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Abstract
This paper provides evidence on the role of flexible wage components as a channel for firms to adjust costs in case of the adverse shocks. It uses data from a firm-level survey for 25 European countries that covers the period 2010–2013. We find that firms subject to nominal wage rigidities, which prevent them from adjusting base wages, are more likely to cut flexible wage components in order to adjust labour costs when needed. Thus firms use flexible wage components as a buffer to overcome base wage rigidity. More generally, when base wages are able to adjust to negative shocks, the flexible wage components also react and their reaction is stronger than that of base wages.

JEL: J30, J32, C81, P5

Keywords: downward nominal wage rigidity, bonuses, firm survey, European Union.

1. Introduction

Micro-level data on wage variations and survey-based evidence on wage setting have revealed that even in the face of large negative shocks not only are workers reluctant to accept cuts in their nominal wages but also firms seem to be unwilling to carry out such cuts. This is the so- called downward nominal wage rigidity (DNWR). The resistance to cut wages – in favour of freezing them – when economic conditions justify – is of course a major impediment to labour cost adjustment.

Several reasons have been argued in the literature for workers' and employers' resistance to wage cuts. Besides leading to a lower standard of living for workers it may also be considered as being unfair or demeaning by workers, with the subsequent consequences in productivity. Stiglitz (1986) puts forward two main economic explanations for the presence of DNWR. Namely, the implicit contract theory that exploits the role of wages as an insurance-providing mechanism against fluctuations in the cost of living, and the efficiency wage model, according to which wages are regarded as a productivity-enhancing device. Akerlof and Yellen (1990), Bewley (1999), Agell and Lundborg (2003) and Babecký et al. (2010) among others confirmed the importance of fairness and efficiency considerations in preventing wage cuts.

Empirical evidence on the prevalence of downward nominal wage rigidities is also vast and is based mainly on the analysis of the changes in the wage growth distribution. In the U.S., clear signs of resistance to nominal wage cuts are found in studies such as Kahn (1997), Altonji and Devereux (2000) or Lebow, et al. (2003). More recently, a comprehensive cross-country study conducted in the framework of the International Wage Flexibility Project has also revealed the existence of nominal wage rigidity in many European countries (Dickens et al., 2007). Babecký et al. (2010) provide survey-based evidence on downward wage rigidity and its determinants for EU countries during times of economic stability; Fabiani et al. (2014), Izquierdo et al. (2017) and Marotzke et al. (2017) find that DNWR is prevalent in EU countries even in the strongest phases of the recent crisis.

The extent and implications of DNWR has been one of the key long-standing debates in macroeconomics. It goes back to Tobin (1972), who argues that such DNWR induce a long- term trade-off between inflation and unemployment. In the presence of DNWR a positive rate of inflation is needed to facilitate the adjustment of relative wages. Hence, an inflation rate which is too low could lead, in the presence of DNWR, to long term unemployment.

Subsequent theoretical research formalised Tobin's argument in the context of the so-called Philips curve, which plots the average inflation rate and the average unemployment rate (Akerlof et al. 1996). From the perspective of monetary policy, in the presence of DNWR higher inflation could be a way to promote labour market efficiency by widening the range of real wage cuts accepted by workers, leading to a lower impact on unemployment. Indeed, in

the face of negative shocks, employment adjustment is typically higher in the presence of nominal wage rigidity, in particularly in low inflation regimes. This has been one of the main reasons supporting the existence of a positive inflation target.

More generally, the degree of wage rigidity determines, among other factors, the speed, the nature and the cost of adjustment in the presence of economic shocks. In particular, nominal wage rigidity may prevent the proper functioning of a multi-country monetary union with segmented labour markets such as the euro area, where there is important cross-country heterogeneity in labour markets features and performance. The macroeconomic consequences of different types of wage rigidities were analysed for the euro area countries in Fahr and Smets (2010).

However, it is important to notice that the macroeconomic effects of DNWR are not unambiguous. In fact, the relevance of DNWR depends on whether firms have other margins besides base wages to adjust labour cost when needed. It is possible that rigidity has little effect on aggregate employment simply because firms have made adjustments that could be reflected in variables such as profits or productivity. For instance, Nickell and Quintini (2003) find that despite some rigidity at zero nominal wage changes the macroeconomic impact of such distortion is very modest. Gordon (1998) finds a positive correlation between the estimate of the time-varying NAIRU and inflation. One possible justification for this puzzle is that firms may be able to achieve the necessary flexibility that is prevented by nominal wage rigidity by using more flexible pay components, such as performance-related bonuses, commissions and other benefits.

Therefore, the question is whether there are broader measures of remuneration that are more flexible than base wages. Indeed, while changes in base or bargained wages typically display features of downward rigidity, it is possible that firms are able to vary other forms of remuneration – which may be less important or visible to workers than regular pay – to achieve desired adjustments in total labour costs. In many firms, in particular in larger ones, performance-related benefits such as bonuses and commissions account for a large and growing share of total compensation. Even though employees are less likely to oppose changes in these benefits than in their wages, from the firms' perspective they are also labour costs. That is why the key point when analysing DNWR is whether firms can flexibly adjust total compensation as a whole. It could be the case that the effective degree of downward nominal wage rigidity turns out to be lower when one accounts for total compensation leading to a smaller sacrifice ratio and a reduced bending of the Philips curve.

There is evidence suggesting that the effects of nominal wage rigidity are at least partly overcome in this way. For instance, Lebow et al. (1999) measure the extent of DNWR using the microdata underlying the BLS's employment cost index. They show that the number of nominal wage cuts is around one half that would happen in the absence of this rigidity, but firms are able to mitigate at

least a part of this rigidity by changing benefits: total compensation displays about one-third less rigidity than do wages alone. Dwyer and Leong (2003) show that broad measures of earnings also display downward rigidity but to a lesser extent than wages. Bewley (1999), who interviewed the managers of companies in the U.S., found that bonuses were frequently used as a way of flexible reduction of expenses when firms were most in need of money. However, he also found out that this strategy was connected with some disadvantages, similar to base wage cuts: morale and productivity hurts, and the increased turnover of better workers. This is also in line with the earlier similar survey findings of Campbell and Kamlani (1997).

On the other hand, the decision to extensively use the flexible wages components can be a wage cushion strategy – keeping difference between contractual and actual wage. In many countries this strategy is frequently used to offset collective bargaining, granting firms certain freedom when setting wages (Cardoso and Portugal, 2005). In Germany, Jung and Schnabel (2011) found evidence that firms bound by multi-firm agreements paid on average higher wage premiums in order to overcome the restrictions imposed by the rather centralised bargaining system.

The evidence of the relationship between changes of the wage components and other channels of labour cost adjustment has been mainly based on detailed surveys addressed to firms' managers. The flexible wage components seem to be considered by managers as important in case of serious macroeconomic shocks. Babecký et al. (2010) examine the importance and determinants of a variety of strategies that firms might use to cut labour costs, particularly when base wages are rigid. They show that firms subject to nominal wage rigidity are much more likely to use these strategies suggesting the presence of some degree of substitutability between base wage flexibility and the flexibility of other labour cost components. Messina et al. (2010) show that the medium or high use of flexible wage components in the firms influence negatively the downward nominal wage rigidity, but "the complementarity between flexibility in base wages and flexible pay components casts serious doubts on the notion that rigidity in base wages might be circumvented using bonuses and other flexible components of pay." Dias et al. (2013) provide evidence that in the face of negative shocks the availability of alternative labour cost margins is likely to reduce the detrimental effect on employment that results from the presence of DNWR. There is also evidence that flexible wage components were frequently adjusted during the first period of the economic crisis in 2008–2009 (See ECB, 2009 and Fabiani et al., 2015). In fact, in some countries it appears as the only channel for wage adjustment in reaction to shocks. In this paper we want to shed light on the issue of substitutability and complementarity between the base and flexible wage components raised in the literature described above. In particular, the paper examines the role of flexible wage components as a channel of labour cost adjustment in firms facing adverse economic shocks during 2010–2013. It firstly focuses on the relationship between wage rigidities and the use of flexible

wage component adjustment. Then it analyses the difference in the response of base wages and of flexible wages to shocks.

We use a unique dataset based on a survey of firms from 25 European Union countries undertaken between the end of 2014 and mid-2015 within the framework of the third wave of the Wage Dynamics Network – a Eurosystem research network created in 2006 and reactivated in 2013 with the main purpose of assessing labour market adjustments in the period 2010–13.

The main results can be summarised as follows: About 74% of firms covered in our sample paid bonuses and other performance related benefits (flexible wage components) in 2013, with an average share of flexible wage components in total wage bill in 2013 of around 7%. This is lower than in the pre-crisis period (11%). A smaller fraction of flexible wage components in the total wage bill may reflect slower economic growth in 2013 relative to the pre-crisis period (2002–07), but it is also suggestive of the increased role of these payments in firms' labour cost flexibility as reflected by higher share of firms using flexible wages as part of their remuneration mechanism. There is significant heterogeneity in the use of flexible wage reductions by sector and size for firms negatively affected by the economic conditions. The percentage of firms that during 2010–13 have cut flexible wage components (13%) is remarkably larger than the percentage that cut base wages (5%), which is not surprising for the majority of countries given the prevalence of DNWR.

The results indicate that bonuses and benefits played a role as shock absorbers during the period 2010–13. Firms that are subject to nominal wage rigidities are more likely to cut bonuses in order to adjust labour costs. Demand and credit shocks are both associated with an increased reduction of flexible wage components as a means to adjust costs.

While firms which experience a fall in demand are more likely to reduce both base wages and flexible wage components than those that do not suffer any shock, we find that the increase in the probability of reducing flexible wages is higher than that of reducing base wages. Similarly, other negative shocks consistently generate negative effects on wages, with flexible wage components reacting stronger to negative shocks compared to base wages. Our evidence also suggests that flexible wage components react more frequently in case of negative shocks, and these reactions are stronger for flexible wage components compared to base wages.

The rest of the paper is structured as follows. Section 2 briefly describes the data and the main stylised facts; Section 3 examines the relationship between flexible wage component adjustment and (base) wage rigidities; Section 4 looks in detail at base wage and flexible wage components adjustment in presence of various combinations of shocks. The last section concludes.

2. Data and stylised facts

2.1. The WDN3 Survey

The data used in this paper are collected within the third wave of the Wage Dynamics Network survey (WDN3) coordinated by the European Central Bank[1]. The survey was carried out between 2014 and the beginning of 2015 by 25 EU national central banks[2] based on a harmonised questionnaire referring to the period 2010–2013. The WDN3 survey provided a unique cross-country dataset of labour market adjustment practices, wage and price setting mechanisms of firms, with an exceptional value in terms of both geographical and sectoral coverage. The data allow assessing recent labour market adjustments to the different shocks, such as change in demand, customers' ability to pay, credit availability and others.

Although the national surveys were organised and carried out by each national central bank, the questionnaire and the target population of firms were very similar across countries. A "core questionnaire" was developed in a co-coordinated fashion within the WDN. To further harmonise the findings across the countries we restrict our sample to firms employing more than 5 employees and operating in manufacturing, electricity and gas, construction and services (trade, market services and financial intermediation).

In the WDN3 survey, firms were asked questions pertaining to the different margins of labour cost adjustment, including a reduction of employees, both permanent and temporary, base wage freezes, changes in the flexible wage components or cuts in the number of hours worked. Using these answers together with the information on firms' size, sector, institutional background and shocks gives us an opportunity to assess the effect of shocks on labour cost adjustment.

As regards the components of labour costs, firms were asked the following question: "Please indicate how each one of the components of labour costs listed below has changed during 2010–2013. Please choose ONE option for each line". The list included the following seven options:

1. Base wages or piece work rates;
2. Flexible wage components (bonuses, fringe benefits, etc.);
3. Number of permanent employees;
4. Number of temporary/fixed-term employees;
5. Number of agency workers;

1. This was a follow-up to the two previous WDN survey waves carried out in 2007 (WDN1, which covered the period 2002–07) and 2009 (WDN2, which covered the period 2008–09).

2. Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Greece, Germany, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and the United Kingdom.

6. Working hours per employee;
7. Other components (please specify).

Firms participating in the survey were required to report for each option listed above whether they observed: (a) Strong decrease; (b) Moderate decrease; (c) Unchanged; (d) Moderate increase; or (e) Strong increase. In the further analysis, we classify a firm as having cut the corresponding component of labour costs if the answer was strong or moderate decrease.

The survey also provides relevant information on the nature of the shocks faced by firms during the period 2010–2013. For the purposes of this paper we consider shocks to:

(i) Level of demand for products/services;
(ii) Access to external financing through the usual financial channels;
(iii) Customers' ability to pay and meet contractual terms; and
(iv) Availability of supplies from usual suppliers.

Firms were required to report for each option whether they observed: (a) Strong decrease; (b) Moderate decrease; (c) No change; (d) Moderate increase; or (e) Strong increase. We use this question to identify how firms were affected by different shocks. For instance, we use changes in the level of demand (both moderate and strong) to identify firms that were hit by demand shocks and changes in the access to external financing (both moderate and strong) to detect firms that were hit by credit shocks. Of course, these shocks could be positive if firms reported an increase, negative if firms reported a decrease, or non-existent if firms reported no change in activity.

We use another question on the use of base wage freezes in the given year (yes/no answer) to construct the DNWR measure of a firm. We say that a firm is subject to DNWR if it reports experiencing a negative demand shock and chooses to freeze wages during 2010–2013.

2.2. Stylised facts

About 74% of firms covered in our sample paid bonuses and other performance related benefits (flexible wage components) in 2013 (see Table 1). There is certain cross country heterogeneity, ranking from more than 90% of firms in Slovakia and Portugal to below 55% in Luxembourg, Ireland and Cyprus (see Table A.1 in the Appendix).

The average share of bonuses in total wage bill in 2013 was around 7% for all firms sampled and 9.5% if it is calculated only across companies that pay bonuses. Underlying this average there is large cross country heterogeneity. While the share of bonuses in the total bill in 2013 is on average 25% in Portugal, it is about 4% in Luxembourg and Ireland. When compared with the pre-crisis period, the average share of bonuses in the total wage bill of the firms sampled in 2007 was 11.3%, falling to 7.4% in 2013 for the subset of countries

that participated in the WDN1 survey—6.9% for the 25 WDN3 countries,[3] (see Table A.1). A smaller fraction of bonuses and benefits in the total wage bill may reflect slower economic growth in 2013 relative to the pre-crisis period (2002–07), but it is also suggestive of the increased role of bonuses in firms' labour cost flexibility, which is in line with the higher share of companies paying bonuses in 2013 (75%) comparing to 72% in 2007.

Size	Firms paying bonuses (%)	Bonuses in total pay, unconditional (%)	Bonuses in total pay, conditional (%)
5-19 employees	54.9	6.8	12.4
20-49 employees	64.1	6.1	9.5
50-199 employees	73.7	6.3	8.5
$>$ 200 employees	84.9	7.7	9.1
Sector			
Manufacturing	75.9	6.4	8.4
Electricity, gas, water	82.9	8.3	10.0
Construction	59.8	6.0	10.1
Trade	75.0	8.1	10.8
Business services	73.6	6.3	8.6
Financial intermediation	92.7	14.9	16.0
Total	74.2	6.9	9.4

TABLE 1. Bonuses by firm size and sector in 2013

Source: WDN3, Authors' calculation.
Note: Data weighted to reflect an overall employment and rescaled to exclude non-response.

Larger firms are more likely to pay bonuses (85% of firms with more than 200 employees vs. 55% of firms with 5–19 employees; see Table 1). The smaller firms paying bonuses, on the other hand, dedicate a larger share of the total pay to this variable component (12%) compared to about 9% in other size firms. The use of bonuses is also quite sector specific. More than 92% of firms in financial intermediation sector use a bonus payment mechanism and pay higher bonus shares compared to other sectors. On the other extreme, only 60% of firms in construction sector pay a part of their wage as a flexible wage component.

An important point that should be made is that there is no apparent association between the country average share of flexible wage components and the fraction of firms that cut these flexible wage components in the country (Figure 1), which indicates different severity of shocks faced by different

3. WDN1 survey is the first wave of WDN and was carried out in 17 EU countries between the end of 2007 and the first half of 2008. Conditional on firms paying bonuses, these figures are: 15.6% in 2007 and 9.7% in 2013.

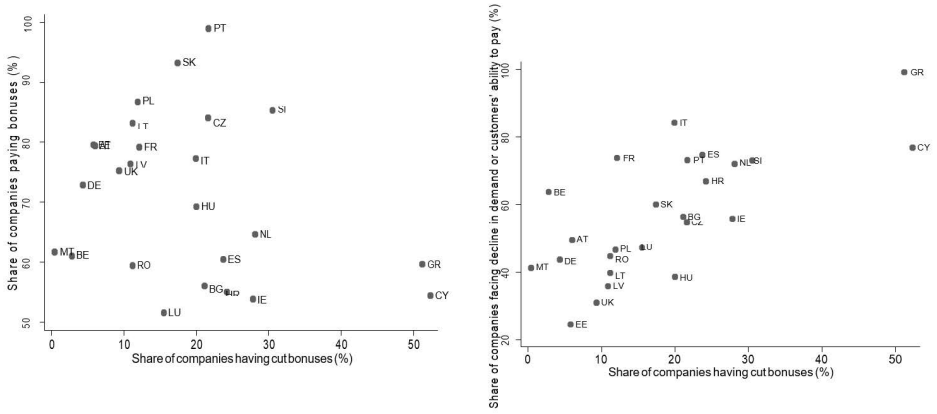

FIGURE 1: Share of companies having cut flexible wage components by share of companies paying bonuses in 2013 and share of companies facing negative demand shock in 2010–2013.

Source: WDN3, Authors' calculation.
Note: Data weighted to reflect an overall employment in the country and rescaled to exclude non-response.

countries[4]. Controlling for negative shocks, we show that there is a positive correlation between the share of firms facing a decline in either demand or customers' ability to pay and the share of firms cutting the flexible wage component. Therefore, our data contain indicators that cuts in flexible wage components are relevant as a strategy to reduce labour costs.

As regards different adverse shocks faced by firms during 2010–2013, WDN results show that the share of firms affected by different shocks largely varies depending on the country and the nature of shock (Figure 2). As expected, countries that were more affected by the sovereign debt crisis (Greece, Spain, Portugal and Italy) are also those where a larger share of firms report facing negative shocks during 2010–2013. Importantly, firms in 14 out of 25 countries viewed a decline in customers' ability to pay as more severe than a decline in demand though the two shocks are very much related. Unavailability to obtain external finance (a credit constraint shock) was faced by a smaller share of firms in all countries.

Combining information on the negative economic shocks perceived by a firm and a change in the flexible wage components can provide some hints on whether firms use the flexible wage component as a shock absorber (see Table

4. This result holds at the firm level, suggesting no association between a share of employees receiving part of their remuneration as the flexible wage component at the firm and the probability that this firm will use the reduction of flexible wage component (either controlling or not controlling for a change in demand).

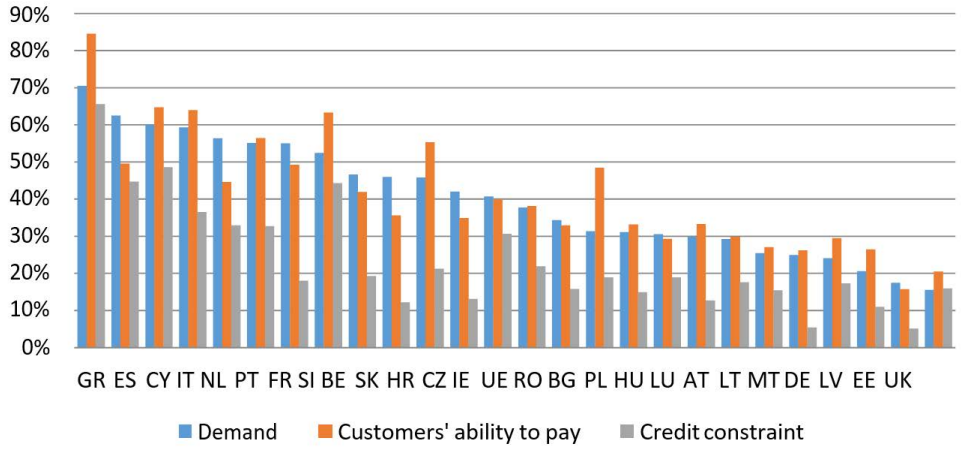

FIGURE 2: Share of firms facing negative demand, customers' ability to pay and credit shocks in 2010–2013.

Source: WDN3, Authors' calculation.
Note: Data weighted to reflect an overall employment in the country and rescaled to exclude non-response.

2)[5]. In all countries, firms experiencing a decline in demand or in customers' ability to pay are cutting the variable component of wages more frequently. When we only look at firms experiencing a strong decline in demand and credit restrictions, the frequency is only marginally increased for the total sample. In some but not in all countries stronger negative shocks imply that more firms reduce flexible wage components.

Table **??** presents the same analysis by sector. Firms in electricity and gas sector rarely decrease flexible wage components, whereas in other sectors a much larger share of firms do so. A shock to demand or to customers' ability to pay significantly increases this share in all sectors. A simultaneous credit restriction shock increases the share of firms reducing the flexible wage part in manufacturing, trade and financial intermediation sectors. The number of firms of the financial intermediation sector almost doubles in the case of strong shocks, whereas the reaction is more moderate in other sectors.

Table 4 summarises the results by firms' size. The share of firms having cut the flexible component of wages fluctuates around 11% for the middle size firms, and reaches 14% for the largest firms. Firms experiencing a decline in demand or in customers' ability to pay cut the flexible component of wage more frequently. However, large firms use a decrease in bonuses as a shock absorber more often. Comparing the firms' adjustment channels (Table A.3), we see that

5. See Table A.2 for unconditional results.

	% of firms, **having cut** the flexible components of wages	% of firms **experiencing a decline in demand or in customers' ability to pay** and having cut the flexible components of wages	% of firms experiencing a decline in demand or in customers' ability to pay and **credit restrictions** and having cut the flexible components of wages	% of firms experiencing a **strong decline in demand or in customers' ability to pay** and credit restrictions and having cut the flexible components of wages
AT	4.7	6.4	3.1	0.0
BE	3.9	4.3	11.6	5.8
BG	20.2	34.2	34.6	38.9
CY	52.3	65.6	61.1	50.4
CZ	20.8	31.1	42.6	45.7
DE	4.0	7.2	13.2	21.8
EE	4.6	18.1	30.0	30.4
ES	32.1	37.6	43.7	20.9
FR	10.9	12.6	21.2	21.6
GR	48.1	51.4	49.7	47.5
HR	26.0	38.0	59.0	70.2
HU	18.2	32.1	39.5	46.4
IE	29.4	44.5	62.6	63.4
IT	18.7	21.4	26.4	30.8
LT	11.4	21.1	24.4	46.8
LU	15.8	21.0	7.4	13.7
LV	8.7	22.2	48.6	75.1
MT	0.0	0.0	0.0	0.0
NL	31.4	42.3	40.4	49.9
PL	12.1	11.3	20.9	24.5
PT	21.7	26.5	31.3	32.5
RO	10.5	21.6	30.3	27.2
SI	30.3	36.7	43.5	53.4
SK	16.9	20.1	39.3	20.3
UK	8.8	16.3	15.6	0.0
Total	12.8	19.0	27.5	28.3

TABLE 2. Flexible wage components cuts and shocks by country (conditional on firms paying bonuses in their wage structure).

Source: WDN3, Authors' calculation.
Note: Figures are weighted to reflect overall employment.

	% of firms, having cut the flexible components of wages	% of firms experiencing a decline in demand or in customers' ability to pay and having cut the flexible components of wages	% of firms experiencing a decline in demand or in customers' ability to pay and credit restrictions and having cut the flexible components of wages	% of firms experiencing a strong decline in demand or in customers' ability to pay and credit restrictions and having cut the flexible components of wages
Manufacturing	9.5	15.1	25.4	26.2
Electricity, gas	4.0	8.8	11.4	14.5
Construction	14.2	20.1	30.5	29.4
Trade	15.2	22.0	42.2	38.2
Business service	13.4	18.8	18.8	23.4
Financial intermediation	17.3	31.6	43.0	66.4
Total	12.7	18.9	27.5	28.2

TABLE 3. Flexible wage components cuts and shocks by sector (conditional on firms using bonuses in their wage structure)

Source: WDN3, Authors' calculation.
Note: Figures are weighted to reflect overall employment.

in the majority of countries the largest share of firms (around 40%) responded by the declining number of workers. Wage cuts (both base and flexible wage

	% of firms, having cut the flexible components of wages	% of firms experiencing a decline in demand or in customers' ability to pay and having cut the flexible components of wages	% of firms experiencing a decline in demand or in customers' ability to pay and credit restrictions and having cut the flexible components of wages	% of firms experiencing a strong decline in demand or in customers' ability to pay and credit restrictions and having cut the flexible components of wages
5-19 employees	13.2	18.7	22.7	25.5
20-49 employees	10.8	17.1	24.6	32.1
50-199 employees	11.2	16.3	28.3	33.6
> 200 employees	14.0	21.1	29.3	24.4
Total	12.8	19.0	27.5	28.3

TABLE 4. Flexible wage components cuts and shocks by firm size (conditional on firm using bonuses in their wage structure)

Source: WDN3, Authors' calculation.
Note: Figures are weighted to reflect overall employment.

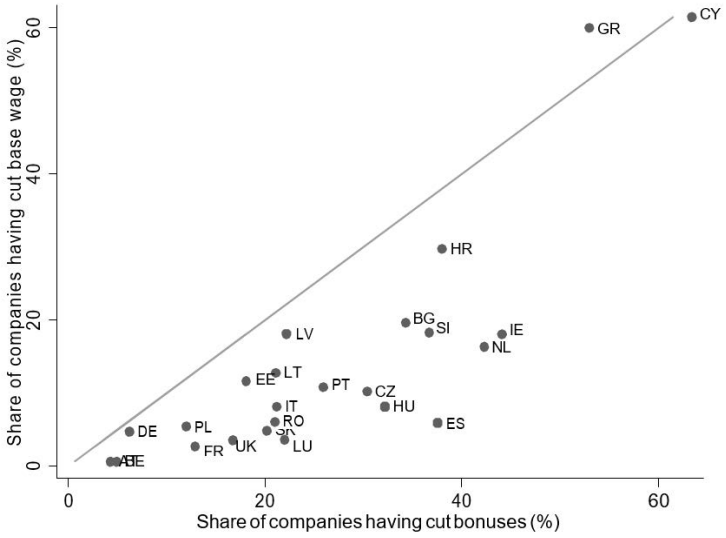

FIGURE 3: Base and flexible wage cut in 2010–2013 (in firms experiencing a decline in demand or in customers' ability to pay; conditional on firms having bonuses in their wage structure)

Source: WDN3, Authors' calculations.
Note: Data weighted to reflect an overall employment in the country and rescaled to exclude non-response.

components) were used relatively less frequently (8% and 19%) suggesting the presence of DNWR.

Figure 3 plots the corresponding share of firms by restricting the sample to firms having bonuses in their wage structure (see also Table A.2). In every country in our sample, but Greece and to a lower extent Cyprus, the percentage of firms that during 2010–2013 have cut flexible wage components is larger than

the percentage that cut base wage. This is not surprising given the prevalence of DNWR in the majority of the EU countries and points toward possible substitution between the adjustment channels, which is in line with findings by Babecký et al. (2010), Lebow et al. (1999) and Bewley (1999) among others. Substitution is particularly relevant for firms in France, Portugal, Luxembourg and Spain, where it is harder to reduce base wages for permanent employment. In the Baltic countries (Estonia, Latvia, and Lithuania) as well as Poland and Croatia firms are more flexible in the choice of the adjustment margin due to generally lower wage rigidity[6]. Figure 3 also shows that there is a positive association between the adjustment of flexible and base wage components, which is indicative of both margins being used at the same time. In fact, previous studies find that firms use several adjustment channels simultaneously when reducing labour costs (Messina et al., 2010).

2.3. Do firms use flexible wage components as a buffer to overcome base wage rigidity?

Are those firms subject to nominal wage rigidity more likely to respond to shocks cutting the flexible component of wages? Thus, do firms use flexible wage components as a buffer to overcome base wage rigidity? Does this depend on firms characteristics? Does the institutional and economic environment in which the firm operates matter? Does the presence of unions affect firms' decision in flexible wages? In this section we explore the decision of cutting flexible wages by trying to find the characteristics of the firms and of the economic environment in which they operate that may influence this decision with a focus on DNWR. To constructs a measure of DNWR, we use the information contained in the WDN3 survey about base wage freezes. The survey asked directly the managers of firms if they ever froze wages during the period 2010–13. Wage freezes indicate that base-wage cuts were prevented from taking place due to DNWR, and more so in a downturn when economic conditions are likely to request a cut in base wages. Then, following Dickens et al. (2007) and Dias et al. (2015) (see also Nickell and Quintini, 2003), we regard firms that froze wages at any point during in this interval as confronting nominal wage rigidity. We assume that in those firms everyone whose base wages were frozen would have had a nominal wage cut in the absence of DNWR[7]. This measure of DNWR is interacted with several shocks to disentangle different response of flexible wages to DNWR depending on the shocks In order to identify the potential determinants of the probability of cutting flexible wage

6. Despite having high EPL scores, in these countries the de facto enforcement of wage adjustment restrictions is loose. These conclusions are also confirmed by the large survey on institutional settings on wage bargaining (Du Caju et al. 2008).

7. Of course, we cannot discard that some of these freezes could be due to menu cost or might be optimal responses to changing conditions.

components we consider a number of firms' characteristics such as the size or skill distribution, collective bargaining, bargaining coverage, labour cost share, etc., as well as our measures of DNWR and control for the various types of shocks explained in the stylised facts section. The result of probit estimations is summarised in Table 5, where the dependent variable takes the value of one if the firm cut the flexible wage components over the period 2010–2013. We find that firms subject to nominal rigidity are more likely to cut flexible wage components. Thus flexible wage component is used as a buffer to overcome base wages nominal rigidity. This result is robust to the choice of other control variables, including the type of shocks and the interaction terms between shocks and nominal wage rigidity (column 3). Regarding other determinants influencing the decision to adjust flexible wage components, it turns out that, as suggested by the descriptive analysis in Section 2, larger firms are more likely to use flexible wage components. Similarly, firms with the higher labour cost share and the higher share of tenured workers, as well as firms in construction and financial intermediation are more likely to adjust flexible wage components than firms in manufacturing.

Next, we explore the effect of unions on firms' use of flexible wage components. Table A.5 shows that unionisation and the type of wage bargaining have no significant effects. Moreover, different combinations and interactions of variables, sectors, and collective bargaining characteristics are not significant and do not affect the main results. Thus, substitutability between base and flexible wages to overcome DNWR is not limited by the presence of unions. In fact, collective wage bargaining and coverage do not appear relevant regarding the decision of cutting flexible wage components. In addition, the higher likelihood to adjust bonuses and flexible wage components when DNWR is prevalent persists no matter what type of shocks the firm is facing.

In sum, at the margin, firms affected by DNWR are more likely to reduce flexible wage components than those not showing base wage rigidities. Hence, there is evidence of flexible wages being used as a buffer to overcome base wage rigidity.

The next section, more generally, explores the relationship between base wages and flexible wage component adjustments and compares their degree of downward rigidity.

3. Adjustment of base wages and flexible wage components to shocks

In order to explore the relation between the adjustment of base wages and flexible wage components, we start with reporting the frequencies of different exclusive options of wage reactions to changing economic conditions. Then we investigate the differences of base wage and flexible wage component adjustment probabilities.

	(1)	(2)	(3)
Base wage rigidity			
DNWR base wages freezes	0.117***	0.086***	0.084***
	(0.010)	(0.008)	(0.016)
Shocks			
Demand shock		0.109***	0.114***
		(0.013)	(0.015)
Finance shock		0.058***	0.062***
		(0.007)	(0.008)
Customers' ability to pay shocks		0.032***	0.019**
		(0.008)	(0.009)
Availability of supplies shocks		0.028***	0.033***
		(0.006)	(0.008)
DNWR * Shocks			
base wages freezes & demand shock			-0.019
			(0.021)
base wages freezes & costumers pay shock			0.038***
			(0.012)
base wages freezes & credit shock			-0.014
			(0.013)
base wages freezes & supplies shock			-0.015*
			(0.009)
Size			
20-49 employees	0.012	0.023***	0.024***
	(0.007)	(0.007)	(0.007)
50-199 employees	0.022*	0.039***	0.040***
	(0.012)	(0.012)	(0.012)
$>$ 200 employees	0.031*	0.058***	0.059***
	(0.017)	(0.015)	(0.015)
Observations	19,234	18,582	18,582

TABLE 5. Relationship between cuts of flexible wage components and base wage rigidity.

Note: Marginal effects reported. Probit estimation. The dependent variable is equal one, if the firm reduces flexible wage components. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. The estimation is controlled for labour cost share, share of manual workers, workers tenure, multi-establishments and country fixed effects, see Table A.4 in the appendix for the full set of results.

3.1. The incidence of base wage and flexible wage component reductions

We consider four exclusive options of wage reactions by firms in response to negative shocks:

1. Reduce neither base wages nor flexible components (base=0, flex=0);

2. Reduce only flexible components (base=0, flex=1);
3. Reduce both base wages and flexible components (base=1, flex=1);
4. Reduce only base wages (base=1, flex=0).

We find that firms are reluctant to reduce wages and mostly choose the first option (Table 6). This is also the case when we consider various subsamples of firms which are hit by a fall in demand, a fall in demand or customers' ability to pay, and additionally a fall in credit access. For all groups considered, the second frequent option is to reduce solely the flexible component. It is chosen approximately three times more often than the joint reduction of base wages and flexible components. Base wage reductions without reducing flexible components are rare. The option not to reduce wages is chosen by 82.6% of all firms. The fraction is lower for firms which experience a fall in demand (72.5%). The fraction of firms which reduce flexible components only or additionally reduce base wages increases substantially from 11.6% to 18.7% and from 3.7% to 6.1%. The fraction of firms which reduce base wages alone rises only from 2.0% to 2.7%. The evidence suggests that flexible wage components react more in case of negative shocks.

	Wage adjustment options (%)					
Subsample of firms	(1) base=0 flex=0	(2) base=0 flex=1	(3) base=1 flex=1	(4) base=1 flex=0	Total	Observations
Total	82.6	11.6	3.7	2.0	100	18,503
Decline in demand	72.5	18.7	6.1	2.7	100	8,416
Decline in demand or in customers' ability to pay	76.0	15.9	5.2	2.9	100	11,172
Decline in demand or in customers' ability to pay and credit restrictions	75.4	16.3	5.7	2.6	100	8,995

TABLE 6. Frequencies of wage reductions

Source: WDN3, Authors' calculation.
Note: Figures are weighted to reflect overall employment. Estimation sample of Section 4.2.

3.2. The response of base wages and flexible wage components to changes in demand

In order to compare the likelihood and determinants of changes of base wages and of flexible wage components, we estimate a multiple equations model, related through the error terms (Seemingly Unrelated Regressions—SUR):

$$base = X_b\beta_b + u_b \tag{1}$$

$$flex = X_f\beta_f + u_f \tag{2}$$

where *base* and *flex* reflects the adjustment of base and flexible wages (decrease, unchanged, increase), Xb and Xf are the firm's characteristics and ub and uf are the related error terms. The firms' characteristics include its structure, ownership, autonomy level, size, country, sector as well as the change in economic conditions. We find that firms which are hit by negative demand shocks are more likely to reduce base wages and flexible wage components compared to the reference category of unchanged demand (Table 7). However, the increase in the likelihood of wage reduction is stronger for the flexible component compared to the base wage. When facing positive demand shocks, firms increase both base wage and flexible wage components and they do so to the same extent or, to be more precise, the increase in the likelihood is not significantly different. We find a stronger upward response of wages to an increase in demand than a downward response to a fall in demand for both, base wages and the flexible components. Further, a fall in demand significantly increases the probability that wages remain unchanged while an increase in demand lowers the probability of unchanged wages. This asymmetry is evidence of downward rigidity (see Marotzke et al., 2017). The effect of a fall in demand on unchanged wages is larger for base wages than for flexible components. We conclude from the comparison of marginal effects that downward rigidity is stronger for base wages than for the flexible wage components[8].

3.3. The effect of various types of negative shocks

Next, we explore the effect of various types of negative shocks on the wage adjustment. We include the strength and persistency of the demand shock, which gives us five categories of demand development. The results in Table **??** show that all categories of the fall in demand exhibit consistent effects. Firms which are hit by a negative demand shock are more likely to reduce both base wages and flexible wage components. A strong fall in demand induces a stronger marginal effect than a moderate fall in demand. The largest marginal effect is in a response to a strong long- lasting negative demand shock. The strength and persistence of a fall in demand does not affect the marginal effect of a fall in demand on the probability of unchanged flexible wages. However, the marginal effect of a fall in demand on the probability of base wages to remain unchanged is higher when the shock is strong, which might reflect stronger downward rigidity of base wages. We find that the marginal effect on the probability to reduce flexible wages is stronger than for base wages (see first column in Table **??**).

The other negative shocks (finance, customers, and supplies) exhibit very consistent negative effects on wages. Flexible wage components react stronger to negative shocks compared to base wages. Further, the marginal effect of all

8. We conducted z-tests to compare marginal effects

	(1)	(2)	(3)
	base wages Decrease	**base wages** Unchanged	**base wages** Increase
Demand			
Decrease	0.027***	0.039***	-0.066***
	(0.003)	(0.005)	(0.009)
Unchanged (reference)	-	-	-
Increase	-0.041***	-0.096***	0.137***
	(0.003)	(0.006)	(0.009)
Finance shock	0.024***	0.036***	-0.060***
	(0.003)	(0.005)	(0.008)
Customers shock	0.008***	0.013***	-0.021***
	(0.003)	(0.004)	(0.007)
Supply shock	0.009**	0.013**	-0.022**
	(0.004)	(0.005)	(0.009)
Multi-establishment firm	-0.002	-0.002	0.004
	(0.003)	(0.004)	(0.007)
Mainly foreign firm	-0.023***	-0.041***	0.064***
	(0.003)	(0.006)	(0.009)
Subsidiary/affiliate	0.001	0.002	-0.003
	(0.004)	(0.006)	(0.010)
Autonomy, other	-0.003	-0.004	0.007
	(0.004)	(0.006)	(0.009)
20-49 employees	-0.011***	-0.017***	0.028***
	(0.003)	(0.005)	(0.009)
50-199 employees	-0.008**	-0.013**	0.021**
	(0.004)	(0.006)	(0.010)
> 200 employees	-0.018***	-0.029***	0.047***
	(0.004)	(0.008)	(0.012)
	flexible wages Decrease	**flexible wages** Unchanged	**flexible wages** Increase
Demand			
Decrease	0.068***	0.019***	-0.087***
	(0.006)	(0.002)	(0.008)
Unchanged (reference)	-	-	-
Increase	-0.069***	-0.071***	0.140***
	(0.004)	(0.004)	(0.008)
Finance shock	0.045***	0.018***	-0.063***
	(0.005)	(0.002)	(0.007)
Customers shock	0.019***	0.009***	-0.027***
	(0.004)	(0.002)	(0.007)
Supply shock	0.017***	0.007***	-0.025***
	(0.006)	(0.002)	(0.008)
Multi-establishment firm	0.009**	0.004**	-0.013**
	(0.005)	(0.002)	(0.007)
Mainly foreign firm	-0.029***	-0.016***	0.046***
	(0.006)	(0.004)	(0.009)
Subsidiary/affiliate	0.010	0.005	-0.015
	(0.006)	(0.003)	(0.009)
Autonomy, other	0.009*	0.004*	-0.014*
	(0.006)	(0.003)	(0.008)
20-49 employees	0.001	0.001	-0.002
	(0.006)	(0.002)	(0.008)
50-199 employees	-0.002	-0.001	0.003
	(0.006)	(0.003)	(0.009)
> 200 employees	-0.009	-0.004	0.013
	(0.007)	(0.004)	(0.011)
p-value	0.000		
Rho	0.6		
Observations	18,326		

TABLE 7. Base wage and flexible wage adjustment, SUR estimates

Note: Standard errors in parentheses. *** p<0.01,** p<0.05, * p<0. The results are obtained using Stata command cmp written by Roodman, D. 2011. Details on the estimation of fully observed recursive mixed-process models with cmp are provided in Stata Journal 11(2): pp. 159-206. Country and sector dummies included.

	(1) **base wages** decrease	(2) **base wages** unchanged	(3) **base wages** increase
Demand			
No decrease (reference)	-	-	-
Moderate Decrease	0.043***	0.080***	-0.122***
	(0.003)	(0.005)	(0.008)
Strong transitory decrease	0.072***	0.113***	-0.185***
	(0.013)	(0.014)	(0.027)
Strong partly persistent decrease	0.070***	0.111***	-0.181***
	(0.007)	(0.008)	(0.015)
Strong long-lasting decrease	0.081***	0.121***	-0.202***
	(0.007)	(0.007)	(0.013)
Finance shock	0.021***	0.033***	-0.054***
	(0.003)	(0.005)	(0.008)
Customers shock	0.008***	0.014***	-0.022***
	(0.003)	(0.004)	(0.007)
Supply shock	0.006*	0.010*	-0.016*
	(0.003)	(0.005)	(0.009)
Multi-establishment firm	-0.003	-0.004	0.007
	(0.003)	(0.004)	(0.007)
Mainly foreign firm	-0.023***	-0.043***	0.066***
	(0.003)	(0.006)	(0.010)
Subsidiary/affiliate	0.001	0.001	-0.002
	(0.004)	(0.006)	(0.010)
Autonomy, other	-0.002	-0.004	0.006
	(0.003)	(0.006)	(0.009)
20-49 employees	-0.011***	-0.017***	0.028***
	(0.003)	(0.006)	(0.009)
50-199 employees	-0.010**	-0.015**	0.025**
	(0.004)	(0.006)	(0.010)
$>$ 200 employees	-0.018***	-0.030***	0.048***
	(0.004)	(0.008)	(0.012)

TABLE 8. (To be continued) Base wage and flexible wage adjustment, SUR estimates

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0. The results are obtained using Stata command cmp written by Roodman, D. 2011. Details on the estimation of fully observed recursive mixed-process models with cmp are provided in Stata Journal 11(2): pp. 159-206. Country and sector dummies included.

types of negative shocks on the probability to keep base wages unchanged is larger than on the probability that base wages are reduced,

while it is the other way around for flexible wage components. This means that firms find it easier to reduce flexible wage components.

	flexible wages	flexible wages	flexible wages
	decrease	unchanged	increase
Demand			
No decrease (reference)	-	-	-
Moderate Decrease	0.091***	0.053***	-0.143***
	(0.005)	(0.003)	(0.007)
Strong transitory decrease	0.135***	0.056***	-0.190***
	(0.022)	(0.003)	(0.022)
Strong partly persistent decrease	0.164***	0.052***	-0.217***
	(0.012)	(0.003)	(0.011)
Strong long-lasting decrease	0.178***	0.050***	-0.228***
	(0.011)	(0.003)	(0.010)
Finance shock	0.039***	0.017***	-0.056***
	(0.005)	(0.002)	(0.007)
Customers shock	0.019***	0.010***	-0.029***
	(0.004)	(0.002)	(0.007)
Supply shock	0.014**	0.006**	-0.020**
	(0.006)	(0.003)	(0.008)
Multi-establishment firm	0.007	0.004	-0.011
	(0.005)	(0.002)	(0.007)
Mainly foreign firm	-0.030***	-0.018***	0.047***
	(0.006)	(0.004)	(0.009)
Subsidiary/affiliate	0.008	0.004	-0.012
	(0.006)	(0.003)	(0.010)
Autonomy, other	0.010*	0.005*	-0.016*
	(0.006)	(0.003)	(0.009)
20-49 employees	0.000	0.000	-0.000
	(0.006)	(0.003)	(0.008)
50-199 employees	-0.004	-0.002	0.007
	(0.006)	(0.003)	(0.009)
$>$ 200 employees	-0.010	-0.005	0.015
	(0.007)	(0.004)	(0.011)
p-value	0.000		
Rho	0.6		
Observations	18,187		

TABLE 8. (Continued) Base wage and flexible wage adjustment, SUR estimates

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0. The results are obtained using Stata command cmp written by Roodman, D. 2011. Details on the estimation of fully observed recursive mixed-process models with cmp are provided in Stata Journal 11(2): pp. 159-206. Country and sector dummies included.

4. Concluding remarks

Bonuses and other performance-related benefits have declined considerably during 2010– 2013 in comparison with the pre-crisis period. The average share of performance-related benefits in the total wage bill of the firms sampled in 2007 was 11.3%, falling to 7.4% in 2013 for the subset of countries that participated in the first WDN survey, while for the 25 countries participating in the third WDN survey, the average was 6.9%. A smaller fraction of bonuses and benefits in the total wage bill may reflect slower economic growth in 2013 relative to the pre-crisis period (2002–2007), but it is also suggestive of the increased role of bonuses in firms' labour cost flexibility, which is reflected by higher share of firms using flexible wages as part of their remuneration

mechanism. This paper explores the behaviour of flexible wage components as a possible adjustment channel available to firms.

We first look at the economic and institutional determinants of firms' decision to cut flexible wages, with a particular focus on downward base wage rigidity (DNWR). We find that firms facing DNWR are more likely to use bonuses and benefits to reduce labour costs. This finding confirms that in the presence of DNWR there is some degree of substitutability between wage flexibility and the flexibility of bonuses during the period 2010–2013. In other words, flexible wage components act as a buffer to overcome DNWR that prevents firms from cutting base wages. Similar results were also found for the period 2002–2007, with data from the first WDN survey.

These results have implications for monetary policy. In particular, they suggest that wage rigidity associated with the overall wage bill may be lower compared to the base wage rigidity alone. Thus, the presence of flexible wage components helps achieving overall wage flexibility. In fact, the results indicate that bonuses and benefits played a role as shock absorbers during the period 2010–2013. In particular, demand and credit shocks are both associated with an increased use of flexible wage components as a means to adjust costs. Moreover, regression analysis supports the view that the use of bonuses and benefits is not influenced by unionisation; cutting bonuses is thus likely to be a strategy developed outside formal collective bargaining. Larger firms and firms in financial intermediation are among the most likely to adjust flexible wage components.

Then, when comparing the adjustment via base wages and via flexible wage components we find that firms which are hit by negative and persistent demand shocks are more likely to reduce wages, with the marginal effect on a reduction of flexible wages being stronger than for base wages. The other negative shocks (such as finance, customers, and supplies) exhibit very consistent negative effects on wages. Flexible wage components react stronger to all analysed types of negative shocks compared to base wages. In sum, firms use flexible wage components as a buffer to overcome base wage rigidity

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Appendix

	WDN1 2007			WDN3 2013		
Country	Companies paying bonuses (%)	Bonuses in total pay	Bonuses in total pay	Companies paying bonuses (%)	Bonuses in total pay	Bonuses in total pay
Austria	70.6	9.0	12.8	79.4	5.0	6.3
Belgium	100.0	7.6	7.6	61.0	3.2	5.3
Bulgaria	-	-	-	55.8	5.2	9.4
Cyprus	-	-	-	54.2	4.2	7.7
Czech Republic	99.1	20.6	20.8	84.1	10.1	12.0
Germany	-	-	-	72.9	5.2	7.2
Estonia	78.4	14.0	17.9	79.6	12.9	16.3
Spain	40.9	3.7	9.1	60.4	4.3	7.2
France	69.1	11.3	16.4	79.2	5.6	7.1
Greece	-	-	-	59.6	4.9	8.2
Croatia	-	-	-	54.8	4.5	8.1
Hungary	73.9	10.9	14.8	69.2	9.2	13.4
Ireland	65.5	11.9	18.1	53.6	4.0	7.4
Italy	72.4	6.9	9.6	77.3	5.6	7.3
Lithuania	73.4	17.2	23.4	83.2	13.1	15.7
Luxembourg	-	-	-	51.3	4.0	7.7
Latvia	-	-	-	76.4	9.1	12.4
Malta	-	-	-	61.7	3.5	5.7
Netherlands	74.7	11.2	15.0	64.6	4.9	7.7
Poland	78.6	15.5	19.7	86.7	13.1	15.1
Portugal	95.9	32.4	33.7	99.0	24.9	25.1
Romania	-	-	-	59.4	5.8	9.8
Slovenia	86.9	17.3	19.9	85.3	10.4	12.2
Slovakia	-	-	-	93.2	15.1	16.2
United Kingdom	-	-	-	75.3	7.7	10.2
Non-Euro-Area	-	-	-	75.2	8.7	11.5
Euro-Area	-	-	-	73.8	6.2	8.4
Total	-	-	-	74.2	6.9	9.4
Total (WDN 2007 countries)	72.2	11.3	15.6	75.2	7.4	9.7

TABLE A.1. Bonuses by country

Note: Figures are weighted to reflect overall employment and are rescaled to exclude non response. Unconditional % of bonuses in total pay is calculated across all firms (including those not paying bonuses). Conditional % of bonuses in total pay is calculated only across companies that pay bonuses.

	All firms		Firms with the share of bonuses in total pay >0	
	Share of firms (%) experiencing a decline in demand or in customers' ability to pay and having cut:			
Country	The base components of wages	The flexible components of wages	The base components of wages	The flexible components of wages
AT	1.7	6.1	1.8	6.4
BE	2.2	3.0	0.6	4.3
BG	22.8	35.0	18.7	34.2
CY	64.3	62.9	63.0	65.6
CZ	12.9	32.4	10.7	31.1
DE	4.5	7.0	4.9	7.2
EE	17.5	19.9	11.6	18.1
ES	8.3	29.0	5.9	37.6
FR	2.3	13.8	2.6	12.6
GR	62.0	53.9	57.4	51.4
HR	33.8	34.2	29.7	38.0
HU	9.2	28.8	8.1	32.1
IE	21.9	40.9	20.6	44.5
IT	7.1	22.8	7.9	21.4
LT	13.5	20.1	12.7	21.1
LU	3.5	24.2	3.4	21.0
LV	21.8	23.6	18.0	22.2
MT	2.5	1.0	0.0	0.0
NL	15.2	36.3	16.3	42.3
PL	7.3	11.4	6.8	11.3
PT	11.4	26.5	11.3	26.5
RO	10.6	20.9	6.8	21.6
SI	20.3	37.1	18.3	36.7
SK	6.1	20.6	5.4	20.1
UK	5.7	17.6	3.4	16.3
Total	7.7	19.0	6.9	19.0

TABLE A.2. Base and flexible wage components cuts by country

Note: Figures are weighted to reflect overall employment and are rescaled to exclude non response.

	Share of firms (%) experiencing a decline in demand or in customers' ability to pay and having cut:						
Country	The base components of wages	The flexible components of wages	Permanent workers	Temporary workers	Agency workers workers	Working hours	Other components of labour costs
AT	1.7	6.1	26.2	33.9	12.5	41.1	3.5
BE	2.2	3.0	43.6	20.4	21.1	10.1	22.9
BG	22.8	35.0	47.4	12.5	2.0	14.4	10.0
CY	64.3	62.9	63.0	20.8	7.1	9.1	5.6
CZ	12.9	32.4	45.9	18.5	10.2	18.1	17.4
DE	4.5	7.0	16.2	21.8	20.9	19.0	27.8
EE	17.5	19.9	27.6	16.6	10.6	17.2	6.1
ES	8.3	29.0	36.0	22.0	.	13.8	43.4
FR	2.3	13.8	37.6	22.1	19.5	13.9	46.3
GR	62.0	53.9	50.0	19.2	15.9	13.9	7.9
HR	33.8	34.2	54.7	19.8	5.7	7.2	32.5
HU	9.2	28.8	32.9	7.6	7.8	18.5	26.2
IE	21.9	40.9	41.5	24.4	8.7	18.2	15.2
IT	7.1	22.8	38.5	24.4	16.4	18.3	41.9
LT	13.5	20.1	34.4	6.2	3.0	15.3	51.1
LU	3.5	24.2	40.3	21.5	19.4	19.0	25.2
LV	21.8	23.6	41.7	23.7	10.6	27.7	35.6
MT	2.5	1.0	35.8	25.9	19.4	19.4	7.4
NL	15.2	36.3	64.7	30.1	25.1	11.1	68.2
PL	7.3	11.4	27.4	39.6	13.0	22.2	30.8
PT	11.4	26.5	39.7	27.7	15.4	11.2	.
RO	10.6	20.9	48.7	24.0	6.6	12.4	54.1
SI	20.3	37.1	42.2	22.5	14.0	18.0	.
SK	6.1	20.6	44.6	15.6	7.2	23.8	26.7
UK	5.7	17.6	30.8	28.8	29.5	19.6	37.7
Total	7.7	19.0	35.3	23.9	18.6	16.9	35.2

TABLE A.3. Use of the labour costs adjustment channels

Note: Figures are weighted to reflect overall employment and are rescaled to exclude non response.

	coefficients			marginal effects		
DNWR, base wage freezes	0.534***	0.421***	0.411***	0.117***	0.086***	0.084***
	(0.040)	(0.038)	(0.088)	(0.010)	(0.008)	(0.016)
DNWR * shocks						
Base wages freezes & demand shock			-0.091			-0.019
			(0.103)			(0.021)
Base wages freezes & costumers pay shock			0.188***			0.038***
			(0.053)			(0.012)
Base wages freezes & credit shock			-0.069			-0.014
			(0.063)			(0.013)
Base wages freezes & supplies shock			-0.071*			-0.015*
			(0.041)			(0.009)
Shocks						
Demand shock		0.534***	0.561***		0.109***	0.114***
		(0.052)	(0.065)		(0.013)	(0.015)
Finance shock		0.284***	0.305***		0.058***	0.062***
		(0.027)	(0.033)		(0.007)	(0.008)
Customers' ability to pay shocks		0.154***	0.094**		0.032***	0.019**
		(0.042)	(0.047)		(0.008)	(0.009)
Availability of supplies shocks		0.135***	0.162***		0.028***	0.033***
		(0.028)	(0.035)		(0.006)	(0.008)
Sectors						
Elect gas water	0.087	0.091	0.091	0.019	0.019	0.018
	(0.272)	(0.256)	(0.256)	(0.059)	(0.052)	(0.052)
Construction	0.387***	0.261***	0.262***	0.085***	0.053***	0.053***
	(0.079)	(0.064)	(0.064)	(0.020)	(0.015)	(0.015)
Trade	0.145***	0.104***	0.105***	0.032***	0.021**	0.022**
	(0.033)	(0.036)	(0.037)	(0.009)	(0.009)	(0.009)
Services	0.168***	0.177***	0.177***	0.037***	0.036***	0.036***
	(0.046)	(0.043)	(0.043)	(0.011)	(0.010)	(0.010)
Financial intermediation	0.391***	0.361***	0.361***	0.086***	0.074***	0.074***
	(0.109)	(0.112)	(0.113)	(0.025)	(0.024)	(0.024)
Size						
20-49 employees	0.053	0.115***	0.117***	0.012	0.023***	0.024***
	(0.033)	(0.036)	(0.036)	(0.007)	(0.007)	(0.007)
50-199 employees	0.100*	0.194***	0.196***	0.022*	0.039***	0.040***
	(0.052)	(0.056)	(0.056)	(0.012)	(0.012)	(0.012)
+200 employees	0.143**	0.287***	0.289***	0.031*	0.058***	0.059***
	(0.071)	(0.062)	(0.063)	(0.017)	(0.015)	(0.015)
Other features						
Labour cost share	0.260***	0.182**	0.181**	0.057***	0.037**	0.037**
	(0.076)	(0.080)	(0.079)	(0.018)	(0.017)	(0.017)
Manual workers %	-0.002**	-0.002***	0.002***	-0.000**	-0.000***	-0.000***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
High tenure workers (+5y) %	0.005***	0.003***	0.003***	0.001***	0.001***	0.001***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Multi-establishment firm	0.160***	0.143***	0.144***	0.035***	0.029***	0.029***
	(0.023)	(0.023)	(0.023)	(0.005)	(0.005)	(0.005)
Observations	19,234	18,582	18,582	19,234	18,582	18,582

TABLE A.4. Relationship between cuts of flexible wage components and base wage rigidity.

Note: Marginal effects reported. Probit estimation. The dependent variable is equal one, if the firm reduces flexible wage components. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

DNWR - Firms froze base wages	0.573***	0.561***	0.574***	0.560***
	(0.053)	(0.049)	(0.047)	(0.049)
% workers covered by coll. agreement	0.001	0		
	(0.001)	(0.002)		
Collective agreement of any kind		0.077		0.066
		(0.128)		(0.045)
Collective agreement outside of the firm	-0.022			
	(0.101)			
Collective agreement at the firm	-0.019		0.046	
	(0.047)		(0.032)	
Observations	9,288	10,194	10,172	10,277

TABLE A.5. Relationship between flexible wage cuts and wage rigidity – the role of unions

Note: Probit estimates. Coefficients. The dependent variable is equal to one, if the firm reduces flexible wage components. Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Other covariates include firm size, sector, and firms characteristics as in Table A.4.

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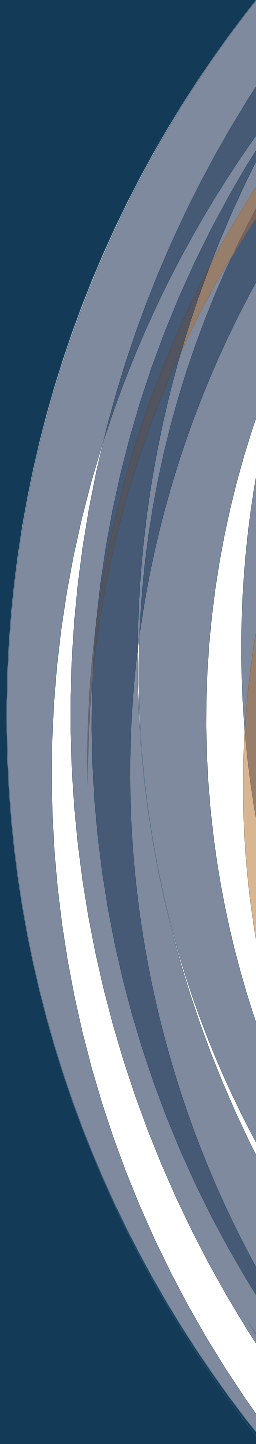

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