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# RESULTS OF THE 2014 WAGE DYNAMICS NETWORK FOR MALTA

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## Table of Contents

|  |    |
|--|----|
| Executive Summary .....                                    | 3  |
| 1. Introduction .....                                      | 5  |
| 2. Structural characteristics of the Maltese economy ..... | 6  |
| 3. Data and survey design .....                            | 8  |
| 4. Shocks and adjustments .....                            | 11 |
| 4.1. The economic environment after the crisis .....       | 11 |
| 4.2. Changes in the cost structure .....                   | 14 |
| 4.3. Methods of adjustment.....                            | 18 |
| 4.4. Hiring and wage-setting .....                         | 26 |
| 4.4.1. Main obstacles for hiring .....                     | 26 |
| 4.4.2. Labour costs of newly hired employees .....         | 27 |
| 4.4.3. Collective bargaining and wage setting .....        | 30 |
| 5. Price setting and price changes .....                   | 32 |
| 6. Conclusion .....  | 36 |
| References .....   | 38 |
| Appendix A: The macroeconomic environment in Malta.....    | 39 |
| Appendix B: Definition of covariates.....                  | 40 |

## Executive Summary

This report documents the response of Maltese firms after the economic and financial crisis of 2009. The results are based on a survey of 178 firms undertaken as part of the Wage Dynamics Network (WDN) mainly for the reference period 2010-2013.

The survey focuses on a wide array of factors such as key firm characteristics, the economic environment after the crisis, the nature and size of the shocks hitting the economy, the adjustments made by firms and aspects related to wage and price setting behaviour. The survey follows a similar one conducted in 2010, whose primary focus was on the adjustment during the crisis and, in particular, the relevance of various cost-cutting strategies. The collection of data from these surveys provide valuable evidence directly from firms, with a detailed breakdown by sector and size classes, that is typically not available from existing statistics.

The main findings are the following:

- Most sectors experienced a positive demand shock between 2010 and 2013, with the exceptions being manufacturing and construction. The sector that needed to adjust its workforce the most during this period – manufacturing – did so mainly by freezing or reducing new hires and reducing working hours. This sector was hit not only by an adverse demand shock but also by higher uncertainty associated with demand.
- Credit constraints were not considered to be the most pressing problem but around 40% of firms reported an increase in financing costs. The latter occurred at a time of unprecedented monetary easing by the European Central Bank. With domestic small and medium enterprises (SMEs) being predominantly reliant on bank financing, a more diversified mix of funding options than those currently available would represent a more sustainable financing environment for Maltese SMEs.
- All sectors reported an increase in total costs, driven mainly by labour and the cost of supplies. In terms of labour costs, this was due to an increase in base wages and, to a lesser extent, in employment. The increase in costs, however, did not lead to a deterioration in price competitiveness as they were matched or even exceeded by gains in productivity.
- Wage bargaining in Malta takes place at the firm level and changes in wages generally occur on an annual basis due to the Cost-of-Living Adjustment (COLA) mechanism. In terms of trade union coverage, the survey points to a reduction in the percentage of employees covered by a collective agreement compared to the previous wave.

- When setting wages, the most relevant factors for firms are profitability, productivity, the market wage rate and difficulties in attracting employees. For hiring purposes, the availability of skilled labour, the wage rate and uncertainty about economic conditions are the most important considerations.
- Price-setting behaviour in Malta varies on whether the main market served by the firm is domestic or international. In the domestic market, the most common strategy is to set prices as a mark-up over costs. In international markets, negotiating the price with individual customers is the most common approach, while a significant proportion of firms are not autonomous in setting their prices, mostly because they are set either by the parent company or by the main customers.
- Slightly less than 20% of firms have increased the frequency of price changes in recent years, with this share being especially pronounced in manufacturing and financial services. Stronger competition and more frequent price changes by competitors or in other input costs were the most common justifications. On the contrary, more frequent changes in labour costs were rarely mentioned, suggesting a rather weak link between the timing of wage and price changes in Malta.
- According to the survey, 70% of firms consider skill shortages as a relevant obstacle in hiring new employees. Regression analysis also shows that higher wages for new employees compared to incumbents are more likely to be awarded in firms facing skill shortages and high workforce turnover. These findings support policies that raise the workforce's skill base, not only through investment in education to improve the quality of human capital but also to strengthen active labour market policies, such as lifelong learning and adequate incentives for both employers and employees to promote the development of job-specific skills. It also calls for targeted measures, such as enhanced collaboration between academia and the business community, to ensure that the diversification of the economy's production structure does not lead to shortages in specific segments of the labour market.

## 1. Introduction

This paper documents the response of Maltese firms in the aftermath of the economic and financial crisis of 2009. For this purpose, the Central Bank of Malta carried out a survey in 2014 as part of the Wage Dynamics Network (WDN) project.<sup>2</sup> The results are based on a survey of 178 firms for the reference period 2010-2013.

The survey focuses on a wide array of factors such as key firm characteristics, the economic environment after the crisis, the nature and size of the shocks hitting the economy and the adjustments made by firms, including obstacles to such adjustments. In addition, the survey also covers aspects of wage and price setting behaviour and the degree of competition facing firms, making a distinction between domestic and foreign markets. The survey follows a similar one conducted in 2010, whose primary focus was on the adjustment during the crisis and, in particular, the relevance of various cost-cutting strategies (Central Bank of Malta, 2010). The collection of data from these surveys provide direct evidence from firms, with a detailed breakdown by sector and size classes, that is typically not available from existing statistics.

The main findings are summarized as follows. Most sectors of the economy experienced a favourable economic environment after the crisis although firms in manufacturing faced a more difficult environment, as they were hit not only by adverse demand conditions but also by higher uncertainty associated with demand and hence, needed to adjust their workforce. Manufacturing firms that adjusted their labour input did so mainly by freezing or reducing new hires and reducing working hours. Credit conditions were not considered to be the most pressing problem but a significant number of firms reported an increase in financing costs. Most sectors reported an increase in costs which were, however, matched or even exceeded by gains in labour productivity and hence, not detrimental to price competitiveness. As expected, given the institutional framework, almost all firms stated that wage changes occurred annually due to COLA but the survey points to a decline in the share of employees covered by a collective pay agreement compared to the previous wave. Price-setting behaviour in Malta varies depending on whether the main market served by the firm is domestic or international. Slightly less than 20% of firms have increased the frequency of price changes in recent years, with stronger competition and more frequent price changes by competitors or in other input costs being the most common justifications. On the contrary, changes in labour

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<sup>2</sup> 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.

costs were rarely mentioned, which points to a fairly weak link between the timing of wage and price changes in Malta. Finally, 70% of firms consider skill shortages as a relevant obstacle in hiring new employees, with higher wages for new employees compared to incumbents being more likely to be awarded in firms facing skill shortages and high workforce turnover.

The rest of the paper is organised as follows. Section 2 gives an overview of the structural characteristics of the Maltese economy. Section 3 describes the design of the survey. Section 4 focuses on the changes in the economic environment after the crisis, changes in the cost structure, the methods of adjustment used, the factors affecting hiring decisions and the wage-setting process. Section 5 documents the price-setting process in Malta and Section 6 concludes.

## **2. Structural characteristics of the Maltese economy**

The Maltese economy has weathered the economic and financial crisis relatively well (see Appendix A). After contracting in 2009, economic activity recovered strongly such that, by mid-2010, real GDP had already surpassed the pre-crisis peak. After the crisis, Malta has registered one of the highest rates of GDP growth among the euro area countries, with real GDP standing at around 15% higher at the end of 2014 compared to 2008Q1. This performance was due to a number of factors, including the diversification of the economy to sectors which proved resilient to the recession and the absence of major shocks to the financial system. According to the European Commission, Malta is one of only two countries in the EU, the other being Germany, in which potential GDP in 2014 had already exceeded the pre-crisis growth rate.

Improvements were also registered in external competitiveness, with the current account, which has been in deficit since the 1990s, turning to a surplus of around 5% of GDP over the period 2012-2014. Contrary to stressed economies, Malta's reversal of its current account position was mainly driven by an increase in exports, mostly of services, rather than by the deterioration in domestic demand. The robust economic performance did not lead to excessive price pressures, with inflation in Malta averaging slightly less than 2% over the period 2010-2014, reflecting lower oil prices, a reduction in electricity tariffs and low inflation in the euro area.

Similarly, the domestic labour market performed relatively well after the crisis, at a time when labour market performance in a number of euro area countries deteriorated drastically. Employment growth had already returned to its pre-crisis growth trend in 2010, with job creation in the services sector continuing unabated even during the crisis. There are, however, wide differences across sectors, which are even more pronounced when seen from a longer-term perspective. Even before the crisis, pronounced structural changes in the Maltese economy have led to a diversification of the economic base and a shift from traditional industries towards higher-value added activities, mostly in the services sector. For instance, the share of non-traditional market services has increased from 15.8% of total employment in 1995 to 26.2% in 2014.<sup>3</sup> The increase in the share of services has coincided with the relative decline in the share of manufacturing, with its employment share declining by 12.6 percentage points between 1995 and 2014, from 24.5% to 11.9%.

The modest increase in unemployment in 2009 started to be reversed by early 2010 and since then, the unemployment rate has declined close to its historical lows, being among the lowest in the euro area, despite increasing labour participation rates. Estimates of Malta's structural unemployment rate have remained broadly unchanged between 2008 and 2013 (Micallef, 2014). The relatively low unemployment rate in Malta, however, masks important differences in the profile of the unemployed, with the relatively high share of long-term unemployed being the result of a mismatch between the skills offered by the unemployed and those required by today's industries.

Labour market reforms in Malta were generally targeted at attracting and retaining more people in the labour force, especially females and older workers. In both these categories, Malta has the lowest participation rates across all EU countries. These reforms have started to bear fruit: the participation rate of females increased by 11.7 percentage points between 2008 and 2014, by far the highest increase among EU countries, to stand at 52.1% in 2014. The increased participation rate of females is attributable to a number of initiatives, including back-to-work fiscal incentives, new income tax rules and an increase in maternity and adoption leave. Measures were also aimed at making childcare facilities more available and affordable, while, at the same time, extending after-school care services in a number of schools to bridge the gap between school days and regular working hours of parent in employment. The participation rate of older workers, aged between 55 and 64, increased by 8.7 percentage points during this period, although the gap with the EU in this area is only narrowly closing down. The pension reform, in conjunction with targeted fiscal measures, should however encourage older workers to remain active over the coming years.

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<sup>3</sup> Non-traditional market services consist of NACE categories J-N and R-U (i.e. services excluding wholesale & retail trade, tourism, public administration, health, education and social work activities).

There were no major changes in Malta's labour market institutions after the crisis. The wage setting practice in Malta is mainly based on collective bargaining at firm level. In addition, a Cost-of-Living Adjustment (COLA) mechanism has been in place since 1990, in which base wages are partially adjusted to the previous year's increase in inflation.<sup>4</sup> As a result, changes in wages generally occur on an annual basis. Despite the strong economic performance, nominal wage growth in Malta has been moderate after the crisis, averaging less than 2%, and broadly in line with the euro area average. This was facilitated by the increase in the labour supply, as well as an increase in the share of foreign workers in the workforce, which has eased labour shortages in selected sectors and helped to keep wage pressures contained.<sup>5</sup>

### 3. Data and survey design

The survey was designed in close correspondence to similar surveys conducted by national central banks within the European System of Central Banks (ESCB). A total of 271 companies were chosen to take part in the survey. Of these, 60% had participated in the previous wave of the survey. Companies were selected from the Business Register of the National Statistics Office (NSO), while ensuring a stratified representation of each sector in the following employment brackets: 10-49, 50-199 and over 200 employees. As in the 2010 wave, companies with less than ten employees, public corporations and those operating in the agriculture and fisheries sectors were excluded. Firms falling within the top decile of each sector by employment were included on the basis that these reflect the main developments in the labour market. The fieldwork lasted from May till July 2014 and was carried out using face-to-face interviews by staff of the Central Bank of Malta.

From the sampled companies, 178 agreed to participate, implying an overall response rate of 66%. A response rate of 73% was registered among firms that had already participated in the 2010 exercise while the companies that had not participated in the previous wave had a response rate of 55%. Around one-third of employees of the target population were em-

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<sup>4</sup> More specifically, COLA is calculated as the 12-month moving average inflation rate measured from the Retail Price Index (RPI) as at September multiplied by the base wage. The base wage represents a wage level determined in 1990, which has been updated annually by the COLA increases awarded. Annual COLA increases are calculated as a fixed amount that is granted irrespective of the wage level. The base wage – the level upon which COLA is based – is a relatively low wage, standing at around 61% of the average gross weekly salary in 2011.

<sup>5</sup> The share of foreigners in Malta's workforce increased from 5.1% in 2010 to 10.8% in 2014. While the influx of foreign workers is spread across the board, it is unevenly distributed towards certain sectors, such as the remote gaming industry, where the share of foreigners is around a third of the workforce. The share of foreigners exceeds 10% of the workforce also in administrative & support service activities, accommodation and food services, and professional, scientific and technical activities.



ployed with firms that participated in the survey, with coverage being strongest in the financial sector and industry (see Table 1).<sup>6</sup> The effective sample for construction is relatively low, consisting of just 9 firms, and hence, results for this sector should be treated with caution.

**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         |
| <b>Total</b>          | <b>1,871</b> | <b>271</b>   | <b>178</b>       | <b>65.7</b>       | <b>91,563</b> | <b>30,392</b>    | <b>33.2</b>  |

Source: Central Bank of Malta and National Statistics Office

Weights were assigned to each company to gross up the survey micro-data to the population aggregates. Unless stated otherwise, the results presented in this paper were grossed up using weights based on firm population.<sup>7</sup>

Table 2 provides additional information on the characteristics of the firms. It describes the structure of the firms (i.e. whether single or multi-establishments), their ownership (i.e. whether mainly domestic or foreign owned) and their autonomy in making decisions, such as setting the prices of their products or services.

As expected, the occupational distribution varies across the different sectors.<sup>8</sup> Non-manual workers represent around 60% or more of workers in the services sector while more than 70% of employees in industry and construction have manual jobs. In the financial sector and other market services, a significant proportion of workers have higher skilled non-manual jobs whereas in construction and industry, most workers have a higher skilled manual job.

<sup>6</sup> In our sample, industry is made up solely of manufacturing firms. Hence, we use 'industry' and 'manufacturing' interchangeably throughout the text.

<sup>7</sup> The results may thus differ from Micallef and Caruana (2015) since the latter study was based on employment weights.

<sup>8</sup> Each sector's occupational grouping is classified in four different categories following ISCO-08 classification. **Higher skilled non-manual** refers to ISCO-08 categories 1, 2 and 3 (Managers; Professionals; Technicians and associate professionals); **Lower skilled non-manual** refers to ISCO-08 categories 4 and 5 (Clerical support workers; Service and sales workers); **Higher skilled manual** refers to ISCO-08 categories 7 and 8 (Craft and related trades workers; Plant and machine operators, and assemblers); **Lower skilled manual** refers to ISCO-08 category 9 (Elementary occupations).

**Table 2: Firm characteristics**  
(percent)

|   | Industry | Construction | Trade | Financial services | Other market services |
|---|----------|--------------|-------|--------------------|-----------------------|
| Structure <sup>(a)</sup>                      |          |              |       |                    |                       |
| Single establishment                          | 68.0     | 93.1         | 66.9  | 58.2               | 78.1                  |
| Multi establishment                           | 32.0     | 6.9          | 33.1  | 41.8               | 21.9                  |
| Ownership <sup>(a)</sup>                      |          |              |       |                    |                       |
| Mainly domestic                               | 50.0     | 100.0        | 100.0 | 78.0               | 90.4                  |
| Mainly foreign                                | 50.0     | 0.0          | 0.0   | 22.0               | 9.6                   |
| Autonomy <sup>(a)</sup>                       |          |              |       |                    |                       |
| Parent company                                | 7.5      | 33.1         | 20.9  | 44.0               | 16.3                  |
| Subsidiary/affiliate                          | 38.6     | 16.2         | 35.3  | 35.2               | 21.7                  |
| Neither a parent company nor a subsidiary     | 53.9     | 50.8         | 43.8  | 20.9               | 62.0                  |
| Occupational distribution <sup>(b)</sup>      |          |              |       |                    |                       |
| Higher skilled non-manual                     | 15.6     | 13.6         | 17.5  | 45.9               | 35.1                  |
| Lower skilled non-manual                      | 8.8      | 13.5         | 42.4  | 42.2               | 26.1                  |
| Higher skilled manual                         | 62.4     | 59.3         | 17.1  | 5.8                | 13.0                  |
| Lower skilled manual                          | 13.3     | 13.6         | 23.1  | 6.0                | 25.9                  |
| Share of revenue generated in: <sup>(b)</sup> |          |              |       |                    |                       |
| Domestic market                               | 29.5     | 97.1         | 97.4  | 65.0               | 51.8                  |
| Foreign market                                | 70.5     | 2.9          | 2.5   | 35.0               | 48.2                  |
| Labour cost share <sup>(b)</sup>              | 26.9     | 38.6         | 39.9  | 51.5               | 52.4                  |
| Flexible wage component <sup>(b)</sup>        | 2.5      | 1.0          | 2.9   | 5.3                | 4.3                   |

Note: (a) and (b) denote aggregation using firm and employment weights, respectively.  
Source: Central Bank of Malta

There is also a high degree of heterogeneity across sectors in the share of revenue generated in domestic and foreign markets. The percentage of domestic market sales amounted to almost 100% in construction and trade, with a relatively high share of domestic sales also recorded in the financial sector. In other market services, sales are broadly split between the domestic and the foreign market while in industry around 70% of sales are generated in foreign markets. Labour costs in relation to total costs are the highest in the services sector and the lowest in industry. The proportion of performance bonuses to the total wage bill, which allows an element of flexibility in wage setting, is the highest in financial services and other market services and the lowest in construction. Overall, however, less than 5% of the wage bill is subject to performance bonuses.

## 4. Shocks and adjustments

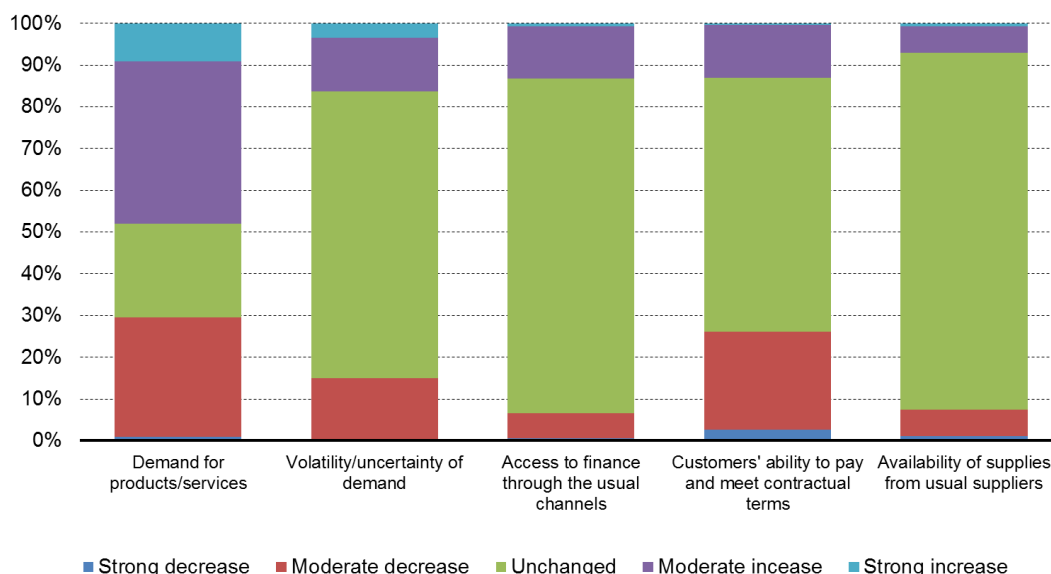
This section describes the economic environment faced by domestic firms after the crisis (2010-2013), changes in their costs structure and the methods of adjustment used. The last part looks at the hiring and wage setting process, including the relevance of various factors considered by firms when setting wages, the labour costs of newly hired employees compared to incumbents and trends in collective bargaining.

### 4.1. The economic environment after the crisis

The adjustment of firms to shocks is likely to depend on the nature and size of the shocks hitting the economy. Firms were asked to assess the relevance of the following five types of shocks: (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*).

Firms consider demand shocks to be the most relevant during this period: slightly less than 50% of the firms stated that they have experienced an increase in demand for their products and services, compared to less than 30% which reported a fall in demand. Around 25% of firms reported a decline in customers' ability to pay or meet contractual terms. In the other three shocks listed in Chart 1 - uncertainty, credit constraints and supply - between 70% and 85% of firms reported broadly unchanged developments during the reference period.

**Chart 1**  
**TYPE AND SIZE OF SHOCKS**  
*(percent of responding firms weighted by firm size)*



The survey points to substantial differences across sectors and firm sizes (see Table 3). For instance, with the exception of industry and construction, between 50% and 60% of firms in the services sectors experienced a positive demand shock since 2010. On the contrary, more than 80% of companies in construction and 60% in industry reported a moderate decline in demand during the same period. In industry, those firms that were strongly affected considered the drop in demand to be permanent, rather than temporary. The share of firms reporting an increase in volatility or uncertainty of demand was highest in industry and financial services, with the latter being driven by changes in the regulatory environment after the financial 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 mainly concentrated in the construction sector, with 55% and 40% of firms in this sector reporting a drop in customers' ability to pay and meet contractual terms and in the availability of supplies from usual suppliers, respectively. These difficulties were most likely associated with the slowdown in the construction sector following the decline in house prices during most of the reference period.

The availability of credit to finance working capital, new investment or rolling over debt was not considered a relevant issue for most firms, with the exception of the construction sector (see Table 4). In the latter sector, 39% of companies experienced problems in obtaining external financing for working capital and to roll-over debt, although the difficulties were less severe for credit for investment purposes.

**Table 3: Type and size of shock (%)**

|                                    | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|------------------------------------|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|                                    | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Demand for product/services</b> |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease                    | 3                | 0            | 0     | 0                  | 1               | 0          | 6      | 2    | 1     |
| Moderate decrease                  | 59               | 83           | 18    | 0                  | 20              | 33         | 10     | 17   | 29    |
| Unchanged                          | 9                | 1            | 34    | 44                 | 21              | 24         | 16     | 15   | 22    |
| Moderate increase                  | 27               | 8            | 46    | 36                 | 43              | 36         | 52     | 48   | 39    |
| Strong increase                    | 1                | 8            | 2     | 20                 | 15              | 7          | 16     | 18   | 9     |
| <b>Volatility/uncertainty</b>      |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease                    | 1                | 0            | 0     | 0                  | 0               | 0          | 1      | 2    | 0     |
| Moderate decrease                  | 33               | 12           | 14    | 0                  | 12              | 15         | 12     | 17   | 15    |
| Unchanged                          | 30               | 86           | 78    | 75                 | 72              | 70         | 64     | 59   | 69    |
| Moderate increase                  | 32               | 2            | 8     | 25                 | 10              | 12         | 18     | 16   | 13    |
| Strong increase                    | 3                | 0            | 0     | 0                  | 6               | 3          | 4      | 6    | 3     |
| <b>Access to finance</b>           |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease                    | 2                | 0            | 0     | 0                  | 1               | 0          | 1      | 0    | 1     |
| Moderate decrease                  | 2                | 0            | 10    | 0                  | 7               | 7          | 4      | 3    | 6     |
| Unchanged                          | 95               | 82           | 76    | 82                 | 78              | 82         | 68     | 87   | 78    |
| Moderate increase                  | 2                | 11           | 15    | 18                 | 14              | 11         | 22     | 10   | 12    |
| Strong increase                    | 0                | 8            | 0     | 0                  | 1               | 0          | 5      | 0    | 1     |
| <b>Customers ability to pay</b>    |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease                    | 5                | 9            | 1     | 0                  | 2               | 2          | 3      | 4    | 3     |
| Moderate decrease                  | 8                | 46           | 18    | 14                 | 29              | 25         | 16     | 28   | 24    |
| Unchanged                          | 71               | 14           | 72    | 85                 | 56              | 61         | 62     | 58   | 61    |
| Moderate increase                  | 16               | 32           | 9     | 1                  | 12              | 12         | 17     | 8    | 13    |
| Strong increase                    | 0                | 0            | 0     | 0                  | 1               | 0          | 1      | 3    | 0     |
| <b>Availability of supplies</b>    |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease                    | 0                | 0            | 2     | 0                  | 1               | 1          | 0      | 0    | 1     |
| Moderate decrease                  | 5                | 40           | 10    | 0                  | 0               | 7          | 3      | 0    | 6     |
| Unchanged                          | 95               | 52           | 70    | 88                 | 96              | 84         | 91     | 95   | 84    |
| Moderate increase                  | 0                | 9            | 16    | 12                 | 2               | 7          | 4      | 4    | 6     |
| Strong increase                    | 0                | 0            | 2     | 0                  | 1               | 1          | 2      | 1    | 1     |

Note: Weights based on firm population

Some companies, however, felt that while credit was available, the conditions, such as interest rates and other contractual terms were too onerous. This problem was mainly concentrated in the trade sector and industry.<sup>9</sup> In addition, the higher cost of external finance seems to affect small firms slightly more than it does to larger ones. With Maltese SMEs being heavily reliant on bank financing, onerous contractual terms could hinder their ability to grow. This is in line with studies that show that SMEs usually have a harder time obtaining credit from banks than larger firms, mainly owing to their inability to provide high quality collateral

<sup>9</sup> This finding is consistent with other surveys that show that bank credit to domestic firms is available but interest rates charged, especially for businesses, are high compared with those in other euro area economies. See the European Commission's Survey on Access to Finance for Enterprises (SAFE). Similarly, the relatively high interest rate on loans to businesses in Malta was emphasised by Bonnici (2013).

and to the lack of relevant information on their creditworthiness.<sup>10</sup> Of course, these difficulties could be more pronounced for micro companies, which are not covered by this survey.

**Table 4: Access and cost of external finance (%)**

|  | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|--|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|  | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Credit was not available to finance working capital</b>                             |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 85               | 61           | 90    | 93                 | 83              | 81         | 98     | 89   | 84    |
| Of little relevance  | 1                | 0            | 7     | 0                  | 11              | 8          | 1      | 9    | 7     |
| Relevant or very relevant  | 14               | 39           | 3     | 7                  | 6               | 11         | 0      | 2    | 9     |
| <b>Credit was not available to finance new investment</b>                              |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 99               | 93           | 96    | 93                 | 84              | 90         | 94     | 90   | 91    |
| Of little relevance  | 1                | 7            | 4     | 0                  | 11              | 7          | 5      | 9    | 7     |
| Relevant or very relevant  | 0                | 0            | 0     | 7                  | 5               | 3          | 0      | 0    | 3     |
| <b>Credit was not available to roll-over debt</b>                                      |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 98               | 54           | 97    | 99                 | 84              | 87         | 95     | 93   | 88    |
| Of little relevance  | 2                | 7            | 3     | 1                  | 11              | 7          | 5      | 7    | 7     |
| Relevant or very relevant  | 0                | 39           | 0     | 0                  | 4               | 6          | 0      | 0    | 5     |
| <b>Credit was available to finance working capital but conditions were too onerous</b> |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 83               | 59           | 72    | 93                 | 85              | 78         | 86     | 85   | 80    |
| Of little relevance  | 3                | 41           | 14    | 5                  | 9               | 12         | 7      | 15   | 11    |
| Relevant or very relevant  | 14               | 0            | 14    | 1                  | 6               | 10         | 8      | 0    | 8     |
| <b>Credit was available to finance new investment but conditions were too onerous</b>  |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 83               | 59           | 73    | 93                 | 86              | 78         | 88     | 91   | 80    |
| Of little relevance  | 3                | 41           | 15    | 5                  | 8               | 13         | 4      | 7    | 11    |
| Relevant or very relevant  | 14               | 0            | 12    | 1                  | 7               | 9          | 8      | 1    | 9     |
| <b>Credit was available to roll-over debt but conditions were too onerous</b>          |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 97               | 59           | 75    | 99                 | 87              | 81         | 96     | 93   | 84    |
| Of little relevance  | 3                | 41           | 14    | 1                  | 8               | 13         | 4      | 7    | 11    |
| Relevant or very relevant  | 0                | 0            | 10    | 0                  | 5               | 6          | 0      | 0    | 5     |

*Note: Weights based on firm population*

## 4.2. Changes in the cost structure

All sectors reported an increase in total costs, with 77% of firms reporting a “moderate increase” and another 11% a “strong increase” (see Table 5). Looking in more detail at cost components, the rise in total costs was mainly driven by labour and cost of supplies. The increase in labour costs was broad based across sectors and firm sizes. The rise in cost of supplies was also spread across sectors, though perhaps slightly more pronounced in industry and trade, whereas around 40% of firms in construction reported a moderate drop in supply costs. In terms of size classes, the increase in the cost of supplies was more marked in larger firms compared to small and medium sized ones.

<sup>10</sup> See, for instance, Ayadi and Gadi (2013).

**Table 5: Evolution of cost components (%)**

|                         | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|-------------------------|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|                         | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Total costs</b>      |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 1                | 0            | 0     | 0                  | 4               | 2          | 1      | 0    | 2     |
| Moderate decrease       | 8                | 0            | 7     | 0                  | 1               | 2          | 9      | 5    | 3     |
| Unchanged               | 1                | 1            | 8     | 10                 | 9               | 8          | 4      | 1    | 7     |
| Moderate increase       | 63               | 89           | 75    | 77                 | 81              | 78         | 74     | 71   | 77    |
| Strong increase         | 26               | 10           | 10    | 13                 | 7               | 10         | 12     | 23   | 11    |
| <b>Labour costs</b>     |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 2                | 0            | 0     | 0                  | 4               | 2          | 2      | 0    | 2     |
| Moderate decrease       | 7                | 0            | 11    | 1                  | 1               | 4          | 6      | 5    | 4     |
| Unchanged               | 0                | 0            | 18    | 0                  | 5               | 9          | 2      | 0    | 7     |
| Moderate increase       | 88               | 90           | 41    | 49                 | 75              | 67         | 68     | 73   | 67    |
| Strong increase         | 3                | 10           | 30    | 49                 | 16              | 19         | 21     | 22   | 19    |
| <b>Financing costs</b>  |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 0                | 0            | 0     | 0                  | 1               | 1          | 0      | 0    | 1     |
| Moderate decrease       | 15               | 0            | 7     | 10                 | 12              | 8          | 18     | 19   | 10    |
| Unchanged               | 61               | 59           | 39    | 68                 | 48              | 49         | 49     | 58   | 49    |
| Moderate increase       | 22               | 41           | 42    | 14                 | 37              | 38         | 30     | 19   | 35    |
| Strong increase         | 2                | 0            | 12    | 8                  | 1               | 5          | 3      | 5    | 4     |
| <b>Cost of supplies</b> |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Moderate decrease       | 8                | 40           | 3     | 2                  | 8               | 9          | 7      | 7    | 9     |
| Unchanged               | 14               | 7            | 27    | 42                 | 32              | 27         | 30     | 14   | 27    |
| Moderate increase       | 68               | 45           | 61    | 54                 | 58              | 59         | 59     | 63   | 59    |
| Strong increase         | 10               | 8            | 9     | 1                  | 2               | 5          | 4      | 16   | 6     |
| <b>Other costs</b>      |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 4    | 0     |
| Moderate decrease       | 2                | 0            | 0     | 0                  | 2               | 1          | 1      | 0    | 1     |
| Unchanged               | 73               | 100          | 96    | 79                 | 82              | 88         | 80     | 68   | 86    |
| Moderate increase       | 23               | 0            | 4     | 11                 | 13              | 11         | 12     | 15   | 11    |
| Strong increase         | 2                | 0            | 0     | 10                 | 3               | 0          | 7      | 13   | 2     |

*Note: Weights based on firm population*

Developments in financing costs were more balanced, with around 50% of firms reporting these unchanged. However, 40% of firms stated that financing costs had increased, whereas only 11% reported a decline. The increase in financing costs was especially pronounced in construction, trade and other market services, whereas between 10% and 15% of firms in the financial sector and industry benefitted from lower costs. Financing costs also differed according to the size of the firm, with a larger percentage of small firms reporting an increase in financing costs compared to medium and large ones. Overall, this result supports the findings of Micallef and Gauci (2014) that had pointed towards an impaired transmission mechanism of policy rates to domestic bank lending rates, especially for non-financial corporations.

Turning more specifically to labour costs, the large majority of companies reported a rise in base wages (see Table 6). This is in line with our expectations given the institutional features

of the domestic labour market, where wages are partly adjusted to past inflation through the COLA mechanism. Around 36% of firms also awarded increases in flexible wage components, such as bonuses or fringe benefits, with this form of compensation being especially prevalent in the financial sector.

The increase in labour costs also reflects the growth in employment. Around 43% of firms stated that higher labour costs were due to a rise in the number of permanent employees, while 23% reported additional temporary or fixed-term employees. On balance, all sectors reported an increase in permanent employment with the exception of industry, where close to 40% of firms reported a decline in the number of permanent workers. The decline in employment in industry is a long-term phenomenon that started before the onset of the financial crisis. On the contrary, all sectors reported on balance an increase in the number of temporary or fixed-term employees. In general, these results provide further evidence of the robust performance of the domestic labour market after the crisis, with average employment growth exceeding pre-crisis growth rates.

Hours worked per employee remained broadly unchanged during the reference period, although around 17% of firms reported a modest rise in hours. On balance, all sectors reported a net increase in hours worked with the exception of trade and industry.

Slightly more than 50% of firms reported an increase in other non-labour costs compared to labour costs (see Table 7). Companies in industry and trade were the most affected, with more than 70% experiencing a relative increase in non-labour costs, while those in other market services were the least affected by these costs. These costs are related, for instance, to utility tariffs, administrative costs, regulatory fees and consultancy services.<sup>11</sup> The breakdown by size classes suggests that larger firms were more affected by the relative increase in non-labour costs compared to smaller and medium sized firms.

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<sup>11</sup> Electricity tariffs were reduced by 25% for residential customers in 2014 while for businesses the same reduction took place in 2015 (i.e. after the survey was conducted).



**Table 6: Evolution of labour costs (%)**

|   | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|---|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|   | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Base wages or piece work rates</b>           |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 1    | 0     |
| Unchanged                                       | 11               | 32           | 11    | 4                  | 22              | 19         | 9      | 11   | 17    |
| Increased                                       | 89               | 68           | 89    | 96                 | 78              | 81         | 91     | 88   | 83    |
| <b>Flexible wage components</b>                 |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 2                | 0            | 0     | 0                  | 0               | 0          | 1      | 0    | 0     |
| Unchanged                                       | 76               | 53           | 70    | 21                 | 62              | 64         | 60     | 61   | 64    |
| Increased                                       | 22               | 47           | 30    | 79                 | 38              | 36         | 39     | 39   | 36    |
| <b>Number of permanent employees</b>            |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 38               | 2            | 5     | 1                  | 22              | 16         | 20     | 24   | 17    |
| Unchanged                                       | 45               | 40           | 39    | 35                 | 39              | 45         | 22     | 16   | 40    |
| Increased                                       | 17               | 58           | 56    | 64                 | 39              | 39         | 58     | 60   | 43    |
| <b>Number of temporary/fixed-term employees</b> |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 3                | 2            | 10    | 0                  | 15              | 11         | 4      | 10   | 10    |
| Unchanged                                       | 87               | 89           | 66    | 71                 | 57              | 69         | 64     | 41   | 67    |
| Increased                                       | 10               | 9            | 24    | 29                 | 28              | 20         | 31     | 49   | 23    |
| <b>Number of agency workers</b>                 |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 2                | 0            | 0     | 0                  | 4               | 2          | 1      | 5    | 2     |
| Unchanged                                       | 97               | 89           | 97    | 96                 | 76              | 88         | 87     | 60   | 87    |
| Increased                                       | 1                | 11           | 3     | 4                  | 20              | 10         | 12     | 35   | 11    |
| <b>Working hours per employee</b>               |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 11               | 1            | 10    | 0                  | 0               | 4          | 5      | 4    | 4     |
| Unchanged                                       | 78               | 58           | 82    | 84                 | 78              | 79         | 72     | 78   | 78    |
| Increased                                       | 11               | 42           | 8     | 16                 | 22              | 17         | 23     | 18   | 18    |
| <b>Other components of labour costs</b>         |                  |              |       |                    |                 |            |        |      |       |
| Decreased                                       | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Unchanged                                       | 94               | 100          | 100   | 89                 | 96              | 97         | 93     | 94   | 97    |
| Increased                                       | 6                | 0            | 0     | 11                 | 4               | 3          | 7      | 6    | 3     |

*Note: Weights based on firm population*

Increases in costs, however, were matched or even exceeded by gains in labour productivity. Around 25% of firms reported that growth in productivity per employee exceeded labour costs, with the improvement in productivity being especially pronounced in industry, the financial sector and, to a lesser extent, other market services. Medium and large firms benefited slightly more from the increase in productivity compared to smaller companies. More generally, this result is at odds with official statistics that point to a sharp deterioration in labour productivity after the crisis. This could be, to a certain extent, the result of the difficulty of accurately measuring output in an increasingly service-oriented economy. However, it could also be affected by the fact that, by construction, micro enterprises, which generally exhibit lower productivity levels compared to larger firms, are excluded from the survey.

Around 35% of companies have also registered a moderate increase in their profit margins due to a rise in the prices for their products compared to total costs. There were, however,

significant differences across sectors, with the largest increases being concentrated in the trade sector. On the contrary, around 55% of firms in industry and 45% in the financial sector registered a moderate decline in prices compared to total costs since 2010.

**Table 7: Prices, costs and productivity (%)**

|  | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|--|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|  | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Average productivity per employee (compared to labour costs per employee)</b> |                  |              |       |                    |                 |            |        |      |       |
| Decreased  | 6                | 8            | 9     | 4                  | 5               | 6          | 9      | 8    | 7     |
| Unchanged  | 34               | 85           | 77    | 54                 | 71              | 71         | 54     | 58   | 67    |
| Increased  | 60               | 8            | 13    | 42                 | 24              | 23         | 37     | 34   | 26    |
| <b>Prices compared to total costs</b>  |                  |              |       |                    |                 |            |        |      |       |
| Decreased  | 56               | 18           | 11    | 45                 | 11              | 19         | 22     | 21   | 20    |
| Unchanged  | 17               | 79           | 28    | 36                 | 57              | 46         | 36     | 36   | 44    |
| Increased  | 27               | 2            | 61    | 19                 | 31              | 34         | 42     | 43   | 36    |
| <b>Other non-labour costs compared to labour costs</b>                           |                  |              |       |                    |                 |            |        |      |       |
| Decreased  | 3                | 0            | 6     | 12                 | 7               | 4          | 15     | 1    | 6     |
| Unchanged  | 23               | 41           | 21    | 38                 | 57              | 43         | 36     | 22   | 41    |
| Increased  | 74               | 59           | 73    | 50                 | 36              | 53         | 49     | 77   | 53    |

*Note: Weights based on firm population*

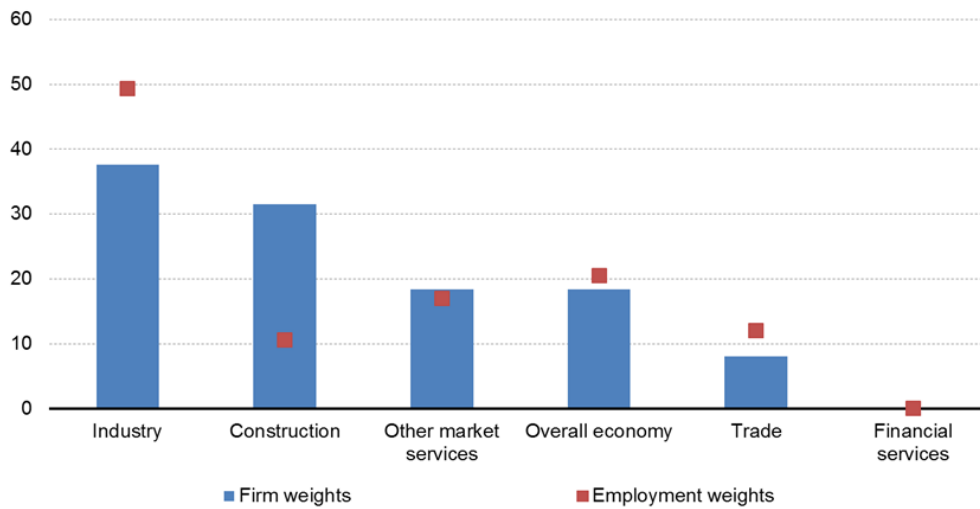
### 4.3. Methods of adjustment

Slightly less than 20% of firms stated that they needed to significantly reduce their labour input or alter its composition after the crisis (see Chart 2). This figure, however, masks significant differences across sectors, with companies in industry and construction being the most adversely affected. On the contrary, firms in the financial services sector did not need to change their labour force during this period.

Differences also depend on whether the aggregation is done using firm or employment weights. For instance, the 38% of firms that needed to adjust their workforce in industry employ slightly less than 50% of the workers in the sector, whereas in construction, the adjusting firms employed only 11% of workers, suggesting that the adjustment in this sector was mainly borne by small firms. Using employment weights, therefore, the need for adjustment was mainly concentrated in industry.

**Chart 2**  
**NEED TO SIGNIFICANTLY ADJUST LABOUR INPUT OR**  
**ALTER ITS COMPOSITION**

(percent)



In addition to these descriptive statistics, we investigate the structural factors behind firms' decisions to adjust the workforce in an empirical multivariate framework. We estimate a probit regression in which the model predicts the probability that a firm will adjust its workforce – the dependent variable being a 0-1 dummy with 1 representing those firms that had adjusted their labour force – conditional on a set of covariates that control for the firm's characteristics (e.g. sector and size), the composition of its workforce, its production technology, institutional features governing its wage setting process and the degree of competition faced in domestic and foreign markets. In a separate model, we also account, in addition to the above covariates, to the nature of shocks faced by the firms. The exact definition of the covariates is found in Appendix B. The results are presented in Table 8.

Firm size is found to influence the adjustment of the workforce, with medium and large firms less likely to adjust or significantly alter their labour input compared with smaller ones (the reference category in the regression is that of firms employing between 10 and 49 workers).

In terms of cross-sectoral differences, we find that firms in the manufacturing sector were more likely to adjust their workforce compared to other market services, which is the reference category. On the contrary, we do not find statistically significant differences between construction, trade and other market services.

Turning to the role played by the economic environment and market forces, the results suggest that firms facing competitive pressures are more likely to adjust. However, only those

firms facing strong competition in foreign markets have a statistically significant impact, while the effects are not significant for those facing domestic competitive pressures.

The institutional environment and the composition of the labour force are also found to play an important role. The presence of collective pay agreements makes it more likely for a firm to adjust its workforce, a result that could be influenced by the predominance of trade union membership in the manufacturing sector. Similarly, firms with a higher share of low skilled workers are more likely to adjust. On the contrary, firms facing skill shortages are less likely to adjust their workforce. This could be due, for instance, to the fact that the sectors in which skill shortages are more prevalent were expanding during this period or, even if not, these firms could choose to retain labour in response to shocks, especially if deemed temporary, to avoid recruitment and training costs when conditions return to normality. Firms' cost structure and the flexibility of its cost structure, proxied by the share of labour in total costs and the share of bonuses in the total wage bill, respectively, do not have a statistically significant effect on labour force adjustment.

The second column in Table 8 accounts for the nature of the shocks hitting the firms. Firms that are hit by adverse demand shocks and by a higher volatility or uncertainty associated with demand are more likely to adjust their workforce. On the contrary, the three other shocks considered – access to finance, customers' ability to pay and availability of supplies from the usual suppliers – do not have a statistically significant effect.

Interestingly, once we control for the nature of shocks, all the covariates that were significant in Model 1 retain their significance with one exception: manufacturing. Instead of cross-sectoral differences in the adjustment process, therefore, it is more likely that manufacturing firms were hit not only by adverse demand shocks during this period but also by higher uncertainty associated with demand. Heightened uncertainty could have been driven by the European sovereign debt crisis and volatility in international commodity and asset prices, such as energy prices and the exchange rate, to which the manufacturing sector is more exposed compared to other sectors.

**Table 8: Need to adjust labour input***Average Marginal Effects from Probit Regressions*

|   | (1)        | (2)       |
|---|------------|-----------|
| <b>Firm size</b>  |            |           |
| 10-49   |            |           |
| 50-199  | -0.154 **  | -0.118 *  |
| 200+  | -0.164 **  | -0.139 *  |
| <b>Sector of economic activity</b>  |            |           |
| Manufacturing   | 0.139 **   | 0.026     |
| Construction  | 0.035      | -0.061    |
| Trade   | -0.038     | -0.045    |
| Other market services   |            |           |
| <b>Competition</b>  |            |           |
| Domestic competition  | 0.079      | 0.074     |
| Foreign competition   | 0.156 ***  | 0.140 **  |
| <b>Production technology, pay structure &amp; workforce characteristics</b> |            |           |
| 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 *   |
| <b>Nature of shocks</b>   |            |           |
| 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.*

Firms may adopt various measures to adjust their workforce (see Table 9). Freezing or decreasing new hires and reduction of working hours, mostly non-subsidised, were the two most commonly used measures by industrial firms.<sup>12</sup> Only 5% of firms in industry adjusted

<sup>12</sup> The small number of observations limits the possibility of estimating separate probit models for alternative labour adjustment strategies.

their workforce through collective layoffs, whereas another 6% reduced their use of agency workers. The latter strategy was mainly pursued by large firms. Construction firms resorted mainly to freezing or reducing new hires whereas trade companies opted for a reduction in working hours and individual layoffs. Given the heterogeneity of firms in the sector, companies in other market services used a variety of measures to adjust, the most common being the non-renewal of temporary contracts at expiration, freezing or reduction of new hires, reduction in working hours and layoffs. Only very few companies, mostly large firms in manufacturing and trade, opted for early retirement schemes.

Firm size also matters for the choice of adjustment strategy. For instance, individual layoffs were more used by small firms whereas medium and larger firms availed themselves more of collective layoffs. Non-renewal of temporary contracts, reduction of agency workers and early retirement schemes were also predominantly used by large firms. On the contrary, small firms used mainly freezing or reduction of new hires, reduction of working hours and non-renewal of temporary contracts at expiration. In general, the options used by small firms point to some degree of labour hoarding, which, despite its costs, becomes an attractive human resource strategy in the context of sizeable search and training costs for experienced and skilled workers.

Firms were also asked whether labour market reforms enacted in Malta over the last few years facilitated or made more difficult the adjustment in their labour force compared to the situation in 2010 (see Table 10). Contrary to other stressed euro area economies, labour market reforms in Malta focused more on measures to attract and retain people in the labour force, with the aim of increasing the participation rate of females and older workers. Hence, more than 90% of firms reported that difficulties associated with dismissing workers, both for economic or disciplinary reasons have remained broadly unchanged.

On balance, firms consider that adjusting their workforce has become more difficult compared to the situation in 2010, possibly reflecting the buoyancy of the labour market and problems associated with skill shortages, especially in some sectors. For instance, recruiting employees is considered by 46% of firms to have become more difficult, with this problem being particularly pronounced in the financial services sector. Lowering the wages of new hires is considered to have become more difficult by 23% of firms, mostly in trade and financial services. In industry, however, 20% of firms consider that it is much less difficult to lower the wages at which they hire new workers.

**Table 9: Methods used for adjusting the labour force (%)**

|   | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|---|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|   | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Collective layoffs</b>                               |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 87               | 100          | 100   | 100                | 78              | 89         | 69     | 69   | 86    |
| Marginally  | 8                | 0            | 0     | 0                  | 12              | 6          | 21     | 19   | 8     |
| Moderately  | 0                | 0            | 0     | 0                  | 10              | 6          | 0      | 0    | 5     |
| Strongly  | 5                | 0            | 0     | 0                  | 0               | 0          | 10     | 13   | 2     |
| <b>Individual layoffs</b>                               |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 95               | 100          | 73    | 100                | 51              | 70         | 88     | 80   | 72    |
| Marginally  | 5                | 0            | 0     | 0                  | 48              | 26         | 12     | 7    | 24    |
| Moderately  | 0                | 0            | 27    | 0                  | 1               | 4          | 0      | 13   | 4     |
| Strongly  | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| <b>Subsidised reduction of working hours</b>            |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 91               | 100          | 73    | 100                | 71              | 80         | 79     | 100  | 81    |
| Marginally  | 0                | 0            | 0     | 0                  | 29              | 16         | 0      | 0    | 14    |
| Moderately  | 5                | 0            | 27    | 0                  | 0               | 4          | 12     | 0    | 5     |
| Strongly  | 4                | 0            | 0     | 0                  | 0               | 0          | 10     | 0    | 1     |
| <b>Non-subsidised reduction of working hours</b>        |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 44               | 100          | 59    | 100                | 62              | 60         | 66     | 69   | 61    |
| Marginally  | 1                | 0            | 0     | 0                  | 38              | 21         | 0      | 19   | 18    |
| Moderately  | 3                | 0            | 0     | 0                  | 0               | 0          | 5      | 13   | 1     |
| Strongly  | 52               | 0            | 41    | 0                  | 0               | 19         | 29     | 0    | 19    |
| <b>Non-renewal of temporary contracts at expiration</b> |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 93               | 100          | 100   | 100                | 51              | 76         | 85     | 20   | 75    |
| Marginally  | 4                | 0            | 0     | 0                  | 41              | 22         | 0      | 53   | 20    |
| Moderately  | 0                | 0            | 0     | 0                  | 6               | 2          | 10     | 0    | 3     |
| Strongly  | 3                | 0            | 0     | 0                  | 2               | 0          | 5      | 27   | 2     |
| <b>Early retirement schemes</b>                         |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 95               | 100          | 100   | 100                | 96              | 98         | 100    | 63   | 97    |
| Marginally  | 3                | 0            | 0     | 0                  | 0               | 0          | 0      | 19   | 1     |
| Moderately  | 2                | 0            | 0     | 0                  | 4               | 2          | 0      | 13   | 2     |
| Strongly  | 0                | 0            | 0     | 0                  | 1               | 0          | 0      | 6    | 0     |
| <b>Freeze or reduction of new hires</b>                 |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 5                | 0            | 100   | 100                | 69              | 47         | 44     | 27   | 45    |
| Marginally  | 43               | 100          | 0     | 0                  | 22              | 39         | 10     | 27   | 35    |
| Moderately  | 16               | 0            | 0     | 0                  | 5               | 5          | 17     | 33   | 7     |
| Strongly  | 36               | 0            | 0     | 0                  | 4               | 10         | 29     | 13   | 12    |
| <b>Reduction of agency workers</b>                      |                  |              |       |                    |                 |            |        |      |       |
| Not at all  | 94               | 100          | 100   | 100                | 90              | 94         | 95     | 63   | 93    |
| Marginally  | 0                | 0            | 0     | 0                  | 10              | 6          | 0      | 0    | 5     |
| Moderately  | 3                | 0            | 0     | 0                  | 1               | 0          | 5      | 19   | 1     |
| Strongly  | 3                | 0            | 0     | 0                  | 0               | 0          | 0      | 19   | 1     |

*The question was only answered by firms that have replied YES to the following question: "During 2010-2013 did you need to significantly reduce your labour input or to alter its composition?"*

*Note: Weights based on firm population*

Other measures that are deemed to have become more difficult are the adjustment of working hours and the wages of incumbent employees, faced by 17% and 16% of firms, respectively. Difficulties in adjusting working hours were primarily faced by small and medium sized firms in the services sector whereas, on the contrary, 13% of firms in industry claim that it is 'much less difficult' to adjust hours. Slightly less than 25% of firms in industry claim that it is

less difficult to move employees to other locations or across different job positions, pointing to enhanced flexibility in this sector to adjust its workforce, reflecting on-going restructuring efforts to become more competitive.

Companies could also restructure their production through out-sourcing or off-shoring. Out-sourcing is a cost saving strategy in which firms transfer part of their operations to outside suppliers rather than completing them internally (abroad in case of off-shoring). During 2010-2013, only 2% of firms have off-shored part of their operations while another 9% have considered this option. Firms that off-shored part of their operations were mostly in financial services and construction although in the case of financial firms, they only employed 2% of workers in the sector. On the contrary, around 22% of firms have out-sourced part of their operations during the reference period, with this strategy being especially used in the construction sector (55%). In the financial sector, around 18% of firms have out-sourced part of their operations representing 40% of workers.



**Table 10: Difficulties in adopting these measures compared to 2010 (%)**

|   | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|---|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|   | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>To lay off employees for economic reasons (collectively)</b> |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Less difficult  | 2                | 0            | 0     | 0                  | 0               | 0          | 3      | 0    | 0     |
| Unchanged   | 82               | 98           | 92    | 99                 | 97              | 95         | 90     | 78   | 94    |
| More difficult  | 16               | 2            | 6     | 1                  | 2               | 5          | 4      | 19   | 5     |
| Much more difficult   | 0                | 0            | 2     | 0                  | 0               | 0          | 3      | 4    | 1     |
| <b>To lay off employees for economic reasons (individually)</b> |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Less difficult  | 0                | 0            | 2     | 0                  | 0               | 1          | 1      | 1    | 1     |
| Unchanged   | 84               | 98           | 90    | 99                 | 97              | 95         | 92     | 77   | 93    |
| More difficult  | 16               | 2            | 6     | 1                  | 2               | 5          | 4      | 22   | 5     |
| Much more difficult   | 0                | 0            | 2     | 0                  | 0               | 0          | 3      | 0    | 0     |
| <b>To dismiss employees for disciplinary reasons</b>            |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Less difficult  | 2                | 0            | 0     | 0                  | 0               | 0          | 2      | 1    | 0     |
| Unchanged   | 79               | 100          | 88    | 97                 | 94              | 94         | 77     | 80   | 91    |
| More difficult  | 18               | 0            | 10    | 3                  | 5               | 5          | 18     | 19   | 8     |
| Much more difficult   | 0                | 0            | 2     | 0                  | 1               | 1          | 3      | 0    | 1     |
| <b>To hire employees</b>  |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Less difficult  | 0                | 4            | 2     | 1                  | 3               | 2          | 5      | 7    | 2     |
| Unchanged   | 50               | 54           | 53    | 19                 | 55              | 53         | 47     | 43   | 52    |
| More difficult  | 50               | 39           | 45    | 70                 | 37              | 43         | 44     | 34   | 43    |
| Much more difficult   | 0                | 3            | 0     | 10                 | 5               | 2          | 4      | 16   | 3     |
| <b>To adjust working hours</b>                                  |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 13               | 0            | 0     | 0                  | 0               | 2          | 0      | 0    | 2     |
| Less difficult  | 3                | 0            | 15    | 0                  | 9               | 8          | 10     | 6    | 8     |
| Unchanged   | 72               | 93           | 59    | 71                 | 76              | 72         | 69     | 86   | 72    |
| More difficult  | 11               | 7            | 19    | 27                 | 15              | 15         | 18     | 7    | 15    |
| Much more difficult   | 1                | 0            | 7     | 1                  | 0               | 2          | 3      | 1    | 2     |
| <b>To move employees to positions in other locations</b>        |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 20               | 0            | 0     | 0                  | 0               | 4          | 0      | 1    | 3     |
| Less difficult  | 3                | 0            | 3     | 0                  | 2               | 1          | 7      | 6    | 2     |
| Unchanged   | 73               | 100          | 83    | 100                | 90              | 89         | 78     | 83   | 87    |
| More difficult  | 4                | 0            | 14    | 0                  | 6               | 6          | 14     | 7    | 7     |
| Much more difficult   | 0                | 0            | 0     | 0                  | 2               | 1          | 0      | 2    | 1     |
| <b>To move employees across different job positions</b>         |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 20               | 0            | 0     | 0                  | 0               | 4          | 0      | 1    | 3     |
| Less difficult  | 3                | 0            | 3     | 0                  | 5               | 2          | 11     | 6    | 4     |
| Unchanged   | 57               | 98           | 74    | 100                | 93              | 85         | 76     | 77   | 84    |
| More difficult  | 19               | 2            | 23    | 0                  | 2               | 9          | 13     | 13   | 10    |
| Much more difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 2    | 0     |
| <b>To adjust wages of incumbent employees</b>                   |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Less difficult  | 0                | 0            | 0     | 0                  | 4               | 2          | 0      | 2    | 2     |
| Unchanged   | 83               | 100          | 71    | 93                 | 85              | 82         | 83     | 90   | 82    |
| More difficult  | 17               | 0            | 25    | 7                  | 11              | 15         | 14     | 5    | 15    |
| Much more difficult   | 0                | 0            | 4     | 0                  | 0               | 1          | 3      | 2    | 1     |
| <b>To lower wages at which you hire new employees</b>           |                  |              |       |                    |                 |            |        |      |       |
| Much less difficult   | 20               | 0            | 0     | 0                  | 3               | 5          | 0      | 1    | 4     |
| Less difficult  | 1                | 0            | 0     | 0                  | 7               | 4          | 2      | 1    | 3     |
| Unchanged   | 72               | 92           | 55    | 71                 | 74              | 69         | 72     | 73   | 69    |
| More difficult  | 5                | 2            | 26    | 27                 | 14              | 15         | 21     | 17   | 16    |
| Much more difficult   | 2                | 7            | 19    | 1                  | 3               | 8          | 5      | 7    | 7     |

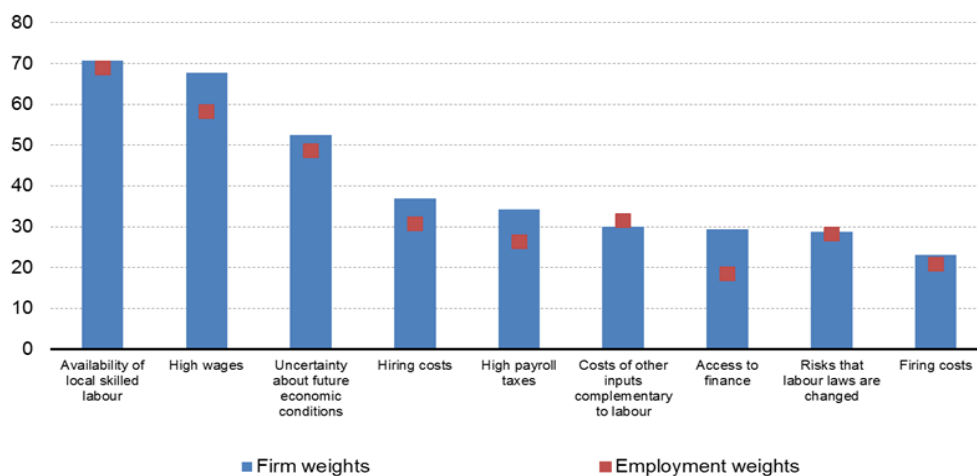
Note: Weights based on firm population

## 4.4. Hiring and wage-setting

### 4.4.1. Main obstacles for hiring

Firms were asked to determine the main obstacles they faced when hiring workers on a permanent, open-ended contract (see Chart 3 and Table 11). The availability of skilled labour was the most relevant factor, with around 70% of firms considering labour shortages as “relevant” or “very relevant”. This finding is in line with conclusions in the National Employment Policy published in 2014, which identified the mismatch between demand and supply of skills as one of the main challenges facing the Maltese labour market.<sup>13</sup> Shortages of skilled labour are especially prevalent in the services sector but also in industry, especially as firms in this sector move to higher value-added activities. Other important factors that employers consider when hiring staff are wages and future economic uncertainty, with 68% and 53% of firms, respectively, regarding these two factors as “relevant” or “very relevant”. In contrast, most firms do not consider access to finance as a relevant factor in hiring workers, with a further 23% claiming that it is only of little relevance. There are, however, indications that small firms face more difficulties in accessing finance compared with larger companies: 33% of small firms claim that access to finance is a ‘relevant’ or ‘very relevant’ obstacle for them to hire workers compared to 18% for medium sized firms and 8% of large firms.

**Chart 3**  
**RELEVANCE OF FACTORS TO HIRE WORKERS WITH A PERMANENT OPEN-ENDED CONTRACT**  
(percent of firms responding 'Relevant' and 'Very relevant')



<sup>13</sup> Further details on the National Employment Policy can be found at: <http://education.gov.mt/employment/Documents/EMPLOYMENT%20POLICY%20DOC%20sml.pdf>

**Table 11: Obstacles to hire workers with a permanent open-ended contract (%)**

|  | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|--|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|  | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Uncertainty about economic conditions</b>         |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 33               | 42           | 23    | 47                 | 39              | 35         | 29     | 41   | 34    |
| Of little relevance                                  | 9                | 0            | 18    | 38                 | 11              | 12         | 18     | 21   | 13    |
| Relevant   | 52               | 19           | 57    | 14                 | 42              | 46         | 40     | 29   | 45    |
| Very relevant  | 6                | 38           | 2     | 0                  | 8               | 7          | 12     | 9    | 8     |
| <b>Availability of local skilled labour</b>          |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 32               | 40           | 15    | 11                 | 10              | 16         | 18     | 16   | 16    |
| Of little relevance                                  | 3                | 32           | 9     | 7                  | 16              | 13         | 12     | 11   | 13    |
| Relevant   | 35               | 11           | 59    | 42                 | 33              | 38         | 43     | 48   | 39    |
| Very relevant  | 30               | 18           | 17    | 41                 | 41              | 33         | 27     | 26   | 31    |
| <b>Access to finance</b>                             |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 61               | 52           | 37    | 60                 | 47              | 46         | 51     | 66   | 47    |
| Of little relevance                                  | 24               | 10           | 24    | 15                 | 26              | 21         | 31     | 25   | 23    |
| Relevant   | 13               | 32           | 38    | 14                 | 26              | 31         | 15     | 8    | 27    |
| Very relevant  | 1                | 7            | 1     | 10                 | 1               | 2          | 3      | 0    | 2     |
| <b>Firing costs</b>                                  |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 70               | 50           | 42    | 60                 | 52              | 52         | 49     | 67   | 52    |
| Of little relevance                                  | 21               | 1            | 33    | 26                 | 24              | 24         | 31     | 18   | 25    |
| Relevant   | 1                | 18           | 21    | 14                 | 19              | 18         | 14     | 13   | 17    |
| Very relevant  | 8                | 32           | 3     | 0                  | 4               | 6          | 6      | 1    | 6     |
| <b>Hiring costs</b>                                  |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 39               | 47           | 42    | 32                 | 44              | 42         | 42     | 54   | 43    |
| Of little relevance                                  | 37               | 3            | 20    | 12                 | 19              | 19         | 24     | 21   | 20    |
| Relevant   | 20               | 50           | 36    | 48                 | 24              | 30         | 29     | 25   | 30    |
| Very relevant  | 3                | 0            | 1     | 8                  | 13              | 8          | 5      | 0    | 7     |
| <b>High payroll taxes</b>                            |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 70               | 12           | 31    | 49                 | 44              | 39         | 50     | 70   | 42    |
| Of little relevance                                  | 12               | 39           | 17    | 32                 | 28              | 23         | 29     | 17   | 24    |
| Relevant   | 13               | 42           | 51    | 19                 | 24              | 34         | 20     | 13   | 31    |
| Very relevant  | 5                | 7            | 1     | 0                  | 4               | 4          | 1      | 0    | 3     |
| <b>High wages</b>                                    |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 44               | 3            | 14    | 22                 | 14              | 15         | 27     | 27   | 18    |
| Of little relevance                                  | 23               | 2            | 3     | 15                 | 20              | 14         | 17     | 21   | 14    |
| Relevant   | 28               | 88           | 81    | 45                 | 43              | 57         | 43     | 49   | 55    |
| Very relevant  | 6                | 7            | 3     | 18                 | 22              | 14         | 12     | 2    | 13    |
| <b>Risks that labour laws are changed</b>            |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 41               | 45           | 25    | 54                 | 34              | 32         | 38     | 64   | 34    |
| Of little relevance                                  | 23               | 32           | 33    | 38                 | 44              | 38         | 36     | 20   | 37    |
| Relevant   | 25               | 22           | 38    | 8                  | 18              | 26         | 19     | 11   | 24    |
| Very relevant  | 11               | 2            | 3     | 0                  | 4               | 4          | 7      | 5    | 5     |
| <b>Costs of other inputs complementary to labour</b> |                  |              |       |                    |                 |            |        |      |       |
| Not relevant   | 52               | 42           | 30    | 46                 | 38              | 37         | 44     | 51   | 38    |
| Of little relevance                                  | 15               | 35           | 31    | 40                 | 36              | 33         | 27     | 24   | 32    |
| Relevant   | 29               | 22           | 36    | 14                 | 23              | 28         | 27     | 17   | 27    |
| Very relevant  | 3                | 0            | 3     | 0                  | 3               | 3          | 2      | 7    | 3     |

Note: Weights based on firm population

#### 4.4.2. Labour costs of newly hired employees

In a separate question, employers 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 (see Table 12). In addition, firms were requested to compare the situation during

2010-2013 with that prevailing before 2010. 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.

**Table 12: Labour costs of newly hired workers compared to incumbents (%)**

|                         | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|-------------------------|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|                         | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Before 2010</b>      |                  |              |       |                    |                 |            |        |      |       |
| Much lower              | 0                | 2            | 0     | 0                  | 1               | 0          | 0      | 5    | 1     |
| Lower                   | 10               | 7            | 43    | 25                 | 14              | 22         | 15     | 13   | 21    |
| Similar                 | 89               | 91           | 55    | 61                 | 77              | 72         | 79     | 75   | 73    |
| Higher                  | 2                | 0            | 2     | 2                  | 8               | 4          | 3      | 7    | 4     |
| Much higher             | 0                | 0            | 0     | 11                 | 1               | 1          | 2      | 0    | 1     |
| <b>During 2010-2013</b> |                  |              |       |                    |                 |            |        |      |       |
| Much lower              | 0                | 2            | 0     | 0                  | 0               | 0          | 0      | 5    | 0     |
| Lower                   | 12               | 7            | 29    | 11                 | 10              | 14         | 18     | 18   | 15    |
| Similar                 | 85               | 89           | 59    | 65                 | 74              | 74         | 68     | 59   | 72    |
| Higher                  | 3                | 2            | 12    | 13                 | 14              | 11         | 11     | 18   | 11    |
| Much higher             | 0                | 0            | 0     | 11                 | 2               | 1          | 2      | 0    | 1     |

*Note: Weights based on firm population*

Given its policy relevance, we investigate in more-detail the factors behind the decision to award higher wages to new employees in a multivariate framework. As in the econometric exercise in Section 4.3., the analysis is conducted using a probit model in which the dependent variable consist of a 0-1 dummy taking the value of 1 if the wages for new employees are 'higher' or 'much higher' compared to incumbents. As in Galuscak et al (2010), we use three broad groups of covariates that represent factors related to the firm (e.g. size and sector), the characteristics of the workforce (e.g. tenure, skill composition, workforce turnover, percentage of temporary employees, extent of variable pay and collective bargaining) and the structure of the product market in which the firm operates (e.g. competitive pressures and exposure to foreign markets). The results are presented in Table 13.

**Table 13: Higher wages for newly hired employees***Average Marginal Effects from Probit Regression*

| <b>Firm size</b>                         |           |
|--|-----------|
| 10-49 (Reference group)                  |           |
| 50 - 199                                 | -0.046    |
| 200+                                     | 0.029     |
| <b>Sector of economic activity</b>       |           |
| Manufacturing (Reference group)          |           |
| Construction                             | 0.119     |
| Trade                                    | 0.225 *   |
| Other services                           | 0.179 *   |
| <b>Structure of product market</b>       |           |
| Domestic competition                     | 0.075     |
| Share of foreign sales                   | 0.057     |
| <b>Pay structure</b>                     |           |
| Collective bargaining                    | 0.012     |
| Flexible wage component                  | 1.055 *** |
| <b>Workforce characteristics</b>         |           |
| Skill shortage                           | 0.191 *** |
| Workforce turnover                       | 0.532 *** |
| Share of high skilled non-manual workers | 0.007     |
| Share of low skilled manual workers      | -0.078    |
| Share of temporary contracts             | 0.191     |
| Tenure: Less than 1 year                 | -0.148    |
| Observations                             | 178       |
| Pseudo R2                                | 0.2374    |

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

The dependent variable is a 0-1 dummy that takes the value of 1 if wages for new employees between 2010-2013 are 'higher' or 'much higher' compared to incumbents

The results confirm that firms in the services sector are more likely to offer higher wages to new employees compared to those in manufacturing (the reference group). On the contrary, differences owing to size classes are not statistically significant.

Regression analysis shows that higher wages for new employees are more likely to be awarded in firms facing skill shortages and high workforce turnover, defined as strong worker flows due to exits. The pay structure also matters, as firms with more flexible wage com-

ponents, are more likely to offer higher wages in order to attract talent. The effects of the other covariates, such as those pertaining to the structure of the product market, the presence of collective bargaining and the characteristics of the workforce, do not play a statistically significant role.

#### **4.4.3. Collective bargaining and wage setting**

As already stated in the introduction, wage bargaining in Malta takes place at firm level and almost all firms stated that changes occurred annually. This is not surprising given the obligation to implement the statutory COLA mechanism. COLA also imply that all firms adapt, at least partially, changes in base wages to inflation and that, during the reference period, wages were neither frozen nor cut. As expected, therefore, the partial indexation mechanism leads to a high degree of downward wage rigidity in Malta, even by European standards.

In terms of collective bargaining, the survey results suggest that around 23% of employees were covered by a collective pay agreement in 2013.<sup>14</sup> This represents a significant decline from the previous WDN survey, which had reported coverage at around 29% in 2008. This is in line with the decline in trade union membership in recent decades. For instance, Baldacchino and Gatt (2009) finds that the proportion of private sector employees covered by collective agreements declined from almost 33% in 1995 to 27% in 2008. At a sectoral level, the employees covered by a collective agreement are mainly concentrated in manufacturing and financial services.

Firms were asked to assess the relevance of a number of factors which they consider when setting wages (see Table 14). More than 80% of respondents identified workers' productivity, the market wage and the firm's profitability as a "relevant" or "very relevant" consideration in the wage-setting process. Difficulties to attract employees are also high on employers' agenda, being mentioned by more than 70% of companies. Other considerations, such as changes in prices, the state of the domestic economy, the cost-of-living and the workforce turnover rate were deemed to be less relevant. While most of these factors are broad-based across sectors, some sectoral patterns are identifiable. For instance, changes in prices of products or services are relatively more important for firms in construction and industry, whereas difficulties to attract employees are relatively more relevant to companies in the services sector, especially other market services, which include high-value added industries such as remote gaming and ICT, and the financial sector. Wage setting decisions in the financial sector are also not very much affected by the general state of the economy and

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<sup>14</sup> Using employment weights.

changes in the prices of products or services, whereas the firm's profitability, productivity and the market wage rate assume a more prominent role. Considerations about job turnover are relatively more relevant for companies in other market services.

**Table 14: Relevance for wage setting decisions (%)**

|   | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|---|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|   | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Profitability</b>                            |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 3                | 8            | 9     | 17                 | 6               | 5          | 13     | 6    | 7     |
| Of little relevance                             | 3                | 1            | 18    | 13                 | 13              | 13         | 9      | 11   | 12    |
| Relevant  | 51               | 87           | 51    | 30                 | 50              | 54         | 47     | 41   | 52    |
| Very relevant                                   | 43               | 5            | 22    | 40                 | 30              | 28         | 30     | 42   | 29    |
| <b>Workers' productivity</b>                    |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 2                | 0            | 2     | 26                 | 10              | 5          | 14     | 10   | 7     |
| Of little relevance                             | 2                | 0            | 16    | 8                  | 3               | 7          | 3      | 13   | 6     |
| Relevant  | 67               | 49           | 57    | 39                 | 58              | 60         | 46     | 49   | 57    |
| Very relevant                                   | 29               | 51           | 25    | 28                 | 30              | 28         | 37     | 28   | 30    |
| <b>Workforce turnover rate</b>                  |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 20               | 42           | 27    | 47                 | 23              | 28         | 17     | 29   | 26    |
| Of little relevance                             | 38               | 39           | 33    | 22                 | 22              | 29         | 25     | 21   | 28    |
| Relevant  | 41               | 18           | 40    | 31                 | 45              | 38         | 51     | 50   | 41    |
| Very relevant                                   | 2                | 0            | 0     | 0                  | 10              | 5          | 6      | 0    | 5     |
| <b>Cost of living</b>                           |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 22               | 42           | 11    | 35                 | 20              | 19         | 25     | 33   | 20    |
| Of little relevance                             | 48               | 33           | 15    | 33                 | 31              | 29         | 32     | 16   | 29    |
| Relevant  | 28               | 25           | 71    | 32                 | 37              | 44         | 40     | 46   | 44    |
| Very relevant                                   | 3                | 0            | 3     | 0                  | 12              | 8          | 3      | 5    | 7     |
| <b>Market wage rate</b>                         |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 18               | 0            | 3     | 2                  | 6               | 5          | 12     | 7    | 6     |
| Of little relevance                             | 5                | 0            | 25    | 20                 | 8               | 13         | 7      | 4    | 12    |
| Relevant  | 70               | 86           | 54    | 68                 | 60              | 64         | 49     | 63   | 62    |
| Very relevant                                   | 7                | 14           | 19    | 10                 | 26              | 17         | 31     | 27   | 20    |
| <b>General state of the economy</b>             |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 11               | 8            | 3     | 24                 | 15              | 9          | 20     | 25   | 11    |
| Of little relevance                             | 28               | 41           | 28    | 39                 | 38              | 35         | 30     | 36   | 34    |
| Relevant  | 53               | 52           | 66    | 34                 | 41              | 53         | 40     | 30   | 50    |
| Very relevant                                   | 8                | 0            | 3     | 3                  | 5               | 3          | 10     | 10   | 5     |
| <b>Changes in the price of product/services</b> |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 22               | 11           | 23    | 52                 | 19              | 19         | 34     | 33   | 22    |
| Of little relevance                             | 4                | 0            | 23    | 26                 | 30              | 22         | 27     | 21   | 22    |
| Relevant  | 59               | 89           | 49    | 19                 | 46              | 55         | 31     | 39   | 50    |
| Very relevant                                   | 15               | 0            | 4     | 3                  | 4               | 5          | 8      | 7    | 6     |
| <b>Difficulty to attract employees</b>          |                  |              |       |                    |                 |            |        |      |       |
| Not relevant                                    | 42               | 41           | 9     | 13                 | 4               | 14         | 18     | 6    | 14    |
| Of little relevance                             | 17               | 33           | 18    | 18                 | 9               | 15         | 13     | 12   | 15    |
| Relevant  | 32               | 12           | 56    | 33                 | 54              | 47         | 48     | 65   | 48    |
| Very relevant                                   | 8                | 14           | 18    | 36                 | 32              | 25         | 22     | 16   | 24    |

Note: Weights based on firm population

## 5. Price setting and price changes

Price-setting behaviour in Malta varies on whether the main market served by the firm is domestic or international (see Chart 4). Overall, around 60% of sales were oriented to the domestic market, with the remaining 40% taking place abroad. There are, of course, wide differences across sectors. For instance, firms in construction, trade and, to a lesser extent, finance, are predominantly domestically-oriented. In other market services, sales are broadly split between the domestic and the foreign market while around 70% of sales in industry are generated abroad.

With regard to pricing in the domestic market, the most common strategy, pursued by around 40% of firms, is to set prices according to costs and a self-determined profit margin. This strategy is especially common in construction and trade, with more than half the firms using this pricing approach. Another 23% set prices following their main competitors while 22% negotiate their prices with individual customers.<sup>15</sup>

Compared to the domestic market, the share of firms that set prices as a mark-up over costs drops to 22% in the foreign market. In addition, another 22% of firms are not autonomous in setting their prices abroad, mostly because prices are set either by the parent company or by the main customers. This practice is especially common in industry. Negotiating the price with individual customers is the most common pricing approach in foreign markets, adopted by 36% of firms. This pricing strategy is more preferred by small firms (40%) compared to medium (28%) and larger ones (26%). The remaining 17% of firms set prices in response to those of competitors.

As in the previous survey, most companies stated that they faced strong or severe competition, whereas very few declared that they faced no competition at all (see Table 15a). In addition, most companies considered that the degree of competitive price pressures had increased in the relevant market compared with the situation prevailing before 2010 (see Table 15b). This finding is in line with results of the Survey on Access to Finance (SAFE), which ranks competition as the most pressing problem facing Maltese firms in 2014.

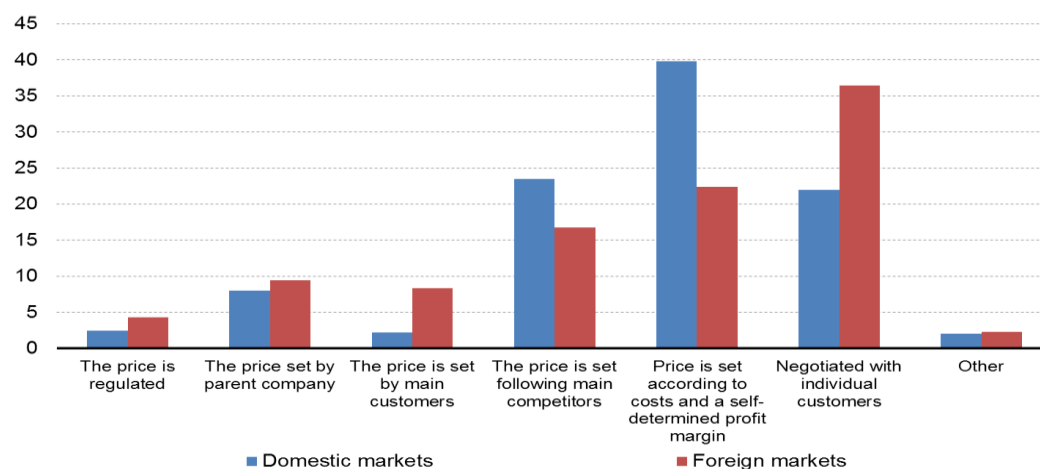
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<sup>15</sup> A direct comparison with the 2010 edition of the survey is not straightforward since the current survey makes a distinction between pricing for domestic and foreign markets. In the previous wave, setting prices as a mark-up over costs was the most commonly used pricing strategy, adopted by around 42% of firms, with following the main competitors, at 30%, being the second option.



**Chart 4**  
**PRICE SETTING BEHAVIOUR IN DOMESTIC AND FOREIGN**  
**MARKETS**

(percent)



**Table 15a: Degree of competition in domestic and foreign markets (%)**

|                         | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|-------------------------|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|                         | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Domestic markets</b> |                  |              |       |                    |                 |            |        |      |       |
| Weak                    | 2                | 0            | 0     | 1                  | 8               | 4          | 6      | 2    | 4     |
| Moderate                | 25               | 72           | 41    | 42                 | 27              | 37         | 22     | 22   | 34    |
| Severe                  | 12               | 5            | 33    | 20                 | 29              | 23         | 31     | 37   | 25    |
| Very severe             | 17               | 24           | 25    | 21                 | 25              | 24         | 24     | 20   | 24    |
| Not applicable          | 45               | 0            | 0     | 16                 | 12              | 12         | 17     | 19   | 13    |
| <b>Foreign markets</b>  |                  |              |       |                    |                 |            |        |      |       |
| Weak                    | 14               | 0            | 0     | 0                  | 2               | 3          | 5      | 9    | 3     |
| Moderate                | 0                | 3            | 4     | 33                 | 20              | 12         | 11     | 25   | 12    |
| Severe                  | 37               | 0            | 8     | 14                 | 34              | 25         | 19     | 21   | 24    |
| Very severe             | 25               | 0            | 0     | 2                  | 12              | 7          | 21     | 11   | 9     |
| Not applicable          | 24               | 97           | 87    | 50                 | 32              | 54         | 44     | 35   | 51    |

Note: Weights based on firm population

**Table 15b: Change in the degree of competition compared to before 2010 (%)**

|                         | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|-------------------------|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|                         | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| <b>Domestic markets</b> |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 0                | 0            | 0     | 0                  | 2               | 1          | 0      | 0    | 1     |
| Moderate decrease       | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 0    | 0     |
| Unchanged               | 8                | 1            | 31    | 34                 | 30              | 25         | 25     | 24   | 25    |
| Moderate increase       | 25               | 81           | 38    | 48                 | 14              | 28         | 30     | 28   | 28    |
| Strong increase         | 22               | 19           | 31    | 16                 | 38              | 32         | 27     | 30   | 31    |
| Not applicable          | 45               | 0            | 0     | 2                  | 17              | 14         | 18     | 17   | 15    |
| <b>Foreign markets</b>  |                  |              |       |                    |                 |            |        |      |       |
| Strong decrease         | 0                | 0            | 0     | 0                  | 0               | 0          | 0      | 2    | 0     |
| Moderate decrease       | 0                | 0            | 0     | 13                 | 3               | 2          | 0      | 9    | 2     |
| Unchanged               | 28               | 3            | 0     | 17                 | 15              | 13         | 9      | 16   | 12    |
| Moderate increase       | 28               | 0            | 1     | 20                 | 23              | 13         | 28     | 31   | 16    |
| Strong increase         | 20               | 0            | 9     | 1                  | 30              | 19         | 23     | 11   | 19    |
| Not applicable          | 24               | 97           | 89    | 49                 | 30              | 53         | 41     | 31   | 50    |

Note: Weights based on firm population

As expected, respondents reported a high degree of heterogeneity regarding the frequency of price setting, with sector-specific characteristics likely to play an important role (see Table 16). Overall, around 21% of firms change their prices on a regular pattern every year, while another 30% change their prices less frequently than once a year. Only slightly less than 20% change their prices more frequently than once every year, with the remaining 30% having no predefined pattern. The latter share is particularly large in industry and financial services. In the case of industry, this could be due to the prevalence of prices being set by the parent company at irregular intervals. The category other market services masks additional sectoral patterns. For instance, a significant proportion of firms in the tourism sector change prices at a high frequency, reflecting the prevalence of internet bookings for hoteliers. In terms of size categories, an interesting finding is that small firms change prices less frequently compared to medium and larger firms with a relatively larger share having no predefined pattern.

**Table 16: Frequency of price changes on a regular pattern (%)**

|   | Sector breakdown |              |       |                    |                 | Size class |        |      | Total |
|---|------------------|--------------|-------|--------------------|-----------------|------------|--------|------|-------|
|   | Industry         | Construction | Trade | Financial services | Market services | 10-49      | 50-199 | 200+ |       |
| Monthly or more frequently                | 1                | 0            | 7     | 10                 | 5               | 3          | 12     | 20   | 5     |
| Quarterly or half-yearly                  | 8                | 0            | 15    | 14                 | 18              | 14         | 14     | 15   | 14    |
| Once a year                               | 37               | 4            | 19    | 24                 | 20              | 16         | 43     | 32   | 21    |
| Between one and two years                 | 5                | 39           | 14    | 7                  | 8               | 12         | 7      | 10   | 11    |
| Less frequently than once every two years | 5                | 39           | 20    | 1                  | 22              | 24         | 1      | 6    | 19    |
| No predefined pattern                     | 44               | 18           | 25    | 44                 | 27              | 31         | 21     | 17   | 29    |

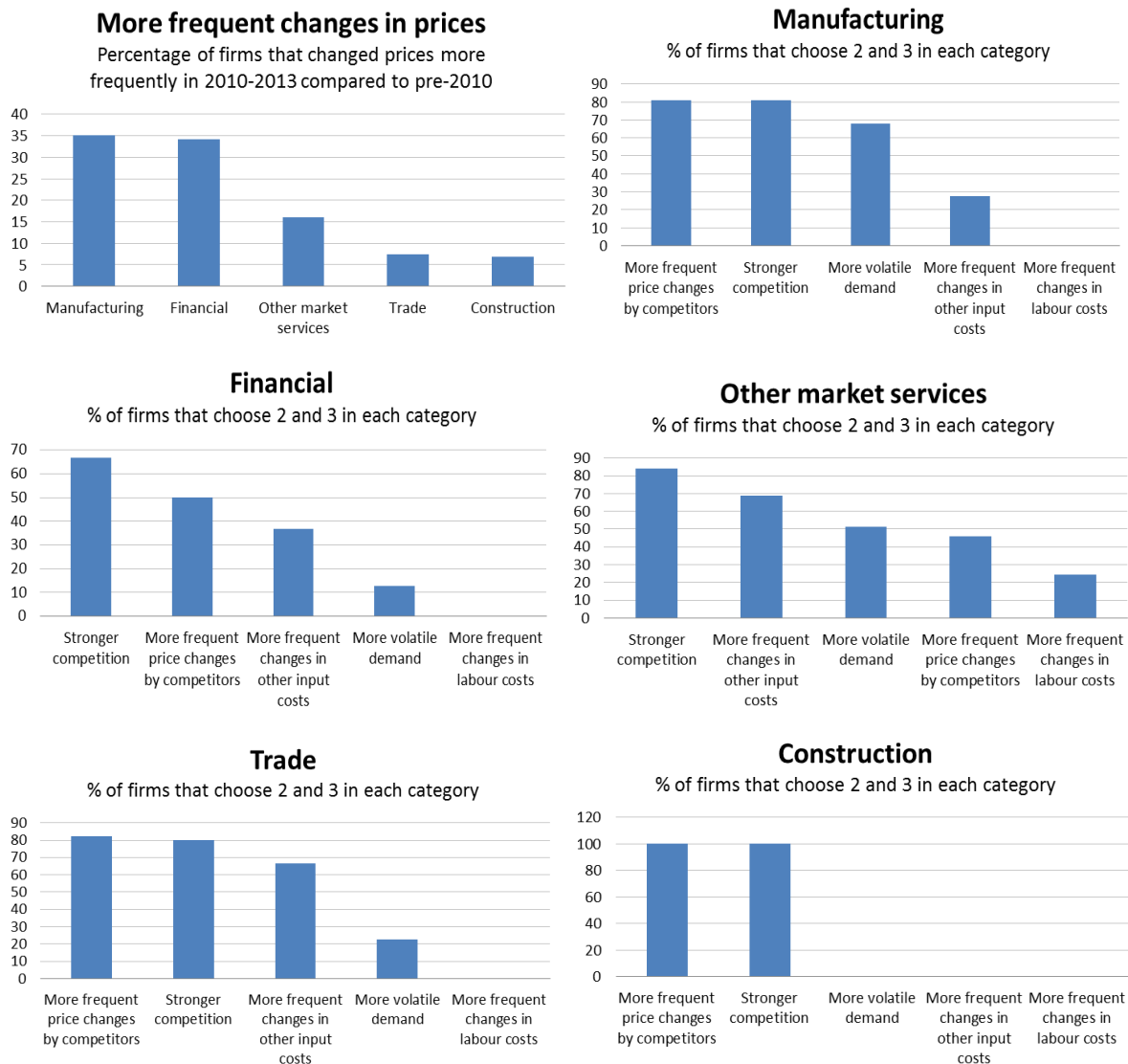
*Note: Weights based on firm population*

The survey also asked firms whether, over the period 2010-2013, they have changed the frequency of price changes with respect to the pre-2010 period (see chart 5). Slightly less than 20% of firms have increase the frequency of price changes in recent years. Around 35% of firms in manufacturing and in the financial sector reported they have increased the frequency of price changes, with another 16% in other market services and 7% in construction and trade, respectively, also increasing the frequency. Very few firms reported a reduction in the frequency of price changes.

The survey asked firms to rank, in order of importance, the reasons behind the increase in the frequency of price changes, with 0 being the least important and 3 the most important. In manufacturing, more frequent price changes by competitors and stronger competition were the two most common responses, followed by more volatile demand. In the financial sector, the main reason was stronger competitive pressures, followed by more frequent price

changes by competitors and in other input costs. The same three responses – stronger competition, more frequent price changes by competitors and more frequent changes in other inputs costs – and to a lesser extent, more volatile demand, were the most common reasons behind more frequent changes in price setting in the other sectors. Interestingly, more frequent changes in labour costs was rarely listed as an important factor, which is not surprising given that wages in Malta are mostly changed on an annual basis. This confirms the finding of the previous wave that the link between the timing of price changes with that of wage changes is not very strong in Malta.

### Chart 5: More frequent changes in prices



## 6. Conclusion

Labour market conditions in European countries have differed significantly over the last few years. A better knowledge of the key features and determinants of the wage-setting process, and of the labour market in general, is important for policy makers. From a central banking perspective, this knowledge is important to gauge the effectiveness of the monetary policy transmission process. The links between wages, prices and productivity are also key determinants of competitiveness, which is conducive to economic growth and job creation.

The WDN survey provides valuable information on the characteristics of Maltese firms' wage and price-setting behaviour, the main changes in the economic environment after the crisis and the adjustment measures adopted by firms. It allows for a deeper understanding of differences across sectors and firm size classes, facilitates the identification of trends in the labour market, such as the gradual decline in collective bargaining, and provides an alternative source of information to complement official statistics on selected labour market issues, such as differences in sectoral productivity developments and skill mismatches.

During this period, most sectors experienced a positive demand shock between 2010 and 2013, with the exceptions of industry and construction. The sector that needed to adjust its workforce the most during this period – manufacturing – did so mainly by freezing or reducing new hires and reducing working hours. This sector was hit not only by an adverse demand shock but also by higher uncertainty associated with demand. All sectors reported an increase in total costs, driven mainly by labour and the cost of supplies. In terms of labour costs, this was due to an increase in base wages and, to a lesser extent, in employment. However the increase in costs did not lead to a deterioration in price competitiveness as they were matched or even exceeded by gains in productivity.

Credit constraints were not considered to be the most pressing problem but around 40% of firms reported an increase in financing costs. The latter occurred despite the unprecedented monetary easing by the central banks. With domestic SMEs being predominantly reliant on bank financing, a more diversified mix of funding options than those currently available would represent a more sustainable financing environment for Maltese SMEs.

Wage bargaining in Malta takes place at the firm level and changes in wages generally occur on an annual basis due to COLA. The latter mechanism also implies that all firms adapt, at least partially, changes in base wages to inflation and that, during the reference period, wages were neither frozen nor cut. In terms of trade union coverage, the survey points to a reduction in the percentage of employees covered by a collective agreement compared to

the previous wave. When setting wages, the most relevant factors are profitability, productivity, the market wage rate and difficulties in attracting employees. For hiring purposes, the availability of skilled labour, the wage rate and uncertainty about economic conditions are the most important considerations.

Price-setting behaviour in Malta varies on whether the main market served by the firm is domestic or international. In the domestic market, the most common strategy is to set prices as a mark-up over costs. In international markets, negotiating the price with individual customers is the most common approach, while a significant proportion of firms are not autonomous in setting their prices, mostly because they are set either by the parent company or by the main customers. Slightly less than 20% of firms have increased the frequency of price changes in recent years, with this share being especially pronounced in industry and financial services. Stronger competition and more frequent price changes by competitors or in other input costs were the most common responses. On the contrary, more frequent changes in labour costs were rarely mentioned, which suggests that the timing between wage and price changes in Malta is not very strong.

Finally, a concern frequently expressed by employers is the availability of skilled workers. According to the survey, 70% of firms consider skill shortages as a relevant obstacle in hiring new employees. Regression analysis also shows that higher wages for new employees compared to incumbents are more likely to be awarded in firms facing skill shortages and high workforce turnover. These findings support policies that raise the workforce's skill base, not only through investment in education to improve the quality of human capital but also to strengthen active labour market policies, such as lifelong learning and adequate incentives for both employers and employees to promote the development of job-specific skills. It also calls for targeted measures, such as enhanced collaboration between academia and the business community, to ensure that the diversification of the economy's production structure does not lead to shortages in specific segments of the labour market.

The richness of the firm-level survey provides interesting avenues for further policy research. Going forward, a more empirical approach will be used to better understand the role of firm characteristics and the nature of the shocks hitting the firms on selected topics, such as the higher financing costs for domestic firms and the slowdown in productivity. In addition, the harmonized nature of the survey facilitates cross-country studies, for instance, on how the response of firms to shocks depends on the size, source and persistence of those shocks.

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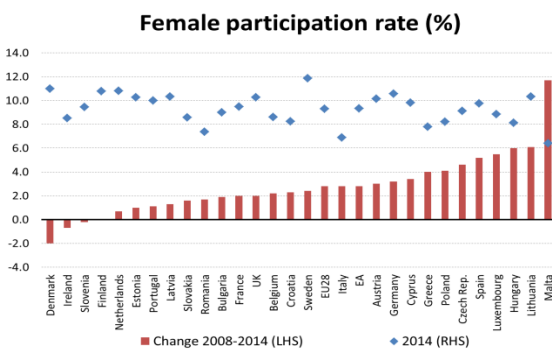
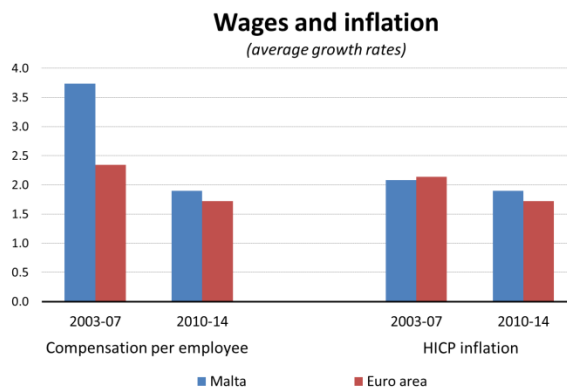
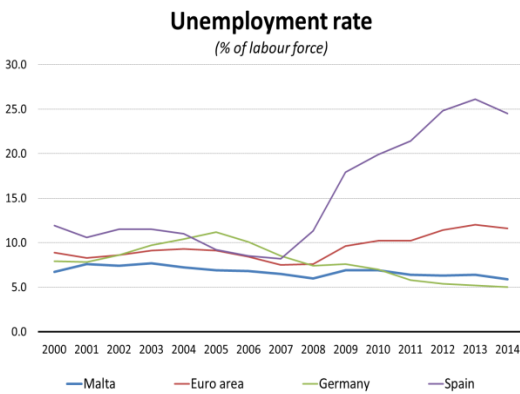
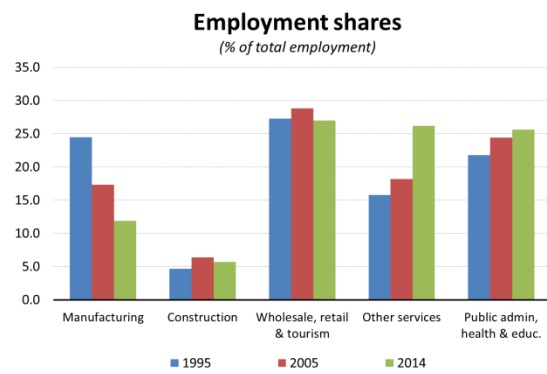
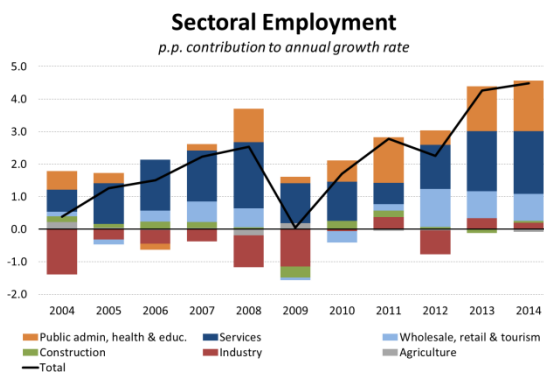
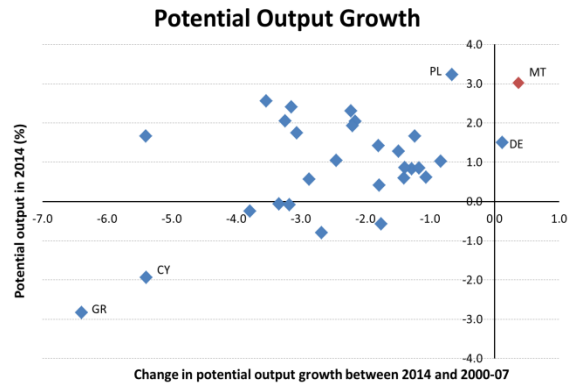
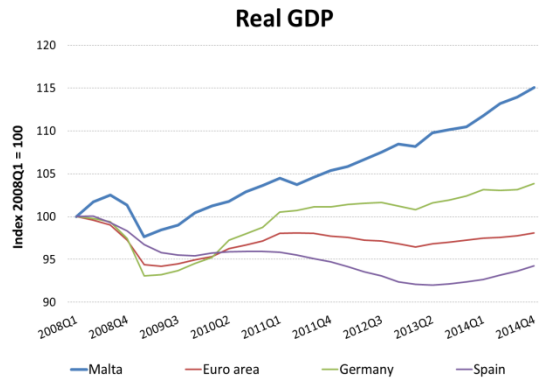
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# Appendix A: The macroeconomic environment in Malta



Source: Eurostat, AMECO, Employment and Training Corporation (ETC)

## Appendix B: 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