. March □
5. April □
6. May □
7. June □
8. July □
9. August □
10. September □
11. October □
12. Ноември □
13. Декември □

38 - How does the timing of these price changes relate to that of wage changes ?

Please choose one answer!

1. There is no link between the two	□
2. There is a link but no particular pattern	□
3. Decisions are taken simultaneously	□
4. Price changes tend to follow wage changes	□
5. Wage changes tend to follow price changes	□
6. Other (please specify) _____	□ If you have chosen this option, please **specify at the empty row in the column to the left**
7. I do not know	□

39 - What is the importance of the factors listed below in terms of a price increase decision?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. An increase in wage costs	1	2	3	4	5
2. An increase in capital (loan interest) costs	1	2	3	4	5
3. Higher prices of purchased goods and services or raw materials	1	2	3	4	5
4. Improved quality of our main product	1	2	3	4	5
5. Our competitors raised their prices	1	2	3	4	5
6. Rising demand of our main product or service	1	2	3	4	5
7. A public agency (e.g. a price regulator) authorised a higher price	1	2	3	4	5
8. We link our price to the general price level (indexation)	1	2	3	4	5
9. Forecasts on inflation and/or business activity have changed	1	2	3	4	5
10. Other (please specify) _____	1	2	3	4	5

40 - What is the importance of the factors listed below in terms of a price decrease decision?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. A decrease in wage costs	1	2	3	4	5
2. A decrease in capital (loan interest) costs	1	2	3	4	5
3. Lower prices of purchased goods and services or raw materials	1	2	3	4	5
4. We improved our productivity	1	2	3	4	5
5. Our competitors lowered their prices	1	2	3	4	5
6. Falling (contracting) demand of our main product or service	1	2	3	4	5
7. A public agency (e.g. a price regulator) called for a lower price	1	2	3	4	5
8. We link our price to the general price level (indexation)	1	2	3	4	5
9. Forecasts on inflation and/or business activity have changed	1	2	3	4	5
10. Other (please specify) _____	1	2	3	4	5

41 - If there are reasons to raise or reduce the price of your main product or service, which of the following factors might prevent such a price change?

Please tick a box for each line!

	not relevant	*of little relevance*	*relevant*	*very relevant*	*don't know*
1. Concerns that our competitors will not change their prices	1	2	3	4	5
2. The concern that we subsequently will have to readjust the price in the opposite direction	1	2	3	4	5
3. We have arrangements with our customers, in which we guarantee to offer our main product at a specific price and that price may be changed only after a rearrangement of our contract terms	1	2	3	4	5
4. We would like to maintain the good relationship with our regular customers (even if we do not have formal arrangements with them)	1	2	3	4	5
5. The price we used up to now was a psychological price (e.g. 9.99); we would change that price only if the new price were also a psychological one	1	2	3	4	5
6. Changing prices entails costs (e.g. related to printing new price lists or catalogues, modifying our website, readjusting our computer system, etc.)	1	2	3	4	5
7. Other (please specify) _____	1	2	3	4	5

42 - What share of your firm's revenues generated by your main product or service on your main market in 2008 is due to sales to partners with whom you have long-term contracts?

1. Specify an answer in %	_____%
998. I do not know	□
999. It does not apply	□

43 - What share of your firm's revenues in 2008 generated by your main product or service on your main market is due to sales to:

1. Wholesalers	_____ %
2. Retailers	_____ %
3. Within the corporate group	_____ %
4. Other companies	_____ %
5. The government	_____ %
6. To consumers (directly, through catalogues, or by Internet)	_____ %
Other channels (such as) _____	_____ %
TOTAL (=100%)	100%

Part 5 - Additional questions on the reaction to the current economic downturn

44 - To what extent is your firm's activity (in terms of turnover) affected by the current economic and financial crisis?

Please choose one answer!

Negatively affected (please specify):

1. marginally □
2. moderately □
3. strongly □
4. exceptionally strongly □
5. Positively affected □
6. Not at all □

45 - To what extent is the current economic and financial crisis affecting your firm with respect to each of the following aspects?

Please select an option for each line!

	Not at all/ marginally	*moderately*	*strongly*	*exceptionally strongly*	*don't know*
1. Fall in the demand for your firm's products/services	1	2	3	4	5
2. Difficulty in financing your firm's activity through the usual financial channels	1	2	3	4	5
3. Difficulty in being paid by customers	1	2	3	4	5
4. Difficulty in obtaining intermediate products from your firm's usual suppliers	1	2	3	4	5

46 - In the current economic and financial crisis is your firm benefiting from government measures aimed at avoiding loss of workers or wage cuts?

1. No □
2. Yes □ (Please specify) _____

Part 6 - Information about the firm

47 - Number of workers (including employees and other types of workers) that your firm had at the end of 2008:

Definitions:
PERMANENT FULL-TIME (ARTICLE 136 OF THE LABOR CODE)
PERMANENT PART-TIME (ARTICLE 138 OF THE LABOR CODE)
TEMPORARY (TEMPORARY LABOR CONTRACT (ARTICLE. 67. (1) POINT1 OF THE LABOR CODE) AND LABOR CONTRACT FOR A PROBATION PERIOD (ARTICLE 70 OF THE LABOR CODE))

1. Number of employees _____

Of which: **(please fill in one of the two columns - number or % according to your preference)**	Per cent	Number
2. Permanent full-time	_____ %	_____
3. Permanent part-time	_____ %	_____
4. Temporary	_____ %	_____
TOTAL (= 100%)	**100 %**	
5. Number of other types of workers (e.g. people employed by agencies, consultants, apprenticeships, students, etc.)		Number _____

48 - Number of employees that left the firm in 2008 :

(refers to all types of employees: *permanent full-time*, *permanent part-time*, *temporary*)

_____ (Please specify an exact or an approximate number)

49 - Number of employees that joined the firm in 2008 :

(refers to all types of employees: *permanent full-time*, *permanent part-time*, *temporary*)

_____ (Please specify an exact or an approximate number)

50 - Distribution of the firm's employees by age at the end of 2008 :

1. Less than 24	_____ %
2. 24-54	_____ %
3. 55-65	_____ %
4. Over 65	_____ %
TOTAL (= 100%)	100 %

51 - Distribution of the firm's permanent employees according to tenure at the end of 2008:

1. Less than 1 year	_____ %
2. Between 1 and 5 years	_____ %
3. More than 5 years	_____ %
TOTAL (= 100%)	100 %

52 - First year of operation of your firm:

_____

53 - What percentage of your firm's total costs were due to labor costs in 2008?

_____ %

54 - In which of the following groups does your firm belong to, based on the annual net revenues from sales in 2008 ?

1. up to BGN 1 000 000	□
2. from BGN 1 000 001 to BGN 5 000 000	□
3. from BGN 5 000 001 to BGN 10 000 000	□
4. over BGN 10 000 000	□
5. I do not want to answer	□

55 - Full name of the firm :

_____

56 - Main scope of activity of the firm :

_____ (Please describe as detailed as possible)

56.1. Code based on the National Classification of Economic Activities _____

57 - Please write down (even roughly) how much time did it take you to complete the questionnaire:

_____ (Please specify in number of minutes)

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