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JANUARY 2014 PAPERWORK KIPAPERWORK KIPAPERWORK KIPAPERWORK

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ISSN 1109-6691

WHY FIRMS AVOID CUTTING WAGES: SURVEY EVIDENCE FROM EUROPEAN FIRMS

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ABSTRACT

The rarity with which firms reduce nominal wages has been frequently observed, even in the face of considerable negative economic shocks. This paper uses a unique survey of fourteen European countries to ask firms directly about the incidence of wage cuts and to assess the relevance of a range of potential reasons for why they avoid cutting wages. Concerns about the retention of productive staff and a lowering of morale and effort were reported as key reasons for downward wage rigidity across all countries and firm types. Restrictions created by collective bargaining were found to be an important consideration for firms in euro area countries but were one of the lowest ranked obstacles in non-euro area countries. The paper examines how firm characteristics and collective bargaining institutions affect the relevance of each of the common explanations put forward for the infrequency of wage cuts.

JEL Codes: J30, J32, J33, J51, C81, P5

Keywords: labour costs, wage rigidity, firm survey, wage cuts, European Union

Acknowledgements: The work was conducted within the framework of the Wage Dynamics Network coordinated by the European Central Bank. We would like to thank all the participants of the meetings of the Wage Dynamics Network for their helpful comments and work on compiling the country data. We also thank Heather Gibson, the participants of the Irish Economic Association meeting and a Bank of Greece seminar for their comments. The opinions expressed in this paper are solely those of the authors and do not necessarily reflect the views of their institutions.

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1. Introduction

The difficulty inherent in reducing nominal wages has recently moved into the spotlight as a result of efforts of a number of European countries, especially within the euro area, to adjust to serious economic shocks through internal devaluation. Even with the severity of the economic downturn experienced across Europe in recent years, cuts in nominal wages appear to be a last resort for firms, and a series of papers have established that wages tend to be sticky downwards.¹ Evidence from interviews with business owners and firm managers have even suggested that selective layoffs are usually preferred to across-the-board wage reductions (Bewley (1999)). Bertola et al. (2012), using data from the same survey of European firms that this paper will analyse, found that only two percent of firms would use base wage cuts as the main channel of labour cost reduction if faced with a significant cost shock. A considerably higher percentage reported that they would rely on reducing staff numbers or hours worked as their main strategy.²

So why is it so difficult to cut nominal wages? This paper uses evidence from a firm survey conducted in a number of EU countries to investigate a range of different theories as to why firms appear reluctant to lower wages. The sample covers 14,975 firms from 14 European countries, representing around 47.3 million employees. Although the data collection predates the onset of the European crisis, the survey provides unique and valuable information on the extent of wage rigidity and enables us to evaluate the importance of different explanations for avoiding wage cuts.

An advantage that this study has over previous work in this area is that it lets us use cross-country data gathered as part of a harmonised survey designed specifically to examine wage setting practices across firms. Previous work in this area has generally been restricted to the analysis of single countries using relatively small samples that often focused on very large firms. Given the large institutional heterogeneity of European labour

¹ See for example, Kahn (1997), Altonji and Devereux (2000), and Lebow and Saks (2003) for evidence on the US, and Dickens et al. (2007, 2008) and Babecký et al. (2010) for Europe.

² 17.5% said they would reduce numbers of temporary employees, 11% would reduce numbers of permanent employees and 7% would reduce hours. Regarding wages, 9.4% said they would reduce some flexible components of wages such as bonuses. The use of changes in these flexible components of wages is also analysed in Babecký et al. (2012).

markets, this unified survey for European countries allows us to incorporate the effects of different labour market institutions and policies into our understanding of how the main reasons for avoiding wage reductions can vary across countries.

The list of possible reasons for avoiding wage cuts that firms were asked to assess in the survey was drawn from the extensive literature on wage negotiations and flexibility. In particular, the categorisation used by Campbell and Kamlani (1997) was used as part of the basis for the selection of questions put to the firms. These theories will be discussed in the next section, but in short, firms were asked about the influence of labour regulations and collective agreements, the existence of implicit contracts, efficiency wage explanations in terms of negative effects on worker morale or effort, whether they had concerns about losing key staff or having difficulties in future recruitment, whether the costs of future recruitment and training would be higher, and whether they felt employees would be concerned with how their wage compared to that of similar workers in other firms.

In line with previous research, we find that very few firms – in total approximately two percent – report having cut wages, although there are differences across countries in how common wage cuts are, particularly between the euro area and non-euro area countries. The most relevant reasons given for avoiding base wage cuts are concerns about worker morale and the danger that the most productive workers would leave. In contrast to previous findings from the USA, a third prominent reason preventing nominal wage cuts is institutional restrictions; this reason also showed the greatest variation across countries, which can be linked to the institutional factors specific to each country such as the prevalence and type of collective bargaining.

In relation to firm characteristics, we find that firms employing a higher proportion of blue-collar and low-skilled white-collar workers rank labour regulation as an important inhibitor of wage cuts. Firms with a high percentage of temporary employees seem more likely to rank reputation as an employer, concerns that the best employees might leave and difficulty in hiring new workers as important reasons. Our results imply that worker characteristics are not related to the relevance of reduced effort and morale. Larger firms

are less likely to assign high relevance to the existence of implicit contracts as a rationale for avoiding wage cuts.

The remainder of the paper is organised as follows. Section 2 discusses the different possible explanations for why firms might be reluctant to cut nominal wages and briefly reviews the results of existing studies. Section 3 describes the data and presents summary statistics on the frequency of wage cuts and the raw ranking of the different explanations. Section 4 presents multivariate analyses relating the rationales offered to firm and institutional characteristics and Section 5 concludes.

2. Reasons for avoiding wage cuts: literature overview

Many explanations for the lack of downward flexibility in wages have been put forward in the literature. Efficiency wage models rest on the assumption that the effort of workers may be stimulated by high or fair wages (see Akerlof (1982), Akerlof and Yellen (1990), and Shapiro and Stiglitz (1984)). The turnover model assumes that persistently high wages might increase profitability by reducing the quit rate and hence lowering expenditure on hiring and training (Hashimoto and Yu (1980), and Stiglitz (1974)). Higher wages may also raise the quality of the firm's applicant pool (Weiss (1980)). Insider-outsider theories also generate real wage rigidity, especially among core workers (Lindbeck and Snower (1988)).

Since workers' individual characteristics such as age or tenure, education, job type or wage level, on-the-job experience, replacement costs, ability to find a job and monitoring cost, may imply different worker productivity, these theories also predict that wage rigidity may vary across worker characteristics: blue-collar and white-collar workers, workers of different ages, or those earning different wage levels. Using a limited sample of countries, Du Caju et al. (2012a, 2012b) and Messina et al. (2010) have exploited differences in workforce composition to test labour market theories indirectly using administrative data. They find support for efficiency wage theories and for a clear impact of wage bargaining institutions in shaping different forms of downward wage rigidity.

Like Agell and Lundborg (1995, 2003), Campbell and Kamlani (1997), Franz and Pfeiffer (2006) and Rødm and Uusküla (2009), we follow another route to assess the relevance of alternative theories of wage rigidity, which consists of asking firms directly why they do not cut wages. The questions posed to the firms in our survey were based to a large extent on the classification of these reasons by Campbell and Kamlani (1997) and extended to include the relevance of labour regulation and collective bargaining. In addition, we collect information on the workforce and other firm characteristics.

In this section, we discuss the options that firms were asked to evaluate and explain the motivation behind each of the potential reasons in the context of existing theories of downward wage rigidity. Firm managers were asked to assess the relevance of the following eight reasons in preventing base wage cuts:

1. Labour regulation or collective agreements prevent wages from being cut;
2. It would reduce employees' effort or have a negative impact on employees' morale, resulting in lower output or poorer service³;
3. It would damage the firm's reputation as an employer, making it more difficult to hire workers in the future;
4. Following a wage cut, the most productive employees might leave the firm;
5. It would increase the number of employees leaving, raising the cost of hiring and training new workers;
6. It would create difficulties in attracting new workers;
7. Workers dislike unpredictable reductions in income. Therefore workers and firms reach an implicit understanding that wages will neither fall in recessions nor rise in expansions;
8. Workers compare their wages to those of similarly qualified workers in other firms in the same market.

³ The reasons referring to reduced effort and reduced moral were asked as different options in the questionnaire. However they are conceptually very similar and are both facets of the shirking model so in the analysis that follows these two options are grouped into one.

Regulation/Explicit Contracts (Reason 1)

The first potential source of downward rigidity in the labour market is the existence of explicit contracts, either stemming from individual negotiations with the workers themselves through multi-year contracts, or from collective bargaining agreements. Information on the extent of unionisation and different types of collective bargaining (e.g. firm level, sectoral or national) is also collected in the survey, and we will examine the extent to which such differences explain the relevance of this option across firms and countries.

Efficiency wage theories (Reasons 2, 3, 4, 5, 6)

The second, and probably the most detailed, set of explanations for downward wage rigidity can be found in the efficiency wage literature, which presents a number of behavioural explanations for why firms avoid cutting wages. These models are based on the assumption that wages directly affect worker productivity so that reducing the wage would have a negative impact on employees' effort, resulting in lower output for the firm. 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. A reduction in wages could give existing staff an incentive to leave the firm, and the quitters are likely to be the most productive workers who would have the best outside options (the adverse selection model, Weiss (1980, 1990)). This would imply that the firm might have to spend more on future recruitment and also that its reputation as an employer could be damaged, making it difficult to attract high quality staff. This could have a further knock-on effect on the costs of training.

The validity of different theories for explaining wage rigidity has been analysed using surveys based on interviews with company managers. According to existing surveys, mostly based on the USA and later extended to Sweden, the main reason for avoiding nominal wage cuts is that reducing pay has a negative effect on labour productivity (Campbell and Kamlani (1997), Bewley (1995, 1999, 2004), Agell and

Lundborg (2003)). Some of these surveys also indicated that if there is a need to reduce the labour cost in a given firm, company managers prefer laying some people off to lowering the wage level. This is because layoffs can be carried out selectively, whereas when all workers' wages are cut, the most productive employees are the most likely to leave and the least productive the most likely to remain.

It has been found from several studies that employee morale depends to a large extent on whether workers consider payment to them to be fair (Bewley (1999), Campbell and Kamlani (1997)). In wage-related decisions, employees pay more attention to internal fairness than to comparison of general wage levels, meaning that compliance with the principle of fairness is especially important when decisions are made about cutting wages. Bewley (1999) has indicated that cutting wages has a much more negative effect on employee morale if it seems ungrounded because the company is in good shape. There are less serious negative consequences from cutting wages when it is possible to present wage cuts to the employees as an unavoidable decision. This means that when unemployment is high and workers' outside options are limited, firms could cut wages as this would not be considered an unfair wage policy. While Levine (1993) reported that changes in unemployment had little effect on the managers' wage setting decisions, Agell and Lundborg (1995) reported that managers believe that the business cycle has an impact on employee effort. As we shall see later on, wage cuts remain extremely rare for a very large number of firms from different countries, which are arguably going to be affected by a wide variety of external shocks.

Analysis based on behavioural experiments also confirms the importance of fairness considerations in wage-related decisions. Lab and field experiments show that higher wages lead to an increase in effort. Interestingly, it is shown that the response to a wage cut, which is considered an unfair act, is stronger than the response to a wage increase of the same size, which is seen as a fair act (see Fehr et al. (2008)). The analysis also shows that the impact of fairness considerations on performance is higher in long-term employment relationships.

Insider-Outsider (Reasons 5, 6)

The effect of wage cuts on employee turnover and composition (indicated in the efficiency wage discussion) has also been framed in a different way in 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, but 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 (Lindbeck and Snower (1988)). It follows that internal workers are relatively insulated from outside labour market conditions, and hence can exert pressure on the firm to avoid nominal wage cuts even when the labour market is slack.

Implicit Contracts (Reason 7)

Another 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 faces ups and downs in its performance (Azariadis (1975)). 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.

External relative wages – Fair wages (Reason 8)

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.

Whether employers take the external wage level into account depends to a large extent on the availability of information about the wages in that sector or region. Generally,

it has been found that the greater the power of trade unions, the more knowledgeable the employees are about the external wage structure and the more the employers must take it into account in the wage setting process (Agell and Lundborg (2003)).

3. Survey design and a first look at the data

3.1. Survey description

The analysis in the current paper is based on a survey of firms that was conducted between the second half of 2007 and the first quarter of 2008 in 16 European Union countries, 14 of which included the questions analysed here on the reasons for avoiding wage cuts. The 14 countries were Austria, Belgium, the Czech Republic, Estonia, France, Hungary, Ireland, Italy, the Netherlands, Lithuania, Poland, Portugal, Slovenia and Spain.⁴ The survey was carried out by the national central bank of each country and all countries based the survey on a harmonised questionnaire, which was developed in the context of the ESCB Wage Dynamics Network, a research network analysing wage and labour cost dynamics. The harmonised questionnaire contained a core set of questions on the firms' wage setting strategies, which was included in all the countries' questionnaires. The harmonised questionnaire was further adapted by some countries to account for specific country characteristics and differences in the institutional frameworks. As a result, some countries opted for shorter versions of this questionnaire, while others extended it in several dimensions.

The sample frame in each country was based on firms with at least five employees. The sectors covered are manufacturing, energy, construction, market services, non-market services, trade and financial intermediation.⁵ The sample covers 14,975 firms rep-

⁴ The survey was conducted either by traditional mail, phone and face to face interviews or over the internet. The survey was addressed to the company's CEO or senior-level human resources manager(s). Germany and Greece also conducted the survey, but with different questions on wage cuts and so they are not included in this paper.

⁵ There are however some differences in the sectoral coverage of individual countries – see the online appendix to Babecky et al. (2012) for full details.

representing around 47.3 million employees.⁶ In order to make the results representative of the total population, the cross-country statistics presented in the following sections use employment adjusted weights. For each firm or observation these weights indicate the number of employees each observation represents in the population.⁷ These weights are calculated as employment in the population divided by the number of firms (in each stratum), in the final sample.⁸ A detailed description of the distribution of the sample by country, sector and size along with a description of the construction of employment based weights can be found in the online appendix to Babecký et al (2012).

3.2. Institutional background of participating countries

As discussed in detail in Du Caju et al. (2009), the euro area member states in our sample belong to a group of countries with a relatively strictly regulated system of wage bargaining, characterised by the existence of extension procedures and a high level of collective agreement coverage, and a dominance of sectoral (and to a lesser extent firm-level) collective agreements. The non-euro area countries in the sample belong to the group of countries where the wage bargaining system is relatively deregulated. This group includes countries with very low trade union densities, low levels of collective agreement coverage, and decentralised wage bargaining frameworks. We will differentiate between the euro area and non-euro area countries throughout the paper.⁹

The survey included three questions related to the collective bargaining of wages. Managers were asked if a collective wage agreement applies and if so, whether it is a

⁶ The response rate varied across countries ranging from 12% in Lithuania to 73% in Poland (for more details see Appendix 1 in Babecký et al. (2009)). On average, the response rates are comparable to those of similar surveys like Campbell and Kamlani (1997), Agell and Lundborg (2003), or Franz and Pfeiffer (2006).

⁷ The employment adjusted weights account for the unequal probabilities of firms receiving and responding to the questionnaire across strata and also for the average firm size (measured as the number of employees) in the population in each stratum.

⁸ For most of the cases the stratification is based on sector and firm size, while some countries also used region as an additional stratum.

⁹ The euro area countries are: Austria, Belgium, Spain, France, Ireland, Italy, the Netherlands, Portugal and Slovenia. The non-euro area is: the Czech Republic, Estonia, Hungary, Lithuania and Poland. The group of euro area countries does not include Estonia as it was not a member of the euro area at the time the survey was conducted.

firm-level agreement or a binding agreement that was negotiated at a level outside the firm such as the national or sectoral level. In addition, the survey obtained data on the proportion of workers in the firm covered by any kind of collective wage agreement, internal or external. The information is summarised in Table 1 and is compared with the information reported by Du Caju et al. (2009) on collective bargaining coverage based on the institutional design of each country. Both data sources are qualitatively consistent and point to the sharp contrast between the euro area and non-euro area countries highlighted before. In Austria Belgium, Spain, France, Italy and Slovenia, the coverage of collective agreements is almost universal within the sectors included in the survey.

Table 1: Collective bargaining institutions across countries

Country	Covered employees (%)	Firms subject to union agreements (any level, %)	Firms having firm-level agreements (%)	Firms subject to higher level agreements (%)
Austria	95 (H)	98	23 (N)	96
Belgium	89 (H)	99	35 (N)	98
Czech Republic	50 (M)	54	51 (D)	18
Estonia	9 (L)	12	10 (D)	3
Spain	97 (H)	100	17 (N)	83
France	67 (M)	100	59 (D)	99
Hungary	18 (L)	19	19 (D)	0
Ireland	42 (L)	72	31 (N)	68
Italy	97 (H)	100	43 (N)	100
Lithuania	16 (VL)	24	24 (D)	1
Netherlands	68 (H)	76	30 (N)	45
Poland	19 (VL)	23	21 (D)	5
Portugal	56 (VL)	62	10 (N)	59
Slovenia	N/A (H)	100	26 (N)	74
Total	67	76	33	65
Euro area	84	94	36	87
Non-euro area	24	28	26	6

Note: Responses are weighted, using employment in each cell as weights. Total and euro area country aggregates exclude Germany. The information in brackets comes from Du Caju et al. (2009): union coverage: VL = very low (0 to 25% of workers are covered by collective agreements), L = low (26 to 50%), M = moderate (51 to 75%), H = high (76 to 100%); Firm-level agreements: D = when collective bargaining takes place, most agreements take place at the firm level, N = company level is not dominant in the country.

Differences across countries in the share of firms covered by firm-level or higher-level agreements are substantial. In all countries there are a non-negligible number of firms that negotiate wages with local unions at the firm level, affecting a share of the workforce that ranges from 59% in France to 10% in Estonia and Portugal. In France, however, all firms are subject to collective agreements signed at the sectoral or national level, regardless of whether a firm-level agreement exists or not. In Estonia in contrast, most firms that sign firm-level agreements with unions are not subject to national or sectoral negotiations. Different elements of wage determination and employment relationships may be covered in the context of firm-level agreements in different countries. The richness of our survey will allow us to examine these institutional differences in detail, and assess their influence on the rationale for not cutting wages.

3.3. Incidence of wage cuts

The survey provides quantitative information on the proportion of firms that have cut wages and also on the proportions of workers affected by wage cuts in these firms. Specifically, firms were asked if they had ever cut wages during the past five years. If they responded “yes” to this question, they were further asked what percentage of their workforce this cut had applied to. Firms were instructed to answer the wage-setting questions with reference to their main occupational group, which was defined earlier in the survey.

Table 2: Incidence of wage cuts across countries

Country	Percentage of firms having cut wages	Percentage of employees affected (in the sample)	Percentage of employees affected (in firms that had cut wages)
Austria	2.99	0.36	12.2
Belgium	3.10	0.23	7.4
Czech Republic	8.37	1.55	18.6
Estonia	3.05	0.21	6.9
Spain	0.06	0.01	20.4
France	2.46	1.10	44.8
Hungary	2.64	0.27	10.3
Ireland	1.00	0.37	37.1
Italy	0.71	0.15	21.9
Lithuania	8.33	0.93	11.1
Netherlands	1.43	0.19	13.2
Poland	4.38	2.83	64.6
Portugal	1.01	0.16	16.2
Slovenia	2.45	1.19	48.6
All countries	2.37	0.83	34.8
Euro area	1.31	0.33	25.6
Non-Euro area	5.10	2.09	40.9

Note: Responses are weighted, using employment in each cell as weights.

Table 2 shows that wage cuts are extremely rare. Around 2.4% of the firms had cut wages over the last five years and this strategy affected only 0.8% of the workers in the sample, and 34.8% of the workers working in firms that had cut wages. Interestingly despite the low number of wage cuts there are some apparent differences between euro area and non-euro area countries. The percentage of firms that have cut wages is close to four times as high in non-euro area countries as in the euro area and the percentage of employees affected is also quite considerably higher. The rarity of wage cuts has been much commented on across a range of individual country studies. For example, Agell and Lundborg (2003) and Agell and Bennmarker (2007) report that even during the relatively severe Swedish recession of the 1990s firms did not extensively cut wages. In the US, Bewley (1998) notes resistance to pay cuts comes primarily from the employers, with this attitude apparently driven mainly by anticipation of negative employee reactions.

3.4. Reasons for avoiding wage cuts

As discussed above, firms may avoid cutting wages for a wide variety of reasons. The survey allows us to document the relative importance of several possible reasons for avoiding wage cuts in the 14 European countries surveyed. Firm managers were asked to assess the relevance of the eight reasons listed in Section 2 for preventing base wage cuts. Answers were requested on a four-point scale: not relevant, of little relevance, relevant, and very relevant. Table 3 presents the percentages of firms in each country that ranked a given reason as very relevant or relevant, and Table 4 shows the overall ranking of the different reasons.

Looking first at the averages across all countries, the two most important reasons for avoiding base wage cuts are the belief that this would result in a reduction in morale or effort and the risk that the most productive workers would leave as a consequence. Both of these reasons were reported as relevant or very relevant by 86 percent of firms. The impact on employees' morale is an explanation often found in the earlier literature (e.g. Franz and Pfeiffer (2006), Kaufman (1984), Campbell and Kamlani (1997), Bewley (1998)). The danger of the best employees leaving the firm is less commonly mentioned, but Campbell and Kamlani (1997) find strong support for the adverse selection model applied to quits in the USA.

A third prominent issue preventing nominal wage cuts in Europe comes from institutional restrictions, imposed either in the form of labour regulations or by collective agreements. The institutional reason was considered important by 74 percent of firms. This reason was not considered in the studies analysing US data (i.e. Campbell and Kamlani (1997), Bewley (1998)), although at least one study analysing European data finds some support for this reason in Germany (Franz and Pfeiffer (2006)).

At the opposite end of the scale, concerns about the firm's reputation as an employer and the idea of implicit contracts that act as an insurance device had the lowest overall levels of support at 60 and 59 percent of firms, respectively. The remaining three reasons relating to future difficulty in recruitment, increased costs associated with

employee turnover and employees making negative comparisons with outside wages were all rated as relevant by between 67 and 72 percent of firms.

Table 3: Reasons for avoiding base wage cuts across countries

	Reg./ Agreement	Reduced Effort/ Morale	Reputation	Best staff leave	Hiring/training cost	Hiring difficulty	Implicit contracts	Employees compare wage
Austria	0.80	0.93	0.66	0.86	0.78	0.50	0.47	0.73
Belgium	0.89	0.92	0.58	0.84	0.69	0.75	0.84	0.72
Czech Rep.	0.58	0.91	0.71	0.97	0.89	0.84	0.49	0.79
Estonia	0.62	0.97	0.89	0.98	0.96	0.92	0.67	0.90
Spain	0.93	0.75	0.46	0.73	0.57	0.62	0.76	0.53
France	0.82	0.95	0.53	0.82	0.43	0.72	0.26	0.53
Hungary	0.44	0.85	0.56	0.72	0.48	0.46	0.81	0.75
Ireland	0.39	0.87	0.69	0.83	0.59	0.72	0.77	0.78
Italy	0.91	0.88	0.60	0.92	0.88	0.73	0.35	0.79
Lithuania	0.51	0.91	0.73	0.98	0.95	0.87	0.70	0.90
Netherlands	0.68	0.80	0.66	0.79	0.64	0.81	0.80	0.71
Poland	0.36	0.76	0.62	0.91	0.69	0.79	0.74	0.54
Portugal	0.82	0.91	0.61	0.88	0.59	0.60	0.88	0.69
Slovenia	0.75	0.93	0.79	0.92	0.76	0.81	0.80	0.81
All countries	0.74	0.86	0.60	0.86	0.70	0.72	0.59	0.67
Euro area	0.85	0.87	0.58	0.84	0.69	0.70	0.55	0.68
Non-Euro area	0.43	0.82	0.64	0.90	0.72	0.76	0.70	0.65

Note: Proportion of firms which replied “relevant” or “very relevant”. Responses are weighted, using employment in each cell as weights.

There was considerable dispersion across countries for some of the reasons examined, but the most relevant explanations were supported by the vast majority of managers in all countries. As such, there is no country where explanations relating to morale and losing productive staff were supported by interviewees representing less than 70 percent of the labour force. In contrast, the importance of firm reputation and the

existence of implicit contracts were generally more likely to be relevant for non-euro area countries than for euro area members.

The greatest variation was in the importance of labour regulations and collective bargaining, the relevance of which ranged from 36 percent of firms in Poland to 93 percent of firms in Spain. The percentage of firms supporting the relevance of bargaining was almost twice as high in the euro area as in the non-euro area countries. This reflects substantial differences in the institutional structure of the wage-setting process across the European Union member states. As was indicated in Section 3.2, the percentage of workers covered by collective agreements tends to be much higher in euro area countries than in non-euro area countries. The difference stems mostly from the reach of collective agreements negotiated outside the firm at the sectoral or regional level (see Table 1). We will examine in more detail the effect of the type and intensity of collective bargaining agreements on firms' perception of this as a reason for avoiding wage reductions in the next section. Table 4 presents the relative rankings of different reasons for the total sample and also separately for the euro area and non-euro area countries.

Table 4: Reasons for avoiding base wage cuts – ranking of responses

	Total		Euro area		Non-Euro area	
	Share	Rank	Share	Rank	Share	Rank
Most productive workers leave	0.86	1	0.85	3	0.90	1
Lower worker morale/ less effort	0.86	2	0.87	1	0.82	2
Labour regulations/ collective bargaining	0.73	3	0.85	2	0.42	8
Difficult to attract new workers	0.72	4	0.70	4	0.76	3
Labour turnover costs increase	0.70	5	0.69	5	0.73	4
External wages matter	0.68	6	0.69	6	0.66	6
Reputation suffers	0.60	7	0.58	7	0.65	7
Implicit contract	0.59	8	0.55	8	0.70	5

Note: Share of firms which replied “very relevant” or “relevant” and the corresponding rank.

The importance of each of these factors across sectors shows that effort and reputation are again consistently amongst the major inhibitors of wage reductions (Table 5). Regulation and collective agreements vary less in their relevance across sectors than they do across countries, although construction stands out as having a particularly low percentage of firms classifying this reason as relevant, perhaps indicating the importance of informal labour relations in this sector and the high share of workers with temporary contracts, an issue to which we will return later. Concerns about losing the best staff are particularly marked in the financial sector and least relevant in non-market services. Firms in the non-market services sector also attach the lowest relevance to the cost of recruiting and training new staff. All these features are likely to be related to the types of worker that are employed in the sector, as we shall see later. However, firm characteristics also matter and firm size in particular is consistently associated with a larger probability of a firm reporting each reason as relevant or very relevant (Table 5), suggesting that larger firms with more complex organisational structures and perhaps employing a more diverse set of workers, experience more obstacles to wage cuts.

Table 5 shows that firms attach a similar relevance to each of the reasons for avoiding wage cuts, independently of their collective bargaining coverage. There is a clear association between the relevance of the reason and higher bargaining coverage only in the case of labour regulation as an obstacle to wage cuts. Once collective bargaining is predominant in a firm, the bargaining level does not seem to make a large difference, whether it is internal, external or both. This suggests that the aspect of bargaining that matters for downward wage rigidity is union coverage, and not the precise institutional structure of the bargaining system.

Table 6 reports the correlations in relevance across the different explanations. In calculating the correlation coefficients we take into account the four different choices offered to the interviewees, exploiting the full variability in the survey questions. The relevance attached to regulation and collective agreements is very weakly correlated with the other explanations. The highest correlations are between the reasons relating to the difficulties

firms may encounter in hiring new workers and the cost of hiring and training new workers. The relevance attached to concerns that the best employees may leave the firm and the reasons relating to the cost of hiring and training new workers and the difficulty in hiring new workers are also highly correlated.

Table 5: Reasons for avoiding wage cuts by sector, firm size, bargaining coverage and bargaining level

	Reg./ Agreement	Reduced effort/ morale	Reputation	Best staff leave	Hiring/ training cost	Hiring difficulty	Implicit contracts	Employees com- pare wages
<u>Sector</u>								
Manufacturing	0.75	0.87	0.61	0.86	0.70	0.73	0.59	0.65
Energy	0.83	0.89	0.54	0.81	0.58	0.68	0.77	0.50
Construction	0.55	0.86	0.67	0.90	0.73	0.76	0.71	0.72
Trade	0.72	0.83	0.57	0.85	0.70	0.66	0.61	0.67
Market Services	0.76	0.86	0.60	0.86	0.69	0.73	0.55	0.70
Financial	0.66	0.85	0.66	0.91	0.77	0.82	0.63	0.73
Non-market Services	0.82	0.88	0.44	0.59	0.40	0.64	0.56	0.44
<u>Firm size</u>								
5–19	0.55	0.83	0.52	0.82	0.63	0.64	0.70	0.62
20–49	0.73	0.87	0.57	0.88	0.75	0.69	0.58	0.71
50–199	0.71	0.86	0.61	0.87	0.71	0.71	0.65	0.68
200+	0.83	0.86	0.64	0.85	0.69	0.77	0.52	0.67
<u>Bargaining coverage</u>								
Low (<25%)	0.41	0.84	0.61	0.88	0.67	0.75	0.67	0.64
Medium-Low (25–49%)	0.75	0.65	0.65	0.86	0.81	0.71	0.55	0.72
Medium-High (50–75%)	0.87	0.85	0.55	0.84	0.73	0.69	0.59	0.68
High (>75%)	0.88	0.86	0.59	0.85	0.71	0.70	0.54	0.68
<u>Bargaining level</u>								
Firm Bargaining Only	0.78	0.79	0.65	0.83	0.68	0.77	0.71	0.64
Outside Bargaining Only	0.87	0.87	0.58	0.84	0.71	0.68	0.60	0.68
Firm and outside agreement	0.87	0.89	0.57	0.86	0.68	0.74	0.35	0.68
No agreement	0.33	0.83	0.64	0.90	0.71	0.75	0.74	0.67

Note: Proportion of firms which replied “relevant” or “very relevant”. Responses are weighted, using employment in each cell as weights.

Table 6: Correlations of Relevance Ranking Across Reasons

	Reg./ Agreement	Reduced Ef- fort/Morale	Reputation	Best employees leave	Hiring/training cost	Hiring difficul- ty	Implicit con- tracts	Employees compare wages
Reg./ Agreement	1.00							
Reduced Ef- fort/Morale	0.14	1.00						
Reputation	0.08	0.49	1.00					
Best employ- ees leave	0.07	0.49	0.48	1.00				
Hiring/ training cost	0.11	0.35	0.42	0.53	1.00			
Hiring diffi- culty	0.12	0.37	0.47	0.53	0.58	1.00		
Implicit con- tract	0.03	0.36	0.31	0.29	0.27	0.30	1.00	
Employees compare wag- es	0.04	0.39	0.40	0.42	0.39	0.42	0.47	1.00

Note: Correlation coefficient using answers on a four-point scale: 1 “not relevant”, 2 “of little relevance”, 3 “relevant”, and 4 “very relevant”.

4. Firms characteristics and reasons for avoiding wage cuts

We now look at how firm characteristics are related to the relevance of each of the potential explanations for avoiding wage cuts. In contrast to our summary statistics above, we now exploit the full information in the data in a simple multivariate analysis. As the dependent variable for each reason is measured on a four-point relevance scale, we estimate ordered probit models for each of the questions separately. All of the specifications control for country and sector effects, which limits the impact that differences in the survey design across countries may have on the results.

The regression results presented in Table 7 indicate that firms employing a higher proportion of blue-collar and low-skilled white-collar workers rank labour regulation highly. Franz and Pfeiffer (2006) also report that this reason appears to be more important for less skilled workers in Germany. This is probably because these workers are more likely to be covered by collective agreements than high-skilled white-collar workers. Importantly, such differences are not related to the sectoral composition of employment, a feature that is controlled for by the sector effects.

The greater the proportion of low-skilled blue-collar workers in a firm, the less likely it is that concerns about losing skilled employees or the potential costs of later recruitment and training will be highly rated. This suggests that turnover explanations (cost of hiring and training new workers) received stronger support among firms that use more high-skilled workers. In a similar vein, Campbell and Kamlani (1997) also report that turnover-related explanations are important for white-collar workers.

It is interesting to note that the reason of a reduction in effort and morale does not vary across worker skill groups, while the efficiency wage theory would suggest that firms employing a higher share of high-skilled workers should be more concerned about their employees exerting less effort, as the effort of high-skilled workers is more difficult to monitor. However, the relationship between worker skills, effort and downward wage rigidity is not straightforward. Campbell and Kamlani (1997) actually report that firms generally consider that a wage cut would have a stronger impact on the effort of low-skilled workers. Their interpretation is that high-skilled workers are motivated by the challenges entailed by their job and not purely incentivised by the wage itself. Interestingly, hiring difficulty is significantly higher in firms that mostly employ high-skilled blue-collar workers, perhaps due to a higher degree of firm-specific skills amongst this group. The higher relevance of the versions of the efficiency wage theory related to quits, hiring difficulty and hiring and training costs in firms that employ a higher proportion of skilled workers may be related to the firms' production structure. In recent years, skilled-biased technical progress has increased the relative demand for skilled workforce.

Table 7: Reasons for Avoiding Wage Cuts:
The role of worker characteristics and firm size

	Reg./ Agreement	Reduced Ef- fort/Morale	Reputation	Best employees leave	Hiring/training cost	Hiring difficulty	Implicit contract	Employees com- pare wages
% Low skill blue collar	0.440*** (0.000)	-0.065 (0.171)	0.004 (0.937)	-0.221*** (0.000)	-0.196*** (0.000)	-0.003 (0.954)	0.035 (0.467)	-0.014 (0.768)
% High skill blue collar	0.186*** (0.001)	-0.044 (0.422)	0.140*** (0.007)	0.016 (0.778)	0.042 (0.432)	0.113** (0.033)	0.027 (0.622)	0.039 (0.480)
% Low skill white collar	0.241*** (0.000)	-0.039 (0.563)	-0.016 (0.804)	-0.079 (0.250)	-0.122* (0.062)	-0.114* (0.081)	0.065 (0.334)	-0.095 (0.160)
% Temporary	0.083 (0.187)	0.018 (0.766)	0.149*** (0.009)	0.143** (0.021)	0.074 (0.193)	0.125** (0.028)	0.107* (0.069)	0.147** (0.013)
Size=20–49	0.134*** (0.000)	0.011 (0.708)	0.148*** (0.000)	0.128*** (0.000)	0.085*** (0.003)	0.076*** (0.008)	-0.023 (0.435)	0.023 (0.430)
Size=50–199	0.323*** (0.000)	-0.001 (0.977)	0.183*** (0.000)	0.126*** (0.000)	0.107*** (0.000)	0.146*** (0.000)	-0.050* (0.076)	0.039 (0.165)
Size=200+	0.474*** (0.000)	-0.018 (0.573)	0.278*** (0.000)	0.105*** (0.001)	0.101*** (0.001)	0.230*** (0.000)	-0.105*** (0.001)	0.031 (0.304)
Observations	13335	13685	13402	13529	13255	13431	12869	13002

Note: Ordered probit regressions. Robust p-values in parentheses. Country and sector effects not reported.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Interesting patterns emerge between the different explanations for downward wage rigidity and the type of contracts that are prevalent at the firm level. In particular, firms employing a larger share of their workforce under temporary contracts are more likely to avoid wage cuts because they may earn the firm a bad reputation as an employer, the best employees may leave, and there is a perceived difficulty in hiring new workers. All of these factors imply that firms hiring temporary workers are conscious of the need to recruit staff regularly. Firms that employ a higher proportion of workers with fixed-term contracts also rank highly the fact that employees may compare wages to outside oppor-

tunities, implying that the contract nature of these jobs makes the worker more likely to be aware of outside options.

Larger firms tend to assign more relevance to a number of explanations for avoiding wage cuts, in particular to labour regulation, their reputation as an employer, the danger of the best employees leaving the firm, the potential difficulties in hiring new workers and the cost of hiring and training new workers. Somewhat unexpectedly though, larger firms do not seem to assign particular relevance to effort. It could be argued that bigger firms would worry more about the impact of a wage cut on effort due to higher monitoring difficulties. Our finding is in contrast to that of Agell and Bennismarker (2007) for Sweden, who report that managers in bigger firms tend to note that they find difficulties in appraising work performance and are thus more likely to pay efficiency wages.

Again in contrast to the findings of Agell and Bennismarker (2007), firm size does not seem to be related to differences in the importance attributed to employees comparing wages, while smaller firms seem to assign higher relevance to insurance motives in which firms agree implicitly with workers that wages should be relatively insulated from economic shocks. Modern contract theory has suggested that an obstacle to insurance provision from the side of firms is that effort is hard to observe (see e.g. Holmstrom and Milgrom (1987)). This is less likely to be the case in smaller firms. In addition, managers and employees in smaller firms interact more closely and have personal relationships that provide a useful ground for the establishment of implicit contracts.

Another interesting relationship that our data allow us to investigate and that has not been identified in previous studies is the one between the intensity of product market competition and the various explanations for avoiding wage cuts. We might expect firms experiencing severe competition to be more conscious of human resource policies in general and therefore to be more aware of the constraints that prevent them from cutting wages. We use a measure of competition that is a self-perceived indicator of the intensity of competition where firms were asked to report whether they face severe, strong, or weak or no competition. We add this measure of competition as an additional control variable to the set of variables included in the regression specification that was presented

in Table 7. This control variable was not included in the first set of regressions because its inclusion reduces the number of observations used in the regression as the question was not covered by all countries' questionnaires.¹⁰ Table 8 shows that there is a significant positive association between the intensity of perceived competition and the relevance of all theories. In most cases the association monotonically increases with the perceived intensity of competition. Firms facing weak or no competition are significantly less likely to report that the various theories suggested are preventing them from reducing wages than are firms that face severe competition.

As previous papers used data from single countries, they were limited in their ability to examine the importance of institutional factors for downward wage rigidity as perceived by company managers. The detailed data used here are the first to fill this gap. Table 9 combines a number of additional specifications to examine how wage bargaining arrangements and some other firm characteristics affect the relevance ranking of the different theories. Each specification continues to include as additional controls all the variables that were used in the regressions presented in Table 8, but these are suppressed for presentational reasons.

Not surprisingly, Panel A in Table 9 shows a strong positive association between union coverage and the relevance of labour regulation as a reason for avoiding wage cuts. More interestingly, collective bargaining is positively associated with long-term relationships between workers and firms through implicit contracts that insulate wages from outside conditions. There is also a strong positive association between the coverage of union contracts and the importance of reputation. The correlation with collective bargaining coverage is negative for the reason referring to the fact that the best employees may leave.

¹⁰ Austria, Belgium, Spain and Italy did not include this question.

Table 8: Reasons for Avoiding Wage Cuts:
The importance of product market competition

	Reg./ Agreement	Reduced Ef- fort/Morale	Reputation	Best employees leave	Hiring/training cost	Hiring difficulty	Implicit contract	Employees compare wages
Strong Competition	-0.063** (0.017)	-0.051* (0.054)	-0.040 (0.110)	-0.042 (0.110)	-0.061** (0.016)	-0.055** (0.028)	-0.082*** (0.002)	-0.085*** (0.001)
Weak Com- petition	-0.126*** (0.007)	-0.102** (0.029)	-0.118*** (0.009)	-0.149*** (0.001)	-0.148*** (0.001)	-0.139*** (0.002)	-0.091* (0.054)	-0.119** (0.012)
No Competi- tion	-0.041 (0.614)	-0.361*** (0.000)	-0.293*** (0.000)	-0.433*** (0.000)	-0.346*** (0.000)	-0.414*** (0.000)	-0.252*** (0.001)	-0.504*** (0.000)
Observations	8720	9018	8834	8907	8677	8821	8524	8597

*Note: Ordered probit regressions. All specifications also include country and sector effects, three size dummies, the share of workers with temporary contracts and three indicators of skills: the share of low skilled blue collars, high skilled blue collars and low skilled white collars. Robust p values in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

Table 9: Reasons for Avoiding Wage Cuts:
Bargaining and Other Firm Characteristics

	Reg./ Agreement	Reduced Ef- fort/Morale	Reputation	Best employ- ees leave	Hiring/training cost	Hiring difficul- ty	Implicit con- tract	Employees compare wages
<i>Panel A: Union Cov- erage</i>								
Coverage	0.675*** (0.000)	0.028 (0.389)	0.064** (0.035)	-0.070** (0.030)	-0.042 (0.178)	0.021 (0.492)	0.077** (0.019)	0.018 (0.562)
Observations	7636	7882	7719	7782	7574	7711	7405	7489
<i>Panel B: Type of agreement</i>								
Only firm agreement	0.718*** (0.000)	-0.050 (0.293)	-0.005 (0.913)	-0.117** (0.016)	-0.076 (0.103)	-0.030 (0.518)	0.019 (0.688)	-0.033 (0.486)
Only outside agreement	0.860*** (0.000)	0.083* (0.050)	0.094** (0.018)	-0.055 (0.177)	0.012 (0.757)	0.037 (0.352)	0.126*** (0.001)	0.003 (0.936)
Both agree- ments	0.798*** (0.000)	-0.012 (0.842)	0.107** (0.048)	-0.137** (0.015)	-0.100* (0.058)	-0.016 (0.770)	0.028 (0.608)	-0.107** (0.047)
Observations	8595	8891	8708	8781	8555	8698	8400	8478
<i>Panel C: Turnover</i>								
Turnover change	0.167*** (0.000)	0.083* (0.073)	0.136*** (0.002)	0.197*** (0.000)	0.071 (0.103)	0.172*** (0.000)	0.060 (0.182)	0.144*** (0.001)
Observations	8068	8348	8181	8238	8029	8163	7880	7953
<i>Panel D: Wage cuts</i>								
Experienced Cut	0.041 (0.591)	-0.369*** (0.000)	-0.325*** (0.000)	-0.268*** (0.000)	-0.193** (0.013)	-0.344*** (0.000)	-0.112 (0.145)	-0.190*** (0.010)
Observations	8379	8666	8494	8566	8356	8487	8210	8283

Note: Each panel presents a separate ordered probit regression. All specifications also include country and sector effects, all firm controls from Table 7 and controls for product market competition. Panels C to D also include union coverage as a control. Robust p values in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

When we evaluate different institutional wage-bargaining designs separately we find that firms with any type of collective agreement tend to rank labour regulation highly as a reason for avoiding wage cuts (Panel B). Thus when it comes to ranking labour regulation, there are no significant differences between having agreements at the firm level or at higher levels. Instead, managers of firms covered by union contracts signed outside the firm give a higher rank to reduced effort and morale, reputation and implicit contracts. This result contrasts with the answers from managers of firms that negotiate with unions at the firm level, as these show no differences from managers that negotiate with workers individually. This is an indication of the role of centralised forms of bargaining in facilitating information about workers rights and working conditions in different firms. It appears though that the information dissemination property of centralised forms of bargaining is only present in countries where centralised bargaining is dominant. Indeed, Table 10 shows that firms in the euro area covered by agreements signed outside the firm rank reduced effort and morale, reputation and implicit contracts highly. On the other hand, in the non-euro area countries where centralised and sectoral bargaining is rarer, the coverage by outside agreements does not seem to influence firms' responses to the different questions.

Managers in firms that feature firm-level collective agreements attribute less importance to the danger that the best employees may leave if wages are cut. Since collective bargaining and wage determination issues at the firm level are bound to be tailored to the specific characteristics of each firm, managers in this type of bargaining framework appear to be less concerned about adverse selection if it eventually becomes necessary to cut wages. This may indicate that there is an important wage premium associated with firm-level collective bargaining, which could discourage workers from searching for other offers even in the event of a nominal wage cut.

We also look at the relationship between firms' worker turnover and the view of their managers about the reasons for avoiding wage cuts. Firms were asked to report the percentage of employees joining and leaving the firm during the last year. Using this information and the number of employees reported by the firm we built a measure of work-

er turnover that is included in the regressions reported in Panel C of Table 9. The regression shows that firms featuring higher turnover rates show more support to practically all the reasons for avoiding wage cuts. The estimated impacts are of particular importance with the fear of best employees leaving the firm, reputational hazards, and the difficulty of hiring employees in the future. Hence firms operating in more unstable environments appear to be more conscious of the negative consequences of cutting wages on maintaining a high quality workforce.

Table 10: Reasons for avoiding wage cuts –
Unions (Euro Area and Non-Euro Area countries)

	Reg./ Agreement	Reduced Ef- fort/Morale	Reputation	Best employees leave	Hiring/training cost	Hiring difficulty	Implicit con- tracts	Employees com- pare wages
<i>Panel A:</i>								
<i>Euro area</i>								
Only firm agreement	0.861*** (0.000)	-0.095 (0.226)	0.046 (0.545)	-0.117 (0.138)	-0.106 (0.160)	-0.064 (0.408)	-0.070 (0.344)	-0.074 (0.328)
Only outside agreement	0.898*** (0.000)	0.103** (0.033)	0.125*** (0.007)	-0.042 (0.370)	0.037 (0.413)	0.042 (0.353)	0.100** (0.023)	0.007 (0.873)
Both agree- ments	0.822*** (0.000)	0.032 (0.631)	0.154** (0.014)	-0.103 (0.103)	-0.038 (0.525)	-0.006 (0.922)	0.002 (0.975)	-0.096 (0.123)
Observations	5034	5226	5082	5129	4923	5075	4859	4896
<i>Panel B:</i>								
<i>Non-euro area</i>								
Only firm agreement	0.621*** (0.000)	-0.034 (0.574)	-0.046 (0.424)	-0.136** (0.028)	-0.072 (0.224)	-0.014 (0.812)	0.059 (0.330)	-0.010 (0.862)
Only outside agreement	0.330 (0.122)	-0.074 (0.716)	0.092 (0.679)	-0.133 (0.601)	-0.033 (0.863)	-0.066 (0.756)	0.125 (0.560)	0.042 (0.815)
Both agree- ments	1.060*** (0.000)	-0.290** (0.044)	-0.005 (0.971)	-0.288* (0.080)	-0.435*** (0.001)	-0.092 (0.482)	0.038 (0.748)	-0.194 (0.134)
Observations	3561	3665	3626	3652	3632	3623	3541	3582

Note: Robust p values in parentheses. Specifications include same controls as Table 9. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The final question that we pose is whether firms that have had actual experience of reducing wages have a different view of the reasons for avoiding cuts than firms that have never done so. The last panel of Table 9 shows that firms that have cut wages during the five years preceding the survey fairly consistently attach less relevance to each of the obstacles than do firms that have not done so. This can be interpreted as an internal consistency check of the perceptions of the managers surveyed: firms that have cut wages have probably done so because they did not assign much relevance to the stated reasons. However, it could also be that the past experience of managers who went through wage cuts leads them to believe that if employees can be persuaded that the cut is justified, perhaps because it will preserve jobs, the usual obstacles can be overcome. However, as we noted at the start of the paper, the number of firms that had implemented wage cuts at the time of the survey was very small, so a degree of caution is necessary in drawing conclusions from this specification.

Our results are based on data collected prior to the economic downturn experienced by European countries in recent years. However, research using data covering periods of recessions also shows that wages are very rarely cut (Agell and Lundborg (2003)). Messina and Rødm (2012) use data from a survey that covers the recent downturn for a subsample of the firms surveyed here and also show that wage cuts were rather rare. They find that broadly the same ranking of theoretical reasons for wage rigidity still holds, which suggests that the managers' views of the reasons for avoiding wage cuts are not strongly affected by the business cycle.

5. Conclusions

In light of the rarity of wage cuts, even in the face of quite severe economic shocks, this paper examines firm-level responses ranking the relevance of each of a number of theories put forward in the labour economics literature for why cuts tend to be avoided. To do this, we use a fairly large specially commissioned survey of firms across fourteen European countries asking managers directly about their experiences with wage cuts.

Just over two percent of firms had cut wages over the last five years at the time of the survey. We document the relative importance of eight possible reasons for avoiding wage cuts, with firms being asked about the effect of labour regulations and collective agreements, the existence of implicit contracts, efficiency wage considerations in terms of negative effects on worker morale or effort, whether firms had concerns about losing key staff or causing difficulties in future recruitment, whether the costs of future recruitment and training would be higher, and whether they felt employees would be concerned with how their wage compares to that of similar workers in other firms.

Across all countries and sectors, the two most important causes for avoiding base wage cuts are the belief that this would result in a reduction in morale or effort and the danger that the most productive workers would leave as a consequence. The greatest variation across countries was in the importance attached to labour regulations and collective bargaining, which we found to be almost twice as high in the euro area countries as in the non-euro area countries. When we investigated the relevance of this institutional factor within countries further, we found that firms covered by collective agreements, regardless of whether those had been negotiated at the firm level or at a more centralised level, were the most likely to rank labour regulations and bargaining institutions as a prominent reason for avoiding reductions in nominal pay.

We find certain firm characteristics to be strongly related to the relevance of different theories. For example, firms that employ higher proportions of blue-collar and low-skilled white-collar workers rank labour regulation highly but are less likely to lay importance on concerns about losing the best employees, or the potential costs of later recruitment and training. Larger firms are more likely to be aware of the potential complications associated with reductions in nominal pay and to assign higher relevance to most of the possible reasons for avoiding wage cuts. Fears about lower effort and lower morale are systematically quoted as highly relevant reasons for avoiding wage cuts across firms of any type.

Despite the high degree of relevance that firms in the survey attached to each of the explanations for avoiding wage cuts, the small group of firms with previous experience of

having actually cut wages indicated a much lower relevance score for most categories. This is an issue that deserves further research as it may indicate that in certain circumstances, for example if employees can be persuaded that the cut will preserve jobs, firms find a way to overcome the usual obstacles to cutting workers' pay.

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