

## Labour Cost Adjustment during the Crisis: Firm-level Evidence

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### Abstract

This paper introduces a new firm-level dataset, based on the results from a survey on the wage-setting practices of Irish firms in the second half of 2014. These survey results represent a useful resource for policy makers, allowing for firm-level analysis of the approach to the adjustment of labour demand and wages in the face of a large negative shock. A number of findings are worth highlighting in relation to these results: in terms of the labour cost cutting approach, firms relied upon both reductions in the quantity (employment and hours) and the price of labour (wages); employee numbers was the most widely used margin of adjustment, followed by wage cuts and hours. While the majority of Irish firms opted to freeze base wages, in the region of 60 per cent, there is strong evidence of downward wage flexibility, with almost one quarter of firms surveyed cutting wages. A comparison with previous findings in relation to Ireland and other euro area countries points to a dramatic increase in the incidence of wage freezes and wage cuts amongst Irish firms during the 2008-2013 period.

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## 1. Introduction

This article presents the results from a survey carried out in the second half of 2014 on the wage-setting practices of Irish firms. The aim of the survey, which was undertaken as part of the Central Bank of Ireland's participation in the Eurosystem's Wage Dynamics research Network (WDN), was to understand exactly how firms adjusted their labour demand and wage levels in the face of a large economic shock. Whilst the WDN survey looks at a broad range of cost factors at the firm level, such as non-labour input and finance costs, it is a particularly rich source of information on labour costs.

Aggregate data on labour costs, such as the National Income and Expenditure accounts or the CSO Employment Hours Earnings and Cost Survey (EHECS) data, does not show a pronounced pattern of downward wage flexibility during the crisis. The prevailing view is that a substantial proportion of the reduction in firms' *overall* wage bill was achieved by cutting the number of people in work.<sup>2</sup> There are, however, inherent limitations to aggregate wage data – for instance, wage dynamics at a macro level do not solely reflect developments at a firm level as changes in the composition of employment also play a role. As a result, a number of Irish studies have gone beyond the use of aggregate wage data. The main messages from these papers are as follows:

- Doris et al. (2014), using an administrative dataset on employees' tax returns, find considerable heterogeneity in annual earnings developments - whilst the share of workers who saw a cut rose to 54 per cent at the height of the recession in 2009, a significant proportion of employees (44 per cent) also experienced earnings increases.
- CSO (2010) uses firm-level data from EHECS to show that almost two-thirds of employers had cut their wage bill by more than 2 per cent during 2008/2009, with the primary method of reduction being employment, followed by hours and hourly pay.
- Walsh (2012), in a longitudinal study of firm level data, concludes that changes in the wage bill over the 2009 to 2011 period largely came about through reductions in employment, with a smaller contribution from changes in average hourly earnings and weekly paid hours.
- Bergin et al. (2012) find similar results to Walsh (2012) - that firms chose to reduce staff numbers, hours worked and bonus payments in preference to reducing wages.
- Using a database on the earnings of recent college graduates, Conefrey and Smith (2013) show that new labour market entrants experienced a significant decline in earnings during the recession.

The WDN survey results provide an ideal opportunity to examine Irish firms' approach to labour cost adjustment during the crisis using a firm-level dataset and thereby add to the findings of the studies cited above. The results of the survey allow us to distinguish between the main channels of labour cost adjustment to a shock, namely: the quantity of labour employed (which covers both numbers in employment and average hours per worker) and the price of labour (wages).

Results from previous WDN waves yielded considerable evidence of the existence of downward wage rigidities both in Ireland and the euro area<sup>3</sup>. Therefore, one of the key issues to be considered using this firm-level dataset is the degree of wage flexibility during the crisis. A more general motivation is to gain a better understanding of the wage setting process, which is of particular relevance to central banks given the link between wage formation and the monetary policy transmission mechanism.

The paper is structured as follows. Section 2 describes the survey, its design and sample characteristics in more detail. Section 3 presents the main survey results relating to the composition of labour cost adjustment amongst the firms surveyed. Section 3.1 examines the quantity margin of labour cost

<sup>2</sup> CSO - National Income and Expenditure Accounts and Quarterly National Household Survey.

<sup>3</sup> See Bertola et al. (2010), Keeney and Lawless (2010) and Rõõm and Messina (2009).

adjustment via employment and hours worked, while section 3.2 considers the issue of price or wage flexibility, with a particular emphasis on the degree to which downward wage adjustment occurred. Section 4 briefly outlines some of the other findings from the WDN survey and section 5 concludes.

## 2. WDN Survey Design and Sample Characteristics

### 2.1 Background to the Survey

In the second half of 2014, the Central Bank of Ireland (CBI) surveyed over 1,500 firms on a range of issues, including: wage-setting practices, factors affecting labour demand and price-setting behaviour as part of a coordinated research effort known as the Wage Dynamics Network (WDN). The WDN is a European System of Central Banks research network set up in July 2006, with the original aim of looking at the link between wage setting behaviour and price setting. The current WDN wave is specifically motivated by the need to gain some insight into how output shocks affected labour demand and wage-setting behaviour during the crisis. There have been two previous waves of WDN surveys - in 2007/2008 ("WDN 1") and 2009 ("WDN 2"). The Central Bank of Ireland (CBI) participated in the first wave (Lawless et al., 2009), but not the second wave. The current third wave of the survey was carried out in 2014 and 27 countries took part. The [WDN website](#) contains further information on the activities of the research network, as well as more background on the survey.

### 2.2 Survey Design

The Survey was designed in collaboration with other members of the Eurosystem's WDN. The questionnaire is divided into 'core' and 'non-core' sections or questions. The 'core' questions account for the bulk of the content and are common across countries, whereas the 'non-core' questions relate to country-specific issues. The survey was divided into five sections:

1. Information about the firm such as its structure, ownership, sector etc.
2. Changes to the firm's economic environment e.g. demand factors, costs and in particular labour costs.
3. Labour demand during and after the recession.
4. Wage setting practices - information on the frequency of wage changes, the extent of collective bargaining agreements, the prevalence of wage cuts and freezes and the reasons for reluctance to cut wages.
5. Price-setting – frequency of, and factors affecting, firms' approach to price setting.

The survey questions were generally qualitative in nature, with participants given categorical options from strong decrease to strong increase, for example. The survey asks about firm behaviour during two time periods: 2008-2009 and 2010-2013. In the case of Ireland, this split broadly refers to what might be termed the 'trough' years of the recession (2008-2009) and the 'bottoming out' and tentative signs of recovery (2010-2013).

### 2.3 Fieldwork and Sample Characteristics

Following a tender in early 2014, the Central Bank of Ireland commissioned Ipsos-MRBI to carry out a postal survey. The survey was completed by managing directors, financial controllers or other suitably qualified individuals and excludes public sector organisations.<sup>4</sup> The 1,569 responses represent a response rate of 5 per cent. Responses are weighted to match population weights in terms of firm size, sector and region (Table 1).

As with any survey, there are a number of issues to be aware of when analysing the results. Firstly, the survey was conducted in 2014 and refers to periods up to seven years prior, raising the possibility that respondents could misremember, or fail to check, events in the more distant past. Moreover, the

<sup>4</sup> In addition to the postal self-completion questionnaire, firms had the option to complete it online, although in practice few firms used this option.

**Table 1: Characteristics of firms in the survey**

Firms		1,569	
<b>Size</b>	<b>%</b>	<b>Years in operation</b>	<b>%</b>
Micro (2-10 emp)	77.4%	<=2 years	4.4%
Small (11-49)	18.1%	3-5 years	7.1%
Medium (50-249)	3.6%	6-10 years	17.1%
Large (250+)	1.0%	11-20 years	28.5%
		21+ years	43.0%
<b>Sector</b>		<b>Structure</b>	
Manufacturing	7.5%	Single establishment firm	86.5%
Construction	7.0%	Multi-establishment	7.1%
Retail & Transportation	29.6%	No answer/unknown	6.3%
Accommodation & Food	11.4%	<b>Ownership</b>	
Financial, Professional & Administrative	18.5%	Mainly domestic	66.1%
Other	26.0%	Mainly foreign	3.9%
		No answer/unknown	29.9%

two time periods - 2008-2009 and 2010-2013 - are quite broad; a lot happened within these periods, particularly in Ireland. Respondents could conceivably be suffering from a “recollection bias” given the significant length of time that has passed and the magnitude of the shocks experienced (this phenomenon is explored further in Box 1). Secondly, there is the possibility of a “survivor bias”. The respondents of the current survey are necessarily recession survivors, with the implication that these more resilient firms were

better able to adapt, either due to a more favourable initial position, better management or because they were more sheltered from economic shocks. Finally, there was a high non-response rate to certain questions that required more time and, in some cases, more quantitative input from the respondent. In order to gauge the recall issues, Box 1 below compares the responses to questions on wage flexibility with response from other surveys conducted between 2009 and 2013.

#### Box 1: Are the WDN Survey Results Consistent with Other Survey Data?

This Box examines the potential ‘recollection bias’ problem with the WDN, i.e. given the retrospective nature of the survey, are respondents remembering events correctly? We use the Business Sentiment Survey (BSS) – an unpublished internal Central Bank of Ireland survey of companies over the 2009-2013 period – to see if the long recollection period of the WDN (up to 7 years) correlates with events in a more timely survey. Whilst there are some concerns about comparing two surveys (wording, methodology, sample size, and composition), we believe the BSS provides a useful benchmark to gauge the WDN’s assessment of the labour market adjustment to the recession.

The sample size of the BSS (300 firms) is around one-fifth that of the WDN survey. However, it was distributed biannually and had the advantage of providing an up-to-date snapshot of economic activity. The two time periods covered by the WDN survey (2008-2009 and 2010-2013) were periods of substantial flux and the BSS reveals that significant changes are apparent between start and end-points of these two time periods. Given the dramatic changes over the time period, it is reasonable to ask whether the respondents to the WDN are ‘averaging out’ their experiences, or reporting peaks and troughs. The BSS sheds some light on this.

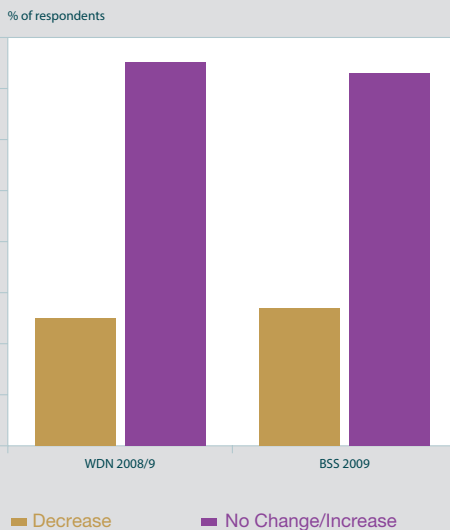
In the aggregate, the patterns in the BSS and WDN surveys are very similar, with both suggesting considerable flexibility in the Irish labour market during the crisis, in terms of the percentage of firms reporting wage cuts. In-line with the WDN results, Figure B1.1 suggests, that 27 per cent of surveyed firms in the BSS indicated that they had cut the basic hourly rate of pay in 2009 (the WDN figure is 24 per cent of firms).

**Box 1: Are the WDN Survey Results Consistent with Other Survey Data?**

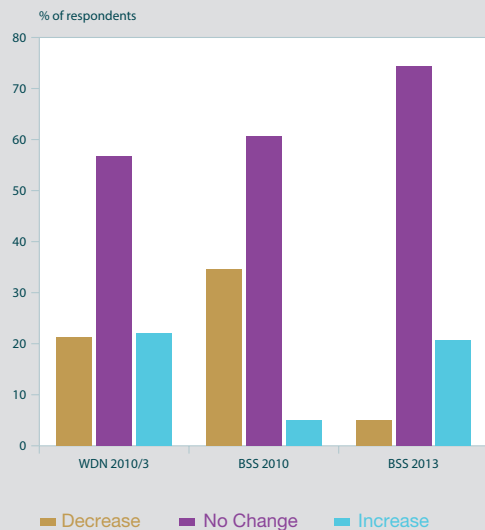
There is more of a divergence between the surveys when we look at the 2010 to 2013 period. This is hardly surprising as the economic situation facing some Irish firms in 2010 was potentially different to that in 2013. In 2010, the BSS in November of that year indicated that 34 per cent of firms were cutting wages, declining to just 5 per cent by November of 2013; the mid-point of this range is 20 per cent. This compares to base wage cuts of 21 per cent over the entire 2010-2013 period as reported in the WDN. Taken together, these comparisons suggest that the wage dynamics recalled by WDN respondents may not suffer from serious recall problems.

Figure 3 indicates that the BSS points to a greater reduction employment in 2009 as the severity of the downturn became apparent, with 65 per cent of firms indicating that they had cut employment compared to 25 per cent in early 2008; the WDN recorded declines in employment of 31 per cent over this period. However, if we look at averages over the period, the two surveys correspond much more closely - the BSS averages 45 per cent compared to the WDNs 30 per cent employment cuts. The larger employment response in the BSS could be accounted for by the presence of more large multinationals in the sample. By 2013, the BSS indicates that businesses had emerged from job-shedding mode and had begun to rehire, with more firms increasing employment (33 per cent) than decreasing (16 per cent). Overall, it appears that the average BSS responses closely mirror developments in the WDN.

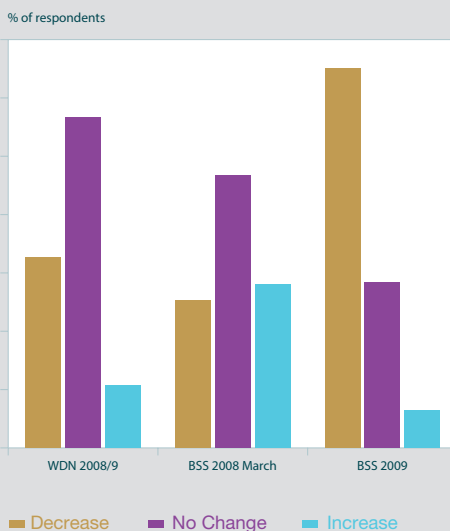
**Figure B1.1: Base wage changes**



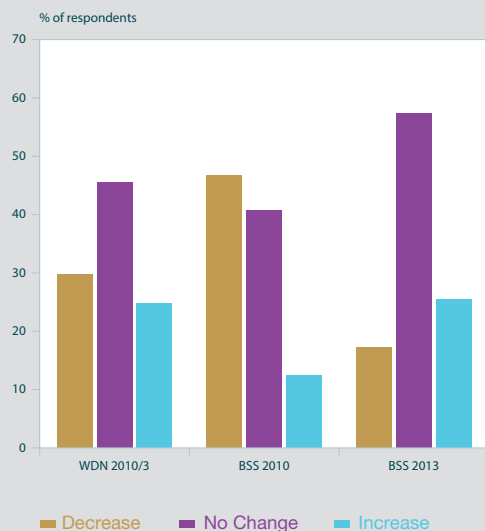
**Figure B1.2: Base wage changes 2010/13**

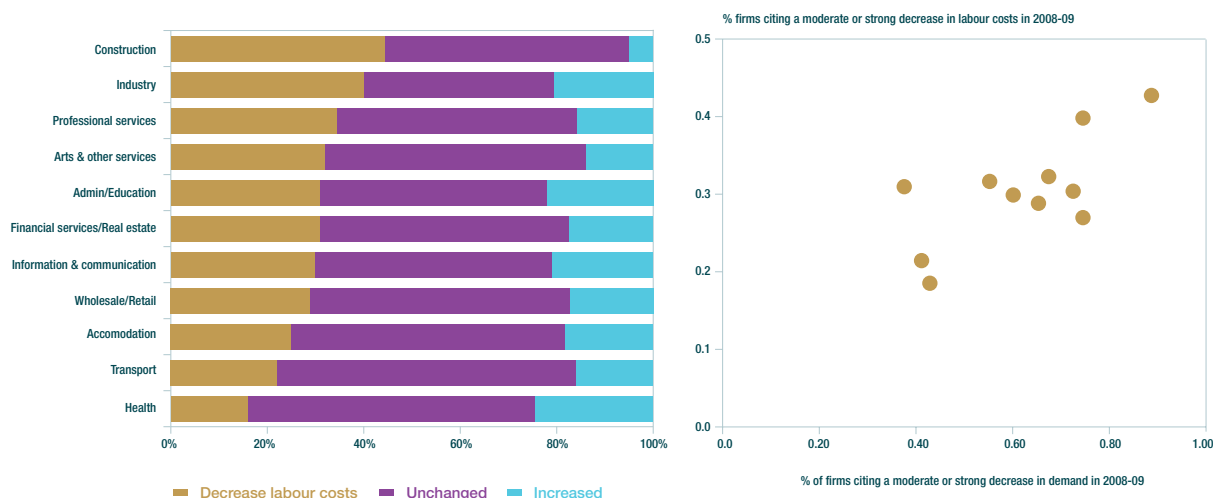


**Figure B1.3: Employment changes 2008/9**



**Figure B1.4: Employment changes 2010/13**



**Figure 1:** Changes in labour costs 2008-09 and the relationship between demand shocks and labour cost adjustment

### 3. Labour Cost Adjustment

We know from the aggregate data that at the onset of the recession in 2008 firms moved quickly to reduce labour costs. In the two years that followed, unemployment jumped from 4 to 15 per cent, employment dropped by 15 per cent and total hours worked by 20 per cent. In the WDN, around one-third of firms reported a strong or moderate reduction in labour costs during both 2008-09 and 2010-13. There is, however, considerable heterogeneity across sectors - for instance, 44 per cent of firms in the construction sector cut labour costs during the most intensive phase of the crisis; the corresponding share in the health services sector was around 15 per cent (Figure 1). The second panel in Figure 1 shows that there is a strong positive correlation between reductions in labour costs and demand shocks. We explore this relationship further below in a regression framework.

Firms were asked about the *composition* of changes to labour costs: specifically, in terms of base wages, permanent/temporary employees, working hours or flexible wage components or a combination, thereof. Survey results (Table 2) suggest that firms were relying upon all available mechanisms to adjust labour costs downwards, albeit to varying degrees. The most widely employed approach to

labour cost reduction during both sub-periods was to cut permanent employee numbers – approximately 30.6 per cent and 29.6 per cent of firms surveyed reported a reduction in employees during the 2008-09 and 2010-13 period, respectively. Such a finding is consistent with both available macro wage data and existing literature (CSO (2009), Walsh (2012)), which suggests that the employment channel was the dominant approach to labour cost reduction over the 2008 to 2012 period.

Looking to wage developments, the majority of firms surveyed froze wages, in the region of 60 per cent. Nevertheless, about 24 per cent of firms actually cut wages over both sub-periods. A similar share of firms, around one quarter, relied upon the more flexible components of wages such as bonuses and other discretionary compensation. Employee working hours represented a relatively less important margin of labour cost reduction amongst the firms surveyed. A further and more detailed analysis of the quantity and price adjustment of labour costs is provided in Sections 3.1 and 3.2, respectively.

It is not possible at this stage to do a full cross-country comparison as the results from the third WDN wave have yet to be released for all countries. Instead, in Table 3, we compare the Irish results with the responses of the

**Table 2:** Adjustment of Labour Cost Components (% of survey respondents)<sup>5</sup>

Main Strategy	2008-2009	2010-2013
<b>Employment - Permanent</b>		
Reduced	30.6	29.6
Unchanged	61.1	51.5
Increased	8.2	18.9
<b>Hours Worked</b>		
Reduced	21.1	22.4
Unchanged	70.7	62.3
Increased	8.3	15.3
<b>Base Wages</b>		
Reduced	23.9	23.3
Unchanged	62.2	58.0
Increased	14.0	18.7
<b>Flexible Wages</b>		
Reduced	25.6	22.7
Unchanged	69.5	68.4
Increased	4.9	9.0

WDN 2 survey, which was conducted amid the financial crisis, during the summer of 2009, in a subset of countries.<sup>6</sup> The most noteworthy difference between the two sets of results is the pronounced increase in the incidence of downward wage adjustment amongst Irish firms during both sub-periods - reductions in both flexible wage components (e.g. bonuses) and base wages were much more heavily relied upon by Irish firms. The incidence of base wage cuts is second only to Estonia, where 44 per cent of firms cut wages<sup>7</sup>. As regards the adjustment of the quantity of labour, Irish firms relied more heavily on reductions in permanent employees and hours worked throughout the 2008-09 and 2010-13 period than was the case in WDN 2, when temporary employee adjustment dominated. Arguably, one reason for the higher incidence of base wage cuts and freezes was the greater intensity and nature of the negative shock experienced by Irish firms since 2008. Furthermore, the effective abandonment of collective wage bargaining and pre-existing weak employment protection

increased the scope to lower wages and permanent employment, thereby reducing the reliance on more flexible components such as hours worked and temporary employees. This is consistent with the findings of Babecky et al. (2008) that high country level bargaining coverage and the strictness of employment protection legislation increase downward nominal wage rigidity. In addition, the low inflation environment prevailing throughout 2008 to 2013 may have been more conducive to wage freezes and cuts.

### 3.1 Labour Cost Adjustment: Quantity

This section explores in more detail how firms sought to adjust the *quantity* of labour employed after 2008. We pay particular attention to the choice between adjustments at the intensive margin (hours) versus the extensive margin (numbers employed). Previous research has shown that the particular mode of adjustment can depend on

<sup>5</sup> Table 2 includes firm responses in relation to four of the seven labour cost components.

<sup>6</sup> Ten countries (Belgium, Czech Republic, Estonia, Spain, France, Italy, Luxembourg, Netherlands, Austria and Poland) participated in WDN 2, covering over 5500 firms. It updated the findings of WDN 1, which was based on a survey carried out pre-crisis. WDN 2 asked about firms' reactions to the negative demand shock in the context of the financial and economic crisis in 2008.

<sup>7</sup> [http://www.ecb.europa.eu/home/pdf/wdn\\_finalreport\\_dec2009.pdf](http://www.ecb.europa.eu/home/pdf/wdn_finalreport_dec2009.pdf)



**Table 3: WDN 2 (EA) vis-à-vis WDN 3 (IE) Labour Cost Reduction Following Shock**

Main Strategy (% of firms)	WDN 2 <sup>8</sup> 2009	WDN 3 2008-09	WDN 3 2010-2013
<b>Adjust the amount of labour</b>			
Reduce number of temporary employees	27.5	16.7	17.4
Reduce number of permanent employees	16.6	30.6	29.6
Reduce hours worked per employee	15.4	21.1	22.4
<b>Adjust the price of labour</b>			
Reduce flexible wage components	8.6	25.6	22.7
Reduce base wages	1.5	23.9	23.3

a range of factors including; the institutional setup of the labour market in a given country or sector and the extent to which firms believe the shock to be permanent or temporary.<sup>9</sup>

Figure 2 charts the changes in employment and hours worked by sector. The construction sector, as expected, reported the largest declines over both periods, with almost 60 per cent of firms reporting reduced employment; the information and communication technology sector, on the other hand, registered the largest employment increases over both periods. With regard to hours worked, firms in the construction and the accommodation and food services sectors were more likely to have reduced hours, which is consistent with the view that these firms' employees are more likely to be contracted with flexible hours. Indeed, the accommodation sector registered the largest decrease in working hours in the 2010-13 period. Those in the administration and education sector reported the largest increase in hours in the 2010-13 period.

To investigate the possible drivers of the changes in employment, we run a probit regression where the dependent variable equals one if the firm cut employment in 2008-09 or 2010-13 (see Table 4). We control for firm size, sector, whether it is primarily foreign or domestically owned, the scale of the reported demand shock in each period, the share of labour costs in total costs and the

proportion of high-skilled workers in the firm.

This indicates that large firms were more likely to have decreased employment in both periods. Controlling for the size of the shock, firms in the construction, services and financial services sectors were also more likely to have reported reducing employment. There is a strong positive correlation between the incidence of demand shocks and employments cuts. Firms with a higher labour cost share were more likely to have decreased employment in both periods.

As highlighted above, the survey results in relation to employment adjustment corroborate the findings of comparable firm-level studies<sup>10</sup> in suggesting that it was the most common approach to wage bill reduction in Ireland during the crisis. A reliance on the reduction of employee numbers could reflect the scale and distribution of the demand shock in Ireland, which had a high sectoral concentration and therefore a significant proportion of job losses in the labour-intensive construction and industry sectors. In order to gain insight into the composition of the employment adjustment, firms who claimed to have reduced their labour inputs in either period were asked to what extent certain measures were used to reduce the quantity of labour employed; firms could choose multiple options. We group the measures under the following headings: (i) *Layoffs (collective,*

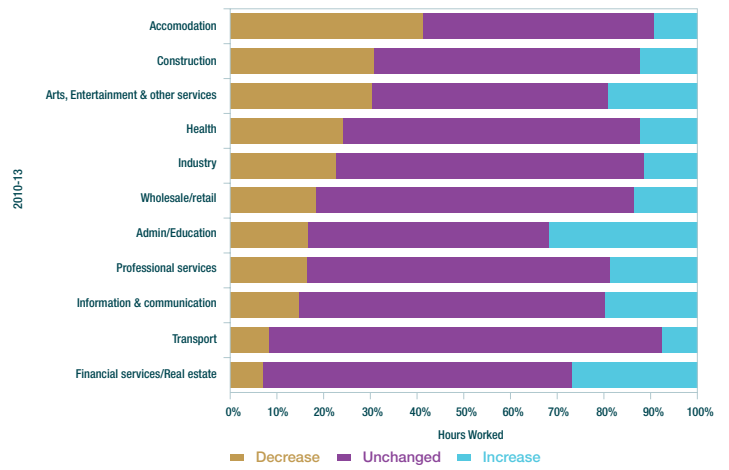
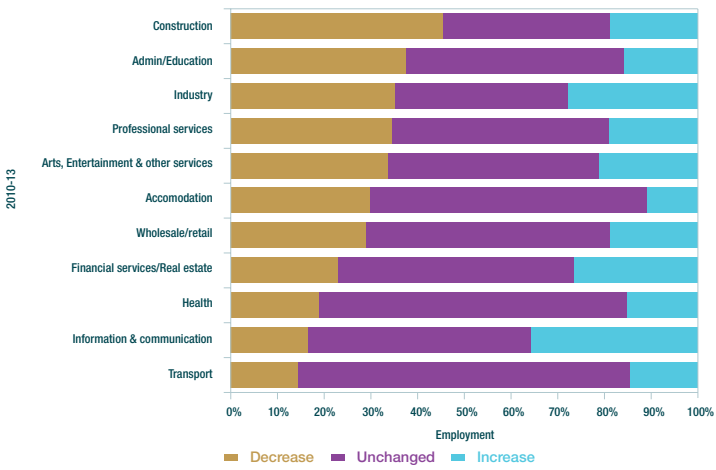
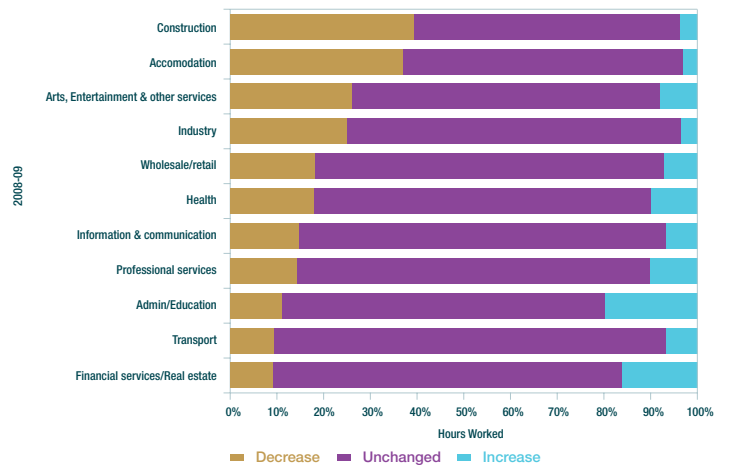
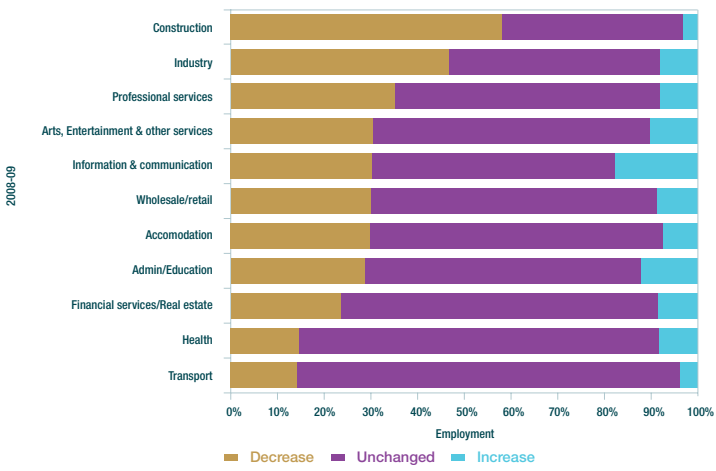
<sup>8</sup> ECB Monthly Bulletin, July 2010, pp. 61.

<sup>9</sup> See Bertola (2010) for a brief overview of the literature and some findings in respect of WDN 2.

<sup>10</sup> See Walsh (2012) and Bergin (2012).



Figure 2: Changes in Employment and Hours Worked by Sector: 2008-09 and 2010-13



**Table 4:** Probit: dependent variable = 1 if firm cut employment in 2008-09 or 2010-13

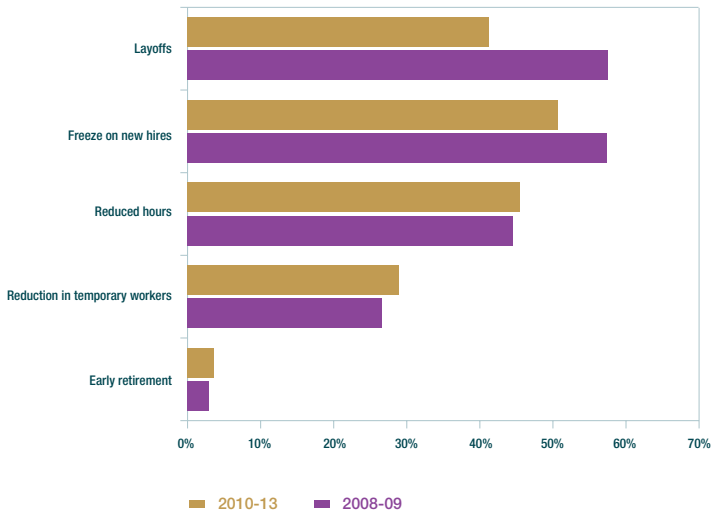
VARIABLES	2008-09		2010-13	
	Employment decrease	Margins	Employment decrease	Margins
<b>Firm size</b>				
Micro (2-10 emp)	[omitted]	0.294 (0.014)	[omitted]	0.2668 (0.0147)
Small (11-49 emp)	0.173* (0.0902)	0.340 (0.205)	0.145 (0.0890)	0.308 (0.0215)
Medium/Large (50+ emp)	0.577*** (0.136)	0.461 (0.0374)	0.337** (0.134)	0.368 (0.038)
<b>Foreign owned</b>				
No	[omitted]	0.327 (0.0116)	[omitted]	0.285 (0.015)
Yes	-0.550*** (0.192)	0.295 (0.042)	0.206 (0.162)	0.3475 (0.048)
<b>Sector<sup>(a)</sup></b>				
Industry	[omitted]	0.417 (0.038)	[omitted]	0.292 (0.036)
Construction	0.241 (0.212)	0.491 (0.054)	0.497** (0.207)	0.451 (0.057)
Services (excl. Financial Services)	-0.338** (0.135)	0.317 (0.013)	-0.0208 (0.132)	0.285 (0.013)
Financial Services	-0.656*** (0.180)	0.233 (0.031)	-0.185 (0.172)	0.239 (0.032)
<b>Demand shock<sup>(c)</sup></b>				
Strong decrease	[omitted]	0.598 (0.022)	[omitted]	0.556 (0.028)
Moderate decrease	-0.774*** (0.0920)	0.311 (0.0227)	-0.489*** (0.0986)	0.367 (0.025)
Unchanged	-1.551*** (0.122)	0.108 (0.018)	-0.966*** (0.119)	0.210 (0.02)
Moderate increase	-1.804*** (0.160)	0.701 (0.018)	-1.407*** (0.114)	0.107 (0.015)
Strong increase	-1.711*** (0.248)	0.828 (0.034)	-1.869*** (0.234)	0.0454 (0.037)
Labour cost share <sup>(b)</sup>	0.388** (0.191)	0.0653 (0.032)	0.127 (0.182)	0.024 (0.029)
%Hi-skill manual workers <sup>(b)</sup>	0.126 (0.159)	-0.0212 (0.026)	0.0518 (0.152)	0.0083 (0.024)
%Hi-skill non-manual workers <sup>(b)</sup>	0.327*** (0.118)	0.055 (0.0197)	0.0499 (0.112)	0.008 (0.018)
Constant	0.138 (0.172)		-0.0219 (0.168)	
Observations	1,331		1,388	

(a) NACE Rev 2 categories are group into four categories here for cell size reasons. The public and agricultural sectors are also excluded.

(b) The margins for continuous variables are calculated for a 0.5 percentage change, e.g. an increase in the labour cost share from 25 to 75 per cent, or an increase in the proportion of hi-skilled workers in the firm from 25 to 75 per cent.

(c) A demand shock is defined as a change in the level of demand for products/services.

**Figure 3:** Percentage of firms using a given measure to reduce labour input, conditional on answering ‘yes’ to a reduction in labour inputs



individual or temporary); (ii) reduced hours; (iii) early retirement; (iv) a reduction or freeze in new hires; or (v) non-renewal of temporary contracts. The responses are categorical, that is, firms could respond “Not at all (used)”, “Marginally”, “Moderately” or “Strongly”.

The most widely used measure for reducing labour inputs are layoffs or a freeze on new hires (Figure 3). The least important margins of adjustment are early retirement schemes or non-renewal of temporary/contract workers, although this may misrepresent the scale to which such measures were used as the charts neither conditions on the average age of workers within the firm nor the prevalence of contract workers in the firm.

Regarding the choice of adjustment at the intensive (hours) and extensive (workers) margin, we find a high degree of overlap between the two. For example, two thirds of firms that reduced hours in 2008-09 also used layoffs to reduce labour inputs. Similarly, around half of firms that used layoffs also reduced working hours during 2010-13. Analysing the responses of firms that chose

hours reductions over layoffs, we find that the majority of these firms are in the services sector (professional services, wholesale and retail trade and other services). Such a finding is consistent with the more flexible nature of employment contracts within these sectors. Conversely, firms that opted for layoffs tended to be more heavily concentrated in construction, industry and financial services. Given that these sectors bore the brunt of the demand shock – both on the basis of changes to output at the sectoral level and the fact that significantly more firms in these sectors in the survey cited negative demand shocks as a key factor affecting firm activity in 2008-09 – this tentatively suggests that the more ‘permanent’ the shock the less likely we are to observe hours reductions.

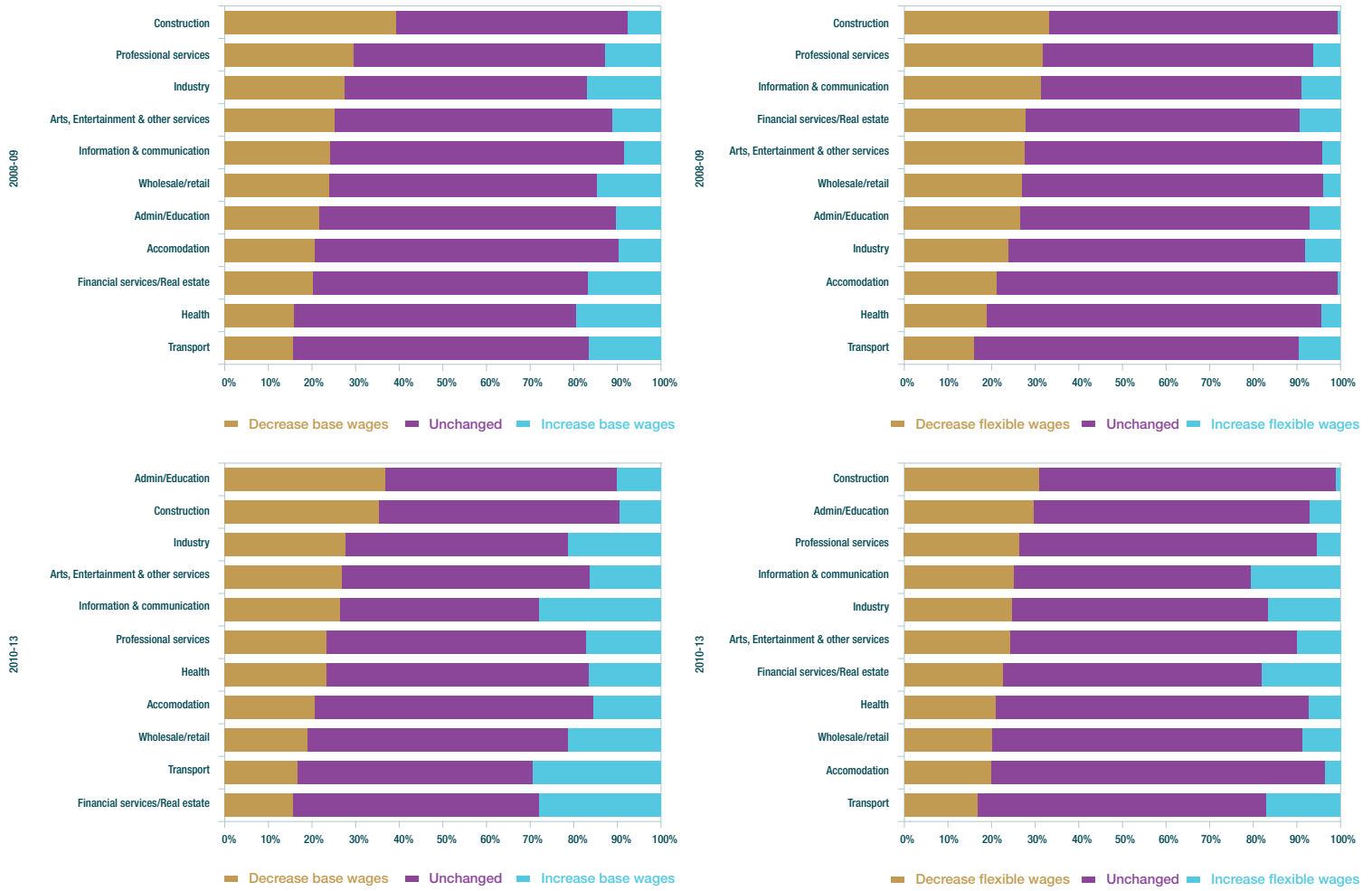
### 3.2 Labour Cost Adjustment: Price

This section examines firms’ reliance on wage adjustments in response to a shock. Firms were asked the following question:

*Please indicate how [base wages or piece work rates / flexible wage components] changed during 2008-2009 and 2010-2013.*

Responses are on a one to five scale ranging from “Strong decrease” to “Strong increase”. Figure 4 shows the percentage of firms by sector that decreased (bottom two categories), increased (top two categories) or left wages unchanged. In line with patterns highlighted in CSO (2010), a high proportion of firms in the construction (40 per cent) and industry (30 per cent) sectors cut wages in the early period in particular. The rankings are broadly unchanged when we look at flexible wages (the second panel in Figure 4), with one exception: the financial services / real estate sector. From being close to the bottom in the base wage change ranking (2008-09), the financial services / real estate sector moves up the ranking when we look at changes to flexible wage components. A possible explanation for this is that the flexible wage component accounts for a larger portion of the overall wage bill for firms in this sector. For example,

Figure 4: Changes in base and flexible wages by sector: 2008-09 and 2010-13



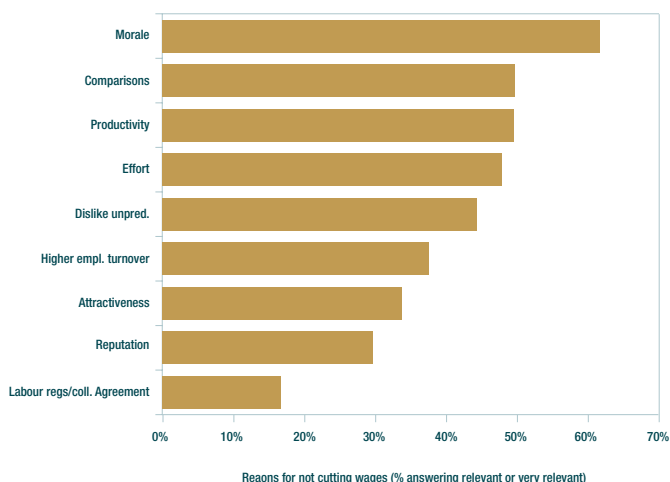
**Table 5: Probit: dependent variable = 1 if firm cut base wages in 2008-09 or 2010-13**

VARIABLES	2008-09		2010-13	
	Wage decrease	Margins	Wage decrease	Margins
<b>Firm size</b>				
Micro (2-10 emp)	[omitted]	0.221 (0.014)	[omitted]	0.207 (0.013)
Small (11-49 emp)	0.221** (0.0915)	0.280 (0.021)	-0.0476 (0.0934)	0.195 (0.019)
Medium/Large (50+ emp)	0.310** (0.137)	0.306 (0.037)	0.121 (0.144)	0.240 (0.037)
<b>Foreign owned</b>				
No	[omitted]	0.256 (0.011)	[omitted]	0.213 (0.011)
Yes	-0.550*** (0.192)	0.130 (0.034)	-0.524** (0.216)	0.101 (0.034)
<b>Sector</b>				
Industry	[omitted]	0.266 (0.037)	[omitted]	0.215 (0.035)
Construction	0.169 (0.217)	0.315 (0.053)	0.295 (0.214)	0.301 (0.055)
Services (excl. Financial Services)	-0.0290 (0.141)	0.258 (0.013)	-0.00706 (0.140)	0.213 (0.012)
Financial Services	-0.545*** (0.193)	0.137 (0.026)	-0.404** (0.192)	0.123 (0.026)
<b>Demand shock<sup>(a)</sup></b>				
Strong decrease	[omitted]	0.436 (0.023)	[omitted]	0.358 (0.027)
Moderate decrease	-0.528*** (0.0932)	0.251 (0.022)	-0.255** (0.101)	0.270 (0.023)
Unchanged	-1.199*** (0.124)	0.094 (0.017)	-0.891*** (0.134)	0.109 (0.02)
Moderate increase	-1.578*** (0.180)	0.046 (0.016)	-1.011*** (0.119)	0.088 (0.015)
Strong increase	-1.284*** (0.253)	0.081 (0.036)	-0.679*** (0.179)	0.152 (0.037)
Labour cost share <sup>(b)</sup>	0.390** (0.193)	0.0555 (0.0274)	0.220 (0.190)	0.029 (0.025)
%Hi-skill manual workers <sup>(b)</sup>	-0.0931 (0.165)	-0.013 (0.023)	-0.0249 (0.160)	-0.003 (0.021)
%Hi-skill non-manual workers <sup>(a)</sup>	0.391*** (0.119)	0.056 (0.0169)	0.291** (0.116)	0.038 (0.015)
Constant	-0.478*** (0.175)		-0.510*** (0.176)	
Observations	1,334		1,392	

(a) A demand shock is defined as a change in the level of demand for products/services.

(b) The margins for continuous variables are calculated for a 0.5 percentage change, e.g. an increase in the labour cost share from 25 to 75 per cent, or an increase in the proportion of hi-skilled workers in the firm from 25 to 75 per cent.

Figure 5: Firms' reasons for not cutting base wages



the survey results indicate that a greater proportion of the wage bill for firms in this sector is accounted for by performance related pay – 7 per cent in 2013, versus 3 per cent in all other sectors.

To investigate the correlations in the data more formally, as with employment changes, we run a probit regression where the dependent variable equals one if the firm cut base wages in 2008-09 or 2010-13 (Table 5). Again, we control for firm size, sector, whether it is primarily foreign or domestically owned, the scale of the reported demand shock in each period, the share of labour costs in total costs and the proportion of high-skilled workers in the firm.

In the earlier period, smaller firms ( $\leq 10$  employees) were marginally less likely to cut base wages. That said, over a fifth of these firms still cut wages in 2008-09, compared with almost a third for larger firms. More generally in the sample, there is a heavy reliance on wage freezes as a means of controlling wage costs during the two sub-periods. Around 62 per cent of firms claimed

they froze wages in the 2008-2009 period, falling only marginally to 58 per cent in the 2010-2013 period. The incidence of pay freezes was highest amongst smaller firms and those in the labour-intensive distributive trades sector.<sup>11</sup>

Seven per cent of firms in the sample are majority foreign-owned. In both periods, these firms were significantly less likely to cut base wages, even after controlling for the extent of the demand shock and sector. Between one fifth and one quarter of domestically-owned firms cut wages in either period, whereas the same figure for foreign firms is 10 to 13 per cent. It is also the case that foreign firms account for *more than half* of the firms who claimed to be *raising* wages during the downturn.

There is a strong positive correlation between the incidence of demand shocks and wage cuts. As expected, firms with a higher labour cost share are more likely to opt for wage cuts, but only in the first period. There is a higher incidence of wage cuts amongst firms with a greater proportion of skilled non-manual workers. The extent of the shock may have been such that firms chose to cut the wages of these higher skilled non-manual workers rather than letting them go. In effect, they were banking on the severity of the downturn to dissuade even the higher skilled workers from leaving in the face of lower wages. This result, however, should be treated with caution as there was anecdotal evidence of a shortage of high-skilled workers in some sectors throughout the 2010-13 period. Firms with a greater proportion of skilled non-manual workers tend to be in the IT, Financial Services, Professional/Technical services or Other Administrative sectors.

Figure 4 shows that in addition to wage cuts, a majority of firms used wage freezes as a means of controlling wage costs during the two sub-periods. The most widely cited reason

<sup>11</sup> The distributive trades sector covers three broad areas, namely, motor, wholesale and retail trade.

**Table 6: Labour cost of new hires versus existing workers (controlling for experience and tasks)**

	% of firms saying new hires costs were much lower, lower, similar, higher or much higher		
	pre-2008	2008-09	2010-13
Much lower	2.7%	4.1%	6.2%
Lower	10.2%	18.3%	23.3%
Similar	76.9%	73.1%	62.7%
Higher	8.3%	3.7%	5.9%
Much higher	1.9%	0.9%	1.8%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

for not cutting wages was the negative impact on employees' morale; firms surveyed also emphasised concerns about productivity and the impact on worker-effort (Figure 5).

To place the scale of the wage freezes and wage cuts in context, comparable results in respect of WDN 1 for Ireland are considered. Wave 1 of the WDN reported that in the five years prior to 2007, approximately 2.1 per cent of firms surveyed had reduced base wages, while a further 7.1 per cent were found to have frozen wages. Wage cuts and wage freezes were therefore much more frequently used by firms over the 2008-09 and 2010-13 period vis-à-vis the WDN 1 results. This dramatic increase in the incidence of wage freezes and wage cuts is likely to have reflected the scale of the shock and the fact that firms were forced to respond with more permanent measures as the crisis deepened. Furthermore, changes in the institutional wage setting arrangements in Ireland over recent years are likely to have facilitated the downward adjustment of base wages. It is also worth noting that the incidence of downward wage adjustment amongst firms in this survey contrast somewhat with previous cross-country studies - Bertola et al (2010) and Rõõm and Messina (2009) all find less than 2 per cent of firms/employees reduced base wages.

Consistent with the findings of Doris et al (2014) and Walsh (2012), a sizable share of firms did not implement pay freezes or cuts but increased wages, with almost 14 per cent of businesses surveyed actually increasing wages during the 2008-2009 period, rising further to 18.7 per cent in the 2010-2013 period. This may help to account for some of the apparent

rigidity in aggregate wage data as it is likely to have dampened the magnitude of wage adjustment at a macro level. Foreign-owned firms accounted for almost half of the firms indicating that they had increased wage rates throughout both sub-periods and, indeed, this is consistent with anecdotal evidence of multinational firms facing shortages of high-skilled labour in recent years, particularly in IT services.

An alternative to an outright cut in base wages may be to hire new employees at a lower wage level than similar workers and, as a result, the average wage change may understate the downward adjustment at the margin. There is some evidence to suggest that firms in recent years have hired new workers at lower pay, see Conefrey and Smith (2014). In the WDN, firms were asked about labour cost differences between new hires and existing workers with the same skill and experience set as existing workers. The responses received would seem to confirm this pattern, with an increasing proportion of firms paying newly hired workers at either a 'lower' or 'much lower' level relative to existing workers - this share was 12.9 per cent pre-2008, whereas by the 2010-13 period, it had more than doubled to 29.5 per cent (Table 6). The pattern is broadly similar across all sectors, with the exception of financial services firms, where the increase in the negative differential against new workers was more pronounced, jumping from 10.9 per cent pre-2008 to 35.5 per cent in 2010-13. Hiring new workers at lower wage rates than existing workers appears, on the basis of our survey results, to have become an increasingly common approach to reducing labour costs at the margin.



**Table 7:** Frequency of wage changes for main occupational group in the firm

	2006	pre-2008	2008-09	2010-13
At least once per year	58.4	45.7	22.5	14.7
Every two years	7.8	19.5	17.2	12.7
Less than once every 2 years	4.6	13.1	20.0	25.3
Never/Don't know	29.2	21.7	40.3	47.4

Notes: Data for 2006 is taken from the Wave 1 survey, as reported in Keeney et al. (2009)

The frequency with which firms change wages affects the speed with which they can respond to shocks. In an attempt to address this important aspect of wage rigidity, firms were asked about the frequency of base wage changes both before and during the recession. During the 2010-13 period, one quarter of firms surveyed indicated that they tend to review wages less than once every two years and a further 27 per cent change wages more frequently than that (Table 7). A pronounced pattern of declining wage changing frequency is evident - 58.4 per cent of firms responded that they set wages on at least an annual basis according to WDN 1 results, whereas this had fallen sharply to 22.5 per cent in 2008-09 and further to just 14.7 per cent by the 2010-13 period. Such a reduction in the frequency of wage change may serve to impede the ability of firms to react to unexpected economic developments in the future. It is, however, important to note that the results from the WDN 1 survey and the pre-crisis period pertain to a time during which centralised wage

bargaining agreements<sup>12</sup> were implemented and hence, wages are likely to have changed more frequently.

#### 4. Other Findings from the Survey

While the focus of this article is on the approach to labour cost adjustment by firms during the crisis, this section briefly considers some other issues covered by the survey relating to wage and price dynamics, including institutional features of the labour market, price-setting and the forward looking elements of the survey.

##### 4.1 Institutional Factors

Institutional factors (e.g. employment protection legislation, union density and wage bargaining institutions) are often cited as playing an important role in determining the composition of labour cost adjustment

**Table 8:** Collective bargaining agreements

% firms saying a collective pay agreement was in place

	2006/07	2008	2013
All firms	61.4	8.4	7.4
Industry & manufacturing	14.4	14.6	10.0
Construction	7.8	10.7	10.2
Retail and Transportation		7.7	6.0
Accommodation & Food	34.6	7.1	6.2
Financial, Professional & Administrative	-43.2	6.7	5.1
Other		8.5	9.7

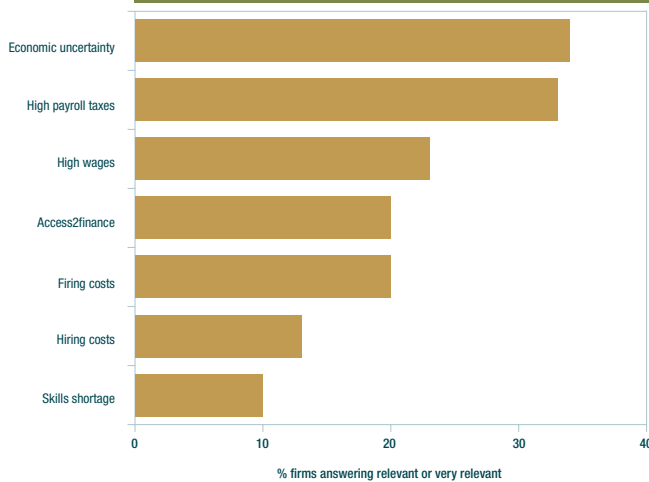
Notes: Figures for 2006/07 are from Tables 3 and 4 in Keeney et al. (2009). The sector data for 2006/07 refers to National Wage Agreements only. There was a change in the sector classification between the two survey waves, which means we have to group the distribution and services sectors from 2006/07.

<sup>12</sup> According to the WDN 1 results for Ireland, 61.6 per cent of firms surveyed applied the prevailing national wage agreement, namely, 'Towards 2016', either in full or partially (Lawless et al., 2009).

**Table 9: Firms' expectations for their labour input for 2015**

	Increase	No change	Decrease
Sales	43.6	38.4	22.5
Employment	21.2	66.4	6.6
Hours per worker	13.7	75.3	5.7
Base wages	23.2	68.7	2.5

**Figure 6: Obstacles to hiring new workers**



mechanisms used by firms and they have been highlighted as a major source of downward wage rigidity by previous WDN studies<sup>13</sup>. Institutional wage-setting arrangements are of further interest in an Irish context given that there have been some distinct changes in this area since the crisis began, most notably the changes to centralised wage bargaining processes and the reform of the framework for sectoral wage agreements.

As Table 8 shows, there has been almost a complete collapse in the application of any form of collective bargaining agreement since the start of the recession. In terms of the sectoral coverage, both industry and construction firms have similar levels of collective bargaining agreements (or, in the

case of 2006/07, National Wage Agreements). The main difference is in the services and distribution sectors, where coverage has fallen away significantly. The absence of a collective bargaining process and union representation reduces potential barriers to lowering wages from the perspective of a firm.

Firms were also asked if any obstacles existed to hiring new workers in 2013. A range of possible answers are provided, including *uncertainty about economic conditions, lack of required skills, high wages, etc.* The two standout factors cited by firms are *Uncertainty about economic conditions* and *High payroll taxes* (Figure 6). As regards the economic uncertainty ‘obstacle’, there is a stark difference between the answers of firms serving the domestic market vis-a-vis foreign - almost 40 per cent of domestically-oriented firms surveyed cite this as an obstacle to labour input expansion, whereas it is closer to 20 per cent in respect of firms serving foreign markets. A relatively small proportion (20 per cent) of firms cited ‘High wages’ as an obstacle to hiring new workers. Unsurprisingly, firms that had previously responded that it was easier to hire new workers at lower wages since the start of the recession – a large number of whom are in the construction sector – were far less likely to cite high wages as an obstacle to hiring.

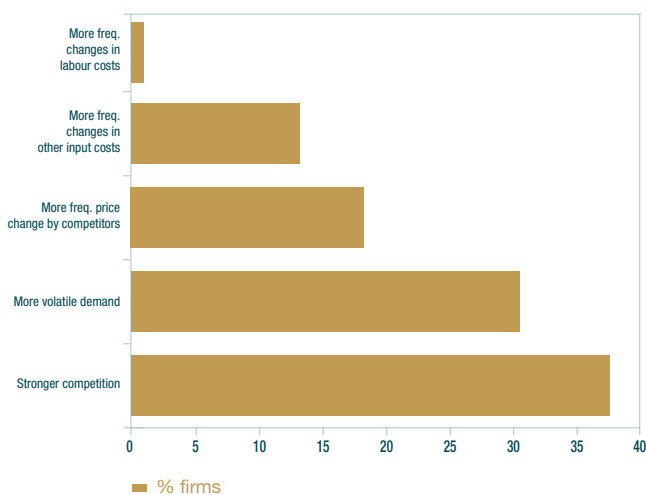
#### 4.2 Labour Market expectations

Given the flexibility apparent in the Irish labour market, it is also of interest as to firms’ future expectations of their labour input (Table 9). For

<sup>13</sup> For instance, Babecky et al. (2008) find that high country-level bargaining coverage and the strictness of EPL increase downward nominal wage rigidity

**Table 10:** Price setting behaviour

How do you set prices...	% firms
Follow competitors	26.1%
Costs + profit margin	28.3%
Negotiate with customers	18.7%
Price is regulated	4.6%
Price set by parent	2.4%
Price set by main customers	2.2%
Price set by other influence	2.6%
No answer	14.9%
	<b>100.0%</b>

**Figure 7:** Frequency with which firms change prices of main product/service

example, following the downward adjustment, do firms expect their labour input to return to previous levels under more normal economic conditions? Will they adjust hours or numbers? Will they reverse any wage cuts? In light of this, the questionnaire included a question on future labour market expectations. Firms were asked about their expectations for wages, employment, hours and sales for the forthcoming year (referring to 2015). Table 9 shows that the proportion of firms expecting wages to decrease drops from 23 per cent in 2010-2013 to just 2.5 per cent in 2015, with 23 per cent of firms expecting wages to increase. This is suggestive of a considerable rebound in base wages. As sales expectations

improve, both employment and hours worked are forecast to pick up in 2015, suggestive of a more positive outlook for the labour market this year.

#### 4.3 Price Setting

The final set of questions focuses on price setting behaviour and the degree to which prices are flexible. In terms of firms' approach to setting prices, around 28 per cent of respondents indicated that they use a cost-based approach, while an additional 26 per cent follow competitor's price-setting (Table 10).

In an attempt to uncover whether there had been a change in price flexibility post-crisis, a further question asked whether firms had altered the frequency of price changes over the 2010-13 period relative to pre-2008. Around 33 per cent of firms surveyed indicated that the crisis had resulted in a change in the frequency of price changes. Figure 7 illustrates that the most important factor behind the increased frequency of price changes over the 2010-13 period relative to pre-crisis was stronger competition in the main product market, with more than 35 per cent of firms citing this as the most relevant reason. A change in labour costs was the least cited reason for price changes. In the case of less frequent price changes, the main driver was reported to have been less frequent price changes by competitors (2.0 per cent) followed closely by less volatile demand (1.8 per cent

of firms), albeit of much smaller magnitude. Focussing specifically on developments in competitive pressures during the crisis, 40 per cent of firms surveyed indicated either a moderate or a strong increase in the 2008-09 period; the corresponding share for the 2010-13 period was approximately 50 per cent. It is noteworthy that the frequency of price adjustment is higher than is the case for base wages. The dominant factor behind firms reporting increased frequency of price adjustment was a higher level of competition, suggesting that wage costs were not the dominant factor here.

## 5. Summary of Survey Findings and Conclusions

An overview of the WDN survey results for Ireland highlighted a number of noteworthy findings in relation to the approach firms used to adjust labour costs in response to a negative demand shock:

- When examining the labour cost-cutting strategies implemented by firms surveyed, these consisted, to varying degrees, of both reducing the quantity of labour in terms of permanent employment and hours worked, as well as cutting wage costs via base wages and the more flexible components. Employee numbers were the most widely relied upon margin of adjustment, followed by wage cuts and hours.
- Irish firms predominantly controlled wage costs via wage restraint – approximately 60 per cent of firms indicated that they froze base wages during both sub-periods, with the incidence of pay freezes highest amongst small firms and those in the labour-intensive distributive trades sector. Such a high incidence of wage freezes could be interpreted as pointing to the existence of downward wage rigidity, in line with the literature. Nevertheless, there is strong evidence of downward wage adjustment, with almost a quarter of firms surveyed indicating that they had cut base wages during the 2008/09 and the 2010/13 period. A cross-country

comparison on the basis of WDN 2 results suggests that such an incidence of base wage cuts is second only to Estonia, where 44 per cent of firms cut wages.

- A comparison of WDN 3 survey results with the findings from WDN 1 in respect of Ireland suggests that a dramatic increase in the incidence of both wage cuts and wage freezes occurred during the crisis – the percentage of surveyed firms reporting wage freezes of around 60 per cent compares with 7.1 per cent in the five years prior to 2006/2007 (Lawless et al., 2009). The increased importance of wage freezes/cuts is held to reflect both the intensity and nature of the shock experienced by Irish firms as well as the institutional features of the Irish labour market.
- Reflecting a dichotomy in the types of firms operating in Ireland, a significant proportion of firms actually increased wages throughout 2008 to 2013. The presence of the high-tech sectors ensured that demand for skilled labour remained high. These firms were generally more insulated from domestic developments and continued to offer employees attractive remuneration packages in line with productivity. This firm-level survey suggests that these wage increases masked the extent of the downward wage adjustment in the aggregate wage data.

Overall, this firm-level survey revealed that, in keeping with Ireland's international reputation as having a flexible labour market, the response of firms to the crisis was remarkably flexible – both in terms of past experience and compared to other countries. The adjustment was not universal, however, some businesses experienced an unprecedented drop in output, with subsequent reductions in labour costs on all fronts, including basic wages; other employers were more insulated from the decline and continued to increase wages.

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