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HOW DO FIRMS ADJUST IN A CRISIS?
EVIDENCE FROM A SURVEY AMONG LUXEMBOURG FIRMS

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How do firms adjust in a crisis? Evidence from a survey among Luxembourg firms*

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Abstract:

This paper uses survey evidence to analyse the response of Luxembourg firms to the economic and financial crisis in 2008-2009. Approximately three out of four firms reported that they were negatively affected by the crisis, mostly due to a fall in demand, but also due to financing difficulties and difficulties being paid for their products and services. The measures to adjust vary with the type and the size of the shock experienced. Firms aim at cutting costs in the first place, predominantly via a reduction of non-labour cost, but also by cutting temporary staff, bonuses and overtime compensation. While base wage freezes became much more common during the recent crisis, cuts in base wages remained very rare and few firms only reduced permanent staff in an attempt to reduce costs. The most important reasons for not cutting base wages relate to labour market regulation / existing wage agreements and the concern of reducing staff morale and effort. Finally, our results suggest that the assessment of adjustment measures and obstacles to wage cuts may depend on the economic environment and the actual situation of the firm.

Keywords: Economic and financial crisis, reaction to shocks, wage rigidity

JEL Codes: C25, D22

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Nicht-technische Zusammenfassung

Die Wirtschafts- und Finanzmarktkrise führte die Luxemburger Wirtschaft in 2008/2009 in eine tiefe Rezession, die eine lang anhaltende Periode des Wirtschaftswachstums beendete. Das Wachstum des Bruttoinlandprodukts fiel von 6,6% in 2007 auf -5,3% in 2009. Aufgrund der starken Abhängigkeit der luxemburgischen Wirtschaft vom Finanzsektor und der Offenheit der Volkswirtschaft fiel der Rückgang der Wirtschaftsleistung in Luxemburg im Vergleich zum Euroraum besonders stark aus.

Dieser Aufsatz untersucht die Auswirkungen der Krise in Luxemburg auf Unternehmensebene. Grundlage hierfür sind die Ergebnisse zweier Erhebungen, die die *Banque centrale du Luxembourg* in den Jahren 2008 und 2009 im Rahmen des *Eurosystem Wage Dynamics Network* durchgeführt hat. Ziel dieser Erhebungen war es, Einsichten in die Lohn- und Preisbildungspolitik der luxemburgischen Unternehmen zu bekommen, Informationen zu eventuell vorhanden Lohnrigiditäten zu erhalten und die Reaktion der Unternehmen zu untersuchen. Während die luxemburgische Wirtschaft in 2008 noch stark wuchs und Fragen zu den Anpassungsmaßnahmen im Falle negativer Angebots- und Nachfrageschocks in der ersten Erhebung eher hypothetischen Charakter hatten, zielte die zweite Erhebung auf die tatsächlichen Anpassungsmaßnahmen im Zuge der Krise ab.

Die Antworten der mehr als 400 teilnehmenden Unternehmen zeigen, daß die Wirtschafts- und Finanzmarktkrise den Umsatz von 76% der Unternehmen negativ beeinflußte. Besonders betroffen waren Firmen in den Sektoren Industrie- und Finanzdienstleistungen. Im Baugewerbe hingegen waren fast vier von zehn Firmen gar nicht oder nur marginal betroffen. Aus Sicht der Unternehmen stellte die Wirtschafts- und Finanzmarktkrise hauptsächlich einen großen Nachfrageschock dar, zum Teil begleitet von einer Art Finanzschock. Fast vier von fünf Unternehmen verzeichneten einen moderaten oder stärkeren Nachfrageeinbruch für ihre Produkte und Dienstleistungen. Zwei von drei Unternehmen berichteten von moderaten oder größeren Schwierigkeiten, für ihre Produkte und Dienstleistungen bezahlt zu werden und, in der Folge, möglichen Lieferengpässen. Ungefähr vier von zehn Unternehmen berichteten zudem von Schwierigkeiten bei der Finanzierung ihrer Aktivitäten. Im Gegensatz dazu gaben vier von fünf Unternehmen an, gar nicht oder nur marginal von Lieferschwierigkeiten betroffen zu sein.

Die von den Unternehmen ergriffenen Maßnahmen im Zuge der Wirtschafts- und Finanzkrise variieren in Abhängigkeit von der Art und der Größe des Schocks. Von größter Bedeutung für die Bekämpfung eines Nachfrageeinbruchs, so die Einschätzung der Unternehmen, sind Maßnahmen zur Kostenreduktion. Neun von zehn Unternehmen erachten Maßnahmen zur Kostensenkung als wichtig oder sehr wichtig, um einem Nachfrageeinbruch entgegenzutreten. Preissenkungen, geringere Gewinnmargen oder Produktionskürzung werden im allgemeinen als weniger bedeutsam erachtet, um auf einen Nachfrageeinbruch zu reagieren. Der Anteil der Firmen, der diese Maßnahmen als wichtig oder sehr wichtig einstuft, liegt zwischen 25% und 33%. Im Gegensatz

zu Kostensenkungen wurden Preissenkungen, geringeren Gewinnmargen und Produktionskürzungen in der zweiten Erhebung eine geringere Bedeutung beigemessen als in 2008 als Fragen zur Anpassung an einen Nachfragerückgang eher hypothetischer Natur waren. Grundsätzlich gilt, daß die Relevanz der Maßnahmen mit der Größe des Schocks zunimmt. So legen zum Beispiel Unternehmen, die unter einem stärkeren Nachfrageeinbruch leiden, erhöhten Wert auf Kostensenkungen.

Die wichtigste Maßnahme zur Kostensenkung, so die Einschätzung der Unternehmen, ist die Senkung der Nicht-Arbeitskosten (für annähernd 90% der Unternehmen wichtig oder sehr wichtig). Für circa 60% der Unternehmen stellen die Nicht-Verlängerung befristeter Arbeitsverträge, der Abbau variabler Lohn- und Gehaltsbestandteile und die Anpassung der Arbeitszeit wichtige oder sehr wichtige Maßnahmen zur Kostensenkung dar. Eine Verringerung der Stammbelegschaft oder eine Kürzung des Grundgehalts hingegen halten nur jeweils 30% und 2% der Unternehmen für eine wichtige oder sehr wichtige Maßnahme zur Kostensenkung. Wichtigstes Mittel zur Anpassung der Arbeitszeit ist der Abbau von Überstunden (für mehr als neun von zehn Firmen wichtig oder sehr wichtig). Etwa die Hälfte der Unternehmen hält andere Maßnahmen zur Anpassung der Arbeitszeit, wie z. B. die Einführung von flexiblen (Lebens-)arbeitszeitkonten, für wichtig oder sehr wichtig. Die Einführung von Kurzarbeit wird hingegen nur von ungefähr 10% der Unternehmen als wichtige oder sehr wichtige Maßnahme zur Anpassung der Arbeitszeit erachtet.

Ungefähr die Hälfte der Unternehmen gab an, im Zuge der Krise Grundgehälter eingefroren zu haben oder ein Einfrieren der Grundgehälter zu planen (ausgenommen die automatische Indexierung verursachten Gehaltsänderungen). Kürzungen der Grundgehälter hingegen blieben trotz der Wirtschaftskrise im Allgemeinen aus. Ursächlich für das Ausbleiben von Kürzungen der Grundgehälter sind nach Einschätzung der Unternehmen vor allem bestehende Arbeitsmarktbestimmungen und/oder Tarifvereinbarungen, eventuell negative Auswirkungen auf das Betriebsklima und/oder den Arbeitseinsatz der Belegschaft sowie die Sorge, die besten Arbeitskräfte könnten das Unternehmen verlassen. Jeder dieser Gründe war für mindestens 70% der Unternehmen ein wichtiger oder sehr wichtiger Anlaß, von Kürzungen des Grundgehalts abzusehen.

Die Ergebnisse der Erhebungen zeigen, dass die Einschätzung der Firmen (sowohl im Hinblick auf die Relevanz verschiedener Anpassungsmaßnahmen als auch bezüglich der Hinderungsgründe für Gehaltskürzungen) vom wirtschaftlichen Umfeld und der tatsächlichen Firmensituation abhängig sein kann.

1 Introduction

The economic and financial crises led the Luxembourg economy into a deep recession in 2008/2009. This recession brought an end to a long period of economic growth and saw real GDP growth fall sharply from its peak of 6.6% in 2007 to -5,3% in 2009 (STATEC, 2011). Due to the international exposure of the Luxembourg economy and its dependence on its financial centre the decline in economic activity was particularly large relative to the euro area on average (OECD, 2010).

This paper analyses the impact of the economic and financial crisis on Luxembourg firms and studies the adjustment measures taken during the crisis at the firm level. From a theoretical perspective, firms may react in various ways to negative shocks, e.g. by adjusting prices, profit margins, output or costs (or combinations thereof). In practice, the measures taken by firms faced by a negative shock are likely to depend on the type and size of the shock, but also on the structural characteristics of the relevant product and labour markets.

For the purpose of this analysis, we use firm-level survey data collected by the *Banque centrale du Luxembourg* in mid-2008 and mid-2009. Taken together, the two surveys provide evidence on a wide array of factors, such as key firm characteristics (e.g. age, revenue growth, composition of workforce, degree of autonomy and competition), aspects of wage and price setting (e.g. coverage of collective agreements, wage and price flexibility as well as the timing of and the link between those changes), the degree of downward wage rigidity and adjustment to shocks (e.g. by means of wage freezes /cuts) and obstacles to such adjustments. By collecting data on firm characteristics, the business environment as well as key features of the relevant product and labour market, the two surveys permit obtaining direct firm evidence that typically cannot be obtained from existing statistics. The two surveys were conducted within the context of the *Eurosystem Wage Dynamics Network* (*WDN*). The paper is in the spirit of Bertola et al. (2010), providing cross-country evidence of adjustment to hypothetical supply side shocks at the firm level, as well as Kwapil (2010) and Fabiani et al. (2011) analysing adjustment measures taken by firms during the crisis in Austria and in 9 EU countries, respectively. For many firms the need to adjust to negative shocks had probably been rather hypothetical in the initial survey in 2008 (i.e. before the financial crisis took off when macroeconomic growth was still robust). The aim of the 2009 follow-up survey was therefore to obtain firsthand information on firms' actual adjustments in response to a genuine economic and financial crisis.

The main results can be summarised as follows: First, most Luxembourg firms were negatively affected by the crisis, primarily due to a fall in demand for their products and services, but also due to difficulties in financing their business activities and cash flow issues due to poor payment morale of customers. In response to the crisis, firms primarily make every endeavour to cut costs, of which non-labour costs are considered the most relevant component. Firms aiming at lowering labour costs attach some relevance to cutting the number of temporary staff, bonuses and overtime hours while cuts

in base wages or permanent staff are considered less relevant. While very few firms had recourse to cuts in base wages, base wage freezes were a commonly used adjustment measure during the economic and financial crisis. The most important obstacles to cuts in base wages are related to labour market regulation / existing wage agreements as well as concerns related to the impact such wage cuts might have on staff morale and effort. Finally, our results suggest that the assessment of adjustment measures and obstacles to wage cuts may depend on the economic environment and the actual situation of the firm.

Section 2 briefly describes the data and the survey design. Section 3 discusses the shocks and adjustment strategies. Section 4 studies issues related to base wage freezes and cuts. Section 5 concludes.

2 Data and survey design

The data used in this paper are taken from two surveys conducted by the *Banque centrale du Luxembourg* in mid-2008 and mid-2009 within the framework of the *WDN*. Designed in close correspondence to similar surveys conducted by other national central banks within the *European System of Central Banks* (*ESCB*)[1], the surveys focused on firms' price and wage setting practices, the degree of downward wage rigidities and adjustment measures to negative shocks at the firm level. For many firms the need to adjust to negative shocks had probably been rather hypothetical in the initial survey in 2008 (i.e. before the financial crisis took off when macroeconomic growth was still robust). The aim of the 2009 follow-up survey was therefore to obtain firsthand information on firms' actual adjustments in response to a genuine economic and financial crisis. For the sake of comparability, the 2009 follow-up survey targeted firms that had already participated in the initial survey in mid-2008. Meta firm-level data are taken from the more comprehensive 2008 survey.

Further information on the sector and the size structure of firms participating in the survey as well as the general survey design, is provided in Appendix A – Survey background information. The 432 firms in our dataset represent 3% of the firm population but account for more than 9% of all employees. As illustrated in Table A1, the number of firms varies substantially across sector and firm size strata. In order to limit any bias arising from a non-representative panel of firms, the replies are post-stratified with respect to both sector and size class. The weights are calculated as total employment in each stratum divided by the number of sampled firms in each stratum. Unless stated otherwise, statistics are representative of total employment in the firm population.

[1] For more information please refer to http://www.ecb.int/home/html/researcher_wdn.en.html.

3 Shocks and adjustments

3.1 How did the crisis affect firms?

The adjustment to shocks is likely to depend on the nature and the size of the shock a firm faces. Overall, the 2009 follow-up suggests that 76% of firms (in employment weighted terms) considered their turnover negatively affected by the economic and financial crisis, while 19% were not affected at all, and a further 4% were actually positively affected (see Table 1 below). 30% of firms considered the negative effect strong or exceptionally strong, while 33% and 13% considered the impact moderate and marginal, respectively.

Table 1: Effect of the economic and financial crisis on turnover, (percent of firms)

	Sector breakdown						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
Negatively	97	56	72	74	86	77	64	70	56	73	90	76
Marginally	*15*	*4*	*10*	*16*	*18*	*12*	*15*	*11*	*10*	*20*	*10*	*13*
Moderately	*8*	*46*	*31*	*32*	*52*		*23*	*40*	*29*	*24*	*37*	*33*
Strongly	*68*	*6*	*23*	*25*	*6*	*60*	*18*	*16*	*15*	*21*	*39*	*26*
Exceptionally strongly	*6*	*0*	*8*	*1*	*10*	*6*	*7*	*3*	*3*	*7*	*3*	*4*
Strongly/exce. strongly	*74*	*7*	*31*	*26*	*17*	*66*	*26*	*19*	*17*	*28*	*42*	*30*
Positively	1	8	6	5	2	6	10	6	9	7		4
Not at all	3	36	22	21	12	17	26	24	34	20	10	19
Total	100	100	100	100	100	100	100	100	100	100	100	100

Question 1: To what extent is your firm's activity (in terms of turnover) affected by the current economic and financial crisis? If "negatively affected", please specify among marginally, moderately, strongly or exceptionally strongly.
Notes: Weighted by employment. Rows may not add up to 100 due to rounding.

The share of firms negatively affected by the crisis is the highest in *Industry* (97%) and *Financial Services* (86%). The sector with the lowest share of firms negatively affected by the crisis is *Construction* (56%). At the same time, it appears that very large firms (200+) were particularly strongly affected by the economic and financial crisis (see Table 1 above).

3.2 The type and size of the shock

In order to obtain firsthand information about the nature of the shock(s) experienced at the firm level, firms were asked to assess the relevance of the following four types of shocks: i) a fall in demand for their products / services / activities (*demand shock*), ii) the difficulty in financing their activity through usual financial channels (*credit constraint shock*), iii) difficulties in being paid by customers (*cash flow shock*), and iv) difficulties in being supplied by their usual suppliers (*supply shock*).

Overall, falling demand is considered the most important type of shock. More than 8 out of 10 firms experienced a moderate or stronger fall in demand, with 37% experiencing a strong or a very strong decline in demand (see Table 2). The share of firms experiencing a moderate or stronger fall in demand was highest in *Industry* (96%). At the same time, the size of the demand shock varies with firm size. While 49% of firms with

more than 200 employees (very large firms hereafter) experienced a strong or very strong demand shock, the share of firms facing a strong or very strong demand shock is only 21% for firms with 20-49 employees.

Table 2: Type and size of shock, in %

	Sector break down						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
Fall in demand												
Not at all / Marginally	4	28	28	13	13	33	30	23	34	20	3	16
Moderately	19	50	37	57	58	23	36	46	44	50	48	47
Strongly	71	9	28	25	17	38	21	24	14	22	42	29
Very strongly	6	14	7	4	12	6	12	7	7	7	7	8
Strongly / very strongly	77	23	35	30	29	44	34	31	21	30	49	37
Total	100	100	100	100	100	100	100	100	100	100	100	100
Difficulty in financing												
Not at all / Marginally	46	42	49	81	67	39	60	48	60	53	75	63
Moderately	11	26	39	11	20	12	19	26	32	27	6	18
Strongly	36	23	9	5	11	43	15	14	5	11	19	14
Very strongly	6	9	3	3	2	6	6	11	2	9		4
Strongly / very strongly	43	32	11	8	12	49	21	26	7	20	19	19
Total	100	100	100	100	100	100	100	100	100	100	100	100
Difficulty in being paid												
Not at all / Marginally	13	22	36	32	64	30	35	23	32	37	34	32
Moderately	42	31	35	48	35	60	34	45	41	37	43	41
Strongly	44	22	23	18	1	0	27	16	19	26	19	21
Very strongly	1	25	6	2	0	11	5	16	8	0	4	6
Strongly / very strongly	45	47	29	20	1	11	31	32	27	26	23	26
Total	100	100	100	100	100	100	100	100	100	100	100	100
Difficulty being supplied												
Not at all / Marginally	89	80	70	84	88	56	74	77	76	81	90	82
Moderately	10	18	25	13	11	44	20	20	21	15	10	15
Strongly	1	2	5	3	1	0	3	3	3	5	0	2
Very strongly	1	0	0	0	0	0	2	1	0	0	0	0
Strongly / very strongly	1	2	5	3	1	0	5	4	3	5	0	2
Total	100	100	100	100	100	100	100	100	100	100	100	100

Question 2: To what extent does the current economic and financial crisis affect your firm with respect to each of the following aspects?
Notes: Weighted by employment. Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding.

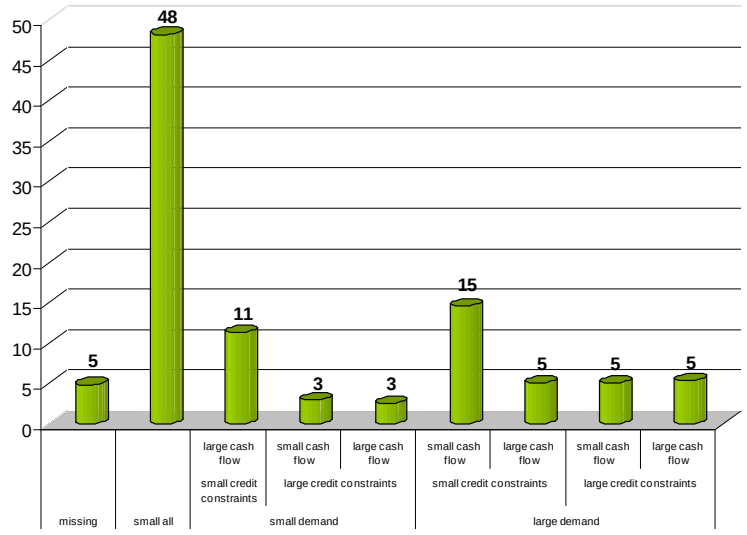
Weak demand and poor forecast sales, in turn, may affect firms' ability to obtain external funding, e.g. due to lower net worth. In addition, in a period of crisis, banks may tighten credit standards. The surveys indeed suggest moderate or stronger difficulties in financing business related activities for more than one out of three firms. Funding difficulties are particularly relevant for non-market services firms. With almost one out of two firms being strongly or very strongly affected, *Non-market services* firms consider funding difficulties the most important among the four types of shock studied here. This is in contrast to the other sectors where falling demand is considered the most important shock and might relate to the great importance of non-tangible assets in the *Non-market services* sector. While the share of firms reporting strong or very strong funding difficulties is relatively high in *Industry* and in *Construction (*43% and 32%, re-

spectively) too, relatively few *Market services*, *Trade* and *Financial services* firms report strong or very strong funding difficulties (8%, 11% and 12%, respectively).

Moreover, economic and financial crises may raise issues related to cash flow and liquidity management (e.g. due to firms suffering from a low payment morale of their customers). Overall, more than two thirds of firms indeed report moderate or stronger difficulties in being paid by their customers. The highest share of firms reporting strong or very strong difficulties in being paid is observed in *Construction* (47%) and *Industry* (45%). In contrast, a mere 1% of *Financial services* firms reported strong or very strong difficulties in being paid.

In contrast to the above three shocks (i.e. demand shock, credit constraint shock and cash flow shock), only few firms identified substantial difficulties in being supplied by usual suppliers during the economic and financial crisis. The share of firms reporting strong or very strong difficulties being supplied by usual suppliers being steadily at 5% or lower in all sectors and size classes, the remainder of this paper will refer to the three most important shocks only.

Figure 1: Distribution of shocks experienced by Luxembourg firms during the economic and financial crisis, in %



Notes: For a definition of the reported categories "missing", "small" and "large", refer to the main text above. Results are weighted by employment.

Economic downturns may affect firms more than one dimension. Figure 1 shows the distribution of the three most important types of shocks. Figure 2 subsumes the survey's reply options "marginally/not at all" and "moderately" ("strong" and "very strong") into the category "small" ("large"). The category "missing" denotes the 5% share of firms providing no assessment of the relevance of all three major shocks. Figure 2 illustrates that about one half of the firms consider the type(s) of shock they experienced but small. By contrast, a mere 5% of firms consider all three types of shocks large. 13% of the firms report a combination of two large types of shock. Finally, 29% of

the firms experienced a single large type of shock (most frequently in the form of a demand shock, but also in the form of a cash flow shock).

3.3 How firms adjust to demand shocks

In theory, firms may adopt various measures in reaction to deteriorating business conditions, such as i) reducing prices, ii) narrowing profit margins, iii) reducing output/activity or trimming the product range and iv) cutting costs as well as combinations thereof. In order to better understand the adjustment measures actually taken by Luxembourg firms in the wake of the economic and financial crisis, firms considering the fall in demand moderate (or larger) were asked to assess the relevance of the measures i) to iv) above on the basis of the following five-point Likert item format: (1) "not relevant", (2) "of little relevance", (3) "relevant", (4) "very relevant", and (5) "don't know". Hereafter, for each adjustment measure considered, we will refer to the accept ratio (e.g. Blinder et al., 1998) as the share of firms considering the measure relevant or very relevant

Table 3: Adjustment strategies of firms in response to a fall in demand, in %

	Sector break down						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
Reduce prices												
Not relevant	9	6	19	16	63	9	34	22	29	25	16	21
Of little relevance	68	32	33	62	36	57	30	34	38	41	69	52
Relevant	22	61	41	18	0	34	24	37	25	35	15	24
Very Relevant	1	0	7	4	0	0	12	8	8	0	0	3
Relevant / very relevant	22	62	48	22	1	34	36	45	33	35	15	27
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce margins												
Not relevant	5	12	16	11	37	9	27	17	26	15	9	15
Of little relevance	68	22	22	62	57	66	31	32	34	33	75	53
Relevant	20	62	58	20	4	25	31	38	33	44	15	28
Very Relevant	7	4	4	6	2	0	10	12	7	8	0	5
Relevant / very relevant	27	66	62	26	6	25	41	51	39	52	15	33
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce output												
Not relevant	9	56	48	39	58	75	48	47	42	50	32	40
Of little relevance	49	26	22	41	26	9	26	20	34	29	45	36
Relevant	41	15	20	19	15	16	22	27	20	17	23	22
Very Relevant	1	3	11	1	2	0	4	6	4	5	0	3
Relevant / very relevant	41	18	31	21	16	16	26	33	24	21	23	25
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce costs												
Not relevant	1	9	4	3	1	0	6	7	3	6	0	3
Of little relevance	6	11	13	8	14	25	24	18	22	9	3	10
Relevant	43	40	42	67	46	50	39	48	35	47	64	53
Very Relevant	50	41	41	21	39	25	31	28	40	38	33	34
Relevant / very relevant	93	80	83	88	86	75	70	75	75	85	97	87
Total	100	100	100	100	100	100	100	100	100	100	100	100

Question 3: If the current economic and financial crisis does cause a fall in the demand for your firm's products / services, how relevant do you consider the following strategies to face such a fall?
Notes: Weighted by employment. Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding.

In reacting to a negative demand shock, almost nine out of ten firms considered cost reductions relevant or very relevant (see Table 3). Moreover, cost reductions are considered the most important adjustment measure in all sectors [accept ratios ranging between 75% (*Non-market services*) and 93% (*Industry*)] and size classes [accept ratios ranging between 75% (firms with less than 5 employees) and 97% (firms with 200 and more employees)]. With accept ratios ranging between 25% (trimming output) to 33% (narrowing margins), overall, firms assign a substantially lower importance to the other three adjustment measures following a fall in demand. In addition, the assessment of the relevance of the other adjustment measures appears to be much less homogenous across sectors and size classes than in the case of cost reductions. While *Construction* and *Trade* firms attach particularly high relevance to narrowing profit margins (accept ratios of 66% and 62%, respectively), firms in *Industry* put more emphasis on trimming output and *Non-market services* firms consider price reductions the most relevant measure (other than cost reductions). In *Financial services*, firms attach relatively limited (trimming output) or almost no (reducing prices and narrowing of profit margins) relevance to adjustment strategies other than cost reductions.

In general, the relevance attached to a given adjustment strategy increases with the size of the shock (see Table 4 below). The percentage of firms considering price reductions a relevant or very relevant strategy, for example, is higher for firms facing a large shock than for firms facing a small shock. Similar results apply to the vast majority of all types of shocks and adjustment strategies considered. By contrast, the size of a demand shock appears not to affect the accept ratio of reducing prices or margins. Moreover, the size of a credit constraint shock appears not to affect the accept ratio of reducing output.

Table 4: Adjustment strategy by size and type of shock, in %

Adjustment strategy by shock		reduce prices	reduce margins	reduce output	reduce costs
fall in demand	small	27	32	18	81
	large	27	33	33	95
difficulty in financing	small	26	31	25	86
	large	30	41	24	91
difficulty being paid	small	21	27	20	85
	large	44	48	36	92
difficulty being supplied	small	26	31	24	87
	large	58	80	46	98
Total		27	33	25	87

Question 3: If the current economic and financial crisis does cause a fall in the demand for your firm's products / services, how relevant do you consider the following strategies to face such a fall?
Notes: Figures show percentage of answers indicating "relevant" or "very relevant". "Don't know" answers are excluded. Weighted by employment.

3.3.1 Econometric exercise I: What drives the adjustment to a fall in demand?

In this section, we investigate possible determinants of the relevance firms assign to i) price reductions, ii) narrowing margins, iii) lowering output and iv) trimming costs in

response to a fall in demand. For the purpose of this exercise, the questionnaire's Likert item format is translated into an ordered choice model. Supposing the four categories (1) "not relevant", (2) "of little relevance", (3) "relevant" and (4) "very relevant" can be tied to the latent variable y^* as follows:

$$y_i = \begin{cases} 0 \Rightarrow \text{not relevant} & \text{if } \kappa_0 \le y_i^* < \kappa_1 \\ 1 \Rightarrow \text{little relevant} & \text{if } \kappa_1 \le y_i^* < \kappa_2 \\ 2 \Rightarrow \text{relevant} & \text{if } \kappa_2 \le y_i^* < \kappa_3 \\ 3 \Rightarrow \text{very relevant} & \text{if } \kappa_3 \le y_i^* < \kappa_4 \end{cases}$$

and further assuming a logistic distribution of the uncorrelated disturbance term with zero mean and variance equal to $\pi^2/3$, we estimate the following ordered logit model

$$\Pr(y_i = m) = \Pr(\kappa_{m-1} < x_i\beta + \varepsilon < \kappa_m) = \frac{1}{1+\exp(-\kappa_m + x_i\beta)} - \frac{1}{1+\exp(-\kappa_{m-1} + x_i\beta)}$$

where κ_M denotes the mth threshold point of the continuous latent variable y^*, with κ_0 being defined as -∞ and κ_4 as ∞. x and β denote the vector of observed values of the explanatory variables and the vector of coefficient estimates, respectively.

A key assumption underlying the ordinal logistic regression model is that the relationship between each pair of outcome groups is the same (« parallel regression assumption » aka « proportional odds assumption »). This assumption derives from the equivalence of the ordered logit model with J categorical outcomes and a set of J-1 binary regressions assuming identical slope coefficients across regressions. It is not uncommon that the assumptions of ordered logit/probit models are violated.[2] For the majority of the ordered logit estimates reported in the subsequent tables, the equality of the coefficients of all J-1 binary logit regressions is indeed rejected by an approximate likelihood ratio test.

Against this background, but also in order to assess the robustness of our results more generally, we collapse the ordered logit model into a logit model.[3] For this purpose, the replies "not relevant" and "of little relevance" ("relevant" and "very relevant") are subsumed into the category "weak relevance" ("strong relevance"). The firms' assessments of the size and of the type of shock experienced are grouped accordingly. While collapsing the ordered logit model into a logit model comes at a loss of information, it allows distinguishing strong reactions in the event of large shocks from weak reactions

[2] See for example Williams (2006).

[3] Alternatively, the parallel regression assumption can be relaxed by estimating a generalized ordered Logit. Generalised ordered logit models, however, can suffer from a number of potential issues, such as a not-straightforward interpretation of the model and, since non-parallel regression lines eventually must intersect, issues related to negative predicted probabilities. Issues related to negative predicted probabilities must not necessarily be serious if non-parallel regression lines intersect but "in a sufficiently remote region of the x-space" (McCullagh and Nelder, 1989). In our case, however, the estimated generalized ordered logit model returns 5 in-sample cases with a predicted probability below zero for the estimation of reductions in margins. This is likely to be related to the small number of observations in the "very relevant category", as only 5% of firms considered a reduction in margins very relevant. This issue extends to the specifications for the other dependent variables (see Table 3 and Table C2).

to small shocks. Assuming that the observed assessment is related to the continuous latent variable y^* in the following mapping:

$$y_i = \begin{cases} 0 \Rightarrow \text{not relevant or little relevant} & \text{if } y_i^* \leq 0 \\ 1 \Rightarrow \text{relevant or very relevant} & \text{if } y_i^* > 0 \end{cases}$$

We estimate the logit model:

$$\Pr(y_i = 1) = \frac{\exp(\alpha + x_i\beta)}{1 + \exp(\alpha + x_i\beta)}$$

The vector of covariates embodies mainly variables related to structural firm characteristics potentially determining the firm's adjustment responses to a specific shock, such as the structure of the product market(s) the firm operates in as well as the employee and cost structure of the firm. More specifically, the variable *labour cost share* (in total costs of a firm) intends to capture differences in production technology and labour intensity across firms. The *share of white-collars employees* is to characterise the employee structure of the firm.[4] Whether or not the firm can autonomously set prices is captured by the dummy variable *price setting autonomy*. This variable is to distinguish firms setting the price for their main product either according to costs and a completely self-determined margin or in response to their main competitors from firms not autonomously setting prices (e.g. as the price is determined by regulation, set by the parent company/group or set by the main customer). The variable *infra-annual price setting*, indicating whether or not a given firm adjusts prices more frequently than once a year, is considered a proxy of the frequency of price changes. We expect firms changing prices more often ceteris paribus to be more likely to adjust prices and margins than firms with infrequent price changes. The variable *price setting in particular months* is to characterise firms predominantly following time-dependent price setting policies. We distinguish time-dependent price setters from state-dependent price setting firms as the implications of state-dependent and time-dependent price setting on price dynamics may be very different.[5] While in a stable macroeconomic environment, state-dependent price setting may result in a seemingly high degree of price rigidity, state-dependent price setters may react very swiftly to economic shocks.[6]

Whether or not firms adjust prices depends not only on the degree of price flexibility but also on the elasticity of product demand, which, among others, is linked to market power and the degree of competition. The indicator variable *high competition* characterises firms considering the degree of competition they face strong or very strong. We expect the competition variable to be positively related to the relevance assigned to price and margin adjustments.

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[4] Initially, we also included the share of high-skilled employees. This variable was however insignificant throughout and we therefore omit this variable from the regressions.

[5] See also Druant et al. (2009) who use this variable to indicate time-dependent price setting policy.

[6] Admittedly, a low frequency of wage and price changes might be a poor proxy of the degree of wage and price rigidity as a low frequency of wage and price changes might result from few shocks actually experienced by wage and price setters. In the absence of a more reliable indicator of the degree of wage and price rigidity, referring to the frequency of wage and price change has become standard in the empirical analysis of wage and price flexibility (see, for example, the EU cross-country comparisons of wage and price rigidity in Druant et al. (2009) and of consumer price rigidity in Dhyne et al. (2006).

Since the structural firm data are taken from the initial survey in 2008 (relating to the situation at the end of 2007), these variables can be considered "predetermined" when studying the assessment of the crisis by firms within the context of the follow-up survey. Summary statistics of the structural firm data are reported in Table C1 in the Appendix. Moreover, we expect the relevance assigned to each of the adjustment strategies to depend on the type(s) and the size of the shock experienced. The indicator variables *(strong) demand fall, (strong) financing difficulties, (strong) difficulties being paid* and *(strong) difficulties being supplied* are meant to control for the fact that firms may have faced more than a single (large) shock (see section 3.2 above).

Logit estimates for the relevance assigned to the four main adjustment strategies are reported in Table 5. As we focus on the direction of the impact of the covariates (rather than the magnitude of the coefficient estimates) no weighting is applied. Coefficient estimates are expressed in exponentiated form, i.e. as odds ratios. As we cannot exclude the assumptions of the ordered logit specification being violated, hereafter, we focus on the logit estimates. As a robustness check, we also present estimates of the ordered logit specification. The results of the logit specification suggest the following: Overall, firms facing large shocks are more likely to attach high or very high relevance to the various adjustment measures. In particular, a large demand shock increases the probability of attaching a high or very high relevance to each of the adjustment strategies considered. Strong difficulties in being paid result in a significantly higher probability of reductions of prices and margins being considered relevant or very relevant. Likewise, large supply problems increase the probability of attaching a high relevance to a reduction in margins. By contrast, strong financing difficulties do not significantly affect the probability of attaching a high or very high relevance to any of the adjustment measures.

Table 5: Estimates of adjustments to (large) shocks

	Logit (1) price b/se	Ologit (2) price b/se	Logit (3) margins b/se	Ologit (4) margins b/se	Logit (5) output b/se	Ologit (6) output b/se	Logit (7) costs b/se	Ologit (8) costs b/se
labour cost share	1.021 **	1.017 ***	1.017 **	1.014 **	0.998	0.997	1.007	1.008
	(0.010)	(0.006)	(0.009)	(0.006)	(0.008)	(0.007)	(0.008)	(0.007)
share white-collar empl.	0.269 ***	0.383 ***	0.518	0.442 **	0.600	0.386 **	0.781	0.401 **
	(0.132)	(0.142)	(0.230)	(0.180)	(0.296)	(0.144)	(0.375)	(0.185)
price setting autonomy	0.409 *	0.853	1.140	1.451	0.972	1.830	0.325 **	0.596
	(0.204)	(0.346)	(0.507)	(0.565)	(0.443)	(0.728)	(0.183)	(0.209)
infra-annual price change freq.	1.933	1.583	2.058 *	1.609	1.667	1.396	1.458	1.528
	(0.828)	(0.508)	(0.780)	(0.508)	(0.712)	(0.457)	(0.589)	(0.459)
price setting in part. months	2.055 *	1.665	2.137 **	2.224 **	2.509 **	1.325	0.728	0.865
	(0.847)	(0.528)	(0.793)	(0.826)	(0.988)	(0.489)	(0.290)	(0.296)
high competition	1.386	1.891 *	1.105	1.790 *	0.716	0.993	1.259	1.287
	(0.652)	(0.651)	(0.437)	(0.612)	(0.310)	(0.339)	(0.511)	(0.453)
strong demand fall	2.049 *		2.340 **		3.160 ***		2.116 **	
	(0.793)		(0.776)		(1.245)		(0.784)	
demand fall		1.491		1.567 *		1.978 ***		1.588 **
		(0.389)		(0.400)		(0.489)		(0.349)
strong financing difficul.	0.663		1.167		1.012		0.879	
	(0.285)		(0.476)		(0.480)		(0.400)	
financing difficulties		0.998		1.374 *		0.946		1.342
		(0.161)		(0.224)		(0.187)		(0.246)
strong difficul. being paid	4.244 ***		2.598 ***		1.269		1.544	
	(1.561)		(0.877)		(0.474)		(0.654)	
difficulties being paid		1.386 *		1.410 **		1.306 *		1.039
		(0.235)		(0.225)		(0.204)		(0.170)
strong difficul. being supplied	1.901		4.161 *		2.076		2.622	
	(1.908)		(3.194)		(1.679)		(2.836)	
difficulties being supplied		1.457		1.691 **		1.447		1.016
		(0.367)		(0.388)		(0.434)		(0.269)
No. of obs.	215	215	216	216	207	207	217	217
Pseudo R-squared	0.20	0.08	0.14	0.11	0.10	0.07	0.07	0.06
LogL	-101.5 ***	-245.8 ***	-123.5 ***	-248.6 ***	-106.8 ***	-224.5 ***	-117.8 *	-247.1 ***

Note: Coefficients expressed in exponentiated form. Robust standard errors in ()
* p<0.1, ** p<0.05, *** p<0.01

Turning to the employee and cost structure of the firms, firms with higher labour cost shares are more likely to consider price and margins relevant or very relevant, suggesting these firms may find it harder to adjust output or costs. Firms with a high share of white-collar employees, by contrast, are less likely to consider price and margin reductions relevant or very relevant. Concerning product market related factors the results suggest that firms adjusting prices in particular months, i.e. firms following time-dependent price setting policies are more likely to consider price, margin and output reductions relevant or very relevant. Firms changing price more often than once per year are more likely to consider margin reductions relevant or very relevant. In addition, firms with price setting autonomy are less likely to consider price reductions relevant or very relevant, which might suggest that, in response to a negative demand shock, price and margin cuts are more likely if they can be "imposed" on firms. Finally, the degree of competition does not appear to affect the relevance assigned to any of the adjustment measures.[7] Similar main results are also obtained with the ordered logit specification. Noteworthy differences, however, are obtained with regard to some shock type indicators.

3.3.2 Adjusting to a demand fall before and during the crisis

When asking firms about their response to a demand shock in the 2008 survey, looking back to a period of persistent sound economic growth, the prospects of a negative demand shock and the response thereto were rather "hypothetical" in nature. In contrast, for many firms, the scenario of a negative demand shock had become real by 2009, when the follow-up survey was conducted. Table 6 below reports the relevance firms assigned to the four adjustment strategies in the initial survey and in the follow-up survey. As we cannot exclude that the very different prospects for a fall in demand impact on the relevance assigned to the four adjustment strategies, table 6 compares the responses of firms that replied to both the initial and the follow-up survey.

Table 6 above suggests that firms attached more relevance to reductions in prices, margins and output in the 2008 survey than in the 2009 follow up survey. In fact, reductions in costs are the only adjustment measure with a similar level of relevance in both surveys. The different prospects of a fall in demand in the two surveys had an important impact on the determinacy of firms' adjustment strategy. With the prospects of falling demand, overall, becoming much more certain in the follow-up survey, the share of firms that could not assess the relevance of the adjustment measures declined from 6-11% in 2008 to 2% or less in 2009. These results suggest that the assessment of adjustment strategies is may depend on the economic environment and that survey answers exclusively referring to periods without need for firms to adjust should cautiously be interpreted.

[7] In addition, we used other competition measures such as the variables *high price competition* (characterising firms that, in response to a price cut by their main competitor, consider a price cut of their own product to be likely or very likely) and *foreign price competition* (share of foreign sales). However, the coefficients remained mostly insignificant.

Table 6: Adjusting to a demand shock: Real versus hypothetical, in %

Identical firms	Follow up survey: real				Original survey: hypothetical			
Strategies to face fall in demand	reduce prices	reduce margins	reduce output	reduce costs	reduce prices	reduce margins	reduce output	reduce costs
not relevant	21	15	39	3	29	15	38	5
little relevance	52	53	35	10	19	19	12	5
relevant	24	28	22	53	37	48	30	43
very relevant	3	5	2	34	8	12	8	41
don't know	0	0	2	0	7	6	11	7
Total	100	100	100	100	100	100	100	100
Accept ratio	27	33	24	87	45	60	38	84

Notes: Answers for firms answering both surveys. Weighted by employment.

3.4 Margins of cost reductions

Overall, cost cutting measures are considered the most important strategy to adjust to falling demand. In theory, cost reductions can be achieved by cutting labour or non-labour costs (or a combination of both). Firms assigning at least some relevance to cost reductions were asked to assess the relevance of various measures to reduce costs. Almost nine out of ten firms considered lowering non-labour costs relevant or very relevant. The share of firms considering reductions in labour costs relevant or very relevant is, in general, substantially lower. In addition, the relevance assigned to the various measures to reduce labour costs (e.g. wage cuts, lay-offs, reduction in the number of hours worked) differs substantially. While measures to lower the number of hours worked per employee, to trim flexible wage components and to cut temporary staff are considered relevant or very relevant by approximately six out of ten firms, the share of firms considering relevant or very relevant measures to cut permanent staff is relatively low (29%). Measures to cut base wages are considered relevant or very relevant by very few firms only (2%). The low importance firms assigned to cuts in permanent staff and base wages may reflect strict labour market regulation and/or downward rigidity of base wages forcing firms to resort to other cost-cutting measures in response to a fall in demand (see also section 4). Firms considering a reduction in the number of hours worked per employee relevant or very relevant assign particular relevance to reductions in the number of overtime hours (more than nine out of ten firms consider this measure relevant or very relevant). By contrast, few firms considering reductions in the number of hours worked per employee relevant or very relevant assigned particular relevance to short-time work (12% of firms consider this measure relevant or very relevant). More than one out of two firms consider other measures (e.g. adjustments to working time accounts) relevant or very relevant.

Again, our results suggest a certain degree of heterogeneity with regard to the assessment of adjustment strategies across sectors and firm size classes (see Table C2 in the Appendix). For example, almost all firms in *Industry* considered reductions in the number of temporary staff relevant or very relevant. Not only is the accept ratio much higher than in any other sector, but also it exceeds the accept ratio for the reduction of non-labour costs. While reductions in permanent staff receive the second and third

highest accept ratio among *Trade* and *Non-Market Services* firms, respectively, they are considered relevant or very relevant by less than 10% of *Construction* firms. Finally, *Market Services* and *Non-Market Services* firms as well as very large firms attach a comparatively higher relevance to reductions in flexible wage components.

Table 7: Relevance of strategies to reduce costs, in %

Adjustment strategy		reduce wages		reduce employees		reduce work				reduce other
							thereof			
by shock		base wages	flexible components	no. of permanent employees	no. of temporary employees	no. of hours worked/employee	*reduction overtime hours*	*working short-time*	*other measures*	non-labour costs
fall in demand	small	1	63	22	39	47	*96*	*10*	*74*	85
	large	3	57	38	81	77	*93*	*15*	*40*	95
difficulty in financing	small	2	55	30	52	55	*96*	*12*	*45*	89
	large	2	77	28	84	84	*89*	*13*	*85*	93
difficulty being paid	small	2	56	33	55	53	*92*	*9*	*46*	89
	large	2	71	20	68	80	*97*	*19*	*72*	91
difficulty being supplied	small	2	61	30	59	61	*94*	*12*	*55*	89
	large	5	29	11	40	48	*89*	*15*	*56*	96
Total		2	60	29	58	61	*94*	*12*	*55*	89

Question 4: If the reduction of costs is of any relevance in your answer to question 3, how relevant are the following strategies. Answers refer to firms indicating relevant / very relevant.
Question 5: If adjusting the number of hours worked per employee is "relevant" or "very relevant", how relevant are the following measures in achieving this adjustment of hours worked per employee?
Notes: Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding. Weighted by employment.

Moreover, the relevance assigned to the various cost-cutting measures varies with the size of the shock. For example, the share of firms considering reductions in non-labour costs relevant or very relevant is even higher in the event of large shocks. The accept ratio of base wage reductions also increases with larger shocks (from 2% to larger than 5%), remaining at relatively low levels though. The share of firms considering a reduction in the number of hours worked per employee relevant or very relevant is generally larger in the event of large shocks (save in the case of a supply-side shock). The accept ratio of short-time work is always higher in the event of large (relative to small) shocks, too. In sum, with few exceptions, cost-cutting measures are more likely to be considered relevant or very relevant as the size of the shock increases.

The survey reveals a remarkably stable pattern in the assessment of cost-cutting measures. Regardless of the type and the strength of the shock, reducing overtime work is considered the most relevant measure to achieve a reduction in work hours. While reducing the number of overtime hours appears to be the first measure to cut labour costs, firms appear to resort more to short-time working as the shocks become larger. This is in line with expectations as a reduction of overtime hours is straightforward to implement. When the depletion of overtime work accounts does not suffice to counter the fall in demand more thorough measures, possibly extending to the entire staff, are

required. While implementing short-time work implies significant financial and administrative burden, the costs may be relatively lower in a severe crisis (e.g. because short-time assignments are actively promoted by governments). Moreover, the highest accept ratio among all cost-cutting measures is obtained for reductions in non-labour costs. This is regardless of the size and type of the shock. The second highest and the lowest accept ratios among all cost-cutting strategies are obtained for a reduction in permanent staff and cuts in base wages, respectively. Again, this is regardless of the size and type of the shock.

3.4.1 The relevance of cost-cutting strategies: Econometric exercise II

In this section, logit and ordered logit models similar to those in section 3.3.1 are used to study the determinants of the relevance firms assign to the various cost-cutting measures considered in the survey. Among the set of explanatory variables we include the *share* of employees *covered by a wage agreement*, be it via an outside agreement at sector level or a firm-specific agreement. We expect that firms covered by wage agreements tend to assign less relevance to reductions in base wages or in permanent staff, but rather trim bonuses and non-labour costs, cut temporary staff or lower the number of hours worked. The variable *high share of flexible wage components* indicates whether the share of bonuses and other benefits in the firm's total wage bill exceeds 10%. We expect firms with a significant share of flexible wage components to attach a higher relevance to trimming flexible wage components. Since firms may have faced more than one shock, indicator variables (i.e. *demand fall, financing difficulties, difficulties being paid* and *difficulties being supplied*) are introduced in order to control for the type(s) of shock experienced. In addition, as the relevance assigned to any given cost cutting strategy may well depend on the importance of other, non-cost cutting strategies, control variables are introduced capturing the relevance assigned to *output reductions* and *cost reductions*.[8] All remaining variables are defined as described previously.

The logit and ordered logit estimates are reported in Table 8. They suggest that the relevance attached to cost adjustment strategies indeed depends on the importance assigned to other, non-cost adjustment strategies. For example, according to the logit estimates, attaching high or very high relevance to output reductions increases the probability of attaching high or very high relevance to reductions in the number permanent staff and in the number of hours worked per employee. Moreover, high or very high relevance attached to cost reductions tends to increase the likelihood of considering reductions in bonuses, temporary staff, number of hours worked per employee and in non-labour costs relevant or very relevant. Turning to the shocks, large financing difficulties increases the odds of attaching high or very high relevance to reductions in bonuses. However, large difficulties being paid and large demand fall do not appear to affect the relevance assigned to any of the cost cutting strategies considered here.

[8] At this stage, we do not include the relevance attached to reductions in prices and margins as these strategies do not directly relate to the firm's cost structure. We do not present the results for cuts in base wages as this strategy was barely relevant. The Log-likelihood of the overall model is insignificant.

Furthermore, firms with a high share of bonuses reveal a higher probability of attaching high or very relevance to a reduction of the flexible wage components in order to cut labour costs. A similar effect is found for firms with higher shares of white-collar workers. Such firms are more likely to pay bonuses and other flexible wage components. Also, the higher the share of white-collar workers the higher also the probability that firms consider the reduction of non-labour costs relevant or very relevant. In addition, a higher share of white-collar employees reduces the odds of considering cuts in temporary staff and in the number of hours worked per employee relevant or very relevant. Firms with a higher share of high-skilled employees tend to reveal a lower probability of considering reductions in non-labour costs and higher probability in cutting hours worked per employee relevant or very relevant. Also, a higher labour cost share increases the probability of attaching high relevance to reductions in non-labour costs, which may be indicative of the difficulties of such firms in reducing costs related to labour. Finally, firms with a higher fraction of staff being covered by collective wage agreements reveal a higher probability of considering reductions in the number of temporary staff and the number of hours worked per employee. This suggests that firms subject to collective wage agreements may find it more difficult to adjust the more rigid labour cost components. Reductions in the number of hours worked per employee are relatively straightforward to implement, in particular in the form of a temporary reduction in overtime hours work or of short-time work, a measure actively supported by the government during the severe crisis.

While the results of the ordered logit specification largely support the conclusions from the logit specification, a few differences are obtained. For example, the ordered logit estimates suggest that financing difficulties increase the probability of attaching higher relevance to lay-offs of permanent and temporary staff. Also, the labour cost share, white-collar and high-skilled employee shares do not seem to affect the relevance assigned to the adjustment of non-labour costs.

Table 8: Estimates of various cost-cutting strategies

	Logit (1) bonus b/se	Ologit (2) bonus b/se	Logit (3) p_emp b/se	Ologit (4) p_emp b/se	Logit (5) t_emp b/se	Ologit (6) t_emp b/se	Logit (7) hours b/se	Ologit (8) hours b/se	Logit (9) nl_c b/se	Ologit (10) nl_c b/se
share covered by wage	1.002	1.003	0.995	0.999	1.007 *	1.008 **	1.011 **	1.007 *	1.000	1.002
agreement	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)
labour cost share	1.006	1.002	1.005	1.008	1.002	1.000	0.993	1.002	1.016 *	1.000
	(0.008)	(0.006)	(0.008)	(0.008)	(0.007)	(0.007)	(0.009)	(0.006)	(0.010)	(0.007)
share high-skilled empl.	2.022	2.597 **	0.864	0.884	1.245	1.339	2.943 *	1.543	0.222 **	0.659
	(0.904)	(1.051)	(0.386)	(0.352)	(0.605)	(0.612)	(1.674)	(0.599)	(0.135)	(0.257)
share white-collar empl.	2.161 *	2.673 **	1.027	1.274	0.157 ***	0.185 ***	0.085 ***	0.196 ***	2.839 *	1.438
	(0.927)	(1.122)	(0.454)	(0.491)	(0.072)	(0.077)	(0.042)	(0.083)	(1.597)	(0.702)
high share of flex. wage comp.	2.088 **	1.840 **	1.475	1.731 **	0.808	1.197	1.007	0.955	0.811	1.052
	(0.692)	(0.503)	(0.502)	(0.458)	(0.285)	(0.398)	(0.356)	(0.261)	(0.387)	(0.306)
strong demand fall	1.213		1.727		1.265		1.115		1.361	
	(0.381)		(0.580)		(0.444)		(0.421)		(0.656)	
demand fall		1.216		1.360		1.006		1.022		1.252
		(0.249)		(0.300)		(0.254)		(0.219)		(0.286)
strong financing difficul.	3.487 ***		1.411		1.458		1.701		2.627	
	(1.534)		(0.562)		(0.627)		(0.761)		(1.600)	
financing difficulties		1.479 **		1.425 **		1.405 *		1.265		1.017
		(0.281)		(0.236)		(0.253)		(0.216)		(0.182)
strong difficul. being paid	1.551		0.738		1.225		1.433		1.515	
	(0.530)		(0.278)		(0.417)		(0.530)		(0.726)	
difficulties being paid		1.252		0.731 **		1.048		1.127		0.995
		(0.181)		(0.111)		(0.177)		(0.158)		(0.155)
strong output reductions	1.338		3.540 ***		1.053		2.207 **		0.984	
	(0.454)		(1.200)		(0.391)		(0.828)		(0.504)	
output reductions		1.181		2.007 ***		1.229		1.372 **		1.163
		(0.207)		(0.327)		(0.249)		(0.203)		(0.201)
strong cost reductions	3.013 ***		1.539		1.938 *		2.899 **		14.705 ***	
	(1.139)		(0.649)		(0.763)		(1.355)		(6.513)	
cost reductions		1.715 ***		1.065		1.148		1.501 **		4.842 ***
		(0.331)		(0.205)		(0.236)		(0.270)		(1.225)
No. of obs.	228	228	227	227	218	218	228	228	229	229
Pseudo R-squared	0.13	0.08	0.10	0.08	0.13	0.09	0.24	0.09	0.26	0.14
LogL	-136.2 ***	-281.1 ***	-125.3 ***	-260.1 ***	-129.9 ***	-242.0 ***	-115.1 ***	-265.8 ***	-78.4 ***	-223.5 ***

Note: Coefficient expressed in exponentiated form. Robust standard errors in ().
* p<0.1, ** p<0.05, *** p<0.01

4 Firm(s') reluctance to freeze and cut wages

Recent micro evidence suggests a high degree of downward wage rigidity in many European countries (e.g. Babecký et al. 2010), including Luxembourg (e.g. Lünnemann and Wintr, 2009, 2010). This is confirmed by evidence from the 2008 survey (see Table 9). In fact, a mere 8% and 6% of firms confirmed they had frozen and cut the base wage in the 5 years prior to the survey, respectively. Among those few firms, the fraction of employees affected by wage freezes and cuts was 34% and 8%, respectively. By contrast, in the follow-up survey, 52% of firms indicated they had either frozen base wages or were planning to do so and the share of staff subject to past wage and future freezes is about 75%. The share of firms that froze base wages is higher for firms experiencing large shocks. This is regardless of the type of shock considered. In spite of the severe crisis, however, the share of firms that either cut or were going to cut base wages remained very small (i.e. 1%). Thus, while wage cuts remained very uncommon during the economic and financial crisis, wage freezes became much more common than in the five years preceding the crisis. Messina and Rõõm (2010) report similar results for other European countries.

Table 9: Wage freezes and cuts, in %

	Follow-up survey		Initial survey	
	Freeze	Cut	Freeze	Cut
Yes	52	1	8	6
No	48	99	92	94
past % of employees	72	47	34	8
future % of employees	73	52		

Table 10: Shocks and wage freezes during the crisis, in %

Strategy		**freeze base wages**	***If yes: % of employees***	
by shock		**Yes**	***Past***	***Future***
fall in demand	small	43	*77*	*84*
	large	67	*67*	*64*
difficulty in financing	small	48	*67*	*67*
	large	69	*89*	*88*
difficulty being paid	small	47	*71*	*67*
	large	65	*74*	*83*
difficulty being supplied	small	52	*71*	*72*
	large	56	*97*	*96*
Total		52	*72*	*73*

Question 6: In the current economic and financial crisis, has your firm frozen (or is it going to freeze) the base wage of some employees?
Question 7: In the current economic and financial crisis, has your firm cut (or is it going to cut) the base wage of some employees?
Notes: Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding. Weighted by employment.

In addition, at the firm level, the share of staff affected by a wage cut/freeze was substantially higher during the crisis than in the five years preceding it. These figures sug-

gest that during the crisis wage freezes/cuts were probably motivated by the economic downturn while wage freezes/cuts in the preceding five years related to poor performance of individual employees or small subsets of employees.[9]

The share of wage freezes during the crisis varies across sectors. Wage freezes were most prominent in *Industry* (almost nine out of ten firms). In the *Trade* and *Market Services* sector about one half of firms reported having frozen or going to freeze wages. In the remaining sectors, the share of firms reported having frozen or going to freeze wages was approximately one third (Table C3). The share of firms that froze or considering freezing wages increased with firm size. Whereas 38% of very small firms (1-4 members of employees) froze or consider freezing wages, the corresponding share was 59% for very large firms (200 and more employees).

Wage cuts remained very uncommon despite the severe crisis and regardless of the type(s) and the size of the shock experienced. In order to identify sources of downward wage rigidity, firms were asked to assess the relevance of each of the following nine potentially important obstacles to wage cuts on the basis of the five-point Likert item format previously described.[10] The existence of explicit contracts between employers and employees, labour *market regulations* and/or collective wage agreements may affect the scope of wage cuts. According to the efficiency wage literature, wages have a direct link to employee productivity. Cutting wages may therefore have a negative effect on employee *effort* or *morale*, resulting in poorer output. Also, the *reputation* of the firm may suffer or alternatively, employers may risk that the best and most productive *employees leave*, which in turn may increase *training and recruiting costs* and/or make it more *difficult to attract* new employees. Downward wage rigidity may also be the result of *implicit contracts* between employers and employees. Employees and employers implicitly agree on a type of insurance keeping employees' wages remain relatively stable over the business cycle. Employers benefit from having stable wages if wages are lower than the average wage would have been over the business cycle; employees benefit by not having to deal with unpredictable wage changes. Finally, employees compare their wages with wages of workers with similar characteristics outside the firm and their level of effort will depend whether they believe they receive a *fair wage* for their job. Again, in order to distinguish situations with an actual need for wage cuts from scenarios in which the need for wage cuts is merely hypothetical, an assessment of the obstacles to wage cuts had been sought in both the initial and the follow-up survey.

[9] According to the initial survey in 2008, more than one out of two firms indeed froze or cut wages for reasons of poor performance of employees.

[10] See, for example, Campbell and Kamlani (1997) who group various theories of downward wage rigidities into five broad groups. Their classification has partly motivated the theories referred to in the surveys.

Table 11: Obstacles to wage cuts (in %)

Statistics	regulation	efforts	morale	reputation	best workers leave	increase in exits & increased costs	difficulty in attraction new workers	implicit contract; workers dislike salary swings	comparison of wage with outside
2009									
not relevant	12	3	3	16	6	10	12	22	14
little relevance	6	8	9	32	17	32	32	24	32
relevant	16	56	63	47	46	36	38	37	31
very relevant	60	33	24	3	28	20	16	14	19
don't know	6	1	1	1	3	2	2	3	4
Total	100	100	100	100	100	100	100	100	100
2008									
not relevant	6	1	1	8	4	8	6	24	8
little relevance	5	17	4	29	14	21	29	24	22
relevant	38	45	52	41	29	44	45	25	44
very relevant	44	34	40	15	49	23	15	14	18
don't know	6	3	3	7	4	4	5	13	8
Total	100	100	100	100	100	100	100	100	100
Accept ratio 2009	76	89	87	51	74	56	55	51	50
Accept ratio 2008	82	79	93	56	78	67	60	39	62

Question 9: If your firm has not (or is not considering to) cut base wages, how relevant is each of the following reasons in preventing it?
Notes: Rows may not add up to 100 due to rounding. Weighted by employment.

According to the follow-up survey, the most relevant reasons for not cutting wages relate to labour market regulation and/or collective wage agreements and the concern base wage cuts could reduce workers' morale and efforts and result in poorer services and lower output. These explanations are relevant or very relevant for preventing wage cuts for 76%, 87% and 89% of firms, respectively. Concerns related to staff morale and effort are considered important factors preventing wage cuts in the United States (e.g. Bewley, 1999; Blinder and Choi, 1990; Campbell and Kamlani, 1997), in Sweden (e.g. Agell and Lundborg, 1995, 2003) and in Germany (e.g. Franz and Pfeiffer, 2006), too. Moreover, firms refrained from wage cuts because the best workers may decide to leave the firm. For 74% of firms this reason is either relevant or very relevant. Other explanations, such as a negative impact on firm reputation, increased hiring and training costs, implicit insurance and the comparison of wages with competitors received less support in the follow-up survey (considered an relevant / a very relevant obstacle to wage cuts by 50% - 56% of firms).

Again, worthwhile noting are the differences to the initial survey of 2008 where the need for wage cuts was rather hypothetical. The four most relevant reasons preventing wage cuts (i.e. regulation/collective wage agreements and concerns related to employee efforts, morale and best workers leaving the firm) received even more support in 2008. By contrast, the existence of implicit contracts – considered the least relevant factor preventing wage cuts – received more support in the follow-up survey of 2009 (still among the least relevant obstacles to wage cuts though). Moreover, in the initial survey, firms attached higher relevance to difficulties in attracting new workers and to increased recruitment and training costs. Those concerns seem to have been of less importance in the crisis, a demand-driven world-wide economic slowdown rather than a

supply-side driven sector-specific shock. These results suggest that the assessment of factors preventing wage cuts is not necessarily invariant to changes in the economic environment.

5 Concluding Remarks

This paper analyses the effect of the economic and financial crisis on firms and their adjustment measures taken, by using firm-level survey data from Luxembourg firms. The answers of more than 400 participating firms show that the main negative effects of the economic and financial crisis are related to reductions in demand and to financial problems, which are related to difficulties in financing usual business activities and difficulties being paid which in turn result in cash flow problems. In contrast, few firms reported difficulties in securing supplies from their usual suppliers.

Adjustment strategies varied with the type and the size of the shock. The most relevant adjustment measure is cost reductions. Reductions in prices, margins or output are considered less relevant. In addition, firms consider non-labour costs more relevant than labour costs. With regard to labour cost reductions firms focus on cutting flexible wage components as well as reducing the number of temporary staff and the number of hours worked per employee. Adjustments to working time, in turn, are predominantly achieved through reduction of overtime work. Other measures to reduce labour costs tend to receive little support. In particular, firms are reluctant to reduce the number of permanent staff and very reluctant to cut base wages. The most relevant reasons reported for not cutting base wages are related to labour market regulation and/or collective wage agreements preventing such adjustments and the concern that cutting base wages would reduce workers' morale and efforts and result in poorer services and less output. Another concern is that the best workers may leave the firm. Contrary to base wage cuts base wage freezes (excl. wage changes due to automatic wage indexation) were a common phenomenon during the economic and financial crisis. About 50% of firms reported they have used or were going to use this measure.

Econometric results further suggest that, in general, the relevance attached to a given adjustment measure tends to increase with the size of the shock (with the exception of a credit constraint shock). Furthermore, the relevance of price and margins reductions depends on the price-setting policies by firms, i.e. reductions of prices and margins are more relevant if prices are changed more than once a year and if the firm follows a time-dependent price setting policy. By contrast, the degree of competition only has a limited, in general insignificant, influence on the relevance of the adjustment measures. The employee structure of the firm too affects the adjustment measures and cost cutting strategies; for example firms with a higher share of white-collar employees attach less relevance to price, margin and output reductions, as well as labour costs reductions via a reduction of temporary staff and hours worked. Firms with higher labour shares tend to attach higher relevance to adjustments in prices and margins. However, there is no significant effect on specific (labour) cost cutting strategies, suggesting these firms may find it harder to adjust output or costs. Firms attaching relevance to reduc-

tions in output and costs generally have a larger probability of attaching higher relevance to the various costs cutting strategies. Firms with financing difficulties are more likely to reduce bonuses. However, large difficulties being paid and a large demand fall do not affect any of the cost cutting strategies. Thus, the type and size of shock mainly affect the relevance firms attach to various adjustment measures as opposed to cost cutting strategies. Firms with a high share of bonuses are more likely to cut them in order to cut labour costs. A similar effect is found for firms with higher shares of white-collar workers, where a related reasoning may apply; such firms are more likely to pay bonuses and other flexible wage components. Moreover, firms with a higher share of staff being covered by collective wage agreements reveal a higher probability of considering reductions in the number of temporary staff and the number of hours worked per employee. This suggests that these firms may find it difficult to adjust the more rigid labour cost components, whereas reductions in the number of hours worked per employee are relatively straightforward to implement, in particular in the form of a temporary reduction in overtime hours worked or introducing short-time work, a measure actively supported by the government during the recent crisis. Finally, our results suggest that the assessment of adjustment measures and obstacles to wage cuts may depend on the economic environment and the actual situation of the firm, in particular on whether the need for adjustment is hypothetical or real.

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7 Appendix A – Survey background information

The *Banque centrale du Luxembourg* carried out two surveys in mid-2008 and mid-2009. They were designed in close correspondence to those used in the Eurosystem Wage Dynamics Network, where a large majority of Eurosystem national central banks undertook / commissioned similar surveys. The survey in 2009 was specifically designed to ask firms questions about the economic and financial crisis and directed at those firms having answered the previous survey in 2008 on the wage and price setting behaviour of Luxembourg firms. Both surveys were conducted by email. The initial sample in 2008 was based on a database of firms obtained from the Luxembourg yellow pages "EDITUS" and included among others contact persons and email addresses. In both cases, the email to the firms contained an introductory letter signed by a director and head of the economics department of the *Banque centrale du Luxembourg* emphasising the importance of this survey. The email was addressed the firm's CEO / director or the human resource manger.

The contacted firms were requested to complete an electronic questionnaire. Questions were designed such as to reduce the administrative burden faced by the respondents, for example by primarily requesting qualitative information based on a selection of pre-defined answers (a 4-point Likert scale ranging from "*unimportant*" (1), "*minor importance*" (2), "*important*" (3) to "*very important*" (4)). Firms were given a dedicated telephone number and email address for assistance. In order to achieve best-possible return rates, questionnaires in French, German and English were provided within one single file.

Electronic questionnaires have several advantages over traditional paper and pencil questionnaires. First, there is the cost argument. Cover letters and reminders can be sent without printing and postage. In addition, electronic surveys allow for a very large number of firms contacted and are less prone to errors when handling the replies. Additionally, the electronic questionnaire contained built-in consistency mechanisms alerting survey respondents if they typed in answers that were inconsistent with previous answers or invalid.

Table A1 provides a description of the composition of firms contacted as well as of the structure of firms participating in the survey. The composition is not perfectly representative of the firm structure in Luxembourg, a property commonly reported in similar surveys.

Table A1: Structure of firms in the dataset

Sector breakdown and Size Class	N(h)	L(h)	n2(h)	l2(h)
Industry				
1-4	272	620	5	17
5-19	268	2,675	12	124
20-49	99	3,079	5	150
50-199	82	7,920	4	361
200+	32	23,399	2	493
Construction				
1-4	598	1,411	12	33
5-19	819	8,336	10	99
20-49	306	9,276	14	450
50-199	119	10,366	7	488
200+	26	7,379	2	426
Trade				
1-4	2,503	4,835	34	80
5-19	1,257	11,246	41	417
20-49	226	7,008	16	515
50-199	105	9,743	7	694
200+	.	.	.	.
Market Services				
1-4	4,194	8,180	63	147
5-19	1,798	16,145	72	727
20-49	400	12,112	27	791
50-199	216	19,167	19	1,830
200+	68	43,109	6	7,148
Financial Services				
1-4	306	596	7	24
5-19	148	1,376	23	215
20-49	76	2,441	12	324
50-199	59	5,896	12	1,174
200+	39	23,496	8	5,917
Non-market services				
1-4	552	1,137	6	15
5-19	244	2,058	6	67
20-49	.	.	.	.
50-199	.	.	.	.
200+	.	.	.	.
Total	14,812	243,006	432	22,726

Notes: N2(h) and L2(h) denote the number of firms and the number of employees in the population, respectively. n2(h) and l2(h) denote the number of firms and employees included in the dataset, respectively.

8 Appendix B – The questionnaire of the 2009 survey

Phone: 00352 4774 4545
Email: wdn@bcl.lu

Please return the completed questionnaire by August 7, 2009 via email to: wdn@bcl.lu

Please provide your firm's details in case we would like to contact you

Name of the firm	
Legal form	
Streetnumber	
Street name / Post box	
Postal code	
Town / city	
Person responding to survey	
Your function within the company	
Telephone number	
Email address	

Question 1: To what extent is your firm's activity (in terms of turnover) affected by the current economic and financial crisis?

Please choose a single option

Possible answers	Meaning
1	Negatively affected
2	Positively affected
3	Not at all

If 'Negatively affected', please specify

Possible answers	Meaning
1	Marginally
2	Moderately
3	Strongly
4	Exceptionally strongly

Question 2: To what extent does the current economic and financial crisis affect your firm with respect to each of the following aspects?

Please choose one option for each of the 4 following aspects

1. Fall in the demand for your firm's products/services/activities
2. Difficulty in financing your firm's activity through the usual financial channels
3. Difficulty in being paid by customers
4. Difficulty in being supplied by your firm's usual suppliers

Possible answers	Meaning
1	Not at all/marginally
2	Moderately
3	Strongly
4	Very strongly
5	Don't know

Question 3: If the current economic and financial crisis does cause a fall in the demand for your firm's products/services, how relevant do you consider the following strategies to face such a fall?

Please choose one option for each of the 4 following strategies

1. Reduce prices
2. Reduce margins
3. Reduce output/activities/product range
4. Reduce costs

Possible answers	Meaning
1	Not relevant
2	Of little relevance
3	Relevant
4	Very relevant
5	Don't know

Question 4: If the reduction of costs is of any relevance in your answer to question 3, how relevant are the following strategies?

Please choose one option for each of the 6 following strategies

1. Reduce base wages

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

3. Reduce the number of permanent employees

4. Reduce the number of temporary employees / other type of workers

5. Adjust the number of hours worked per employee

6. Reduce non-labour costs

Possible answers	Meaning
1	Not relevant
2	Of little relevance
3	Relevant
4	Very relevant
5	Don't know

Question 5: If adjusting the number of hours worked per employee is 'Relevant' or 'Very relevant', how relevant are the following measures in achieving this adjustment of hours worked per employee?

Please choose one option for each of the 3 following measures

1. Reduction of overtime hours

2. Working short-time

3. Other measures (adjustment of working time account)

Possible answers	Meaning
1	Not relevant
2	Of little relevance
3	Relevant
4	Very relevant
5	Don't know

Question 6: In the current economic and financial crisis, has your firm frozen (or is it going to freeze) the base wage of some employees?

Freeze in base wage: Base wage in nominal terms is unchanged from a pay negotiation to the next (except for wage increases due to automatic wage indexation)

Please choose a single option

Possible answers	Meaning
1	Yes
2	No

If 'Yes':

a) We did freeze the nominal base wage for ____ % of the workers

b) We are going to freeze the nominal base wage for ____ % of the workers

Question 7: In the current economic and financial crisis, has your firm (or is it going to) cut the base wage of some employees?

Cut in base wage: Base wage in nominal terms is decreased from a pay negotiation to the next

Please choose a single option

Possible answers	Meaning
1	Yes
2	No

If 'Yes':

a) We did cut the nominal base wage for ____ % of the workers

b) We are going to cut the nominal base wage for ____ % of the workers

Question 8: In the current economic and financial crisis, does your firm benefit from governmental measures aimed at avoiding a loss of workers or wage cuts?

Examples: working short-time, temporary aids or guarantees for economic recovery, lending workforce facility

Please choose a single option

Possible answers	Meaning
1	Yes
2	No

If 'Yes', which type of measures?

Question 9: If your firm has not (or is not considering to) cut the base wage, how relevant is each of the following reasons in preventing it?

Please choose an option for each of the 9 following reasons

1. Labour regulation/collective agreements prevent wages from being cut

2. It would reduce employees' efforts, resulting in less output or poorer service

3. It would have a negative impact on employees' morale

4. It would damage the firm's reputation as an employer, making it more difficult to hire workers in the future

5. In presence of a wage cut the most productive employees might leave the firm

6. A wage cut would increase the number of employees who quit, increasing the cost of hiring and training new workers

7. It would create difficulties in attracting new workers

8. 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

9. Employees compare their wage to that of similarly qualified workers in other firms in the same market

Possible answers	Meaning
1	Not relevant
2	Of little relevance
3	Relevant
4	Very relevant
5	Don't know

Thank you for having participated in this survey

9 Appendix C – Additional Tables and Figures

Table C1: Summary statistics of the main covariates, in %

	Sector break down						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
labour cost share	38	44	39	50	54	59	47	46	47	44	47	46
employees covered by wage agreement	67	70	18	26	64	11	6	19	42	42	60	43
prices set more freq. than once a year	10	46	39	17	12	11	20	31	28	21	18	22
price setting in particualr months	14	15	15	19	2	11	17	17	17	23	7	14
base wage set more freq. than once a year	0	7	4	6	28	6	8	3	9	9	9	8
wage setting in particular months	52	32	32	34	93	6	20	24	32	36	66	44
autonomous price setting policy	98	78	63	91	97	73	83	82	74	87	95	87
share of domestic sales	42	94	78	75	58	93	71	81	78	66	66	71
facing strong /very strong competition	92	82	90	82	86	87	70	85	79	92	86	85
high / very high price competition	84	60	75	61	59	41	54	69	56	55	75	66
high skilled employees	70	48	50	59	53	52	63	56	42	55	62	57
white collar employees	36	19	58	74	98	64	78	62	49	53	65	61

Note: Weighted by employment.

Table C2 : Strategies to reduce costs, in %

	Sector break down						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
Reduce base wages												
Not relevant	93	95	79	82	85	75	70	79	90	84	89	86
Of little relevance	7	5	14	16	12	16	19	15	5	15	11	12
Relevant	0	0	5	2	2	9	6	4	4	1	0	2
Very Relevant	0	0	2	1	1	0	5	2	1	0	0	1
Relevant / very relevant	0	0	7	3	3	9	11	6	5	1	0	2
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce flexible wage components												
Not relevant	16	39	41	13	3	34	32	31	31	35	4	18
Of little relevance	46	14	15	17	15	9	20	19	21	21	23	22
Relevant	37	20	28	55	67	41	26	29	38	37	58	46
Very Relevant	1	27	15	15	15	16	23	22	10	7	15	14
Relevant / very relevant	38	47	44	70	82	57	49	51	48	45	73	60
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce number of permanent employees												
Not relevant	19	64	29	37	39	25	59	49	43	36	28	36
Of little relevance	41	29	13	40	31	25	13	17	29	30	45	35
Relevant	1	3	45	21	26	34	20	18	27	27	14	19
Very Relevant	38	4	12	2	4	16	8	16	2	7	12	11
Relevant / very relevant	40	8	58	23	30	50	28	34	29	34	26	29
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce the number of temporary employees												
Not relevant	3	26	49	51	44	41	56	42	40	32	36	38
Of little relevance	0	18	5	4	12	9	10	3	10	3	3	4
Relevant	54	53	21	29	18	41	12	22	20	43	31	30
Very Relevant	43	3	25	17	26	9	21	33	30	22	30	28
Relevant / very relevant	97	56	46	46	44	50	33	55	50	65	61	58
Total	100	100	100	100	100	100	100	100	100	100	100	100
Adjust the number of hours worked per employee												
Not relevant	3	12	38	38	48	18	55	36	38	26	25	30
Of little relevance	3	12	8	10	15	41	17	20	20	12	3	10
Relevant	48	58	33	37	14	41	19	21	38	34	46	38
Very Relevant	46	17	21	15	23	0	9	23	4	27	26	23
Relevant / very relevant	94	75	54	52	37	41	28	44	43	62	72	61
Total	100	100	100	100	100	100	100	100	100	100	100	100
Reduce non-labour costs												
Not relevant	5	5	4	1	0	0	3	7	13	0	0	3
Of little relevance	6	10	5	8	10	0	13	8	8	19	3	8
Relevant	41	45	35	58	42	91	41	45	43	47	53	49
Very Relevant	47	40	56	32	47	9	43	40	37	34	44	41
Relevant / very relevant	88	86	91	90	90	100	84	86	79	81	97	89
Total	100	100	100	100	100	100	100	100	100	100	100	100

Question 4: If the reduction of costs is of any relevance in your answer to question 3, how relevant are the following strategies: i) reduce base wages, ii) reduce flexible wage components, iii) reduce the number of permanent employees, iv) reduce the number of temporary employees, v) adjust the number of hours worked per employee, vi) reduce non-labour costs.

Note: Weighted by employment. Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding.

Table C3: Wage freezes, in %

	Sector breakdown						Size class					Total
	Industry	Constr.	Trade	Market Services	Financial Services	Non-Mkt. Services	1-4	5-19	20-49	50-199	200+	
Freeze wages												
No	14	66	48	49	62	69	62	55	56	46	41	48
Yes	86	34	52	51	38	31	38	45	44	54	59	52
If yes, % of employees												
Past	*56*	*91*	*94*	*76*	*51*	*100*	*91*	*91*	*94*	*86*	*51*	*72*
Future	*57*	*89*	*96*	*79*	*54*	*100*	*96*	*94*	*93*	*89*	*47*	*73*
Total	100	100	100	100	100	100	100	100	100	100	100	100

Question 6: In the current economic and financial crisis, has your firm frozen (or is it going to freeze) the base wage of some employees?

Note: Weighted by employment. Rescaled omitting missing and "Don't know" answers. Rows may not add up to 100 due to rounding.

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