How the Portuguese firms adjusted to the economic and financial crisis: main shocks and channels of adjustment

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Abstract
This article reports the findings of a survey conducted in 2014/2015 on a sample of Portuguese firms with the main purpose of identifying the major shocks faced by firms during the recent crisis and detecting their response in terms of wage-setting, price setting and labour force composition. Firms' difficulties in being repaid by their customers and the decline of demand were reported as the two most important factors affecting firms negatively during the crisis. The impact of these two shocks was particularly felt in very small firms, in sectors such as construction, energy or trade and in firms that sell mostly to domestic markets. Reducing employment was the main instrument to accommodate negative shocks, in particular through the freeze or reduction of new hires, non-renewal of temporary contracts at expiration or individual dismissals. An increasing number of firms also froze the base wages of their workers and reduce their prices. (JEL: J23, J30, J50)

Introduction

The impact of the economic and financial crisis in Portugal was particularly severe as it involved a strong adjustment of the macroeconomic imbalances built up over the previous decades. The adjustment process has entailed considerable costs in terms of economic activity and employment. The Economic and Financial Assistance Programme agreed with the European Commission, the ECB and the IMF in May 2011 was designed to finance the economy, rebuild confidence, enabling the economy

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to restore a sustainable growth path and safeguard the financial stability. The program was implemented in an adverse international environment, marked by the stabilisation of economic activity in the main trading partners and continued financial fragmentation in the euro area.

The reform of the labour market was elected as one of the key areas of the overall adjustment programme. Measures included in the programme were designed in order to tackle all the main policy-induced distortions that were identified: an extreme level of employment protection; a wage setting system governed by strong multi-year increases in the minimum wage and sectoral collective wage agreements traditionally extended without regard to the competitive position of non-affiliated firms; and the most generous unemployment benefit system in Europe, in terms of replacement ratios but particularly with respect to duration.

Against this background, this article reports the main findings of a survey conducted by the Banco de Portugal in 2014 and 2015 on a sample of Portuguese firms with the main purpose of collecting information about firms' changes in practices in the last few years as a result of the crisis. The survey was made in the context of the third wave of the Wage Dynamics Network (WDN)[1], a research network consisting of economists from the European Central Bank and the national central banks of the EU countries, that elaborated an harmonised questionnaire with the purpose *inter alia* of identifying the main shocks faced by firms during the recent crisis and detecting their response in terms of wage-setting, price setting and labour force composition.

It is worth to mention that, despite some improvement recently, the labour market deteriorated considerably between 2010 and 2013. Unemployment had been creeping up even before the Great Recession, but after that, it reached heights the Portuguese economy had not experienced before. This is particularly true in the case of long-term unemployment. Unemployment incidence among the younger cohort of workers (15 to 24 year-olds) has been of particular worry, with unemployment rates in this group topping at over 40 percent in early 2013. In addition, growth in participation in Portugal has declined since the Great Recession started in 2008, and rates have hovered around 73 percent. Employment, which until the Great Recession had grown in line with overall population and had been above the EU

1. The WDN gathered for the first time in July 2006 with the purpose of identifying the sources and features of wage and labour cost dynamics in Europe and clarifying the relationship between wages, labour costs and prices both at the firm and macro-economic level. One of the lines of research investigated the information collected from an ad-hoc survey on wage and price setting behaviour at the firm level was conducted at the end of 2007/beginning of 2008. Later on, in 2009, some countries launched a follow-up survey specifically designed to assess the response of wages and labour costs during the 2009 crisis period (the second wave of the WDN). This follow-up survey, more limited that the original one, collected data on firms' perceptions of the crisis and their actual response to it.

average as a percentage of the population, has plummeted since then, with the employment-to-population ratio falling from a peak of 69 percent to a trough of 60 percent, well below that of European peers.

The Portuguese Labour Market: a brief characterisation

The way the labour market behaves is moulded by the way the economic cycle and the actions of economic actors interplay but also by the country's idiosyncratic structure, such as the labour market institutions and the characteristics of firms and the labour force. In this context, the Portuguese labour market is characterized by several structural features that may make it more exposed to economic cycle downturns. Despite recent major improvements, the Portuguese labour force still reveals low educational attainment, especially when compared to European Union countries; the firm size distribution is still very heavy on small and medium-sized enterprises, which tend to be less resilient under economic stress; and the characteristics of labour market institutions like the collective bargaining and wage setting systems, employment protection and unemployment insurance are important constraints to the adjustment process. A very centralized bargaining system, together with an often-used extension mechanism, account for collective bargaining coverage of around 90 percent of workers. Indeed, most of the collective agreements are industry/sector wide, as opposed to firm-specific or for a small group of firms. They then get extended to workers and firms beyond the ones represented by the unions and employers' associations that signed the original agreement by the government via the extension mechanisms.[2]

The degree of employment protection afforded to open-ended contracts has been much higher than that afforded to fixed-term contracts. This employment protection gap resulted in a two-tier system that has been characterized by the increasing use of the latter type of contracts. In addition, the Portuguese unemployment insurance is characterised by its high generosity in terms of duration.[3]

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2. In October 2012, for an agreement to get extended through a portaria de extensão, the firms subscribing the agreement would have to employ at least 50 percent of the workers in the sector. More recently, in June 2014, a clause was added that alternatively to the 50 percent representativeness, allows agreements where at least one third of the subscribing firms are SMEs to be extended. This is contrary to the spirit of the initial change and does not guarantee representativeness.

3. Recently, the system underwent some changes. It is now easier to qualify: it requires social security contributions of 360 days in the last 24 months (as opposed to 450 days) and some self-employed workers may also qualify; but the duration is shorter, as subsidies can last from 150 to 780 days depending on both age and past contributions (it used to be between 270 and 1140 days). The replacement rate is very similar to that of other European countries: 65 percent of the

These structural characteristics seemed largely innocuous during the economic boom period of the late 90s. However, once the economy started to struggle in the early 2000s, their influence began to show, and by the time Portugal was swept by the twin effects of the Great Recession and the Debt Crisis, the consequences of their inadequacy became clearer. The result has been a record-high unemployment rate, a significant increase in unemployment durations, affecting mainly young workers and leading to skill erosion and scarring effects that compromise workers' future expected gains and the economy's future expected performance. The large negative shocks that took place in the recent recession led some firms to lower their total labour costs. This could have been done by a combination of real wage cuts and/or an adjustment in employment levels and its composition. The existing wage bargaining system implied a degree of nominal wage rigidity that, combined with low inflation, made it harder to adjust real wages. Therefore, even though there was real wage growth moderation, most of the adjustment came from large reductions in employment and changes to its composition.

In turn, the high (and unequal across types of contracts) levels of employment protection conditioned this employment adjustment. The fact that it was very costly for firms to use the separation margin (especially for open-ended contracts) meant that the adjustment process was delayed as it was achieved mostly by reducing hires (again, especially for open-ended contracts). This process also meant that the majority of the churning and net employment reduction took place for fixed-term contracts. The incidence of this type of contracts among younger workers may partly explain the increased unemployment rates experienced by this age group. To complete the story, note that unemployment insurance duration was very high. When combined with worsened employment perspectives this may have resulted in marked increases in unemployment duration.

Sample selection and survey design

The survey was carried out by the Banco de Portugal between July 2014 and February 2015 on a sample of firms with 10 or more employees covering manufacturing, energy, construction, retail and wholesale trade, transport and communications, education, health, financial services and other business services. A total of 5,000 firms were contacted to participate selected as

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average wages in the year before unemployment subject to a floor and a cap. After 6 months the subsidy drops by 10 percent. Furthermore, the unemployed workers who do not qualify for UI or have ran through the maximum duration of the subsidy, may qualify (depending on past contributions and household income) for social unemployment insurance lasting for as long as the UI itself at its minimum floor.

a stratified random sample from the Ministry of Employment Personnel Database (Quadros de Pessoal, QP).[4] Given the prevalence of very small firms in the Portuguese production structure, a pure random selection of firms would clearly have led to over-representation of smaller-scale firms.

Against this background, the sample selection was split into two stages. For the first, it was decided to include all firms with 250 or more employees in the sectors mentioned above. This provided 813 firms. In the second stage, the remaining firms were chosen on the basis of random stratification. The strata were defined in 28 industry groups from 73 two-digit NACE sectors and 4 size categories: i) firms with 10 to 19 employees; ii) firms with 20 to 49 employees; iii) firms with 50 to 99 employees; iv) firms with 100 to 249 employees. Grouping these in the 28 industry groups chosen led to 112 mutually exclusive strata. The number of firms to be drawn from each stratum was set on the basis of their employment weight obtained from the QP for 2013. Once this figure was reached, the firms within each stratum were chosen randomly. The final sample included 1,514 firms from manufacturing, 69 from the energy, 434 from construction, 824 from trade, 95 from financial services and 2,064 from other business services, such as education, healthcare, transport and communications. These firms represented around 55 per cent of total employment in Portugal in the selected sectors.

Structure and methodology for carrying out the survey

The questionnaire was developed within the scope of the WDN and was based on a set of common questions for all the national central banks involved. It was organised in five sections, corresponding to 32 questions. The opportunity provided by the survey was also used to include some additional questions, as a way to look into some aspects of the labour market which are particularly relevant in the case of Portugal (e.g., the change in worker flows during the recession or the relevance in some of replacing workers with lower wages). An attempt was made to avoid technical language in the questions so that as many people could understand them as possible. After the sample was set up, in June 2014, a first version of the questionnaire was sent to 30 firms. This pilot questionnaire turned out to be very useful for an initial assessment of how the project was received and whether it was viable. A number of firms were contacted on the basis of the first replies and some questions were rephrased or cut out, making the questionnaire shorter and easier to understand.

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4. The Ministry of Employment Personnel Database is collected annually by the Strategy and Planning Department of the Ministry of Employment from all Portuguese firms. The data is therefore tantamount to a census and is an extremely important source of information for a microeconomic analysis of the labour market in Portugal, making it possible to undertake longitudinal analysis of firms and employees.

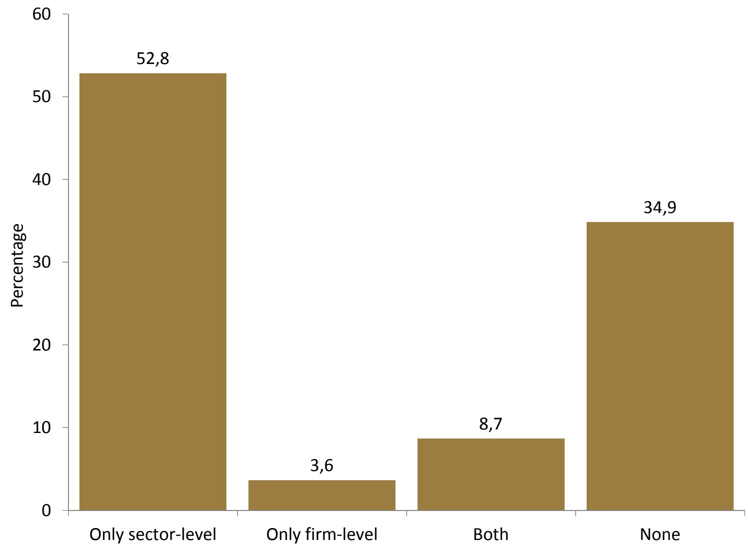

FIGURE 1: Share of firms that apply collective wage agreements (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

In October 2014, a revised version was sent to all the firms chosen, together with a letter signed by the Governor of the Banco de Portugal. This letter made it clear, among other things, that the questionnaire should be answered by someone who was very well aware of the range of procedures underlying wage and price determination. More than one person could answer it, as long as there was an overall consistency in the replies. After receiving the questionnaire, the firms had one month to send their replies, which could be either paper based or through an Internet site specially set up for this purpose.[5] However, a number of questionnaires were received well after this deadline.

The survey was concluded in April 2015 with 1,383 valid questionnaires received, which corresponds to a 28 per cent response rate. This percentage was a bit lower than the one obtained in 2008 under the first wave of the Wage Dynamics Network (WDN 1). Differences in response rates may reflect *inter alia* the way questions are formulated or the economic outlook in which they occur. At this, respect it is important to mention that the WDN1 survey was carried out slightly before the beginning of the crisis. Table A.1 in the Appendix shows further details on the sample coverage and the response rate.

5. A help line was set up for firms to request clarification. They were able to use telephone, fax or e-mail.

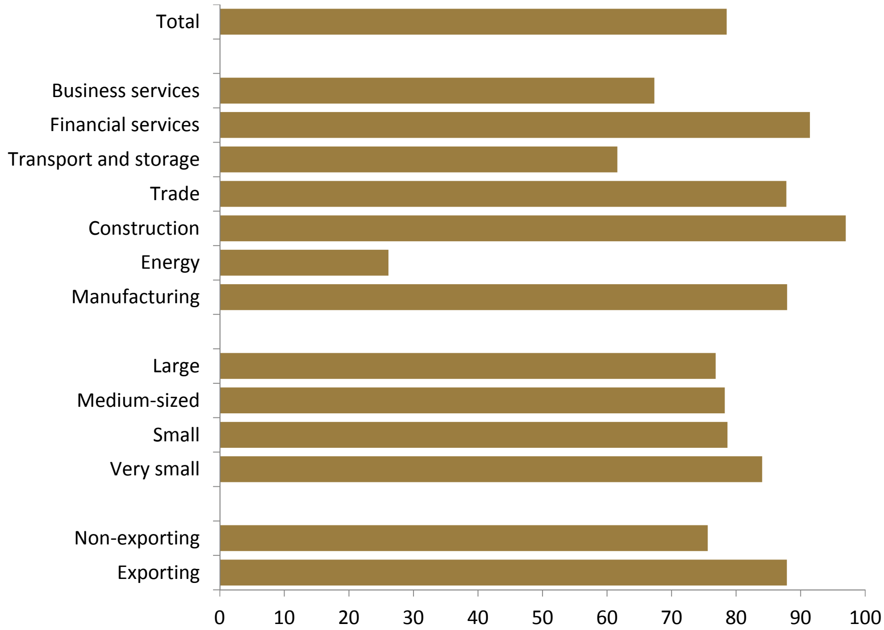

FIGURE 2: Share of firms perceiving their competition to be very high (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

The information obtained revealed that a considerable percentage of firms (65 percent) apply some type of collective wage agreement. Sector-level agreements dominate but the share of firm-level agreements is non-negligible in particular in larger firms where frequently the two levels of agreements coexist (Figure 1).[6] The percentage of workers covered by both agreements is slightly above 90 percent. However, about 30 percent of the firms applying sector-level collective agreements are not members of any of the employer's associations taking part in the negotiations. Concerning the level of competition in their markets, most firms perceived it as being strong or very strong. The only exception is those firms operating in the energy sector (Figure 2). In addition, for the majority of firms the level of competition increased during the great recession.

In the analysis that follows, I use employment-based weights in the weighted summary statistics. The evidence is thus made to represent total

6. In the analysis that follows, firms were split into 4 size groups according to their number of employees: very small firms (with 10 to 19 employees), small firms (with 20 to 49 employees), medium-sized firms (with 50 to 199 employees), and large firms (with 200 or more employees).

employment in the population of firms with 10 or more employees in selected sectors.[7]

Sources and size of shocks

In order to assess firms' response during the crisis the survey considered five different types of shocks. In particular, reporting firms were asked about the way the recent crisis affected: i) the level of demand for their products and services (demand shock); ii) the uncertainty of demand for their products and services (uncertainty shock); iii) the access to external financing through the usual financial shocks (credit supply shock); iv) the ability of their customers to pay and meet contractual terms (customers repayment shock); v) the access to supplies from their usual suppliers (supply shock). Firms had five alternative answers to report the impact of each shock (strong decrease, moderate decrease, unchanged, moderate increase and strong increase).

The results show that only 3.7 percent of firms were completely unaffected by the crisis while about one quarter experienced only negative shocks during the period (Figure 3). The results also reveal that even in times of crisis an important share of firms faced positive shocks which suggest that the impact of the recession was heterogeneous across firms and sectors. However, even though 57 percent of firms faced both positive and negative shocks, 79 percent had only one positive shock whereas 62 percent were hit by two or more negative shocks (Figure 4).

The numbers are more revealing when we observe that 82 percent of the firms were hit by at least one negative shock (Figure 5). The inability of customers to pay or meet contractual obligations and the decline of demand were reported as the two most important factors affecting firms negatively during the crisis (Figure 6). The breakdown by sector, size and market orientation shows that the negative impact of the crisis was particularly felt in very small firms, in sectors such as construction, energy or trade and in firms that sell mostly to domestic markets (Figure 7).

The access to external financing through the usual financial channels ("credit shock") was reported as the third most important factor affecting firms' activity during the recession. This factor was particularly important in construction and energy, where almost three quarters of firms had credit

7. More precisely, the purpose of the sampling weights is to correct for possible imperfections in the sampling procedure in order to ensure that the distribution of the realized sample of firms reflects as closely as possible the distribution of the total population of firms. To that end, the sampling weights correct for the unequal probability of firms ending up in the final sample of 1,383 firms (i.e. correct both for unequal probability of selection of firms into the gross sample of 5,000 firms and for potential non-response biases) and adjusts for differences in the importance of each stratum in terms of the number of employees the strata represents in the population.

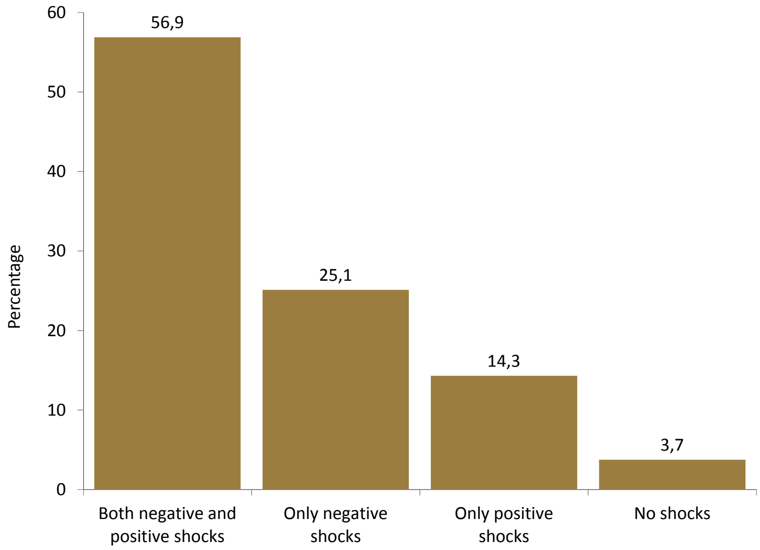

FIGURE 3: Share of firms affected by negative and positive shocks (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

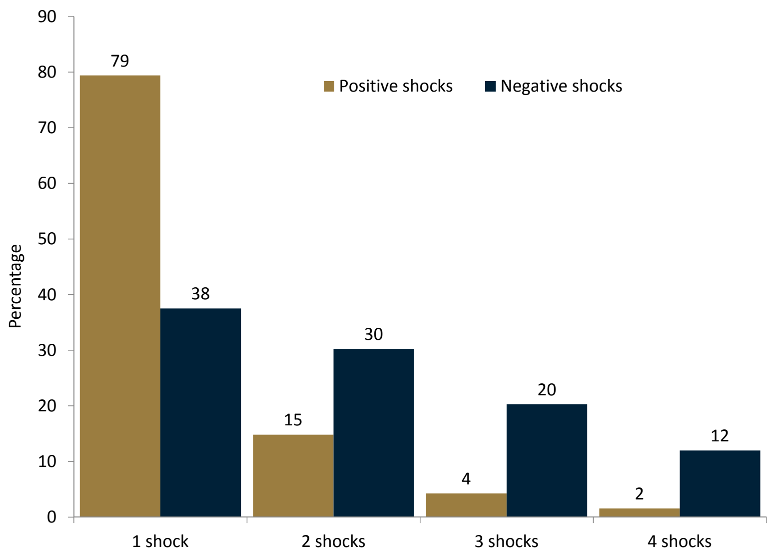

FIGURE 4: Share of firms affected by both negative and positive shocks (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

restrictions, but also in very small firms and in firms operating in highly competitive markets.[8].

8. In the context of the survey, credit restrictions assumed two different forms: credit was virtually unavailable or credit was available but with conditions (interest rates or other

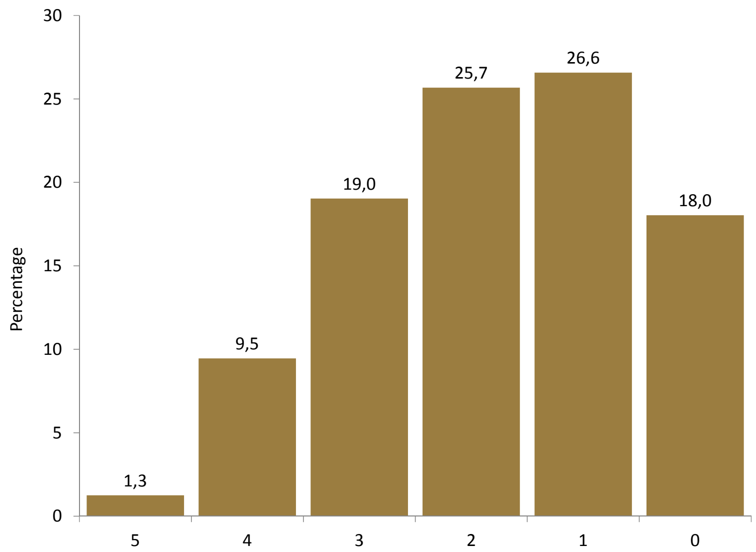

FIGURE 5: Number of negative shocks (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

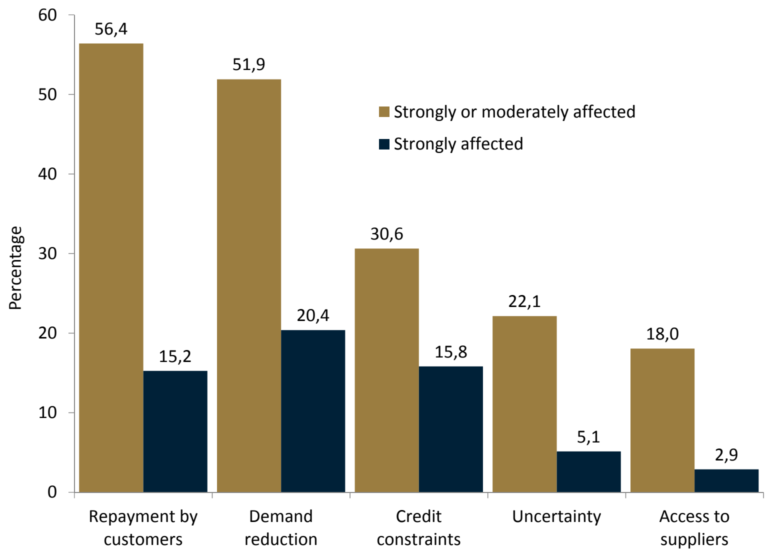

FIGURE 6: Share of firms affected by each negative shock (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

contractual terms) that were too onerous. This latter option was considered an important

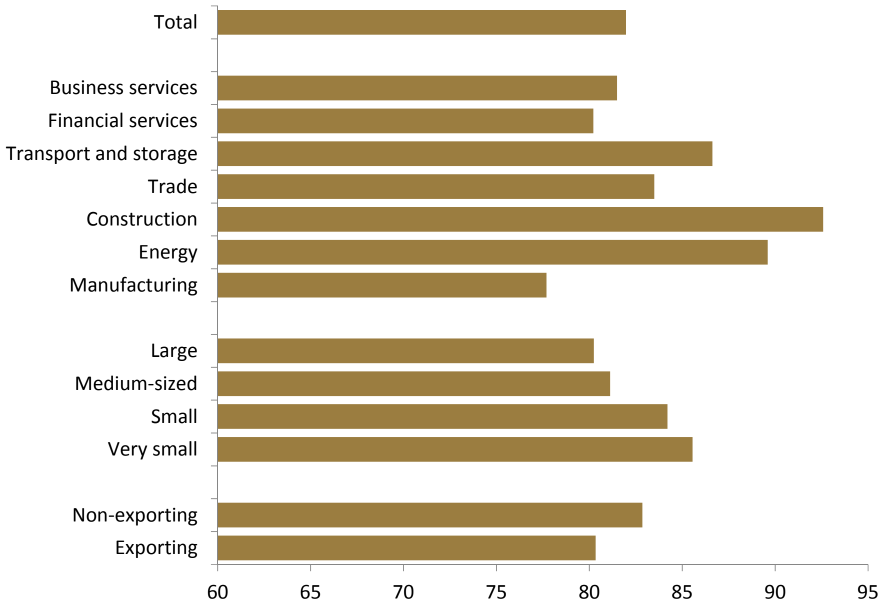

FIGURE 7: Share of firms affected by negative shocks (in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

Table 1 provides estimates of the marginal effects of some firms' features on the incidence of each negative shock. In general, it confirms a higher negative impact of the crisis on firms from construction, energy and trade. In particularly, these firms reported higher falls in demand during the crisis. The results also reveal that credit contraints were particularly important for very small firms and firms that operate in more competitive markets. In addition, firms that sell mostly to foreign markets were in general less affected by the different shocks.

It is important to note that many firms (55 percent) were negatively affected by more than one shock over the period. Table 2 displays the tetachoric correlation coefficients between the different pairs of negative shocks revealing in most cases positive and significant correlations.

Firms were also asked to specify whether the shocks that affected them more negatively were regarded as transitory, partly persistent or long lasting. Most firms considered the negative shocks that hit them as persistent. The degree of persistence seems to vary slightly by the type of shock. Figure 8 shows that negative demand shocks seem to be relatively less persistent

limitation by almost 50 percent of the firms whereas the former was deemed to be relevant by 39 percent of the firms.

Variables	Demand reduction	Customers ability to repay	Credit constraints	Higher uncertainty	Access to supplies
Size:					
Small firms (20-49)	-0.056 (0.048)	0.010 (0.047)	-0.090^{**} (0.045)	0.010 (0.037)	-0.014 (0.039)
Medium-sized firms (50-199)	-0.137^{***} (0.045)	-0.065 (0.045)	-0.091^{**} (0.043)	0.067^{*} (0.035)	-0.052 (0.036)
Large firms (>199)	-0.050 (0.048)	-0.024^{**} (0.048)	-0.022 (0.047)	0.080^{**} (0.039)	-0.022 (0.040)
Sectors:					
Energy	0.207^{**} (0.084)	-0.051 (0.092)	0.314^{***} (0.089)	-0.133^{**} (0.053)	0.048 (0.080)
Construction	0.196^{***} (0.051)	0.208^{***} (0.048)	0.228^{***} (0.051)	0.023 (0.045)	0.195^{***} (0.050)
Trade	0.163^{***} (0.045)	0.147^{***} (0.044)	0.010 (0.041)	-0.033 (0.036)	-0.026 (0.035)
Transport and Storage	0.143^{**} (0.061)	0.042 (0.063)	0.012 (0.057)	0.051 (0.056)	-0.072^{*} (0.045)
Business services	0.026 (0.035)	0.011 (0.036)	-0.011 (0.033)	-0.006 (0.029)	-0.056^{**} (0.027)
Financial services	0.139^{**} (0.070)	0.019 (0.072)	-0.071 (0.058)	0.078 (0.064)	-0.093^{**} (0.045)
Exporting firms	-0.106^{***} (0.029)	-0.064^{**} (0.030)	0.005 (0.028)	-0.015 (0.025)	-0.024 (0.024)
High competition	0.172^{***} (0.025)	0.093^{***} (0.026)	0.103^{***} (0.025)	0.061^{***} (0.023)	0.014 (0.021)
Firm age	0.001^{*} (0.000)	0.001^{**} (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)
Number of observations:			1,381		
Wald χ^2 (12):	120.72^{***}	67.31^{***}	67.78^{***}	24.69^{***}	45.62^{***}

TABLE 1. The determinants of the incidence of each negative shock (marginal effects from probit estimates)

Source: Survey on firms' adjustment over the period 2010-2013. Robust standard errors are in parentheses; ***,** and * denote significance at 1, 5 and 10 percent, respectively.

	Demand reduction	Higher uncertainty	Credit constraints	Customers ability to pay	Availability of supplies
Demand reduction	1.000				
Higher uncertainty	0.038	1.000			
Credit constraints	0.377***	-0.021	1.000		
Customers ability to pay	0.432***	0.054	0.412***	1.000	
Availabity of supplies	0.373***	-0.090	0.435***	0.414***	1.000

TABLE 2. Tetachoric correlations between the different negative shocks affecting firms

Source: Survey on firms' adjustment over the period 2010-2013.***,**,* denote significance at 1, 5 and 10 percent level, respectively.

whereas difficulties in being repaid by customers appear to be the most persistent. The persistence of shocks appears to be higher in construction and for very small firms. For the three most relevant shocks (demand drop, credit constraints and difficulties in being repaid by customers), the information also shows that they affected firms more negatively in 2012 and 2013 (Figure 9).

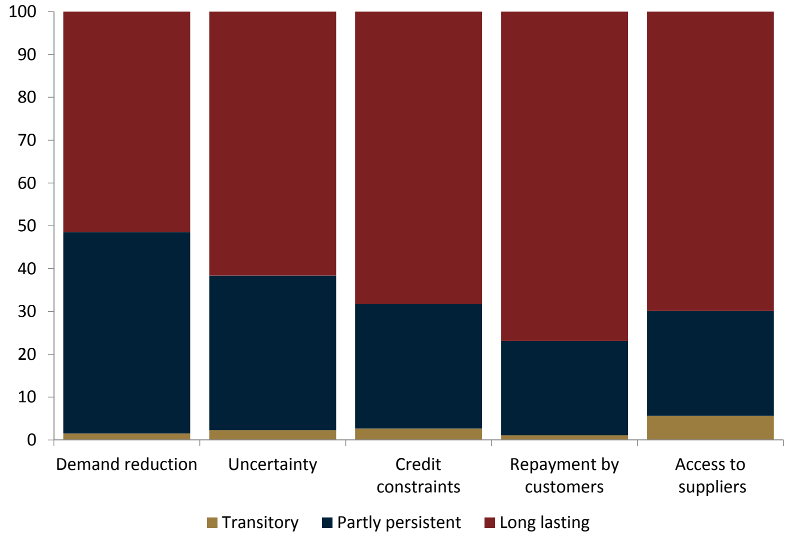

FIGURE 8: Impact of each negative shock (share of firms in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

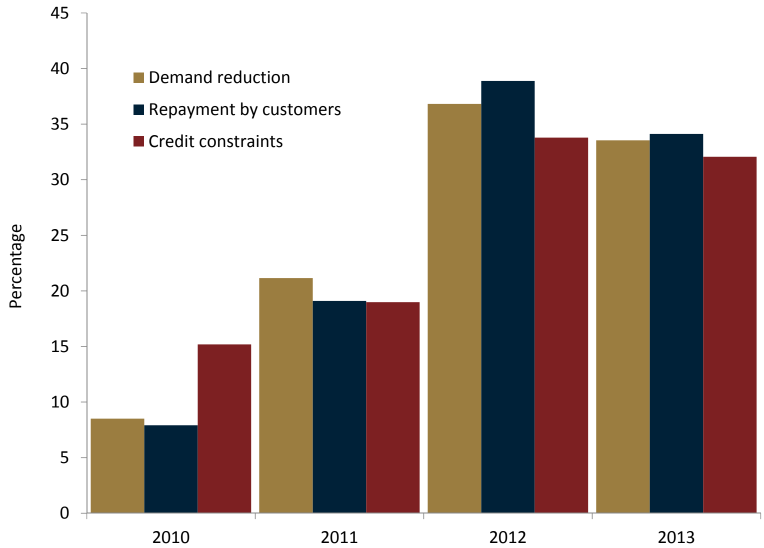

FIGURE 9: Year when each negative shock was more intense (share of firms in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

Main results on employment adjustments and price and wage-setting changes

The way firms respond to shocks by adjusting their prices, wages and employment is an essential feature of microeconomic and macroeconomic adjustment. Shaped by the institutional and structural characteristics of the economy, firms' reactions to shocks mould the dynamics of employment, prices and wages with important and controversial consequences over welfare. While collective bargaining often privileges wage stability, employment protection legislation aims at stabilising employment. In addition, more intense product market competition makes it more difficult for firms to absorb shocks by changing their prices.

Changes in price setting behaviour

The fall in demand reported by the Portuguese firms has mostly a domestic component as 54 percent of firms reported a decline in domestic demand whereas only 25 percent a decrease in external demand (Table 3). About 40 percent of the firms reported an increase in external demand, which is consistent with favourable performance of exports over this period. This behaviour is also consistent with a lower fraction of firms decreasing prices in the foreign markets (25 percent) than in domestic markets (43 percent). Over this period, a significant share of firms also reported an increase in their competitive pressures, which is common to both exporting and non-exporting firms.[9]

	Strong increase	Moderate increase	No change	Moderate decrease	Strong decrease
Demand					
Domestic market	2.5	22.9	20.7	31.7	22.2
External market	10.2	28.8	36.4	19.6	5.0
Prices					
Domestic market	2.1	21.4	33.2	29.6	13.7
External market	1.6	25.7	47.4	22.5	2.8
Competitive pressures					
Domestic market	34.5	29.0	30.3	5.2	1.0
External market	26.7	34.5	34.6	3.4	0.7

TABLE 3. Developments in demand, prices and competitive pressures in domestic and external markets between 2010 and 2013

Source: Survey on firms' adjustment over the period 2010-2013.

9. Exporting firms are defined as those whose exports account for at least 20 percent of total sales.

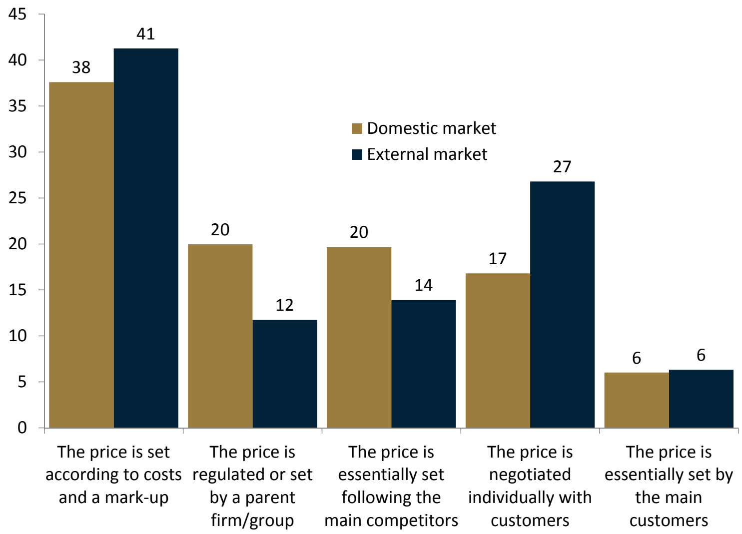

FIGURE 10: Degree of price setting autonomy (share of firms in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

In terms of firms' price setting behaviour, it is also relevant to notice that 30 percent of the firms increased the frequency of their price reviews in the period 2010-2013 which in most cases was due both to higher competitive pressures and more frequent prices changes by the main competitors. This sign of higher price flexibility is also consistent with the high percentage of firms (58 percent) that follow state-dependent price changing strategies, i.e. firms that review their prices only when there is a sufficiently large shift in market conditions. In the two previous surveys conducted in 2004 and 2008 this percentage was, respectively, 40 and 43 percent (Dias *et al.* (2013), Martins (2015) and Martins (2010)). It is important to mention that an important fraction of firms (about 60 percent in both the domestic and the external market) do not have an autonomous pricing policy (Figure 10).

Even in a context of increased competition, lower prices and lower demand, about 60 percent of Portuguese firms did not their costs over this period (Figure 11). This is particularly noticeable in the case of firms affected by a decrease in demand where 57 percent reduced their total costs, whereas this share is only 21 percent for firms not negatively affected by this shock (Figure 12).

Adjusting the labour costs: wages versus labour force size and composition

Besides the price setting behaviour, firms were also asked about how they changed their wages and labour force composition in the period 2010-2013.

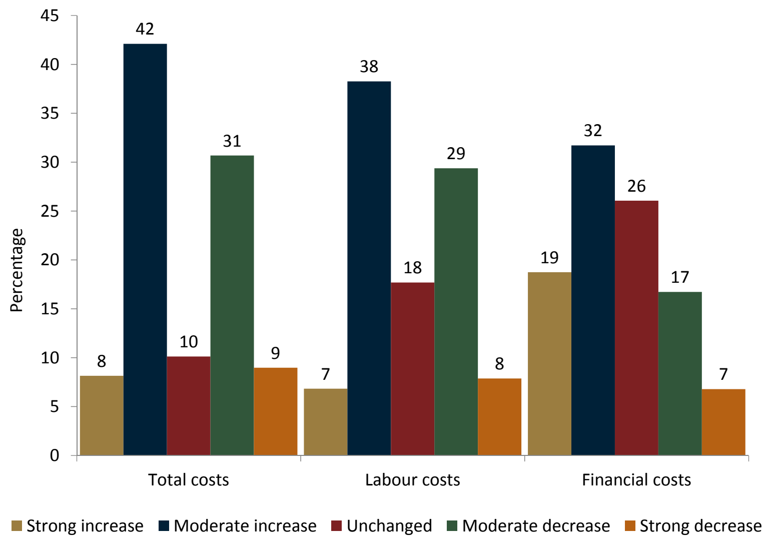

FIGURE 11: Change in costs between 2010 and 2013 (share of firms in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

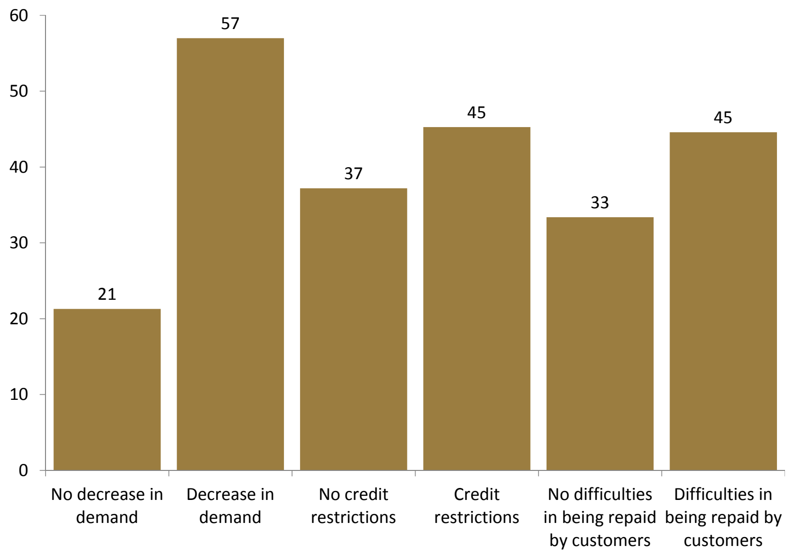

FIGURE 12: Share of firms that cut total cost (in percentage)
Source: Survey on firms' adjustment over the period 2010-2013.

As expected, given the wage setting restrictions in Portugal, the share of firms reporting reductions in average base wages was quite low (Table 4).

An additional margin of adjustment of total compensation is provided by the flexible wage components. However, the use made by firms does not seem to be substantial.

	Strong increase	Moderate increase	No change	Moderate decrease	Strong decrease
Average base wages	0.5	39.8	48.7	9.0	2.2
Flexible wage components	1.2	23.0	54.3	15.7	5.8
Permanent employees	3.2	27.3	37.9	24.8	6.8
Temporary employees	4.5	29.7	34.8	21.7	9.3
Average number of hours	0.5	15.1	73.4	9.9	1.1

TABLE 4. Changes in labour cost components between 2010 and 2013

Source: Survey on firms' adjustment over the period 2010-2013.

Since the adjustment in base wages and hours was rather restricted, the main instrument to accommodate negative shocks was the reduction in the number of employees. This affected more intensively workers under temporary contracts. Not surprisingly, the use of the several strategies to adjust labour costs is higher for firms hit by negative shocks. Figure 13 illustrate this for the demand shocks but this is also true for the other three types of shocks. The differences between firms affected and not affected by shocks are especially noticeable regarding the reduction in the number of employees (both permanent and temporary). In the presence of a negative demand shock, 45 percent of the firms reduced the number of permanent employees whereas 41 percent reduced the number of temporary employees (16 and 19 percent, respectively, for those firms not affected by the demand shock).

Margins of employment adjustment

Concerning the employment adjustment, the number of options explored in the survey was quite extensive. It included collective layoffs, individual layoffs, temporary layoffs, reduction of working hours, non-renewal of temporary contracts at expiration, early retirement schemes, freeze or reduction of new hires, reduction of agency workers and hiring workers with wages lower than those who have left recently. Firms could have chosen more than one option. Table 5 shows that the most used strategies to reduce labour input during the crisis were the freeze of hires, non-renewal of temporary contracts at expiration and individual dismissals. In contrast, early retirement schemes, temporary layoffs and collective dismissals were relatively less used. Not surprisingly those sectors that were more affected by shocks (construction, trade and energy) were also those that used more intensively the different margins of adjustment.

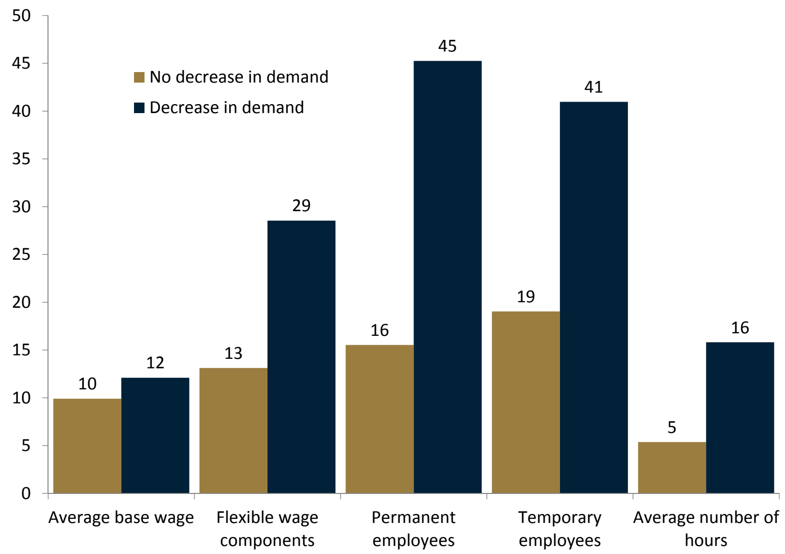

FIGURE 13: Labour cost adjustment and demand shocks (share of firms that used each margin in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

Sectors	Collective dismissals	Individual dismissals	Temporary layoffs	Reduce hours	Non-renewal tempor. contracts	Early retirement	Hiring freezes	Reduce freelancers	Cheaper hires
Manufacturing	5.6	15.1	4.3	14.8	27.5	4.6	27.0	11.4	8.3
Energy	0.0	12.4	0.0	14.3	29.2	17.0	48.1	23.9	18.3
Construction	26.3	47.0	18.4	40.5	49.9	22.7	50.0	38.3	35.3
Trade	9.0	24.3	1.4	13.0	37.3	3.1	40.0	19.1	18.1
Transport and Storage	5.3	12.5	0.0	8.6	24.9	17.3	43.9	9.2	13.6
Business services	8.1	18.3	1.3	16.5	39.7	4.1	37.8	20.4	18.9
Financial services	4.6	9.5	0.0	8.0	40.9	35.1	53.1	24.0	7.2
Total	7.1	18.7	2.1	14.9	35.4	6.5	37.0	17.2	14.8

TABLE 5. Main strategies used to reduce employment between 2010 and 2013

Source: Survey on firms' adjustment over the period 2010-2013.

As mentioned before the two-tier system that characterizes the Portuguese labour market resulted into an increase use of temporary contracts, which become one of the preferred margins for firms to adjust to external shocks. This margin was particularly used in construction and business services. Hiring freezes was exceptionally used in energy, construction, financial services and transport and storage, whereas individual dismissals were relatively more used in construction and trade.

As mentioned before the job creation rate in Portugal declined substantially between 2011 and 2013. Since the beginning of 2014 we have observed some recovery in employment although it is still timid and very

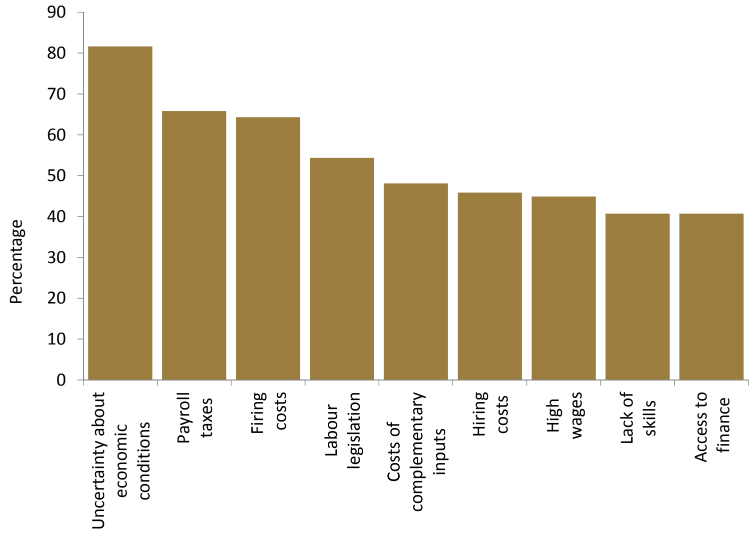

FIGURE 14: Main obstacles for hiring workers with permanent contract (share of firms considering each option as relevant or very relevant in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

much concentrated on temporary jobs. In this context, the survey explored the main reasons that make firms reluctant to hire workers with permanent contracts. Uncertainty about economic conditions was referred as a relevant or very relevant obstacle to permanent hires by 80 percent of the firms (Figure 14). Also important are the constraints imposed by the level of payroll taxes, the firing costs or the labour legislation in general. In contrast, credit restrictions or the presence of skill mismatch seem to play a less important role.

Another important piece of information obtained from the survey related to the employment adjustment is the reported change in the total number of workers between 2010 and 2013. On average, the number of workers declined by 3 percent in this period. Given that the sample is obviously biased towards more successful firms (only those firms that survived during the period were included in the survey) this figure is likely to underestimate the total decline in employment during the crisis. Employment reduction was particularly intense in sectors more affected by the crisis: in construction the number of workers fell by 8 percent whereas in trade this reduction amounted to 6 percent. In contrast, employment in manufacturing remained broadly unchanged. In addition, an important contrast is also visible between exporting and non-exporting firms. Whereas in the latter the number of workers fell by 5 percent, in the former the number of workers declined less than 1 percent.

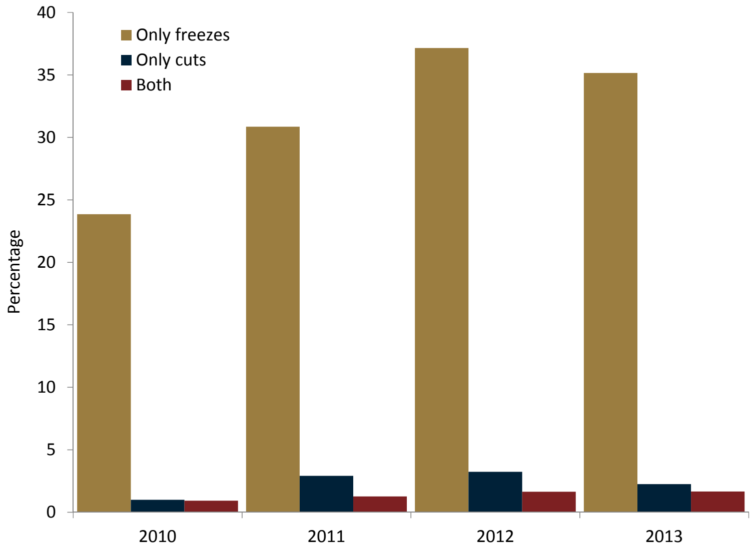

FIGURE 15: Share of firms that froze and/or cut base wages (in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

Adjusting wages

In the face of negative labour demand or supply shocks, firms can also reduce their labour costs by adjusting wages. However, wage adjustments may be hampered by the institutional and structural constraints of the economy, including the presence of downward nominal wage rigidity. As regards nominal wage rigidity, many studies place the Portuguese labour market among the most rigid countries in Europe. Such rigidity stems above all from the fact that labour legislation forbids nominal base wage cuts. This is consistent with the evidence shown before that only a very small proportion of firms reduced the average base wage between 2010 and 2013.

This issue was further explored in the context of the survey. In particular, firms were asked if they cut or froze their base wages between 2010 and 2013. If they responded affirmatively, they were also asked to mention the particular year(s) when that cuts/freezes occurred as well as the share of workers that were affected. Figure 15 shows that the share of firms that froze their base wages increased from 25 percent in 2010 to almost 40 percent in 2013. The increase in the share of firms with zero base wage changes may indicate that downward nominal wage rigidity has become an important active restriction during the crisis. As expected, the share of firms reporting base wage cuts was rather low, although this percentage increased from 1.9 percent in 2010 to 3.9 percent in 2013.

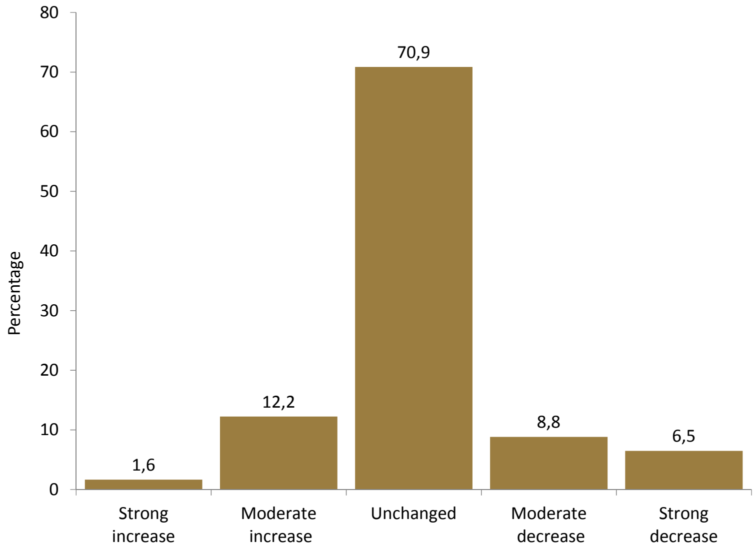

FIGURE 16: Firms' perception about the ability to reduce wages (share of firms in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

It is also important to highlight that when asked if their ability to cut wages has increased since 2010, most firms (70 percent) responded that this capacity was largely unchanged (Figure 16).

A similar question was also asked regarding other margins of firms' adjustment (collective and individual dismissals, temporary layoffs, change working hours, move workers to different positions or locations and hire workers). Even though most firms still answered that the ability to use each of these strategies has become mostly unchanged, a non-negligible fraction responded that in particular the ability to make adjustments in working hours or to move workers to different positions inside the firms has become less difficult (Figure 17).

Conclusions

This article examined the reaction of the Portuguese firms to changes in economic conditions between 2010 and 2013, when the crisis was more severe, and identifies the patterns of labour market adjustment. The results are based on a survey of firms conducted by the Banco de Portugal in 2014-2015.

The evidence provided was organised in two main dimensions: i) the impact of changes in economic conditions between 2010 and 2013 on the Portuguese firms; and ii) the way firms responded to these changes by

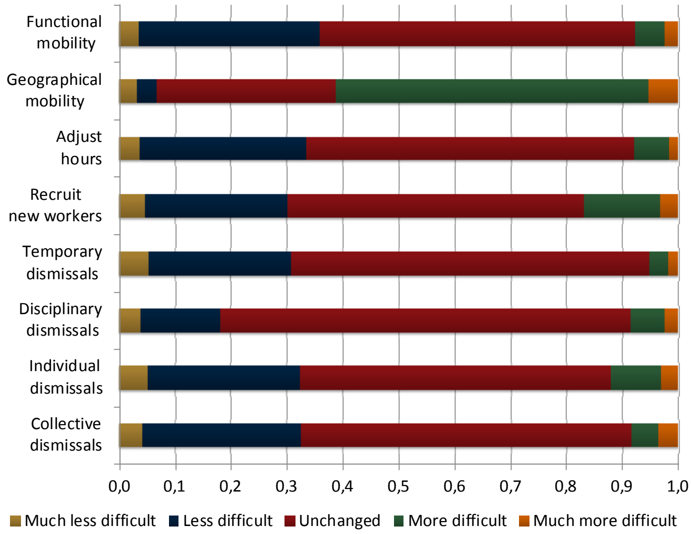

FIGURE 17: Firms' perception about the difficulty in making adjustments in the labour force between 2010 and 2013 (share of firms in percentage)

Source: Survey on firms' adjustment over the period 2010-2013.

adjusting employment, wages and prices. Firms' difficulties in being repaid by their customers and the decline of demand were reported as the two most important factors affecting firms negatively during the crisis. The impact of these two shocks was particularly felt in very small firms, in sectors such as construction, energy or trade and in firms that sell mostly to domestic markets. The access to external financing through the usual financial channels was also an important constraint in particular in construction and energy and for very small firms and firms that sell to foreigner markets.

Reducing employment was the main instrument to accommodate negative shocks, in particular through the freeze or reduction of new hires, non-renewal of temporary contracts at expiration or individual dismissals. Although the reduction in employment affected particularly those workers with temporary contracts, firms that were more seriously hit by the adverse economic conditions also reduced their number of permanent workers. In addition, an increasing number of firms (from 25 percent in 2010 to almost 40 percent in 2013) froze the base wages of their workers. Besides reducing their labour costs, many firms also adopted a more flexible price setting behaviour. Besides the exceptionally large number of firms that follow state-dependent price reviewing strategies, a significant share also reported decreases in prices, in particular in the domestic market, and an increase in the frequency of price reviews over the period.

Finally, according to firms' perception their ability to make changes in their labour costs by adjusting the employment level or cutting wages was virtually unchanged. This fact is particularly relevant taking into account the significant number of labour market reforms introduced during the crisis. Nonetheless, a non-negligible fraction of firms responded that in particular the ability to make adjustments in working hours or to move workers to different positions inside the firms has become less difficult.

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Appendix

Industry groups	2-digit NACE sectors	Targeted sample: breakdown by # of employees 10-19	20-49	50-99	100-249	>249	Total	Response rate: breakdown by # of employees 10-19	20-49	50-99	100-249	>249	Total
1	10-11	46	58	37	57	32	230	26.1	32.8	21.6	36.8	28.1	30.0
2	13	13	21	22	27	26	109	15.4	28.6	22.7	33.3	19.2	24.8
3	14	37	69	52	51	15	224	27.0	14.5	30.8	15.7	40.0	22.3
4	15	19	39	38	26	9	131	5.3	30.8	18.4	42.3	33.3	26.0
5	16	14	17	11	9	7	58	28.6	11.8	36.4	55.6	14.3	27.6
6	17-18	12	14	12	15	9	62	16.7	42.9	25.0	13.3	44.4	27.4
7	19-20	4	9	7	11	6	37	25.0	55.6	42.9	27.3	50.0	40.5
8	21	1	1	4	9	4	19	100.0	100.0	25.0	22.2	75.0	42.1
9	22-23	23	36	29	40	31	159	13.0	27.8	51.7	30.0	32.3	31.4
10	24-25	38	59	42	37	21	197	18.4	27.1	52.4	32.4	38.1	33.0
11	26-28	13	23	19	22	32	109	7.7	13.0	36.8	31.8	21.9	22.9
12	29-30	3	7	9	15	31	65	66.7	28.6	44.4	40.0	35.5	38.5
13	31-33	26	33	23	16	15	113	15.4	15.2	34.8	37.5	53.3	27.4
14	35-39	5	12	12	24	16	69	20.0	25.0	50.0	54.2	68.8	49.3
15	41	73	59	31	18	10	191	19.2	22.0	29.0	27.8	20.0	22.5
16	42	13	23	19	25	20	100	15.4	34.8	36.8	44.0	45.0	37.0
17	43	47	46	17	20	13	143	8.5	30.4	11.8	55.0	38.5	25.2
18	45	34	31	24	24	9	122	14.7	35.5	25.0	25.0	33.3	25.4
19	46	106	118	58	62	21	365	19.8	28.8	31.0	29.0	52.4	27.9
20	47	94	88	48	45	62	337	14.9	17.0	25.0	26.7	14.5	18.4
21	49-53	37	56	36	45	57	231	10.8	26.8	22.2	44.4	49.1	32.5
22	55	19	32	31	33	17	132	10.5	25.0	12.9	30.3	29.4	22.0
23	56	74	59	21	10	21	185	9.5	25.4	23.8	20.0	23.8	18.4
24	58-63	19	24	22	35	40	140	26.3	8.3	22.7	28.6	32.5	25.0
25	64-66	8	18	19	20	31	96	75.0	38.9	42.1	55.0	77.4	58.3
26	68-84	85	107	73	108	140	513	24.7	25.2	30.1	35.2	36.4	31.0
27	85-88	87	183	148	158	99	675	8.0	21.3	26.4	29.7	39.4	25.3
28	90-99	38	54	33	44	19	188	13.2	20.4	36.4	22.7	47.4	25.0
	Total	988	1296	897	1006	813	5000	17.0	24.6	29.7	32.6	37.1	27.7

TABLE A1: Targeted sample and response rate