

The Adjustment of Maltese Firms to the Post-crisis Economic Environment: Evidence from a Firm-level Survey

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Abstract

In contrast to the experience of southern and peripheral economies in the euro area, Malta has weathered the financial crisis relatively well and its labour market remained resilient in the face of shocks. Using information from a firm-level survey conducted in 2014, this paper focuses on the nature of the shocks hitting the economy after the crisis and the reaction of Maltese firms to these shocks. Concerning the latter, a distinction is made between the firms' decisions to adjust their workforce and on the wages given to new hires compared to incumbents. The empirical analysis is conducted with a multivariate probit framework that controls for both firm and workforce specific characteristics as well as the nature of the shocks faced by the firms. The results highlight the high degree of heterogeneity in demand conditions across sectors although concerns about skill shortages were broad-based.

Keywords: labour market adjustment, survey evidence, probit, Malta

1. Introduction

As the smallest member of the euro area, with one of the most open economies in the world and located in a region, the Mediterranean, characterised by political upheaval and economic distress, Malta has weathered the financial crisis relatively well.

Economic activity in Malta recovered strongly after the Great Recession of 2009 and the economy was hardly affected by the European sovereign debt crisis of 2012. Since 2010, Malta registered one of the highest growth rates among the euro area countries and, as at 2015Q4, real GDP stood 25% higher compared to the pre-crisis peak. This compares favourably with the euro area, where the pre-crisis peak was only reached at the end of 2015 following the double dip recessions of 2009 and 2012. The positive performance of the Maltese economy is due to a number of factors, such as the diversification towards new sectors, which increased the resilience and flexibility of the economy, as well as the absence of major shocks to the financial system (Note 1). Estimates by the European Commission suggest that, by 2014, the growth rate in Malta's potential GDP had already surpassed the pre-crisis growth peak.

The labour market has kept the pace with the rapid evolution of the economy since EU membership in 2004 and proved resilient to the crisis. Employment growth averaged 3.2% between 2010 and 2015, more than four times the average growth rate registered between 1995 and 2008. Job creation in the services sector continued unabated even during the crisis. The unemployment rate and NAIRU were hardly affected by the crisis and maintained their downward trend, reaching historical lows in 2015. The labour supply increased sharply, driven by reforms targeted to increase the participation rate of females as well as an influx of foreign workers. The share of the latter increased from less than 2% of the workforce at the time of EU membership in 2004 to 10.8% a decade later (Grech, 2015b). These factors have eased labour shortages in selected sectors and kept wage pressures contained (Note 2). In addition, the pension reforms of 2006 and 2015 should eventually encourage older workers to remain active for a longer period of time over the coming years.

This positive performance masks wide differences across sectors. Since EU membership, Malta experienced the largest increase among EU countries in the share of services, with sectors such as finance and professional services, ICT, online gaming and education accounting for almost half the growth in value added and employment. On the contrary, the share of manufacturing has almost halved since the late 1990s although even within this sector, there has been a shift away from labour intensive industries like textiles towards higher-value added ones, such as the pharmaceutical industry. The shift towards export-oriented services led to an improvement in external competitiveness, with the current account, which has been in deficit since the 1990s, turning to a surplus position since 2012.

Against the background of these structural changes in the economy, the Central Bank of Malta carried out a firm-level survey in 2014 as part of the Wage Dynamics Network (WDN) project (Note 3). The survey focused on changes in the post-crisis economic environment, the impact of reforms, as well as pricing and wage setting practices. The survey followed a similar one, conducted in 2010, that focused on the relevance of various cost-cutting strategies during the crisis (Central Bank of Malta, 2010). These surveys provide rich evidence, directly from firms, with a detailed breakdown by sector and size classes that is typically not available from existing statistics.

This paper focuses on two key questions. First, what was the nature of the shocks hitting the Maltese economy after the crisis? Second, how did Maltese firms react to these changes? Concerning the latter, a distinction is made between the firms' decisions to adjust their workforce and on the wages given to new hires compared to incumbents. The empirical analysis is conducted within a multivariate probit framework that controls for both firm and workforce specific characteristics as well as the nature of the shocks faced by the firms using detailed information from the WDN survey.

The main findings are the following. Firms in the services sector experienced a favourable economic environment after the crisis. On the contrary, those in manufacturing were hit not only by adverse demand conditions but also by heightened uncertainty and hence, needed to adjust their workforce. The two most common adjustment strategies in manufacturing were freezing of new hires and a reduction in working hours. In terms of institutions, the survey confirms the trend decline in trade union membership. Around three out of four firms were concerned about skill shortages, with this finding being broadly stable across sectors and size classes. Such shortages are key obstacles to firms' hiring plans and, together with difficulties in staff retention, could push up the wages given to new hires. This result support policies aimed at upgrading the skill-set of the workforce through both further investment in education and the strengthening of active labour market policies.

The rest of the paper is organised as follows. Section 2 describes the design of the survey. Section 3 focuses on the nature and size of the shocks hitting the Maltese economy after the crisis. Section 4 describes the methods of adjustment used by firms, while Section 5 looks into the hiring and wage-setting process, focusing in particular on the wages of new hires. Section 6 concludes.

2. Data and Survey Design

A total of 271 companies were selected from the Business Register of the National Statistical Office to participate in the survey. The firms were carefully selected to ensure a stratified sectoral representation in three employment brackets: 10-49, 50-199 and those with more than 200 employees. Firms with less than ten employees, public enterprises and those operating in the agriculture and fisheries sectors were excluded. Firms falling within the top decile of each sector by employment were included since these capture the main developments in the labour market. The fieldwork lasted from May till July 2014 and was carried out using face-to-face interviews. A detailed description of the design of the survey and its sector characteristics is available in Micallef and Caruana (2015).

Throughout the rest of the paper, the results are aggregated in five different sectors: manufacturing, construction, wholesale and retail trade (henceforth, trade), the financial sector and the rest of the services sector (henceforth, other market services). The latter category is very heterogeneous and includes both traditional industries, such as tourism, as well some of the new industries like computing, professional services and remote gaming. It also includes sectors such as health and education.

Table 1 describes the sectoral coverage and the response rate. 178 companies agreed to participate in the survey, implying an overall response rate of 66%. These firms employ around one-third of the target population, with coverage being strongest in the financial sector and manufacturing (Note 4). Weights were assigned to each company to gross up the survey micro-data to the population aggregates. Unless stated otherwise, the results are grossed up using weights based on firm population.

Table 1. Sample response rate and employment coverage

	Firm				Employment		
	Population	Gross Sample	Effective Sample	Response Rate (%)	Population	Effective Sample	Coverage (%)
Industry	266	51	32	62.7	17,324	7,395	42.7
Construction	130	20	9	45.0	5,154	1,505	29.2
Trade	507	40	26	65.0	14,540	1,893	13.0
Financial services	91	30	24	80.0	7,762	5,880	75.8
Other market services	877	130	87	66.9	46,783	13,719	29.3
Total	1,871	271	178	65.7	91,563	30,392	33.2

Source: National Statistics Office and author's calculations.

3. The Nature and Size of Shocks Hitting the Economy

The adjustment of firms to disturbances depends on the nature, intensity and persistence of the shocks hitting the economy, as well as on the structural features of the product and labour market in which the firm operates (Fabiani et al, 2015). In the survey, companies were asked to assess the relevance of five different shocks during the period 2010-2013: (i) demand for their products or services (*demand shock*), (ii) volatility/uncertainty of demand for their products or services (*uncertainty shock*), (iii) access to external finance through the usual channels (*credit constraint shock*), (iv) customers' ability to pay and meet contractual terms (*cash flow shock*) and (v) availability of supplies from usual suppliers (*supply shock*). Figure 1 summarises the results. The reference period covers both the strong post-crisis recovery in Malta and the uncertainty associated with the European sovereign debt crisis of 2012.

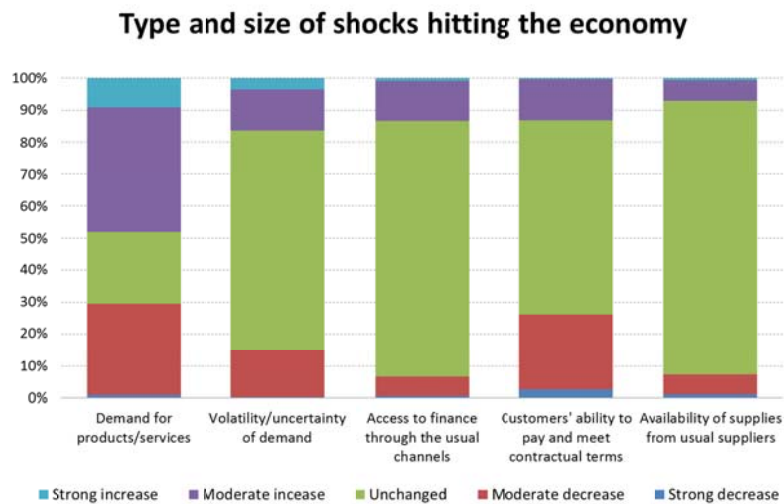


Figure 1. Type and size of shocks hitting the economy (%)

Source: Author's calculations based on WDN3

Demand shocks were by far the most frequently mentioned by responding firms. Around half the firms reported a positive demand shock during the reference period, compared with slightly less than 30% that reported a moderate decline in demand. Around one out of four firms reported an adverse cash flow shock, while another 15% experienced heightened uncertainty. Developments in the other two shocks, credit constraints and supply, were assessed to have remained broadly unchanged by more than 80% of the firms.

There are substantial differences between sectors. More than half the firms in the services sector reported an increase in demand between 2010 and 2013. Favourable demand conditions in services were broad based and experienced both by the new industries as well as traditional ones like tourism. During this period, the latter benefitted from the heightened uncertainty in neighbouring countries in North Africa, as well as by various initiatives to improve the product of the local tourism industry and increase hotel occupancy rates during non-peak seasons.

On the contrary, more than 80% of firms in construction and 60% in manufacturing reported a moderate drop in demand. In manufacturing, firms that were strongly affected by adverse demand conditions considered these developments to be permanent rather than temporary. The negative demand shock in the construction industry is related to the slowdown in the housing market that started in 2007, which led to a slump in house prices and housing investment. Developments in the construction sector have improved since then, driven by infrastructural projects facilitated by EU funds and numerous government incentives that led to a recovery in house prices. Interestingly, the share of construction firms that reported a drop in demand is significantly less pronounced when using employment weights, suggesting that the deterioration in demand conditions was mainly concentrated in small firms.

Heightened uncertainty or volatility of demand was mostly reported by firms in manufacturing and the financial sector. Uncertainty in the latter sector was due to the changes in the regulatory environment after the crisis. Few firms identified substantial difficulties with access to finance, with this finding being broadly applicable to all sectors. Cash flow and supply difficulties were mostly concentrated in construction, being reported by 55% and 40% of firms in this sector, respectively. Again, this is due to the slowdown in construction following the decline in house prices and investment during the early part of the reference period.

With the exception of construction, the availability of credit to finance working capital, new investment or to roll over

debt was not considered a relevant issue for most firms. To some extent, this is not surprising given the high concentration of non-performing loans in the construction and real estate sector (Note 5). However, some firms reported that while credit was available, the conditions attached to it, such as interest rates and other contractual terms, were too onerous (Note 6). In the absence of a deep and liquid capital market, domestic SMEs are heavily reliant on banks to finance their operations and thus, onerous conditions could hinder their ability to grow. This is in line with studies that document the difficulties faced by SMEs in securing credit from banks compared to larger firms mostly due to the availability of high quality collateral and the lack of information on their creditworthiness (Ayadi and Gadi, 2013). Of course, these challenges could be more pronounced for micro companies, which are not covered by the survey.

In addition to the shocks hitting the economy, the survey provided important information on labour market trends, such as the degree of unionization. According to the survey, 23% of employees were covered by collective bargaining in 2013. This percentage is significantly lower compared to the previous survey, which had reported coverage at around 29% in 2008 and points to the continued downward trend in trade union membership observed in recent decades (Baldacchino and Gatt, 2009). At a sectoral level, collective pay agreements are mainly concentrated in manufacturing and financial services.

4. Methods of Adjustment

4.1 Descriptive Evidence from the WDN Survey

During the period 2010-2013, slightly less than 20% of firms reported the need to significantly reduce their labour input or alter its composition (see Figure 2). The overall figure masks a high degree of heterogeneity, with firms in manufacturing and construction being the most adversely affected while, at the other extreme, those in the financial sector did not require any changes.

The aggregation method, that is, the use of firm or employment weights, can have an important impact on the results. In manufacturing, 38% of firms that adjusted their workforce employed almost half the workers in the sector. On the contrary, the adjusting firms in construction employed only 11% of workers, indicating that adjustment in construction was mainly borne by small firms. This is also in line with the finding of the previous section which showed that adverse demand conditions in construction were mainly concentrated in small firms. Hence, using employment weights, the need for adjustment was mainly concentrated in manufacturing.

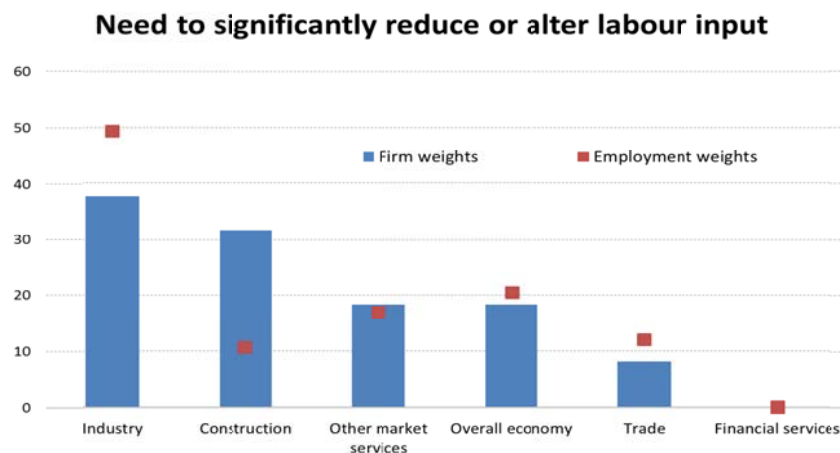


Figure 2. Labour force adjustment by sector and weights (% of firms)

Source: Author's calculations based on WDN3

The two most common measures adopted by manufacturing firms were freezing of new hires and a reduction in working hours, mostly non-subsidised (see Figure 3). Only 5% of manufacturing firms adjusted their workforce through collective layoffs and the same amount opted to reduce agency workers. The latter was mainly availed of by large firms. In the construction sector, those firms that needed to adjust their workforce did so mainly by freezing or reducing new hires whereas in trade, the most preferred options were reduction in working hours and individual layoffs. In the rest of the services sector, firms used a variety of measures to adjust, the most common being the non-renewal of temporary contracts, freezing of new hires, reduction in working hours and, to a lesser extent, layoffs. Only a few companies, mostly large firms in manufacturing and trade, opted for early retirement schemes.

To an extent, the adjustment strategy could also depend on the size of the firm. For instance, the survey made a

distinction between individual and collective layoffs. Where applicable, the former were more used by small firms whereas medium and larger firms opted for collective layoffs. Measures such as the non-renewal of temporary contracts, the reduction in agency workers and early retirement schemes were predominantly used by large firms. To adjust, small firms resorted mainly to freezing or reduction of new hires, reduction of working hours and non-renewal of temporary contracts.

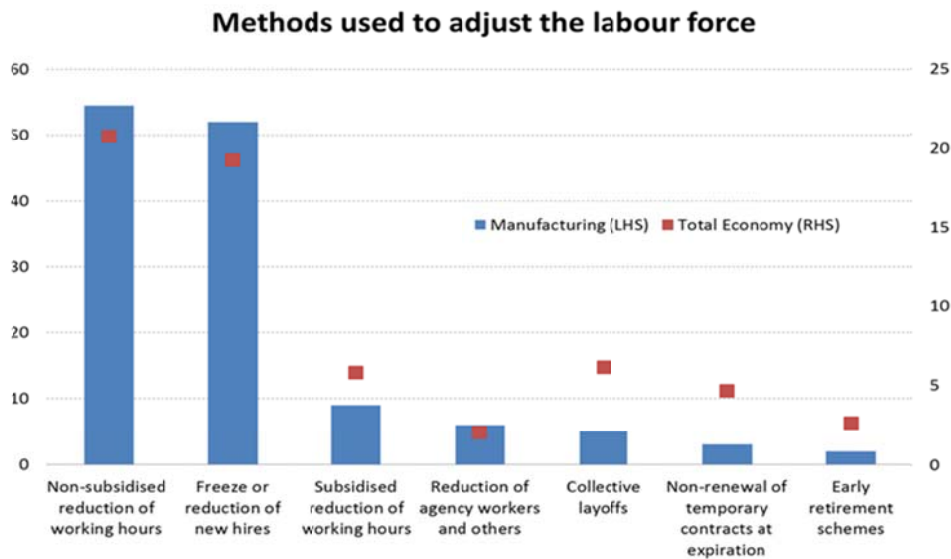


Figure 3. Methods used to adjust the labour force (% of firms)

Source: Author’s calculations based on WDN3

4.2 Theoretical Considerations

Theoretically, the optimal response of a firm to an adverse shock depends on the firm’s particular situation at the time of the shock, its product and labour market environment and the nature of the shock (Fabiani et al, 2015). The adjustment of employment could take place either on the intensive margin, for instance, through a reduction in hours worked, on the extensive margin, such as a reduction in the number of workers, or a combination of both.

Bertola et al (2010) document that the relative intensity of adjustment on employment vis-à-vis wages depends on product market competition, the importance of collective bargaining and on other structural features of the firms, such as the characteristics of the workforce. For instance, firms may opt to adjust employment in reaction to adverse disturbances if institutional factors, such as a high degree of trade union membership, limit the adjustment of wages. In a highly competitive environment, both wages and employment (both to temporary and permanent workers) are likely to be adjusted in response to supply shocks.

The adjustment could also differ depending on whether the firm perceives the shock to be temporary or permanent, as well as considerations about the supply of workers. If shocks are perceived to be temporary, firms may choose to hoard labour following an adverse shock to avoid incurring recruitment and training costs when conditions return to normality.

4.3 Empirical Analysis Using a Multivariate Framework

The above theoretical considerations on the structural factors that necessitates the need for adjustment are investigated empirically using a multivariate framework. More specifically, firms were asked the following question: During 2010-2013 did you need to significantly reduce your labour input or to alter its composition? A probit model is used to predict the probability that a firm needed to adjust its workforce, with the dependent variable being a binary dummy with 1 representing those firms that needed to adjust or alter the composition of their workforce during the reference period.

Table 2 reports the results of two separate estimated models (Note 7). The covariates in the first model are related to the structural characteristics of the firm that could potentially determine their adjustment in response to shocks, in line with the theoretical channels outlined above. These include their size and sector of activity, the degree of competition in domestic and foreign markets, their production technology and pay structure, the presence of collective bargaining and the characteristics of their workforce. In addition to these covariates, the second model also accounts for the nature of the shocks hitting the firms. The exact definition of the covariates is found the Appendix.

According to the probit estimates, size and sectoral characteristics play a statistically significant role in understanding

the adjustment of firms. For instance, medium and large firms are less likely to adjust their workforce compared to those with less than 50 employees (the reference category). Sectoral heterogeneity is more limited. Manufacturing firms are more likely to adjust their workforce compared to other market services (the reference category) but there are no statistically significant differences between the other sectors.

Companies operating in a competitive environment are more likely to adjust their workforce. However, the effects are only statistically significant for those exposed to foreign competition but not for those facing only domestic competition.

The adjustment process is also affected by institutional factors and the composition of the workforce. The presence of collective pay agreements increases the likelihood of adjustment, a result that could be influenced by the predominance of trade union membership in the manufacturing sector. Companies with a higher share of low skilled workers are more likely to adjust their workforce whereas, on the contrary, those faced with skill shortages are less likely to adjust, in line with the hoarding hypothesis discussed above. Problems associated with skill shortages have been frequently mentioned by the local business community especially in light of the labour market tightness after the crisis. This is in line with the results of the 2010 survey, in which firms' preferred strategy when faced with shocks is to reduce non-labour costs (Central Bank of Malta, 2010).

Aspects associated with production technology and the firms' cost structure, such as the share of labour in production and the share of bonuses in the total wage bill, were not found to have a statistically significant effect on the adjustment process.

The second column in Table 2 also accounts for the nature of the shocks hitting the firms. Out of the five shocks considered, only adverse demand and uncertainty shocks have a statistically significant effect on the adjustment process.

All the statistically significant covariates in Model 1 remain robust when controlling for the nature of the shocks in Model 2 with the exception of manufacturing. This implies that instead of sectoral differences in the adjustment process, companies in manufacturing were more adversely affected by negative demand conditions and an increase in uncertainty compared to other sectors, which, in turn, required an adjustment in their labour force. Demand and uncertainty shocks could have been triggered by the European sovereign debt crisis and the associated recession in the euro area, as well as volatility in commodity prices and the exchange rate, to which the manufacturing sector is more exposed compared to other sectors.

Table 2. Need to adjust labour input – Average marginal effects from probit regressions

	(1)	(2)
Firm size		
10-49		
50-199	-0.154 **	-0.118 *
200+	-0.164 **	-0.139 *
Sector of economic activity		
Manufacturing	0.139 **	0.026
Construction	0.035	-0.061
Trade	-0.038	-0.045
Other market services		
Competition		
Domestic competition	0.079	0.074
Foreign competition	0.156 ***	0.140 **
Production technology, pay structure & workforce characteristics		
Labour share	-0.082	-0.074
Collective bargaining	0.143 **	0.148 **
Flexible wage component	-0.567	-0.681
Skill shortages	-0.138 ***	-0.132 **
Share of low skilled manual workers	0.173 **	0.164 *
Nature of shocks		
Demand		0.181 ***
Volatility/uncertainty of demand		0.129 **
Access to external finance		0.119
Customers' ability to pay		0.043
Availability of supplies		0.006

Note: ***, ** & * denote statistical significance at 1%, 5% and 10%, respectively

The dependent variable is a 0-1 dummy that takes the value of 1 if the firm needed to significantly reduce its labour input or alter its composition during 2010-2013.

Source: Author's calculations

5. Hiring and Labour Costs of New Employees

5.1 Descriptive Evidence from the WDN Survey

The survey also focused on the impact of labour market reforms and whether these have facilitated or made it more difficult for firms to adjust compared to the situation prevailing in 2010. Contrary to the situation in stressed economies, the labour market reforms in Malta during the reference period were mainly targeted to attract and retain more people in the labour market, mostly females and older workers. This explains why more than 90% of firms reported that difficulties associated with dismissing workers, both for economic or disciplinary reasons have remained broadly unchanged.

Recruiting employees was considered by 46% of firms to have become more difficult, with this problem being particularly pronounced in the financial services sector (see Figure 4). In addition, firms identified the availability of skilled labour as the main obstacle they face when hiring workers on a permanent, open-ended contract, with around 70% of firms consider labour shortages to be ‘relevant’ or ‘very relevant’. This is in line with the National Employment Policy published by government in 2014, in which skill-mismatch was identified as one of the main challenges facing the Maltese labour market. Skill shortages were especially prevalent in the services sector but also in manufacturing, especially as this sector moved up the quality ladder.

Firms were asked to compare the labour costs of a newly hired worker with that of similar workers at the firm in terms of both experience and task assignments and to compare the situation during 2010-2013 with that prevailing before 2010 (see Figure 5). Before 2010, 73% of firms reported that the labour costs of newly hired workers were similar to those of incumbents, while another 22% gave newly hired workers a lower salary. Only 5% of firms reported higher costs for newly hired workers. The latter share, however, increased to 12% during 2010-2013, reflecting tight labour market conditions after the crisis, especially in specific sectors. The increase in labour costs to newly hired workers was mainly concentrated in the services sector, possibly a reflection of skill shortages in some industries and hence, the need to offer more attractive salary packages to attract talent.

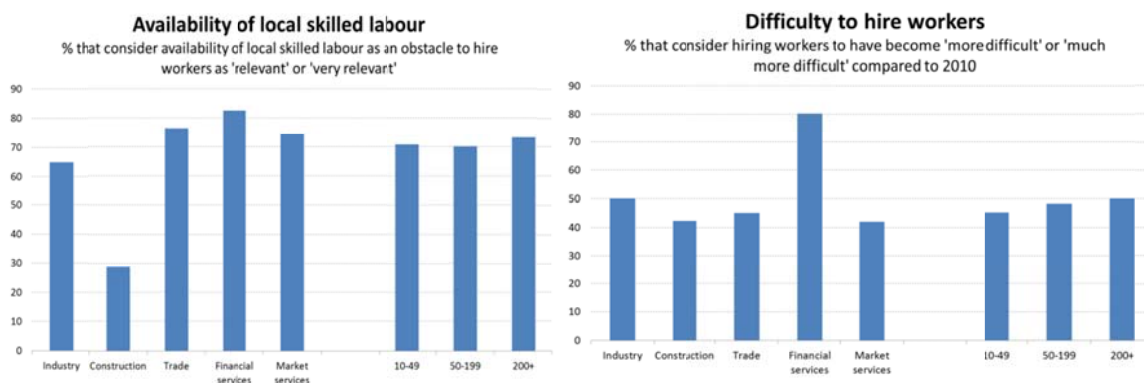


Figure 4. Skill-shortages and hiring difficulties – classification by sector and firm size

Source: Author’s calculations based on WDN3

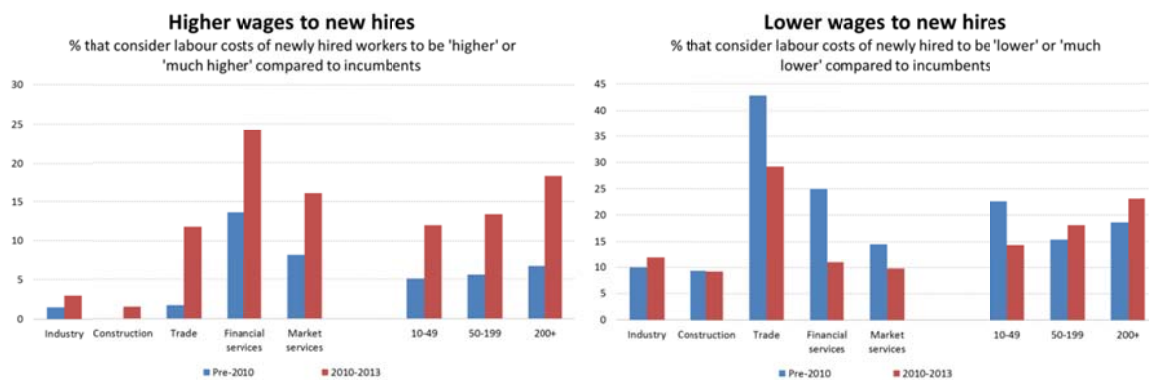


Figure 5. Wages to new hires – classification by sector and firm size

Source: Author’s calculations based on WDN3

5.2 Theoretical Considerations

According to the vast literature on this subject, firms can offer new employees either a predetermined wage (also known as posted wage) or else bargain with prospective employees over their wages (Hall and Kreuger, 2008). Due to economies of scale in the bargaining process, Gertler and Trigari (2009) argue that the posted wage is likely to be the contract wage. Hall and Kreuger (2008) posits that sectoral and institutional features, such as the extent of collective bargaining, which is usually predominant in public corporations and manufacturing sector, are important determinants of the predetermined wage.

Bewley (1999, 2007) report that employers are aware that deviations from an established internal pay structure could adversely affect workers' morale. Using information from the second wave of the WDN survey, Galuscak et al (2010) report fairness considerations and the negative impact on morale as the main reasons preventing firms from deviating from the contract wage. On the other hand, labour regulations and collective agreements play a significant role in preventing firms from offering a lower wage to new hires. In Central Bank of Malta (2010), around 60% of firms reported that even in a situation of labour abundance, they are reluctant to lower entry wages due to reputation effects and the impact on wage effort.

Entry wages could also be determined by the characteristics of the job. In this regard, Bewley (1999, 2007) makes a distinction between primary and secondary jobs. The former are usually full-time and permanent while the latter are often short-term and part-time. Primary job employers are more concerned with salary considerations on morale, staff retention and the quality of new hires compared to secondary job employers whose primary interest is to find a steady supply of workers to hire, knowing that the hiring process is a recurrent event. The latter jobs more likely to be concentrated in particular sectors, such as the tourism industry and the retail sector.

5.3 Empirical Analysis Using a Multivariate Probit Framework

The above theoretical considerations on the entry wages of new hires are tested empirically using a multivariate probit framework. Two different specifications are used, one that models the probability that firms pay a lower entry wage and another one focusing on the determinants leading to a higher wage to new hires. Firms were asked the following question: How did the labour cost of a newly hired worker compare with that of similar (in terms of experience and task assignment) workers at your firm? For this question, firms had to choose one of the following five options: 'much lower', 'lower', 'similar', 'higher' and 'much higher'.

In the first model, denoted $\text{Pr}(\text{High})=1$ in Table 3, the dependent variable is a binary dummy that takes the value of 1 if the wages for new hires are reported by firms to be 'higher' or 'much higher' compared to incumbents during the reference period. In the second one, denoted $\text{Pr}(\text{Low})=1$, the dependent variable takes a value of 1 if wages for new hires are reported to be 'lower' or 'much lower'.

The choice of covariates used in the empirical model depends on the theoretical considerations outlined in section 5.2. Following Galuscak et al (2010), the covariates are broadly defined in four categories, representing firm characteristics (e.g. size and sector), the product market in which the firm operates (e.g. competitive pressures and exposure to foreign markets), elements of the pay structure (e.g. the presence of collective bargaining and the share of bonuses) and the characteristics of the workforce. In addition, another category is included to account for the impact of regulation (e.g. hiring costs, risks that labour laws are changed and high payroll taxes). The exact definition of these variables is found in the Appendix.

Regression results show that firms in the services sector are more likely to offer higher wages to new employees compared to manufacturing firms (the reference group). Differences due to size classes did not turn out to be statistically significant.

The model predicts that higher wages for new hires are more likely to be awarded in firms facing skill shortages and high workforce turnover. The latter is a binary variable that takes the value of 1 if the firm reported strong worker flows due to exits. Finally, companies with a more flexible wage structure (i.e. a higher share of bonuses in the wage bill) are also more likely to offer higher wages to attract talent.

The other covariates in the model, that is, those related to tenure and skills of the workforce, the market environment and the presence of collective bargaining, do not play a statistically significant role.

A number of interesting conclusions also emerge from the second specification, which looks at lower wages for new hires. Firms in the other market services sector are less likely to offer a lower wages to new hires, confirming the previous findings.

Perhaps surprisingly, the results show that firms with collective bargaining are more likely to offer lower wages, which is different from that reported by Galuscak et al (2010). However, collective bargaining is likely to capture

developments in the manufacturing industry given the relatively high concentration of union membership in this sectors compared to the rest of the economy. In fact, manufacturing was the only sector in which the percentage of firms that reported to give lower wages to new hires has increased during 2010-2013 compared to pre-2010 (see Figure 5). More generally, this finding corroborates the evidence of on-going restructuring in this sector to enhance its competitiveness. For instance, 13% of manufacturing firms reported that it is much less difficult to adjust hours. Also, around one in four firms in manufacturing felt that it has become less difficult to move employees to other locations or across different positions, pointing to increased flexibility in this sector to adjust its workforce following on-going restructuring efforts to regain competitiveness.

Finally, regulation can also play an important role in the initial wage decision. For instance, those firms that considered risks that labour laws can be changed to be 'relevant' or 'very relevant' obstacles in hiring new employees on a permanent contract are more likely to offer low wages to new hires compared to incumbents. This shows that uncertainty concerning the future direction of labour laws could have adverse effects on the initial wage offered to some workers.

Table 3. Wages for newly hired employees – Average marginal effects from probit regressions

	Payment of a higher wage Pr(High=1)		Payment of a lower wage Pr(Low=1)	
Firm size				
10-49 (Reference group)				
50 - 199	-0.046	-0.609	0.073	0.074
200+	0.029	0.223	0.108	0.105
Sector of economic activity				
Manufacturing (Reference group)				
Construction	0.119	0.085	-0.034	0.015
Trade	0.225 *	0.212 *	0.025	0.048
Other services	0.179 *	0.169 *	-0.179 **	-0.145 *
Structure of product market				
Domestic competition	0.075	0.083	-0.043	-0.043
Share of foreign sales	0.057	0.057	-0.091	-0.091
Pay structure				
Collective bargaining	0.012	0.019	0.123 *	0.129 *
Flexible wage component	1.055 ***	1.034 ***	0.359	0.330
Workforce characteristics				
Skill shortage	0.191 ***	0.171 **	0.065	0.066
Workforce turnover	0.532 ***	0.535 ***		
Share of high skilled non-manual workers	0.007	0.017	0.132	0.164
Share of low skilled manual workers	-0.078	-0.075	0.116	0.109
Share of temporary contracts	0.191	0.210	0.194	0.203
Tenure: Less than 1 year	-0.148	-0.153	0.170	0.198
Regulation				
Hiring costs		0.049		-0.105
Risks that labour laws are changed		0.090		0.189 ***
High payroll taxes		-0.044		-0.098
Observations	178	178	178	178
Pseudo R2	0.201	0.226	0.081	0.127

Notes: (***) , (**) and (*) denotes significance at 1%, 5% and 10%, respectively.

The dependent variable in Pr(High=1) is a 0-1 dummy that takes the value of 1 if wages for new hires between 2010-2013 are 'higher' or 'much higher' compared to incumbents.

The dependent variable in Pr(Low=1) is a 0-1 dummy that takes the value of 1 if wages for new hires between 2010-2013 are 'lower' or 'much lower' compared to incumbents.

Source: Author's calculations

6. Conclusion

In contrast to the experience of southern and peripheral economies in the euro area, Malta has weathered the financial crisis relatively well. Since EU membership, the country has evolved very rapidly and diversified its economic base towards new industries, mostly in services, which increased the resilience of the economy and its ability to withstand industry-specific disturbances.

This paper documented the nature and size of the shocks hitting the economy and the methods of adjustment used by Maltese firms after the crisis based on a firm-level survey. Such surveys provide valuable information on the characteristics of Maltese firms, facilitate the identification of labour market trends and provide an alternative source of information to complement official statistics on selected topics.

According to the survey, more than half the firms in the services sectors benefitted from favourable demand conditions between 2010 and 2013. The situation was different in construction and manufacturing. Those manufacturing firms that were the most strongly affected by adverse demand conditions consider this situation as permanent rather than transitory. Freezing of new hires and a reduction in working hours were the two most preferred methods of manufacturing firms to adjust their workforce. There are indications, however, of ongoing restructuring in this sector, such as the adoption of more flexible work practices, in order to regain its competitiveness.

A recurrent theme that emerged from this study is difficulties faced by firms due to skill shortages. Around three out of four firms consider skill shortages as a relevant obstacle to hire new workers, a concern that is frequently expressed by domestic employers. With few exceptions, this problem is felt within almost all sectors of the economy, although it is somewhat more pronounced in services. Regression analysis indicates that higher wages for new hires are more likely to be awarded in firms facing shortages of skills as well as high workforce turnover. This result support policies to upgrade the skill-set of the workforce through both further investment in education and the strengthening of active labour market policies. Examples of the latter include incentives, both to employers and employees, to pursue lifelong learning programmes and promote the development of job-specific skills. Finally, linkages between academia and the business community should be strengthened to ensure that the diversification towards new industries does not lead to shortages in specific segments of the labour market.

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Notes

- Note 1. See Grech (2015a) and Central Bank of Malta (2016) for a description of the changing structure of the Maltese economy.
- Note 2. See Micallef (2015) for a description of the main reforms implemented to attract females in the labour market and their impact on potential output growth.
- Note 3. The survey was carried out as part of a research network comprising 25 central banks from EU countries and co-ordinated by the European Central Bank (ECB). The WDN project started in 2006 with the objective of understanding the wage-setting practices in EU countries. A second ad hoc survey was conducted in 2009. Preparations for the third wave of the survey started in 2013, with the participating countries conducting their surveys in 2014. See Druant et al (2009), Babecky et al (2009), Bertola et al (2010) and Dhyne and Druant (2010) for some of the main findings of the WDN project.
- Note 4. The effective sample for construction is relatively low, consisting of just 9 firms, and hence, results for this sector should be treated with caution.
- Note 5. As at 2015Q2, slightly more than 40% of the core banking sector's non-performing loans was concentrated in construction and real estate.
- Note 6. See Bonnici (2013) for a discussion on the relatively high interest rate on loans to businesses in Malta.
- Note 7. Unfortunately, the small number of observations limits the possibility of estimating separate probit models for alternative labour adjustment strategies.

Appendix. Definition of Covariates

The variables used as covariates in the regressions are defined as follows:

- A set of indicators for the sector of economic activity (four categories: manufacturing, construction, trade and other market services)
- A set of indicators for the firm's size by employees (three categories: 10-49, 50-199, 200+)
- A set of indicators for the nature of the shock faced by the firm (the five shocks listed in table 3; dummy variables that takes the value of 1 if the firm reported a 'strong' or 'moderate' decrease in the respective shock (positive in the case of uncertainty))
- Competition: two dummy variables that takes the value of 1 if the degree of competition in domestic and foreign markets, respectively, was considered to be 'severe' or 'very severe'
- Labour share: the share of labour in total costs (a continuous variable ranging from 0 to 1)
- Collective bargaining: a binary variable that equals 1 if a collective bargaining agreement is in place
- Flexible wage component: the percentage of the wage bill that is related to individual or firm performance bonuses (a continuous variable ranging from 0 to 1)
- Share of foreign sales: the percentage of sales due to revenues in foreign markets (a continuous variable ranging from 0 to 1)
- The shares of low skilled manual workers, high skilled manual workers and high skilled non-manual workers (continuous variables ranging from 0 to 1)
- Share of temporary contract: the share of workers with a temporary or fixed-term contract (a continuous variable ranging from 0 to 1)
- Tenure less than 1 year: the share of workers with a job tenure below 1 year (a continuous variable ranging from 0 to 1)
- Skill shortages: a binary variable that equals 1 if availability of local skilled labour is considered as 'relevant' or 'very relevant' obstacle in hiring workers with a permanent, open-ended contract.
- Workforce turnover: a binary variable that equals 1 if strong changes in worker flows were due to exits
- Hiring costs: a binary variable that equals 1 if hiring costs are considered as 'relevant' or 'very relevant' obstacle in hiring workers with permanent, open-ended contract.
- High wages: a binary variable that equals 1 if high wages are considered as 'relevant' or 'very relevant' obstacle in hiring workers with permanent, open-ended contract.
- High payroll taxes: a binary variable that equals 1 if high payroll taxes are considered as 'relevant' or 'very relevant' obstacle in hiring workers with permanent, open-ended contract.
- Risks that labour costs are changed: a binary variable that equals 1 if risks that labour laws are changed are considered as 'relevant' or 'very relevant' obstacle in hiring workers with permanent, open-ended contract.

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