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Wage Setting and Wage Flexibility in Ireland: Results from a Firm-level Survey

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Abstract

This paper investigates the wage-setting behaviour of Irish firms. We place particular emphasis on the use of flexible pay components and examine how these allow firms to deal with shocks requiring a reduction in costs without having to cut base wages. The results presented in this paper are based on a survey of Irish firms undertaken as part of the Wage Dynamics Network (WDN), which is a Euro-system research network. Our main findings are that almost two-thirds of firms applied at least some elements of the national wage agreement in place at the time of the survey (*Towards 2016).* Wage cuts or freezes were reported by a very small percentage of firms but changes in bonuses and other flexible pay components were relatively common if the firm needed to reduce labour costs. When asked about the relevance of different explanations for avoiding cuts in base wages, worker morale and loss of experienced workers were the main concerns. Regulatory or collective bargaining obstacles to wage cuts were the lowest ranked.

[1] We would like to thank the head and staff of the ESRI Survey Unit who co-ordinated the survey fieldwork and provided valuable feedback on the survey instrument. This work was undertaken as part of a Euro-system research network, the Wage Dynamics Network, and we would also like to thank all of the participants for their collaboration. The views expressed in the paper are our own and do not necessarily reflect the views of the Central Bank and Financial Services Authority of Ireland or the ESCB. Email: mary.keeney@centralbank.ie and martina.lawless@centralbank.ie

Non-Technical Summary

The results presented in this paper are based on a survey of almost 1000 Irish firms undertaken as part of the Wage Dynamics Network (WDN), which is a Euro-system research network. The survey was motivated by a general lack of information on wage and price adjustment at firm level, and, in particular, the lack of consistent cross-country information. The aim of the survey is to identify the sources and characteristics of wage and labour cost dynamics that are most significant for policy makers and central banks, as wages account for a significant proportion of production costs for most goods and services.

The paper is concerned with the results of the Irish component of this Eurosystem survey. The Central Bank and Financial Services Authority of Ireland carried out this coordinated survey of wage setting in Ireland in late 2007 and early 2008 and the results should be interpreted in the context of the stronger economic climate at that time. The survey contained questions on wage-setting practices and the role of any wage-bargaining processes. As *Towards 2016* was the National Wage Agreement in place at the time of the survey, we enquired specifically about the role and application of this agreement. We found that approximately one-third of firms followed this agreement in full, whilst a further one-third applied some elements.

Given the timing of the survey, it is not particularly surprising that wage cuts were found to be extremely rare, applying to slightly over 2 per cent of firms. Wage freezes were more common than cuts, but, at just over 7 per cent, still applied to a relatively small group of firms. When we asked firms about reasons for avoiding wage cuts, Irish firms are the least likely to rank regulations and collective bargaining arrangements compared to the survey results for other countries. This response is important when one considers the deterioration in economic conditions since the survey was undertaken. It shows that Irish firms do not regard themselves as facing significant structural or institutional obstacles to wage reductions, even if at the time of the survey very few firms had experienced wage cuts in practice.

The paper also describes the role of flexible pay and bonuses in allowing firms to adjust total labour costs. Our results show that almost half of all firms do not pay any performance-related bonuses. When bonuses are used, they were found, on average, to represent more than one-fifth of the wage bill of the firm. Of the strategies suggested for reducing labour costs, the one most commonly used by firms in the sample was to bring in new recruits at a more junior level when replacing workers who have left the firm. Cutting flexible wage components would be used by 13 per cent of firms.

The choice of cost-reducing strategy varied with the composition of the workforce. Firms with a high percentage of production workers were the most likely to use changes in shifts, and firms with a higher percentage of temporary workers were more likely to use changes in promotions and retirements to reduce costs. The payment of bonuses was positively related not just to the use of bonuses as potential cost reducing margin but to almost all of the alternative strategies. This would appear to capture a general level of compensation flexibility in firms that have any sort of bonus structure. For each of the strategies, the percentage of firms that had used them increased steadily with firm size. Larger firms tend to have more complex pay structures than smaller firms and this gives them a greater element of flexibility when it comes to reducing costs using non-wage elements of compensation.

JEL Code: J3, E24, J4

1. Introduction

International evidence shows that wages exhibit a considerable degree of downward rigidity. Cuts in base wages are extremely rare, even when high rates of unemployment might be expected to put downward pressure on wages. In the current economic climate, the level of flexibility in both base wages and other components of compensation are receiving considerable attention as concerns about the competitiveness of the Irish economy mount. This paper uses results from a specially commissioned survey of close to 1000 Irish firms in manufacturing, construction and services to examine how wages are determined. The focus is on two key questions. First, what factors affect a firm's participation in implementing the national wage agreement? Second, how flexible are Irish wage levels? To address this issue we look not just at the possibility of reductions in nominal base wages, but also at pressure on real wages in terms of the passing on of cost of living increases and the prevalence of potentially more flexible elements of pay such as bonuses.

The results are derived from a survey of wage setting carried out in late 2007 and early 2008 by the Central Bank and Financial Services Authority of Ireland (CBFSAI), as part of a co-ordinated research effort across the Euro system. The survey was motivated by a general lack of information on wage and price adjustment at the level of the firm, and, in particular, the lack of information that could be compared across countries on a consistent basis. The survey questionnaire was designed by representatives of the participating national central banks and the European Central Bank (ECB), with the aid of external experts on labour markets and survey methodology. This paper presents the wage-setting results of the Irish survey, and includes comparisons of results with other participating countries on a number of key issues. One advantage of the survey is that it adds to our understanding of the forces driving firm level responses to wage changes such as those agreed under the national wage agreements.

We find very few wage cuts and freezes reported by firms in the survey. It is important to place this in the context of the relatively strong labour market while the survey fieldwork was undertaken. The overall economic situation has deteriorated

significantly since this data was collected and there is emerging anecdotal evidence that nominal wages are being frozen or cut. The Irish Business and Employers Confederation (IBEC 2009) reports that almost two-thirds of its members are considering implementing wage freezes over the following three months and pay cuts are expected by 20%. Although these forward-looking rates are considerably higher than the actual wage cuts reported in our survey, they are in accord with our overall conclusion regarding the flexibility of the Irish labour market. This is based on our findings that firms make extensive use of flexible elements of compensation that are easier to adjust in the face of negative shocks than base pay and also because institutional impediments to wage adjustment were not regarded as particularly relevant by the responding firms.

The structure of this paper is as follows; Section 2 provides some further background on the survey and on the formulation of the questionnaire sent to the surveyed firms. Section 3 presents the results from questions on the extent of collective bargaining arrangements and how inflation is factored into wage negotiations. Section 4 presents evidence on the frequency of wage cuts and freezes, and reasons firms rarely use such methods even when seeking cost reductions. Section 5 covers more flexible elements of pay, such as bonuses, and how these can be used as alternatives to reducing wages. Section 6 concludes.

2. Survey Design

2.1 Questionnaire Content and Approach

The survey was undertaken as part of a coordinated network made up of central banks from across Europe. The Survey Unit of the Economic and Social Research Institute (ESRI) was commissioned to conduct the fieldwork for the survey in Ireland. The final questionnaire was sent out in late September 2007. The survey was a mixed modal survey; postal distribution of the questionnaire was followed by five rounds of intensive phone interviewer follow-up. From such a survey methodology, the final response was extremely satisfactory at 23 per cent. The stratified sampling strategy was based on an equal probability basis, stratified by employment size category, sector (NACE code) and region. The final questionnaire comprised of four sections with 34 questions and is included as Appendix C. This paper uses information from three of these sections, which are described in more detail below.

Section 1 gathers information about the firm including general firm descriptives including age and size; the composition of the workforce; the labour turnover rate during 2006; the tenure and occupational distribution and the importance of labour costs. Section 2 contained questions on wage-setting practices and the role of any wage-bargaining processes. As *Towards 2016* was the National Wage Agreement in place at the time of the survey, we enquired specifically about the role and application of this agreement. Other questions included the proportion of the 2006 wage bill that was variable and whether bonuses were applied. Also relevant for wage setting is the role of wage indexation to inflation and tenure related changes and how the entry wage for newly hired employees were set. The section concluded with a question examining the frequency and timing of wage changes.

Section 3 of the questionnaire examined the existence of downward wage rigidity and its causes. The questions were based on similar research in the United States (Blinder and Choi, 1990; Campbell and Kamlani, 1997), Sweden (Agell and Bennmarker, 2002) and Germany (Franz and Pfeiffer, 2006). The history of wage freezes and cuts was taken as well as firms being asked to rank the relevance of a list of hypothetical reasons why base wages would not typically be cut in the case of a requirement to cut labour costs. Other strategies to reduce labour costs were also outlined and respondents indicated options that might apply to their firm.

Questions were mostly concentrated on base wages i.e. fixed pay excluding bonuses but including commission and piecework payments. The main occupational category was defined according to the largest share of workers at the firm and broadly represented the skill content of the job undertaken therein. This classification was based on the opinion of the respondent but did not refer to the level of education obtained.

2.2 Description of the Sample

The sample was derived by the ESRI from the 'Kompass' database of Irish firms. The sample was composed in such a way that firms of all sizes would be represented according to their distribution nationally. Firms in distribution and other service

sectors were heavily represented in terms of the number of employees covered. The average number of employees per firm in our sample was 23.

Table 1: Size and Sector classification of firms in our sample

No. of firms	Manufacturing	Construction	Distribution	Oth. Services	All
Micro 5-9	25	12	77	108	222
Small 10-49	74	43	131	220	468
Medium 50-249	55	20	53	66	194
Large 250+	43	5	15	38	101
Total	197	80	276	432	985

To make the survey results representative of the total population of firms, a weighting scheme was specifically derived. Individual firm weights were deemed necessary where an over- or under-representation of the national population of firms were observed in the sample aggregates. The chosen weighting scheme is based on employment and is calculated by taking the total workforce of the firm subgroup and dividing it by the number of firms in question. For a given firm, the individual weight assigned to it indicates the number of workers in the total population, taking account of the sector to which it belongs.

3. Collective Bargaining and the National Wage Agreement

The issue of downward rigidities in wages is at the centre of traditional Keynesian models (Stiglitz, 1999). Wage rigidities arise when firms are slow to adjust wages in response to labour market conditions. For example, even in the presence of high unemployment, firms may be slow to reduce nominal wage levels. In Ireland's case, the national wage agreements provided a macroeconomic structure to achieve aggregate wage restraint (but not a reduction in wage costs) in the face of pressures from inflation and historically high unemployment. A stated aim of Irish wage agreements was that pay moderation could be achieved through social partner co-operation and in exchange for income tax cuts.

The standard analytical tool used to examine the existence of downward wage rigidity is survey analysis. Notable examples included Blinder (1990), Agell and Lundborg

(2003), Campbell and Kamlani (1997) and Franz and Pfeiffer (2006). All of these studies have focussed on the relevance of institutional and theoretical explanations for wage rigidity. Questions on wage setting in firms were directed mainly at enquiring about the formal process of wage negotiations operated by the firm and, in particular, the role played by the wage terms of the National Wage Agreement. The institutional setting of wage bargaining in Ireland is less structured than in many other European countries; for example, Ireland has one of the lowest shares of collective bargaining.

National wage agreements were instigated in Ireland in 1987. They were introduced after a prolonged period of poor economic growth, coupled with high unemployment and significant industrial relations disharmony. The key element of the process was an agreement for moderate growth in pre-tax wages in return for reductions in labour income taxes on the part of the government. Lane (1998) makes the case that "[t]his process is self-reinforcing: since workers ultimately care about their post-tax wage rate, a cut in labour taxes relieves the burden on union leaders to press for larger pretax wage increases from employers." The relevance and importance of Irish national pay agreements (negotiated through a process known as Social Partnership) have been identified in a number of previous studies (Sexton and O'Connell, 1996; Lane, 1998; Sweeney, 1998, O'Donnell, 1999, Hardiman, 2000; Teague and Donaghey, 2004; Baccaro and Simoni, 2007; O'Donnell, 2008). Most of this research points to the achievement of wage constraint and its competitiveness-enhancing effect for firms operating in Ireland.

The survey results from our sample of Irish firms' wage setting allows us to profile the role, coverage and frequency of negotiated wage agreements. Our survey results in Table 2 show that the practice of wage negotiation is well established within Irish firms: 62 per cent of firms surveyed apply at least some aspects of the then current national wage agreement – *Towards 2016*.[2]

[2] Since centralised wage bargaining was reintroduced in 1987 through a process known as *Social Partnership*, there have been nine agreements to date; the most recent was agreed in October-November 2008 after the period of fieldwork for our survey.

Table 2: Application of the National Wage Agreement – *Towards 2016*

	% of respondents
Towards 2016 applied in full	35.6
Some aspects applied	26.0
Towards 2016 not applied	38.4
All firms	100.0

Our survey found that when wage agreements were made, they appear to have been applied very extensively throughout Irish firms. Half of firms with agreements apply them to their entire workforce while the average value for workforce coverage is 86 per cent. This corresponds with an average coverage rate of just below 90 per cent found by McGuinness *et al* (2008) for all levels of wage bargaining in Ireland. Where there is less than a 'blanket application' of the agreement, the skill group of technically-qualified workers and supervisory staff are the most likely group collectively to be the exception, as their average workforce application rate is lower than the overall average. In the tight labour market conditions prevailing up to the time of the survey, this group may have been the hardest to recruit and retain and this may be reflected in a wage premium over and above the wage increases collectively agreed.

We now conduct a multivariate analysis to examine the factors associated with firms applying the terms of the National Wage Agreement (NWA). The regression analysis is formulated as a multinomial probit model where firms have three options – apply the NWA in full (reference category), apply the NWA partially or not at all. With respect to firm size, the results in Table 3 suggest that larger firms are more likely to apply the NWA in full compared to micro sized firms. The differences across sectors are not significant when other characteristics are controlled for.

Table 3: Multinomial probit regression of participating in National Wage Agreement *Towards 2016*

	Not Applied		Some Aspects Applied	
Small (10-49 employees)	-0.256		-0.144	
	(0.190)		(0.191)	
Medium (50 – 249 employees)	-0.769	***	-0.696	***
	(0.230)		(0.230)	
Large (250+ employees0	-1.053	***	-1.048	***
	(0.304)		(0.313)	
Construction	-0.422		-0.107	
	(0.331)		(0.311)	
Distribution	0.100		-0.099	
	(0.237)		(0.235)	
Other Services	0.333		-0.180	
	(0.221)		(0.225)	
Share of workforce part-time	-0.013	***	-0.003	
	(0.004)		(0.004)	
Age of firm	-0.011	***	-0.007	**
	(0.004)		(0.003)	
Has unfilled vacancies	0.351	**	0.289	*
	(0.175)		(0.178)	
Share of high skill workers	0.007	**	-0.002	
	(0.003)		(0.003)	
Share of workforce 10+ years tenure	-0.009	***	-0.007	*
	(0.003)		(0.003)	
Export share	0.005	*	0.001	
	(0.003)		(0.003)	
Company Bonuses paid	0.160		0.279	*
	(0.168)		(0.170)	
Business Cycle ~ turnover up	0.142		-0.033	
	(0.156)		(0.156)	
Wage negotiation process by grade	-1.330	***	-0.898	***
	(0.193)		(0.288)	
Observations	791			

Multinomial probit with reference category of National Wage Agreement applied in full

Robust Std. Error in parentheses

The regression results also show that firms are more likely to employ the NWA when they are longer established, and have a higher share of their workforce employed part-time. As discussed above, the greater the share of highly-skilled employees the more likely that terms of the NWA are not applied. As before, business cycle considerations are not significant in determining the profile of firms who apply the NWA wage terms as the firm position vis-à-vis turnover does not appear significant in either model shown in 3. Having examined the coverage of firms' participating in national wage agreements, we now examine the extent of wage rigidity amongst Irish firms.

4. Wage Rigidity

This section examines the frequency of wage cuts and presents evidence on why firms exhibit resistance to cuts when economic theory would dictate that a reduction in the price of labour would be desirable. The first three subsections focus on the possibility of reductions in nominal wages. The final subsection presents evidence on the indexation policy of firms, to examine if real wages show similar levels of rigidity as nominal wages.

4.1 How common are wage cuts?

We asked firms if they had cut or frozen base wages over the previous five years, and, if they had, what percentage of the workforce this applied to (Table 4). Given that this question covers a period of sustained economic growth, it is not particularly surprising that wage cuts are extremely rare, applying to slightly over one per cent of firms. These firms were mainly very small – firms with between 5 and 9 employees were the most likely to have cut wages with no medium sized firms (50 to 249 employees) and less than one per cent of larger firms (over 250 employees) reporting wage cuts.

Most of the firms that did cut wages were in manufacturing. No wage cuts occurred in the construction sector and very few were reported in trade and distribution. The services sector experienced wage cuts in 2.5 per cent of firms. Wage freezes were more common than cuts, but, at just over 7 per cent, still applied to a relatively small

group of firms. Unlike wage cuts, wage freezes were not concentrated in any one sector or size group, although they were more common in manufacturing than in other firms. If a wage freeze was implemented, it was applied to the entire workforce in two-thirds of cases.

Table 4: Incidence of Wage Cuts and Freezes

Percentage of Firms		Wage Cuts	Wage Freezes
Overall		1.1	7.1
Size category	Micro, 5-9	2.7	7.0
	Small, 10-49	0.9	6.1
	Medium, 50-249	0.0	10.2
	Large, 250+	0.7	7.3
Sector	Manufacturing	4.1	10.6
	Construction	0.0	5.2
	Trade / Distribution	1.0	5.8
	Other services	2.5	7.3

There is a positive relationship between wage cuts and firms reporting turnover lower than in the previous year, although this finding is not significant in a statistical sense if controls for firm size and sector are included. As so few firms report wage cuts, it is difficult to establish robust statistical relationships with other variables. More firms report having frozen wages at some point and this larger sample size allows for more reliable analysis of contributing factors. Controlling for sector and size effects, we find that firms experiencing lower turnover than the previous year are 10 per cent more likely to have frozen wages than firms with the same or higher turnover. Firms describing turnover as "much lower" were 12 per cent more likely to freeze wages than those with turnover the same or higher than the previous period.

Ireland's percentage of firms reporting wage cuts is amongst the lowest of the countries in the sample, and is well below the average value of 2.8 per cent (Table 5). The southern European countries of Italy, Spain and Portugal are the least likely to cut wages, and the highest value is just over 7 per cent for France. The variation across

countries in the incidence of wage freezes is considerably larger than for wage cuts, ranging from 2.4 per cent in Spain to over 20 per cent in the Czech Republic, Estonia and the Netherlands. The average percentage of firms to have frozen wages across all the countries is 11.3 per cent. The incidences of wage cuts and freezes in Ireland are significantly lower than the European average.

Table 5: International Comparison of Wage Cuts and Freezes

Percentage of Firms	Wage Cuts	Wage Freezes
Ireland	1.1	7.1
Austria	2.1	13.3
Belgium	2.8	11.9
Czech Republic	6.7	26.6
Estonia	3.1	21.7
Spain	0.1	2.4
France	7.1	2.5
Hungary	2.6	5.9
Italy	0.7	3.9
Netherlands	1.4	23.2
Poland	4.4	10.0
Portugal	1.0	14.9
Slovenia	2.5	2.9
All country average	2.8	11.3

The next step is to examine if there are any particular characteristics of firms that experienced a wage freeze. Although it would be desirable to do the same for wage cuts, the very small number of observations made this impossible. Table 6 presents the results for probit regressions where the dependent variable took a value of 1 if wages had ever been frozen by the firm and 0 otherwise. In both specifications, a higher percentage of temporary staff is likely to experience of a wage freeze. Firms with larger proportions of technical workers are the least likely to have frozen wages over the same time period. No significant effect is found for other types of worker or nature of contract. Labour turnover is negatively associated on a significant basis with wage freezes. Although the direction of causation cannot be established with

any certainty, it seems plausible that firms with high labour turnover are reluctant to freeze wages and thus reduce their ability to attract new workers.

Table 6: Wage Freezes and Firm Characteristics

	(I)	(II)
% Part-time	-0.0001	-0.0001
	(0.001)	(0.001)
% Temporary	0.002**	0.002*
	(0.001)	(0.001)
% Technical	-0.001**	-0.001**
	(0.001)	(0.001)
% Clerical	-0.0003	-0.001
	(0.001)	(0.001)
% Professional	-0.0002	-0.0003
	(0.001)	(0.001)
Labour turnover	-0.002***	-0.002***
	(0.001)	(0.001)
Labour cost share	0.001*	0.001**
	(0.001)	(0.0005)
Full Nat. Wage Agr.		-0.06**
		(0.02)
Partial Nat. Wage Agr.		0.004
		(0.03)
Small, 10-49	-0.01	-0.02
	(0.03)	(0.03)
Medium, 50-249	0.02	0.02
	(0.03)	(0.03)
Large, 250+	0.02	0.04
	(0.04)	(0.04)
Observations	525	514
Pseudo R-sqd	0.09	0.13

Probit regression marginal effects reported. Standard errors in parentheses. Sector controls included. *** Indicates significance at 1%, ** at 5% and * at 10%.

The second column of Table 6 adds participation in the national wage agreement and finds that implementing the agreement in full is negatively associated with wage freezes – as the national wage agreement included positive wage growth, this is

unsurprising. Partial application of the national wage agreement does not have any significant impact, implying that firms that did not implement the agreement in full had freedom to opt out of the wage increase clauses in at least some incidences.

4.2 Firms' reasons for avoiding cuts - theory

Many explanations for the lack of downward flexibility in wages have been put forward over time. Campbell and Kamlani (1997) group the various theories into five broad groups and their classification has partly motivated the questions put to the firms in the survey. The first potential source of downward rigidity in the labour market is the existence of explicit contracts either with the workers themselves that are negotiated for multiple years or if wage cuts are impeded by labour regulations or collective agreements. A second source of rigidity may be the existence of implicit contracts between the firm and workers. The implicit contracts framework assumes that workers are more risk averse than firms and the two groups will therefore negotiate a type of insurance arrangement whereby the workers' real wages will be kept relatively stable even if the firm experiences variations in its fortunes. The firm gains if this stable wage can be kept below what the average wage would be over the business cycle and the worker benefits by not having to deal with unpredictable changes in income.

The third set of explanations for downward wage rigidity can be found in the efficiency wage literature, which presents a number of behavioural explanations for firms to avoid cutting wages. These models are based on the assumption that wages directly influence worker productivity. Reducing the wage would therefore have a negative impact on employees' efforts, resulting in less output for the firm. A wage reduction could also affect morale within the firm, which could manifest itself in reduced effort or more extremely risk conflict between owners and workers. Further explanations within the efficiency wage literature relate to how the firm's actions in cutting wages could impact on its staff composition and future recruitment opportunities. A reduction in wages could give existing staff an incentive to leave the firm. These are likely to be the most productive workers who would have the best outside options. This would imply the firm might have to increase expenditure on recruitment but its reputation as an employer could be damaged, making it difficult to

attract high quality staff. This could have a knock-on effect on the costs of training.

This latter explanation has also been framed in a different way as a fourth source of wage rigidity known as the insider-outsider theory. In this theory, it is not in the firm's interest to fire existing workers in order to hire others at a lower wage. This is partly due to the associated costs of recruitment and training as in the efficiency wage theory. However, this theory adds a further dimension by suggesting that retained original workers in this scenario would withhold their cooperation from the new recruits and hold up the production process. The final explanation for wage rigidity is that employees are concerned with how their wage compares to that of similar workers in other firms in the same market and that their effort levels will be based on a comparison with what they believe to be a 'fair wage' for their job level.

Surveys of firms aimed at understanding how these theories fit with actual behaviour have been carried out in the US (Bewley, 1999; Blinder and Choi, 1990; Campbell and Kamlani, 1997), in Sweden (Agell and Lundborg, 1995, 2003) and in Germany (Franz and Pfeiffer, 2006). Fairness and morale considerations come up in all of these studies as reasons to avoid wage cuts if at all possible. Campbell and Kamlani find that the most relevant explanations may vary by worker type: They found that reducing turnover was a factor for white-collar workers and that firms believed that blue-collar workers were more likely to reduce effort if wages fell. Unions and collective bargaining arrangements were found to exert a significant influence on the prevention of wage cuts in Germany (Franz and Pfeiffer, 2006) and Sweden (Agell and Lundborg, 2003) but do not appear to be a significant factor in the US (unions are not mentioned in any of the papers using US survey evidence).

4.3 Firms' reasons for avoiding cuts – survey responses

Having reviewed some of the theoretical rationales explaining why firms avoid wage cuts as far as possible, we now look at how relevant the firms in the sample regarded these reasons to their own experiences. The firms were asked: "There can be various reasons as to why base wages are not, or only very slightly cut, even if your firm needs to reduce labour costs. Please indicate their relevance in your company." The

following list of reasons was provided:

- Impeded by labour regulation/ collective agreements.
- Negative impact on employees' efforts, resulting in less output.
- Negative impact on employees' morale.
- Negative impact on the firm's reputation as an employer.
- Best employees would leave the firm.
- Increase costs of hiring and training new employees.
- Difficulties in attracting new workers.
- Workers dislike unpredictable reductions in income (implicit contract).
- Employees compare wages to similar workers in other firms.

Table 7: International Comparison of Reasons for Avoiding Wage Cuts

Percentage of Firms indicating "Relevant" or "Very Relevant"

	Regulations	Effort	Morale	Reputation	Best leave	Hiring costs	Recruitment	Implicit Contract	Comparisons
Ireland	22.9	79.8	76.1	61.0	79.1	56.1	64.6	78.8	75.7
Austria	77.0	89.8	87.3	64.4	84.6	77.2	47.8	41.8	67.5
Belgium	84.0	87.6	88.1	55.9	81.1	65.7	72.6	81.4	67.7
Czech R.	56.0	85.8	82.7	69.0	94.7	87.2	82.1	46.4	77.7
Estonia	53.6	89.9	89.6	83.5	94.2	91.0	87.1	53.6	80.1
Spain	91.2	72.0	NA	43.3	69.5	54.1	59.6	71.4	50.3
France	78.2	90.9	90.4	51.3	79.0	37.6	68.8	22.1	47.1
Hungary	43.1	80.3	81.7	55.9	71.0	47.8	45.7	79.6	74.1
Italy	87.8	85.2	NA	58.2	89.6	86.2	71.1	29.3	70.4
Netherlands	63.5	78.2	NA	64.1	76.6	61.7	78.6	77.5	69.3
Poland	34.1	71.5	91.6	60.6	89.2	67.1	76.1	71.6	53.9
Portugal	76.9	84.0	85.3	56.6	82.9	53.8	54.6	81.9	64.2
Slovenia	69.9	87.1	84.8	75.6	89.1	72.2	77.3	77.0	77.1
Average	64.5	83.2	85.8	61.5	83.1	66.0	68.2	62.5	67.3

Firms were asked to rank each one of these explanations on a four-point scale of relevance. Combining the relevant and very relevant categories in Table 7, labour regulations and collective agreements are regarded as the least relevant of the barriers,

while concerns about reductions in employee effort and losing talent are the most relevant reasons. There was some variation in these rankings by firm size, mainly in regard to the perceived relevance of collective bargaining and regulations. Over 45 per cent of the largest firms regarded regulations and bargaining arrangements as relevant compared to just 20 per cent of the smallest firms. In general, larger firms were more likely to regard all of the explanations for avoiding wage cuts as relevant or very relevant. This is consistent with the earlier result that small firms were more likely to cut wages if necessary.

Comparing the responses of Irish firms to those in other European countries in Table 7, we found common concerns about effort, morale and risk of losing good employees. Irish firms are the least likely to rank regulations and collective bargaining arrangements as an important reasons for avoiding wage cuts. This response is important when one considers the deterioration in economic conditions since the survey was undertaken. It shows that Irish firms do not regard themselves as facing significant structural or institutional obstacles to wage reductions, even if at the time of the survey very few firms had experienced wage cuts in practice. Exposure to future higher hiring costs or difficulties in recruitment are also less likely to be regarded as relevant by Irish firms compared to those in other countries. On the other hand, awareness of employees comparing their wages to others and an expectation on the part of the workers that wages should be kept smooth (allowing profits to vary instead) were ranked more highly by Irish firms than the average across the other surveyed countries.

4.4 Wage Changes and Indexation Policy

The indexation mechanism plays a fixed role in many countries. In the Irish case, there is no national indexation policy and our survey includes a question to the extent to which firm-level negotiations took into account (or had automatic) past or expected inflation. Well-informed workers typically care about real inflation-adjusted earnings and not just nominal earnings. International experience shows that employees will become more concerned about wages relative to other workers and relative to the cost of living in times when inflation puts pressure on nominal wages. From a microeconomic perspective and from the point of view of implied contracts theory,

two factors typically lead to demands for wage indexation: the simultaneous existence of inflation and wage negotiation costs and a greater risk aversion among the workers than among the employers. The existence of wage renegotiation costs makes lengthening the duration of contracts desirable. Wage negotiations imply costs to the participants, as a degree of rigidity in nominal wages is inevitable when contracts fix the nominal wage for a set period of time. It is often assumed that the wage agreement corresponds to the equilibrium at the moment of negotiation.

The literature on the optimal degree of wage indexation tries to determine the advantages – in terms of output stability – of nominal wages versus fixed wage agreement. In the presence of inflation, the real wage will be eroded over the life of the contract, such that the effective real wage will be above the equilibrium value at the beginning of the contract and below the equilibrium towards the end. A wage adjustment rule typically ties the growth rate of nominal wages to the movement of an index representing the price trend. The chosen index is usually one that is publicly available such as the consumer price index. It then becomes possible to extend the period between negotiations but depends on the level and variance of inflation to determine the optimal level of indexation.

When wages are perfectly indexed, the real wage remains fixed and rigid from downward revision. Whilst no binding indexation rule has ever been introduced as part of the Irish sequence of national agreements, wage increases have generally tended to be influenced by the prevailing rate of inflation. There is always a lower propensity to have indexation to expected inflation as a formal rule than recorded past inflation. The survey found that 71 per cent of Irish firms do not have a policy of automatically adapting base wage rates to inflation. Of those that do index wages to inflation with a formal rule i.e. an automatic link, Table 8 shows that it is likely to be the past inflation rate that is used in one in five cases of indexation (19.3 per cent). However, wage changes are much more likely to take account of the general cost of living changes without a formal or automatic rule.[3]

[3] Wage indexation as stipulated in contracts would be perfect if all actors had the same expectations regarding inflation and if precise, day-to-day information on the movement of the general price level

Table 8: Share of all firms who adapt base wages to inflation

Row Percentage	28.6%
Of which:	
Wage changes automatically linked to past inflation	19.3%
Wage changes automatically linked to expected inflation	8.0%
Past inflation taken into account	60.5%
Expected inflation taken into account	32.7%

Given the relative stability of inflation in the euro area context, it is not surprising that our survey found a two-to-one split in favour of past inflation over expected inflation where a less-strict indexation policy is applied (i.e. not an automatic adjustment but inflation 'taken into account'). This is quite rational in a stable inflation environment, such that many estimates of expected inflation will assume a continuation of the recently recorded inflation trend to persist into the future. The finding that indexation adjustments are most likely to occur only once a year also demonstrates that the variability of inflation has not been a problem for wage setting in Ireland.

The second microeconomic justification for wage indexation is related to the problem of the distribution of risk. If firms/employers are better able than workers to reduce risk (and are not as risk averse), then optimal contracts will settle on stable real wages in exchange for a reduction in the level of wages i.e. risk adverse employees take a risk premium in return for stability to get an implicit insurance against unexpected variation in the inflation rate.[4] Wage indexation thus serves to increase the rate of real wage downward rigidity. It would take practically zero inflation before a scenario of wage cuts could be considered a realistic possibility – in times of cost of living pressures, a pay freeze would only then be sufficient to cut real wage costs but

were available. This accounts for why some negotiated contracts have tended to use a mixture of past and expected inflation considerations, and explains why the sum of the row percentages in Table exceeds 100 per cent.

[4] The theoretical underpinnings here is the implicit contract model which states that workers are risk-averse and prefer a stable wage to one that varies over the business cycle so a firm offering a stable wage could on average pay a lower wage than firm that always paid a wage equal to the workers' marginal revenue product. Therefore firms and workers reach an implicit understanding that wages will remain stable even though worker productivity rates may vary (Campbell and Kamlani, 1997).

indexation prevents this correction mechanism being used to bring the labour market closer to equilibrium in times of unemployment.

Table 9: Factors affecting firm policy of indexing wages to inflation

	Inflation taken into account	Automatic inflation link
Small (10-49 employees)	0.166	-0.038
	(0.184)	(0.235)
Medium (50 – 249 employees)	-0.231	-0.204
	(0.224)	(0.272)
Large (250+ employees0	0.423*	0.374
	(0.246)	(0.290)
Construction	-0.260	-0.597
	(0.307)	(0.415)
Distribution	-0.543*	-0.037
	(0.222)	(0.263)
Other Services	-0.203	-0.095
	(0.198)	(0.243)
Share of part-time employees	0.001	0.0002
	(0.004)	(0.005)
Share of highly skilled	0.007**	0.006
	(0.003)	(0.004)
Bonuses paid	0.304**	0.132
	(0.155)	(0.189)
Formal process for wage negotiation	-0.446**	0.640***
	(0.191)	(0.201)
Age of firm	0.004	0.004
	(0.003)	(0.003)
Business cycle (turnover up)	0.558***	0.078
	(0.154)	(0.185)
Wage Price setting link	0.079	0.127
	(0.151)	(0.187)
Faces strong or severe competition	0.168	0.323
	(0.231)	(0.304)

Observations	829

Multinomial probit indexation policy with base category of no indexation.

The results from a regression analysis of factors potentially affecting a firm's policy of indexing wages to inflation are shown in Table 9. No particular indexation policy pattern emerged across firm size, age and sector categories. As discussed above, a higher share of high skilled and/or management staff is found to be associated with a policy of wage indexation – the higher the share in the staff complement, the more likely that this policy is a formal one related to either past or expected price inflation, having controlled for instances where there is a specific firm-level wage negotiation process. Firms paying bonuses relating to individual staff performance are associated with higher levels of wage increases linked to inflation while business performance (higher turnover than previous year) as a proxy for ability to pay by the firm also appears as a significant variable.

5. Flexible Pay Components

This section deals with remuneration principles and in particular the role of flexible pay and bonuses. The first subsection describes the extent to which bonuses are used by Irish firms. The second subsection looks at how commonly flexible components of pay are used by firms to reduce costs, while avoiding reductions in base pay. The final subsection looks at whether negotiation of wages with newly hired workers is more flexible than the wage levels of incumbent employees.

Babecky et al. (2009) find that flexible components of pay are fairly commonly used strategies across Europe to reduce labour costs in ways other than reducing base wages. The method by which this is done is related to several firm characteristics such as the relative size or skills distribution as well as several indicators of the economic environment in which they operate. In particular, larger firms show greater margin of manoeuvre with respect to using flexible pay strategies in order to adjust labour costs. Different indicators of the severity of competition suggest that firms in more competitive environments are more likely to use some of these strategies more heavily. Furthermore, we find that the presence of unions in wage setting is associated

with a greater use of most of the strategies. A plausible explanation is that unions limit the flexibility of wages, pushing firms towards alternative labour cost cutting strategies.

The analysis in this section focuses on the adjustment of wages or labour costs without changing the level of employment. There is of course a quantity margin available to the firm to reduce costs. In response to a hypothetical question on how they would react to a slowdown in demand, 15 percent of firms replied that they would reduce the number of regular employees and a further 15 percent would lay off some temporary workers. Reducing hours instead of employment would be chosen by slightly more than 10 percent of firms. Changes in flexible components of pay, which we will consider in detail in this section, were the option chosen by 8 percent of firms. A negligible amount suggested that they would respond by cutting base wages with the remainder of firms indicating they would reduce other costs before cutting the wage bill.

5.1 Bonuses

A centralised or coordinated wage bargaining system may cause low wage differentiation/low wage inequality and high unemployment differentials across skill groups, population groups and industries. Under such a system, wages across all groups converge to the 'firm-level standard' appropriate for the high productivity group or will, most likely, be determined by the most populous medium group. The question arises whether an additional layer of firm-level negotiations overcomes this wage rigidity effect by discriminately adjusting flexible wage components (bonuses, etc.). Firms might use flexible compensation to increase wage flexibility in the presence of rigid base wage structures.

The fixed costs associated with hiring and firing (turnover costs) help explain why flexible wage components (especially overtime, bonuses) typically precede increases in employment. The higher are turnover costs, the greater the incentive of firms to respond to cyclical fluctuations through capital-labour substitution and flexible wage components rather than through hiring and firing. In the aftermath of booms,

employment will tend to remain relatively high when firms engage in labour hoarding and are reticent to shed employment; especially if the business cycle downturn is likely to be short and shallow. Layoffs typically lag downturns when their permanence becomes established. Consequently, swings in productivity will be more procyclical and will exacerbate high unemployment persistence after a recession (Lindbeck and Snower, 2001).[5]

Our survey collected information on the availability and use of flexible wage components. First, base wages were defined as wages and salaries including commission and piecework payments but excluding bonuses. Firms indicated the percentage of their total wage bill in 2006 that was variable, that is, paid in the form of bonuses over and above base wages based on individual or company performance. This is our variable measuring the use of 'flexible pay structures'. Our aim was to test the extent to which firms were applying more complex pay schemes, where rigidity in base wages is circumvented with other flexible pay elements (e.g. bonuses and flexible benefits).

Table 10: Flexible pay elements (bonuses) by skill-level; average % of total wage bill

	Production workers	Technically-qualified/ Supervisory staff	Clerical staff	Highly-qualified employees & Management	All
Individual performance bonus	4.43	5.15	4.28	7.37	7.56
Company performance bonus	1.40	2.06	1.73	4.78	3.23

The results in Table 10 show that almost half of all firms (46 per cent) did not pay any performance-related bonuses. Where bonuses were paid, the average individual performance-related bonus in 2006 was 7.5 per cent of a firm's total wage bill, while

[5]According to the literature known as efficiency-wage theory, firms may agree to pay wage premiums to avoid certain costs including shirking, labour turnover, industrial conflict for existing employees and for new hires use wages as a screening device for productivity with the hope of extracting the most efficient amount of effort for an agreed wage (which may be overpriced).

company performance-related bonuses were 3.2 per cent of the total wage bill on average.[6] In the top quarter of firms with the largest share of bonuses in pay, flexible wage components were found to represent more than 42.5 per cent of the firm's total wage bill. As expected, highly-qualified employees and management (high skill, white collar group) are most likely to receive a bonus element to their remuneration with low skill workers less likely to be rewarded for individual performance or receive a share in overall company performance (e.g. profit-sharing). Table 10 shows that highly qualified staff also receive the highest bonuses obtaining 7.4 per cent of the total wage bill on average in individual performance bonuses and 4.8 per cent of the total wage bill in company-related performance bonuses when payable.

5.2 Non-Wage Cost Reduction Strategies

Flexible wage components give firms additional methods of adjustment if they need to reduce costs but cannot reduce base wages. We identify the following main strategies to cut labour costs (other than wages) and ask the firms if they have used them:

- Reduce or eliminate bonus payments.
- Reduce or eliminate non-pay benefits.
- Change shift assignments or additional payments for working shifts.
- Slow or freeze rate at which promotions are filled.
- Recruit new employees at lower wage level than those who left voluntarily.
- Encourage early retirement to replace high wage employees by entrants with lower wages.

Table 11: Alternative Labour Cost Reductions

%	All Firms	5-19 Emp.	20-49 Emp.	50-249 Emp.	250+ Emp.
Reduce bonuses	13.3	12.0	14.7	18.8	19.7
Reduce benefits	4.9	3.8	5.7	10.3	10.4
Change shifts	9.8	6.9	12.3	24.1	22.4

[6] However, there is a high variance in the distribution of this variable (mean is 11.6 per cent but the standard deviation is 24.6 per cent).

Slow promotions	4.7	3.4	5.5	11.5	11.3
Cheaper hires	27.5	22.7	35.4	42.8	45.6
Early retirement	3.9	2.4	5.3	9.6	17.5

As we can see from Table 11, the most commonly used strategy was to bring in new recruits at a more junior level than employees who had left the firm; this was used by over 27 per cent of firms. Reductions in bonuses were the next most commonly used strategy, reported by 13.3 per cent of all firms. If we restrict ourselves to look only at firms that currently pay bonuses, 21 per cent report reducing these bonuses in order to lower costs. This was followed by changes in shift patterns or premiums associated with shift-work.

The pattern of strategies used by firms to reduce labour costs without cutting wages varies quite considerably across countries. In Table 12, we compare the Irish results to other European firms.

Table 12: International Comparison of Labour Cost Reduction Strategies

Proportion of Firms by Country

	Reduce bonuses	Reduce benefits	Change shifts	Slow promotions	Cheaper hires	Early retirement
Ireland	13.3	4.9	9.8	4.7	27.5	3.9
Belgium	18.4	7.9	7.2	15.0	26.4	18.9
Czech R.	32.2	7.5	11.1	1.9	8.7	8.9
Estonia	40.2	20.5	21.1	6.2	16.2	2.6
France	14.7	6.1	0.0	15.4	39.0	30.3
Hungary	22.7	11.9	38.3	35.1	26.5	10.2
Italy	25.6	21.8	26.0	34.0	45.6	20.2
Poland	22.8	15.2	11.9	12.3	22.1	9.5
Portugal	13.7	8.4	10.7	14.0	16.2	0.0
Slovenia	13.5	12.8	9.2	18.9	15.8	8.9
Average	21.7	11.7	14.5	15.7	24.4	11.3

Irish firms report lower than average usage of all but one of the strategies; replacing workers who leave the firm voluntarily with workers on a lower wage has been used by 27.5 per cent of Irish firms, some 3 per cent more than in other countries. Firms in other countries are almost twice as likely (on average) to reduce bonuses and benefits compared to Irish firms, and were three times more likely to use promotions and retirement to reduce costs.

Table 13: Use of Alternative Margins of Labour Cost Reduction

	Bonus	Benefits	Shifts	Promotions	New Emp	Retire
% Part-time	-0.0004	0.0001	0.01*	-0.0002	0.0003	-0.0003
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)
% Temporary	0.002	-0.0004	-0.0003	0.002***	0.002	0.001**
	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.0006)
% Technical	-0.001	-0.001	-0.001	0.0004	-0.0004	-0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)
% Clerical	0.001	-0.0004	-0.004***	0.001	-0.001	0.0002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0004)
% Professional	0.001	-0.0003	-0.001*	0.0004	0.002	0.000
	(0.001)	(0.0004)	(0.0007)	(0.001)	(0.001)	(0.0003)
Bonus dummy	0.12***	0.05***	0.01	0.04*	0.10**	0.05***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.05)	(0.02)
Labour turnover	-0.0001	0.001*	-0.0003	-0.0003	-0.001	-0.001**
	(0.001)	(0.0005)	(0.001)	(0.001)	(0.001)	(0.0004)
Labour cost share	-0.0003	0.001*	0.001	-0.000	0.002	-0.001
	(0.001)	(0.0004)	(0.001)	(0.001)	(0.001)	(0.0003)
Full Nat. Wage Agr.	-0.07**	0.05*	0.07*	0.03	-0.003	0.10***
	(0.04)	(0.03)	(0.04)	(0.02)	(0.05)	(0.03)
Partial Nat. Wage Agr.	-0.01	0.04	0.10**	-0.01	-0.01	0.014
	(0.04)	(0.04)	(0.05)	(0.03)	(0.06)	(0.03)
Small, 10-49	-0.02	-0.01	0.13**	0.04	0.25***	0.07**
	(0.04)	(0.03)	(0.06)	(0.04)	(0.07)	(0.04)
Medium, 50-249	0.07	0.07**	0.17***	0.065*	0.33***	0.04
	(0.05)	(0.04)	(0.06)	(0.04)	(0.07)	(0.03)
Large, 250+	0.07	0.05	0.12**	0.073*	0.32***	0.09**
	(0.06)	(0.04)	(0.07)	(0.05)	(0.08)	(0.06)
Observations	508	508	508	508	508	508
Pseudo R-sqd	0.10	0.13	0.14	0.12	0.09	0.28

Probit regression marginal effects reported. Standard errors in parentheses. Sector controls included. *** Indicates significance at 1%, ** at 5% and * at 10%.

Consistent with the findings of Babecky et al. (2009), the choice of strategy varies with the composition of the workforce. Firms with a high percentage of production workers were the most likely to use changes in shifts, and firms with a higher percentage of temporary workers were more likely to use changes in promotions and retirements to reduce costs. The payment of bonuses was positively related not just to the use of bonuses as potential cost reducing margin but to almost all of the alternative strategies. This would appear to capture a general level of compensation flexibility in firms that have any sort of bonus structure. For each of the strategies, the percentage of firms that had used them increased steadily with firm size. Larger firms tend to have more complex pay structures than smaller firms and this gives them a greater element of flexibility when it comes to using non-wage elements of compensation to reduce costs.

5.3 Are New Hires a Source of Flexibility?

The previous subsection showed that labour turnover could be used as a method of reducing the total labour cost bill if new employees were recruited at a lower wage level than those who left the firm. There are two ways that this could work: New employees could start at a lower point in the firm pay scale, particularly if they are less experienced than the worker who left or retired. Alternatively, wages with new hires could be negotiated as new contracts, depending on external labour market conditions rather than the wage of a similar worker within the firm. This subsection looks at the wage setting procedure for new hires as a channel of labour adjustment.

In labour economics, there are three main ways of explaining why underbidding by new entrants does not occur. First, legislation may keep the wage above its market clearing level (the minimum wage explanation). Second, firms may not accept the outsiders' underbidding, since a fall in the wage may reduce productivity or increase the rate of labour turnover (the efficiency wage explanation). Third, it may not be in the insiders' interest to permit outsider underbidding. Insiders may be able to impose their interests on their employers, since the insiders' positions are protected due to

labour turnover costs (the insider-outsider theory explanation) (Lindbeck and Snower, 2001).

Table 14: Wage setting for newly hired workers

Column per cent	No firm-level wage negotiations	Firm-level wage negotiations	All firms
	%	%	%
Collective Pay agreement	5.9	35.5	11.4
Wage of similar employees in firm	55.9	42.2	53.1
Wage of similar employees outside firm	19.6	14.6	18.4
Availability of similar workers in labour market	12.5	6.1	11.2
None of the above matters	6.4	1.6	5.4
	100.0	100.0	100.0

The results in Table 14 indicate that employing new workers on terms that deviate significantly from those of incumbents cannot be considered as a channel of wage adjustment in Irish firms. The employment conditions of similar employees in the firm represent the overriding determinant of wage setting for new hires. If underbidders approached the firm, it is unlikely that the firm would hire them on this basis alone. Firms avoid the potential for negative signals when setting wages for new hires – this is known as the adverse selection explanation for wage rigidity but also corresponds with efficiency wage theory.

The efficiency wage theory predicts that firms have a variety of reasons (related to shirking, labour turnover, reciprocity, etc.) to maintain wages above the level consistent with full employment. This approach builds on the idea that workers' loss aversion and money illusion lead to nominal rigidity in wages. Firms care about their internal wage structure and fair wage theories appear to be supported leading them not to employ underbidders (Bewley, 1999). In parallel, Solow (1990) argues that there is a social norm preventing the unemployed from underbidding. The idea that willingness to work for less than the going wage is correlated with low productivity is

central to the adverse selection model (Agell and Lundborg, 1995). It is also in line with the predictions of the insider-outsider model.

Our survey evidence from Ireland shows that the lack of wage competition is a significant reason for the lack of wage cuts and underbidding. Workers have an appreciation of stable wages such that wage agreements and employment legislation frequently explain wage rigidity particularly for (less) skilled workers. The exception might be for white collar, highly skilled employees where firms report more discretion in setting entry salaries for new employees. These are more likely to be offered (and respond) to efficiency wage incentives such as flexible pay components.

6. Conclusions

The results presented in this paper are based on a survey of Irish firms undertaken as part of the Wage Dynamics Network (WDN), which is a Euro-system research network. The work was motivated by a general lack of information on wage and price adjustment at firm level, and, in particular, the lack of information that could be compared across countries on a consistent basis. The aim of the survey was to identify the sources and characteristics of wage and labour cost dynamics that are most significant for monetary policy. It also attempts to further explain the relationship between wages, labour costs and prices, both at the firm and macro-economic level. The CBFSAI carried out this coordinated survey of wage setting in Ireland in late 2006 and early 2007.

Obtaining a better understanding of the processes that determine wages is of considerable importance to policy makers and central banks. Wages account for a significant proportion of production costs for most goods and services. The linkages from wages to prices (through their effect on firm pricing decisions) and from prices to wages (through wage bargaining and indexation) are therefore crucial components influencing inflation persistence and the probability of a negative wage-price spiral. Furthermore, the level of flexibility available to firms to reduce their labour costs is an indicator of how quickly an economy can adjust to negative shocks.

Looking at the results of the Irish survey it was found that close to two-thirds of firms applied at least some aspects of the national wage agreement, *Towards 2016.* When wage agreements were made, they appear to have been applied very extensively throughout Irish firms, with approximately 50 per cent of firms applying the agreement to their entire workforce. Where there is less than a 'blanket application' of the agreement, the skill group of technically-qualified workers and supervisory staff are the most likely group collectively to be the exception. The most likely explanation for this is that this group may have been the hardest to recruit and retain and this may be reflected in a wage premium over the wage rate collectively agreed.

Reflecting the tight labour market conditions during Celtic Tiger times, wage cuts and wage freezes were very infrequently used by firms over the past five years. This is not to say that Irish firms are in any way less flexible than their European counterparts. Looking at a more structural measure of flexibility, Irish firms are the least likely to rank regulations and collective bargaining arrangements as important reasons for avoiding wage cuts compared to the responses in other European countries. This conclusion about the flexibility of the Irish labour market is reinforced by the reports of firms considering wage freezes and reductions in response to the more negative economic climate that has emerged since the survey was carried out (see for example IBEC 2009). In all countries participating, firms had common concerns about effort, morale and risk of losing good employees that made them reluctant to reduce wages unless no alternatives were available.

The results presented in this paper indicate that there are several areas where further research may provide useful additional information about both wage and price dynamics especially in changed economic times. These include the coexistence of price and wage rigidity placing considerable pressure on firm profit margins; job losses and turnover where total labour costs cannot be reduced without reducing the size of the labour force; and/or the scope for squeezing flexible elements of pay in firms' total costs.

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Appendix A: Variable Definitions

Size – Number of employees at the firm at the end of 2006. For the purposes of analysis the firms were divided into four groups based on their employment level – these were micro firms (5-9 employees), small firms (10-49 employees), medium firms (50-249 employees) and large firms (more than 250 employees).

Sector – refers to the main sector of activity of the firm. Four categories are used – manufacturing, construction, distribution and other services.

% Full-time - Permanent full-time workers as percentage of total workforce.

% Part-time – Permanent part-time workers as percentage of total workforce.

% Temporary – Temporary workers as percentage of total workforce.

Labour turnover – Worker turnover calculated from number of number of workers who left the firm in 2006 (excluding maternity leave) and the number of new workers hired as a percentage of the total workforce.

Vacancies – Dummy variable equal to 1 if the firm has unfilled vacancies and 0 otherwise.

% Production – Percentage of staff who are production workers, sales assistants etc.

% Clerical – Percentage of staff working in administrative or clerical roles.

% Technical – Percentage of technically qualified workers and supervisory staff.

% Professional – Percentage of staff who are professionally qualified or are in managerial roles.

Tenure – Distribution of employees according to length of service at the firm. Four options given for the percentage of employees with less than 1 year, between 1 and 5 years, between 6 and 10 years and more than 10 years service.

Age of firm – Number of years the firm has been in operation.

Labour cost share - Percentage of your firm's total costs was due to total labour costs? (Definition of total labour costs: wages, salaries, bonuses, social contributions, training, tax contributions, contributions to pension funds).

Business cycle turnover up – qualitative indicator of firm sales/turnover in 2006 compared to the previous year (lower, same, higher). Dummy variable for higher turnover equal to 1 if turnover increased in 2006 and 0 otherwise.

Formal process for wage negotiations – dummy variable equal to 1 if firm responds yes to “does your firm have a formal process for wage negotiations for employees by particular grades”.

Coverage – percentage of employees covered by formal wage negotiation process.

National wage agreement – categorical variable for level of application of the terms of the national wage agreement (*Towards 2016*) with three possible responses: Apply in full, apply some aspects and do not apply it.

Bonuses - Percentage of firm's total wage bill in 2006 was variable, that is, not fixed base wages but bonuses based on individual or company performance. Breakdown by worker skill level (production, technical, clerical and professional) and bonus type (individual or company performance) provided.

Indexation policy exists – dummy variable equal to 1 if firm has a policy that adapts changes in base wages to inflation.

Indexation type – Categorical variable with four options for type of indexation applied: wage changes automatically linked to past inflation, wage changes automatically linked to expected inflation, wage changes take into account past inflation, wage changes take into account expected inflation.

Frequency of wage changes by reason – Frequency (more than once a year, once a year, once every two years, less frequently) of wage changes for each of three different reasons (tenure, inflation, changes apart from tenure and inflation).

Wages of new hires – Categorical variable indicating the most relevant factor in determining the wages of newly hired workers in the firm from the following options: collective wage agreement, wage of similar workers in the firm, wage of similar workers outside the firm, availability of similar workers in the labour market, or none of the above.

Wage freeze – Dummy equal to 1 if firm reports having frozen base wages in previous five years, and 0 otherwise.

Wage cut – Dummy equal to 1 if firm reports having cut base wages in previous five years, and 0 otherwise.

Export share – percentage of sales to foreign markets.

Wage price link – Dummy variable equal to 1 if firm indicates prices and wages are changed simultaneously or that a change in one directly leads to a change in the other. Equal to 0 if the firm reports no particular pattern linking the changes.

Competition – Measure of strength of competition as perceived by the firm: None, weak, strong or severe.

Appendix B: Summary Statistics

	Mean	Std. Dev.
Size	210	1580
% Full-time	81.60	23.00
% Part-time	14.30	20.90
% Temporary	4.10	10.10
Labour turnover	2.70	19.50
Vacancies	0.33	0.47
% Production	35.40	33.20
% Clerical	19.50	21.00
% Technical	21.40	23.10
% Professional	24.00	24.40
Tenure < 1 year	19.10	20.70
Tenure 1 - 5 years	37.40	24.90
Tenure 6 - 10 years	20.50	19.70
Tenure > 10 years	23.20	25.60
Age of firm	25.50	27.30
Labour cost share	40.60	21.00
Business cycle turnover up	0.58	0.49
Formal process for wage negotiations	0.24	0.43
Coverage	83.00	23.80
Bonuses	11.60	24.60
Indexation policy exists	0.29	0.46
Wage freeze	0.08	0.27
Wage cut	0.02	0.13
Export share	15.01	30.80
Wage price link	1.71	1.19
Competition	1.94	0.64

SECTION 1: WAGE-SETTING PRACTICES

1.1 Does your firm have a formal process for wage negotiations for employees by particular grades?

Yes ☐ 2110 No ☐ 2120 ☞ continue to **1.2**

If Yes, what percentage of your total workforce is covered by these agreements?

☐ **percent** 2111

1.2 Does your firm apply the terms of the national wage agreement e.g. Towards 2016?

Yes, we apply it in full ☐ 2210 Yes, we apply some aspects ☐ 2210 No, we do not apply it ☐ 2220

1.3 How were your firm's employees distributed across the following occupational groups at the end of 2006? (An approximate breakdown is fine.)

Low-skilled staff - Production workers, Sales assistants etc	..... %	1510
Administrative/Clerical staff	..... %	1520
Technically-qualified workers and supervisory staff	..... %	1530
Highly-qualified employees and management	..... %	1540
TOTAL	100 %	

1.4 What percentage of your total wage bill in 2006 was variable, that is, not fixed base wages but bonuses based on individual or company performance?

	Related to individual performance	Related to company performance
Production workers etc	_____% 2301	_____% 2311
Administrative/Clerical staff	_____% 2303	_____% 2313
Technically-qualified workers & supervisory staff	_____% 2302	_____% 2312
Highly-qualified employees and management	_____% 2304	_____% 2314

1.5 Does your firm have a policy that adapts changes in base wages to inflation? Base wages are regular wages and salaries including commission and piecework payments but excluding bonuses.

Yes ☐ 2401 ☞ continue to **1.6**

No ☐ 2402 ☞ continue to **1.7**

1.6 If yes in 1.5, please choose among the options below

- Wage changes are <u>automatically linked</u> to:
  - past inflation ..... ☐ 2511
  - expected inflation ..... ☐ 2512
- Wages changes <u>take into account</u>, without any formal rule:
  - past inflation ..... ☐ 2521
  - expected inflation ..... ☐ 2522

1.7 Consider the largest occupational group in your firm (as identified in Question 1.4). How frequently is the base wage of this group typically changed in your firm?

(<u>Please tick one answer for each line</u>)

Tenure is length of service at your firm ↓ years	More than once a year	Once a year	Once every two years	Less frequently than once every two	Never/ Don't Know
• wage changes apart from tenure and inflation	☐ 2611	☐ 2612	☐ 2613	☐ 2614	☐ 2615
• wage changes due to tenure	☐ 2621	☐ 2622	☐ 2623	☐ 2624	☐ 2625
• wage changes due to inflation	☐ 2631	☐ 2632	☐ 2633	☐ 2634	☐ 2635

1.8 Under normal circumstances, are wage changes concentrated in typical months?

- no..... ☐ 2710
- yes, indicate the month(s)

Jan ☐ 01 Feb ☐ 02 Mar ☐ 03 Apr ☐ 04 May ☐ 05 Jun ☐ 06 Jul ☐ 07 Aug ☐ 08 Sep ☐ 09 Oct ☐ 10 Nov ☐ 11 Dec ☐ 12 272

1.9 Considering the largest occupational group in your firm (as identified in Question 1.4) please indicate among the following options which is the most relevant factor in determining the entry wage of newly hired employees in your firm? (<u>Please tick one box.</u>)

- collective wage agreement (at any level) ..... ☐ 2810
- wage of similar employees in the firm ..... ☐ 2820
- wage of similar workers outside the firm ..... ☐ 2830
- availability of similar workers in the labour market .. ☐ 2840
- None of the above matters..... ☐ 2850

SECTION 2: WAGE FLEXIBILITY

2.1 Over the last five years, has the base wage (i.e. bonuses excluded) in your firm ever been frozen or cut?

- frozen:
  - no..... ☐ 3111
  - yes..... ☐ for _____ % of workforce 3112
- cut:
  - no..... ☐ 3121
  - yes..... ☐ for _____ % of workforce 3122

2.2 There can be various reasons as to why base wages are not, or only very slightly cut, even if your firm needs to reduce labour costs. Please indicate their relevance in your company.

(Please tick one answer for each line)

	Not relevant	Of little relevance	Relevant	Very Relevant	Don't Know	
It is impeded by labour regulation/ collective agreements……	☐	☐	☐	☐	☐	3301
It would have a negative impact on employees' morale……...	☐	☐	☐	☐	☐	3302
It would have a negative impact on employees' efforts, resulting in less output…..	☐	☐	☐	☐	☐	3303
It would have a negative impact on the firm's reputation as an employer……..	☐	☐	☐	☐	☐	3304
It would mean that the best employees would leave the firm……	☐	☐	☐	☐	☐	3305
It would imply high costs of hiring and training new employees……	☐	☐	☐	☐	☐	3306
It would create difficulties in attracting new workers……..	☐	☐	☐	☐	☐	3307
Workers dislike unpredictable reductions in income……	☐	☐	☐	☐	☐	3308
Employees are concerned with how their wage compares to that of similar workers in other firms in the same market……..	☐	☐	☐	☐	☐	3309

2.3 Other than cut/freeze base wages, have you used any of the following strategies to reduce labour costs? (Select all options that apply to your firm)

Recruited new employees at lower wage level than those who left voluntarily ☐ 3401

Encouraged early retirement to replace high wage employees by entrants with lower wages ☐ 3402

Reduced or eliminated bonus payments ☐ 3403

Reduced or eliminated non pay benefits ☐ 3404

Changes shift assignments or shift premia ☐ 3405

Slow or freeze rate at which promotions are filled ☐ 3406

Never tried to reduce labour costs / Not applicable ☐ 3407

2.4 How does your firm react to an unanticipated slowdown in demand?

(Please tick a box for each line).

	Not relevant	Of little relevance	Relevant	Very Relevant	Don't Know	
Increase selling prices	☐	☐	☐	☐	☐	3710
Reduce profit margins	☐	☐	☐	☐	☐	3720
Reduce output	☐	☐	☐	☐	☐	3730
Reduce other costs	☐	☐	☐	☐	☐	3740

If ticked for "reduce other costs" continue to question 2.5

2.5 If the reduction of costs was of relevance in your answer to question 2.4, please indicate the main channel through which this goal is achieved:

(Indicate the most important factor only.)

Reduce base wages ☐ 3510

Reduce flexible wage components (for example bonuses, benefits etc.) ☐ 3520

Reduce the number of regular employees ☐ 3530

Reduce the number of temporary employees/other types of workers ☐ 3540

Adjust the number of hours worked per employee ☐ 3550

Reduce non-labour costs (Specify _____) ☐ 3560

→ Examples could include advertising, R&D, travel, training, IT, overheads

2.6 How does your firm react to an unanticipated 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	Do Kn	
Increase selling prices	☐	☐	☐	☐	☐	3610
Reduce profit margins	☐	☐	☐	☐	☐	3620
Reduce output	☐	☐	☐	☐	☐	3630
Reduce other costs	☐	☐	☐	☐	☐	3640

If ticked for "reduce other costs" continue to question 2.7

2.7 If the reduction of costs was of relevance in your answer to Question 2.6, please indicate the main channel through which this goal is achieved:

(Indicate the most important factor only.)

- Reduce flexible wage components (for example bonuses, benefits etc.) ☐ 3121
- Reduce the number of regular employees ☐ 3122
- Reduce the number of temporary employees/other types of workers ☐ 3123
- Adjust the number of hours worked per employee ☐ 3124
- Reduce non-labour costs (for example _____) ☐ 3125

Examples could include advertising, R&D, travel, training, IT, overheads

SECTION 3: PRICE SETTING AND PRICE CHANGES

The price should refer to the main product or service (i.e. the one that generated the highest fraction of turnover in the last year)

3.1 What share of your firm's turnover generated by your main product/service in 2006 was due to:

Sales or service in the domestic market	..... %	4110
Sales or service in other EU countries	..... %	4120
Sales or service in countries outside the EU	..... %	4130
TOTAL	100 %	

3.2 How does your firm set its price for its main product or service on its main market?

(Please tick only one answer)

- We do not have an autonomous price setting policy because:
  - the price is regulated, or it is set by a parent company/group ☐ 4210
  - the price is set by our main customer(s) ☐ 4220
- We do set our price ourselves but following our competitor(s) ☐ 4230
- We set our price fully according to our costs and a completely self-determined profit margin ☐ 4240
- Other (please specify)..... ☐ 4250

3.3 To what extent do you experience competition for your main product/service?

(Please tick only one answer)

Severe competition ☐ 4310 | Strong competition ☐ 4320 | Weak competition ☐ 4330 | No competition ☐ 4340 | I don't know ☐ 4350

3.4 Suppose that your main competitor for your main product/service decreases their prices; how likely is your firm to react by decreasing your price?

(Please tick only one answer)

Very likely ☐ 4410 | Likely ☐ 4420 | Not likely ☐ 4430 | Not at all ☐ 4440 | Doesn't apply/Don't know ☐ 4450

3.5 Under normal circumstances, how often does the price of your main product/service change in your firm? (Please tick only one answer)

Daily ☐ 4510 | Weekly ☐ 4520 | Monthly ☐ 4530 | Quarterly ☐ 4540 | Twice a year ☐ 4550

Once a year ☐ 4560 | Every two years ☐ 4570 | Less frequently than once every two years ☐ 4580

Never ☐ 4590 | There is not a defined pattern ☐ 4591

3.6 Are price changes concentrated in typical months?

- no ☐ 4610
- yes, indicate the month(s)

Jan ☐ 01 | Feb ☐ 02 | Mar ☐ 03 | Apr ☐ 04 | May ☐ 05 | Jun ☐ 06 | Jul ☐ 07 | Aug ☐ 08 | Sep ☐ 09 | Oct ☐ 10 | Nov ☐ 11 | Dec ☐ 12 462

3.7 How does the timing of price changes for your main product relate to that of wage changes?

(Please tick only one answer)

There is no link .. .. ☐ 4710

There is no particular pattern ..... ☐ 4720

Decisions are taken simultaneously ..... ☐ 4730

Price changes tend to follow wage changes . ..... ☐ 4740

Wage changes tend to follow price changes . ..... ☐ 4750

Don't know ..... ☐ 4760

SECTION 4: INFORMATION ABOUT THE FIRM

4.1 How many people did your firm employ at the end of 2006? Include owners/directors/managers working at your firm.

employed in your firm ☐ 1100 total numbers

Of these, approximately what percentage are: **Percent**

permanent full-time	..... %	1101
permanent part-time	..... %	1102
temporary (incl. apprenticeships and students)	..... %	1103
TOTAL	100 %	
Other types of workers (e.g. people employed by agencies, consultants, etc.)	..... %	1104

4.2 How many employees stopped working at your firm during 2006 (not including maternity leave, etc)?

4.3 How many new employees (including replacements) did your firm hire during 2006?

☐ 1300

4.4 Do you currently have vacancies at your firm?

Yes ☐ 1410 No ☐ 1420 ☞ continue to 4.5

If Yes, how many full-time vacancies exist at your firm? ☐
1430

4.5 What is the main activity of your business or organisation?

4.6 What percentage of your total workforce is currently on or close to (within 10%) the National Minimum Wage of 8.65 euro per hour?

☐1
percent 1700

4.7 Approximately, how were your firm's employees distribted according to length of service (tenure) at your firm at the end of 2006?

less than 1 year	..... %	1810
between 1 and 5 years	..... %	1820
between 6 and 10 years	..... %	1830
more than 10 years	..... %	1840
TOTAL	100 %	

4.8 What was the first year of operation of your firm? (Give earliest year in the event of mergers, etc).

☐ 1900

4.9 Considering your last profit and loss account, what percentage of your firm's total costs was due to total labour costs? (Definition of total labour costs: wages,

salaries, bonuses, social contributions, training, tax contributions, contributions to pension funds). (An approximate answer will be fine.)

☐ **percent** 111

4.10 How was your firm's sales/turnover in 2006 compared to the previous year? (Please tick only one answer).

much lower ☐1111 lower ☐1112 approximately the same ☐1113 higher ☐1114 much higher ☐:

OPTIONAL - DETAILS CONCERNING THE PERSON WHO FILLED UP THE FORM:

- Name:
.....
- Position:
.....
- Telephone number:
.....
- E-mail (the results of the survey will be sent to this address):
.....

THANK YOU VERY MUCH FOR YOUR COOPERATION