

Chapter 3

Developments during 2023

Unemployment and output nexus: testing Okun's law for Malta

Insights from Malta's labour productivity, unit labour costs and price developments

A model for forecasting primary fiscal revenue components

Financial Statements

**Insights from Malta's labour
productivity, unit labour costs
and price developments**

3.1 Introduction

Within the dynamic and constantly evolving realm of global macroeconomics, the intricate interplay between labour productivity, unit labour costs, and price competitiveness emerges as an important determinant of a nation's economic well-being. This Chapter explores these economic indicators within the context of Malta, an economy distinguished by a high degree of openness and which over the past decade has experienced rapid development and robust growth.

Understanding labour productivity trends is essential, as it is a cornerstone for economic development and prosperity. With its diverse economic sectors and strategic geographical location, Malta provides a compelling case study to delve into the dynamics of labour productivity, the impact of unit labour costs and the subsequent effects on price competitiveness. Indeed, in an era where nations are increasingly competing globally, examining price competitiveness becomes paramount for sustaining and enhancing market positions.

This chapter provides a comprehensive analysis of Malta's historical trends in labour productivity and unit labour costs, the resultant implications for price competitiveness and subsequently delves into the impact of other domestic effects on price pressures by looking more closely into the role of profit margins, unit labour costs and unit taxes. The chapter is structured as follows: Section 3.2 provides an in-depth analysis of historical trends and industry-specific dynamics. Moving forward, in Section 3.3 a measure is developed to assess price competitiveness vis-à-vis other countries in the euro area (EA). Section 3.4 examines the impact of unit labour costs, unit profits, and unit taxes on Malta's price developments, in relation to trends in the euro area. Finally, Section 3.5 concludes this chapter.

3.2 Historical trends in labour productivity and unit labour cost

This section offers a comprehensive overview of the historical trajectory of labour productivity, compensation per employee, and unit labour cost in Malta from 2001 to 2022. This analysis utilises national accounts data at both aggregate and sectoral levels.

3.2.1 Labour productivity

Labour productivity is quantified as the ratio of real Gross Value Added (GVA) per person employed.²² The sample period analysed captures significant changes in the sectoral production structure of the Maltese economy. Over the examined timeframe, spanning from 2001 to 2022, labour productivity in Malta grew by 34.4%. Notably, this growth was underpinned by concurrent increases in both employment and GVA. Consequently, given that productivity has generally increased year-on-year, on average, output growth has outpaced employment growth.

To facilitate a detailed examination, we segment the sample period into distinct subperiods, namely 2001-2007 (pre-financial crisis), 2008-2012 (financial crisis), 2013-2019 (post-financial crisis), and 2020-2022 (COVID-19 crisis and post-COVID-19 crisis). This segmentation aids in dissecting Malta's economic performance across different periods, offering insights into the impact of significant global events. The sectors are categorised according to the NACE Rev.2 classification. Additionally, they are grouped into primary, secondary, and tertiary sectors, providing a structured framework for understanding the sectoral dynamics underpinning Malta's economic evolution.^{23,24}

The sectoral contributions to aggregate labour productivity were derived using the generalised exactly additive decomposition (GEAD), which was first developed by Tang and Wang (2004).²⁵ The labour productivity pertaining to each sector is worked out by using the following equation:

$$Z_t = \sum \frac{P_t^i L_t^i X_t^i}{P_t L_t} = \sum p_t^i l_t^i Z_t^i$$

²² The analysis on labour productivity uses real GVA per person employed rather than real GDP per person employed as sectoral data is only available for GVA. The employment data utilised is based on the National Accounts definition.

²³ The primary sector consists of sector A. The secondary sector is comprised of sectors B to E and F while the tertiary sector consists of sectors G to I, J, K, L, M to N, O to Q and R to U. The NACE Rev.2 classification defines the sectors as follows: A: Agriculture, forestry and fishing, B-E: Mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities, C- Manufacturing, F: Construction, G-I: Wholesale and retail trade, transportation and storage, accommodation and food service activities, J: Information and communication, K: Financial and insurance activities, L: Real estate activities, M and N: Professional, scientific, technical, administration and support service activities, O-Q: Public administration, defence, education, human health and social work activities, R-U: Arts, entertainment and recreation, repair of household goods and other services.

²⁴ Sector B i.e., Mining and quarrying, should be included with the primary sector as it includes extraction of raw materials. However, sectors B to E are all included in the secondary sector and since disaggregated data is not published, sector B could not be extracted from the secondary sector and put in the primary sector.

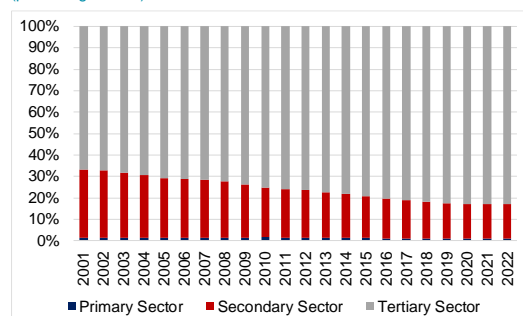
²⁵ See Tang, J., & Wang, W. "Sources of aggregate labour productivity growth in Canada and the United States". *Canadian Journal of Economics/Revue Canadienne d'économique*, 2004, 37(2), pp. 421–444.

where p_t^i is the relative price level of sector i (P_t^i) compared with the economy price level (P_t), l_t^i is the labour share of sector i (L_t^i) in total employment (L_t), X_t^i is the real value added of sector i and Z_t^i is the labour productivity of sector i .²⁶

Reallocating resources toward higher-productivity sectors has long been recognised as a key driver of overall productivity growth.²⁷ Over the past two decades, employment trends in Malta have undergone a notable shift, moving away from the primary and secondary sectors toward services-oriented sectors (tertiary). During this period, the proportion of employment in primary and secondary sectors decreased from 33.0% in 2001 to 17.0% in 2022, while the tertiary sector's share rose from 66.0% to 83.0%. The substantial growth in tertiary employment has been the main driver of overall expansion, with minimal contributions from the secondary sector. This shift is mirrored in value-added contributions, as the tertiary sector gained approximately 16.0 percentage points (pp), while the secondary sector lost 11.6 pp over the same timeframe.

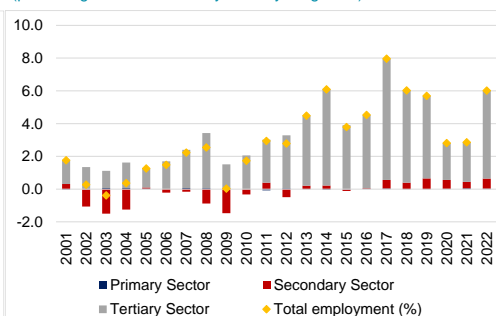
Sector's share of total employment

(percentage share)



Contributions of sectoral employment growth

(percentage contributions of year-on-year growth)



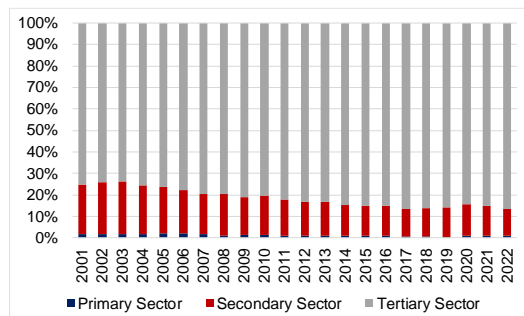
Sources: NSO & Author's calculations

²⁶ Refer to the appendix for the full derivation.

²⁷ See Baumol, W. J. "Macroeconomics of unbalanced growth: The anatomy of urban crisis". *The American Economic Review*, 1967, 57(3), pp. 415-426.

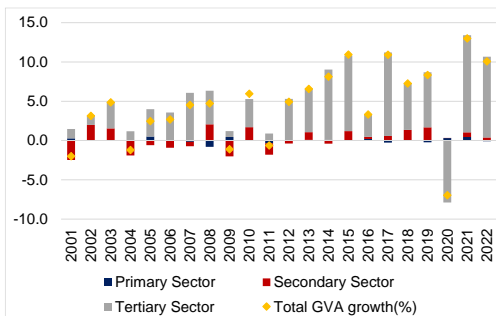
Sector's share of total GVA

(percentage share)



Contributions of sectoral GVA

(percentage contributions of year-on-year growth)



Sources: NSO & Author's calculations

In the period before the financial crisis (2001-2007), labour productivity grew at an average annual growth rate of 1.1%, with the tertiary sector being the principal contributor to growth, followed by the secondary sector. Indeed, total productivity only contracted in 2001 (-3.7%) and in 2004 (-1.6%) originating from a decrease in the manufacturing sector.²⁸ In the early 2000s, manufacturing industries underwent a technological transition amid the dot-com boom. Substantial investment in internet-based companies prompted businesses to upgrade production processes and adopt new technologies. This shift potentially caused temporary disruptions and productivity slowdowns as workers adapted to the new systems. The decline in global demand for products and services set off by the global economic downturn in 2001 triggered by the 9/11 attacks and the dot-com crash, resulted in a sharp drop in the demand for electronic components, which had a detrimental effect on Malta's manufacturing sector, resulting in lower labour productivity and decreased production.²⁹ Malta's accession to the European Union in 2004 also significantly impacted the manufacturing sector, necessitating pre- and post-accession restructuring. The opening of new markets, trade opportunities, harmonization of national legislation with EU regulations, and the cessation of government subsidies and other state aid, left Malta increasingly exposed to competition from its EU counterparts.³⁰

The second period under analysis is characterised by the effects of the global financial crisis (2008–2012) where the average annual productivity growth rate slowed down to 0.7%. This resulted from negative contributions from the secondary sector which were offset by positive contributions from the tertiary sector. Labour productivity declined in

²⁸ For the decomposition of total labour productivity growth by sector, refer to table A1 in the technical appendix.

²⁹ See Borg Caruana, J. "Developments in the manufacturing sector". 2018.

³⁰ See Grech, A.G. "The diversification of the Maltese economy". Policy note September 2015, Central Bank of Malta.

2009, mainly due to developments in the manufacturing sector, influenced by the aftermath of the financial crisis, which consequently reduced global demand. The repercussions of the financial and Eurozone sovereign debt crises in 2011 impacted trade, corporate confidence, and investment across Europe resulting in a widespread decrease in labour productivity across all sectors in Malta, with the secondary industry experiencing the largest decline (-1.4 pp). Other sectors, including 'arts, entertainment and recreation', and 'financial and insurance activities' also experienced notable reductions in productivity.

The third period, which spans from 2013 to 2019, was marked by years of robust growth following the financial crisis, with an annual average growth rate of 2.3%. During this period, the secondary sector's labour productivity contribution diminished even more as the strategic focus shifted towards delivering high-value services, leveraging technological advancements, and investing in human capital which drove productivity improvements in service-oriented industries. Sectors such as the 'professional, scientific, technical, administration and support service activities', 'wholesale and retail trade', 'transportation and storage', 'accommodation and food service activities', as well as the 'arts, entertainment, and recreation', made significant positive contributions to total productivity growth throughout these years.

The most significant decline in labour productivity occurred in 2020 reflecting the impact of the COVID-19 pandemic. A notable decrease in GVA, which was not reflected in a corresponding drop in employment, led to a sharp decline in labour productivity by 9.5%. Partial lockdowns led to business closures, constraining activity and production across various industries. Government wage support schemes, aimed at sustaining the workforce during challenging times, resulted in labour hoarding. The 'wholesale and retail trade, transportation and storage, and accommodation and food service activities' sector experienced the most substantial reduction in labour productivity (-7.5 pp).

A post-COVID-19 recovery ensued in 2021 and 2022, as pandemic-related restrictions were gradually dismantled and completely removed by mid-2022. Economic activity outpaced employment with the latter having been sustained by government wage support schemes during COVID-19. This output recovery led to labour productivity gains of 9.8% and 3.8% in 2021 and 2022, respectively. The 'wholesale and retail trade, transportation and storage, and accommodation and food service activities'

sector significantly positively contributed to labour productivity growth in both years (3.7 pp and 4.4 pp, respectively).

On the contrary, 'financial and insurance activities', 'real estate activities' and the 'arts, entertainment and recreation' sectors negatively contributed to labour productivity in 2022. Such labour productivity declines in these sectors are attributed to a more pronounced surge in employment relative to GVA within the respective sector, signalling a tight labour market, particularly attributable to the scarcity of highly skilled personnel. Even though real GVA growth outpaced employment growth in the 'public administration, defence, education, human health, and social work activities' sector, labour productivity in this sector also adversely contributed to overall labour productivity. This decrease can be attributed to a decline in this sector's relative output price and labour share from 2021 to 2022.

3.2.2 Real Compensation per employee

Real compensation per employee (CPE) represents the adjusted amount of compensation received by an employee, accounting for changes in the general price level of goods and services over time, thus reflecting the actual purchasing power of their compensation.³¹ Throughout the sample period, nominal compensation per employee has generally seen positive growth, expanding at an annual average growth rate of 3.5%, except for the anomaly in 2020 when it contracted by 2.0%. Real compensation per employee follows a similar trend but rising by a lesser extent at an annual average growth of 1.5% registering more instances of contraction also in 2004, 2005, and 2022.³²

In 2004 and 2005, real wages declined as inflation outpaced the growth in nominal compensation per employee. The secondary industry was the primary contributor to the decrease in real wages in 2004, aligning with a contraction in labour productivity. In 2005, the reduction was mainly driven by the tertiary sector (-0.8 pp), notably the 'wholesale and retail trade, transportation and storage, accommodation and food service activities' sector, followed by the secondary industry (-0.3 pp).

³¹ The private consumption deflator was used as a consumer price deflator to work out the real compensation per employee and to account for changes in the general price level.

³² For the decomposition of total real CPE by sector, refer to table A2 in the technical appendix.

In 2020, there was a 2.0% decline in nominal compensation per employee due to the economic effects of the COVID-19 pandemic. This had a notable impact on real CPE, causing it to shrink by 3.1%, despite relatively low inflation rates. The contraction in real compensation was primarily driven by negative figures across all tertiary sectors, except for the ‘public administration, defence, education, human health, and social work activities’ sector.

In 2022, inflation surged by 6.2%, while nominal CPE increased by 3.7%. This high inflation was experienced globally following the pandemic crisis. Whilst consumption patterns recovered, adjustments in production took time to unfold, and these supply constraints resulted in inflationary pressures, which were exacerbated due to the effects on international energy and commodity markets following Russia’s invasion of Ukraine in 2022.

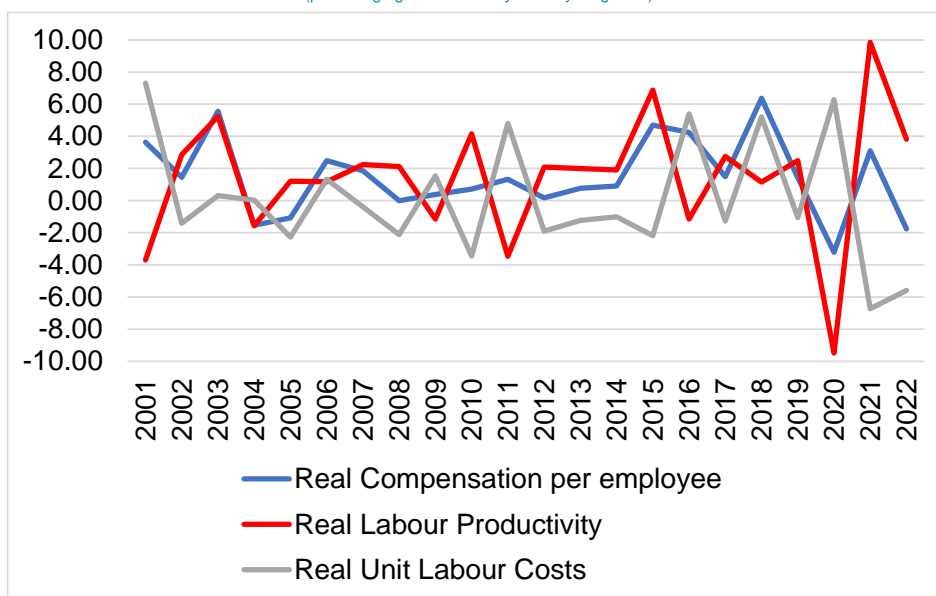
3.2.3 Real Unit labour cost

Real unit labour costs (ULC) represent the adjusted labour expenses within an economy, accounting for changes in the price level.³³ Constant increases in the yearly ULC, are typically an indication of situations whereby advancements in labour productivity do not keep pace with the rise in real CPE. Notably, during periods of declining real productivity, real ULC consistently rose. Conversely, when labour productivity growth surpasses the growth in real CPE, ULC decrease. Over the years, real ULC growth has exhibited fluctuations, mirroring changes in both real labour productivity and real CPE. The interplay of positive and negative growth rates tends to offset each other when calculating the average annual growth rate.

³³ Approximate sectoral contributions to real ULC growth are calculated as the log difference of sectoral contributions to CPE growth and sectoral contributions to aggregate productivity growth using the GEAD decomposition of labour productivity.

Development of Real CPE, Real Labour Productivity & Real ULC Growth rates (2001-2022)

(percentage growth rates of year-on-year growth)



Sources: NSO & Author's calculations

Focusing on more recent developments, in 2020, real ULC rose by 6.4%, driven primarily by the tertiary sector. This was fuelled by a 3.1% decline in real CPE, coupled with a 9.5% drop in real labour productivity. The sectors of 'wholesale and retail trade, transportation and storage, accommodation, and food service activities' (5.4 pp) and 'professional, scientific, technical, administration, and support service activities' (1.5 pp) contributed the most to this increase, partially offset by declines in other sectors.³⁴

These notable increases resulted from significant declines in labour productivity due to the retention of workers supported by government schemes, despite a sharp drop in economic activity and decreases in real CPE. However, this trend was temporary. Indeed in 2021, real labour productivity rebounded, leading to a 6.8% decrease in ULCs across several sectors. In 2022, unit labour costs dropped further by an additional 5.5%, attributed to a 1.7% reduction in real CPE and a 3.8% increase in real labour productivity. Sectors like 'agriculture, forestry and fishing', 'construction', 'financial and insurance activities', and 'real estate activities' witnessed slight increases in real unit labour costs, while others experienced decreases due to higher sectoral labour productivity.

³⁴ For the decomposition of total real ULCs by sector, refer to table A3 in the technical appendix.

In conclusion to this section, the analysis of real unit labour costs reveals dynamic trends in labour productivity and compensation across different sectors over time. The observed increases in real unit labour costs during periods of declining labour productivity underscore the challenges faced when productivity growth lags the increase in compensation. Conversely, the decreases in unit labour costs, particularly driven by enhanced labour productivity and moderate compensation growth, demonstrate the potential for achieving cost efficiencies and economic resilience.

3.3 A price competitiveness measure for Malta

After the identification of historical trends in labour productivity, compensation for employees and unit labour costs, a measure for price competitiveness for Malta in relation to other euro area countries is developed. One way to identify a measure of price competitiveness is to consider the relationship between unit labour costs and labour productivity by measuring the relative unit labour costs (RULCs). The RULCs reflect the ability of a country to compete in the international market based on the labour costs of the goods and services produced in a particular country in relation to other countries. It is an important aspect of international trade and economic performance, influencing export competitiveness, trade balances, and overall economic growth.

To assess the RULCs between countries, the labour productivity and unit labour costs are worked out separately for each country. In this section, labour productivity is computed by dividing real GVA by the total number of employees, while unit labour costs are determined by dividing nominal compensation of employees by real GVA. This methodology is based on a technique that was employed in the 2015 Lithuanian Economic Review and will also be consistently applied in the following section. The derivation of a price competitiveness measure, based on labour costs, entails evaluating the labour costs per unit of output in one country relative to another.³⁵ RULCs are determined using the formula:

$$\frac{\text{Unit Labour Cost in Malta}}{\text{Labour Productivity in Malta}} \div \frac{\text{Unit Labour Cost in Country B}}{\text{Labour Productivity in Country B}}$$

³⁵ Since sectoral data is only available for GVA, labour productivity and unit labour cost calculations in this section are also based on real GVA rather than real GDP. The methodology applied in this section is adapted from an annex included in the 2015 Lithuanian Economic Review, which can be accessed [here](#).

A higher RULC indicates higher labour costs relative to productivity, making the country less competitive in terms of labour efficiency. Conversely, a lower RULC suggests lower labour costs relative to labour productivity, indicating higher competitiveness. When RULCs exceed 1, it indicates that labour costs per output in Malta are higher relative to its productivity compared to the other country, and vice versa. For illustration purposes, the sample period (2000–2022) is separated into four sub-periods, similar to the previous section, that is, 2000–2007, 2008–2012, 2013–2019, and 2020–2022.

First, Malta's RULCs is computed in terms of the EA-19.³⁶ The findings indicate that in relation to the EA-19, the RULC has consistently exceeded 1 over the sample period, indicating higher unit labour costs relative to productivity. This suggests that Malta has a larger gap between unit labour costs and labour productivity when compared to the EA-19 average. The data reveals an average RULC of 1.4 during the first period (2000–2007). During this period, Malta joined the European Union therefore it was adopting the EU's legal framework which may have impacted its cost structure.³⁷ This average has fluctuated over time but dropped to 1.25 in the most recent period (2020–2022), reaching a low of 1.16 in 2022. Whilst this signifies some improvement in Malta's capacity to compete on prices, it is comparatively still lagging behind the EA-19 average because the measure is still above 1. This is because Malta has higher RULCs in relation to its productivity than the EA-19, which is a result of Malta's lower productivity than the EA-19. Nevertheless, this gap has been narrowing annually.

Looking at sectoral data, the EA-19 average exhibits better price competitiveness in 'industry', which is inclusive of the manufacturing sector; 'wholesale and retail trade, transportation and storage, accommodation and food service activities'; 'financial and insurance' and 'public administration, defence, education, human health, and social work activities' sectors. It is important to note that the EA-19 average encompasses countries such as Luxembourg and Ireland, which when compared to Malta, demonstrate enhanced price competitiveness owing to considerably elevated productivity and lower unit labour costs, fuelled by technological and automation improvements. On the other hand, Malta demonstrates better price competitiveness

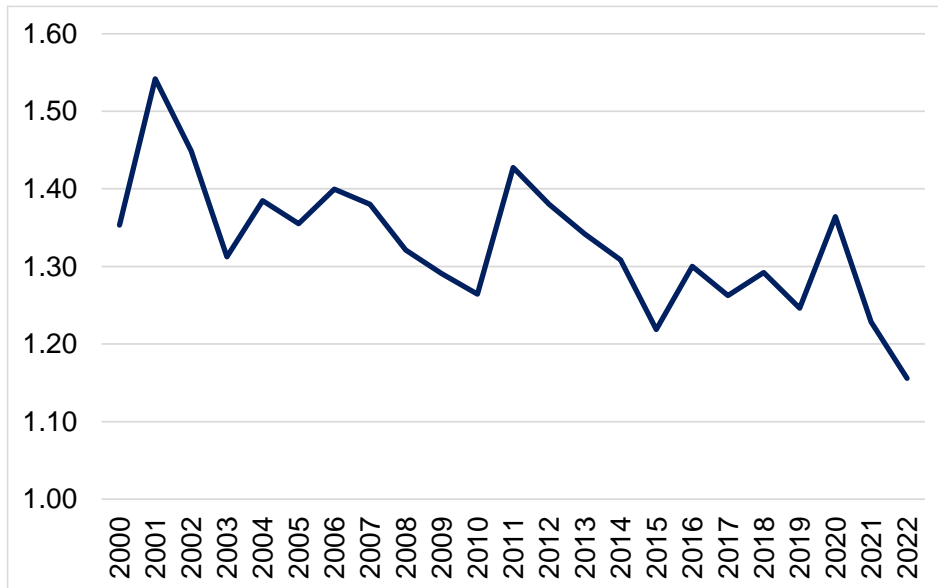
³⁶ The EA-19 countries are the following: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland. Croatia is not part of this list because it joined the Euro Area in 2023, which changed the EA-19 into the EA-20.

³⁷ See Camilleri, S.J., and J. Falzon. "The Challenges of Productivity Growth in the Small Island States of Europe: A Critical Look at Malta and Cyprus", *Island Studies Journal*, 2013, 8(1), pp 131-164.

when compared to the EA-19 in sectors such as the 'arts, entertainment and recreation' and the 'agriculture, forestry, and fishing' sectors.

Relative unit labour costs of Malta as a ratio of the relative labour costs of the EA-19

(Ratio)



Sources: Eurostat & Author's calculations

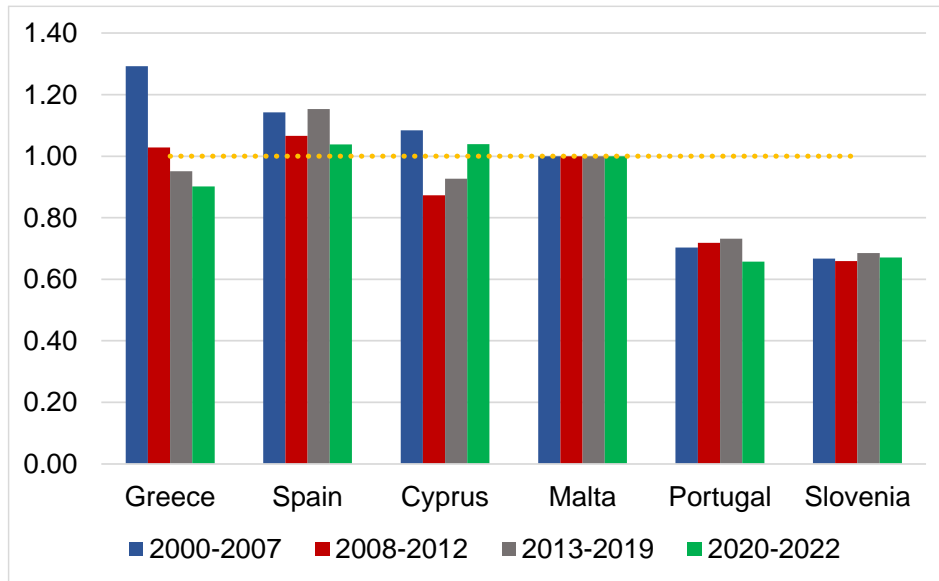
Shifts in price competitiveness are evident in certain sectors. For instance, prior to 2013, Malta's RULCs compared to those of the EA-19 for the 'information and communication' and the 'professional, scientific, technical, administration, and support service activities' sectors exceeded 1 but considerably improved from 2013 onwards, falling below 1. Conversely, the real estate' sector witnessed worsening in price competitiveness, with Malta's relative competitiveness falling below 1 prior to 2012 and increasing over 1 in the following two periods.

Comparisons with other EA countries provide insights into Malta's performance relative to its peers. While RULCs were calculated for all EA countries, this analysis focuses on comparing Malta to Greece, Spain, Cyprus, Portugal, and Slovenia as these countries share a similar level of development based on purchasing power parity standards.³⁸ Malta surpasses Portugal and Slovenia with regards to price competitiveness based on labour costs in all sectors (RULC lower than 1) but falls behind Spain (RULC higher than 1). When compared to Greece and Cyprus, mixed evidence is observed across different periods. In comparison to Greece, Malta's

³⁸ These countries were selected after looking at the GDP per capita in current prices, at purchasing power standards. The GDP per capita of each country was divided by that of the EU-27 and those within +/- 10 pp of Malta were selected as they have a similar level of development as Malta.

RULCs have consistently improved over time, with the ratio falling across each period and falling below 1 post-2013. With respect to Cyprus, Malta has had higher unit labour costs per unit output relative to its labour productivity in 2001-2007 period. Malta's RULCs to Cyprus went down below 1 in the 2008-2019 period but went up again in the 2020-2022 period.

Relative unit labour costs of Malta as a ratio of the relative labour costs of each country
(Ratio)



Sources: Eurostat & Author's calculations

Examining price competitiveness across different sector allows for a more comprehensive analysis of Malta's economic performance. In the agriculture, forestry, and fishing sector, Malta demonstrates favourable performance attributed to higher labour productivity and lower unit labour costs compared to the aforementioned countries. Throughout various periods, Malta's RULCs consistently remain below 1, except with respect to Spain during the 2013-2019 period, when Malta experienced lower labour productivity than Spain. It is important to note that Malta's positive performance in this sector is probably attributable to the activities related to the export tuna.

On the other hand, challenges arise for Malta in sectors such as industry, including its manufacturing sector, where its RULCs surpass 1 when compared to Greece and Spain. This indicates decreased price competitiveness, attributed in part to capacity

constraints and lack of economies of scale in Malta's manufacturing sector.³⁹ Despite these challenges, Malta's RULCs show improvement over successive periods relative to the other countries.

In 'wholesale and retail trade, transportation and storage, accommodation, and food service activities', Malta's price competitiveness fluctuates across the periods under study. Post COVID-19, Malta competes less effectively than Spain, Cyprus and Slovenia, but fares better than Greece since 2013. In the 'information and communication' sector, as well as the 'professional, scientific and technical activities; administrative and support service activities' sector, Malta consistently lags behind Cyprus, due to lower labour productivity. However, it performs relatively well compared to the other four countries.

Malta struggles to compete in sectors like 'financial and insurance activities', with slightly higher unit labour costs on average and lower labour productivity compared to Greece, Spain, Cyprus and Portugal. While Malta's labour productivity was superior to Slovenia's throughout the studied periods, this changed in 2022, reflecting more negative developments in cost dynamics.

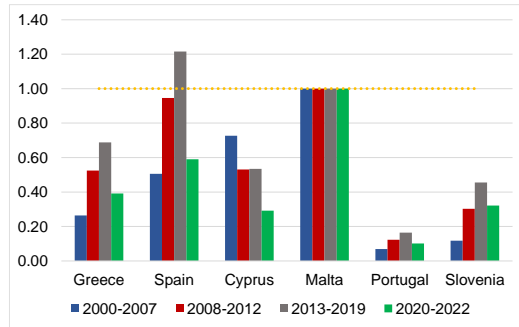
In the construction sector, Malta maintains RULCs less than one compared to the five nations mentioned, indicating relatively strong price competitiveness, except for Spain from 2008 to 2019. However, in real estate activities, Malta's price competitiveness has declined relative to these countries, with the ratio generally exceeding 1 due to contractions in labour productivity and modest increases in unit labour costs. The price competitiveness and the cost structure of the real estate industry in Malta may be attributed to increased imputed rents and property values driven by rising demand for property ownership and population growth.

As regards to the 'public administration, defence, education, human health and social work activities' sector, Malta, on average, exhibits poorer price competitiveness compared to Greece, Spain and Cyprus but fares better when compared to Portugal and Slovenia.

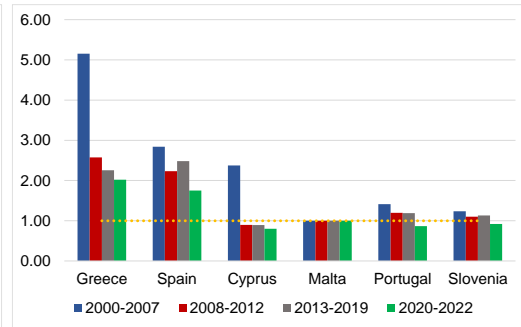
³⁹ See Petrović, P., & Gligorić Matić, M. "Manufacturing productivity in the EU: Why have Central and Eastern European countries converged and southern EU countries have not?", *Structural Change and Economic Dynamics*, 2023, 65, pp 166–183.

Relative unit labour costs of Malta as a ratio of the relative labour costs of other countries per sector (Ratio)

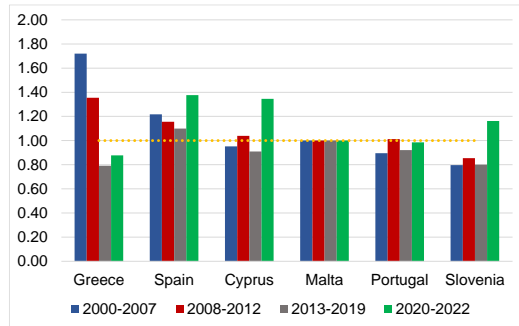
Agriculture, forestry and fishing



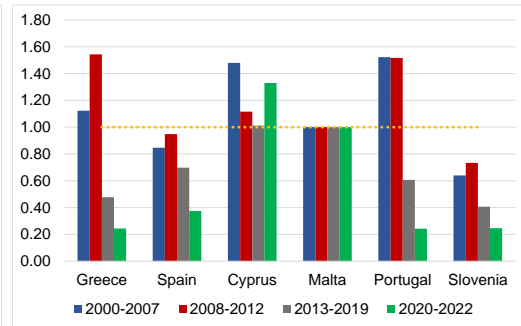
Industry inclusive of manufacturing



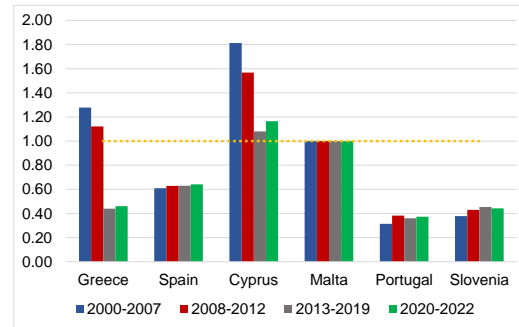
Wholesale and retail trade, transportation and storage, accommodation and food service activities



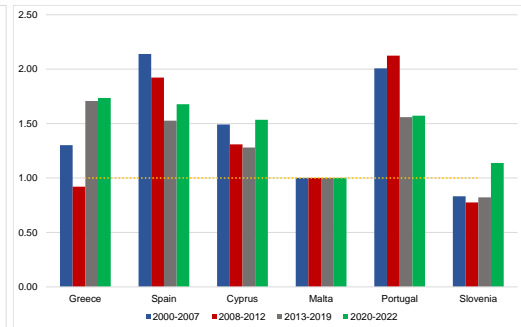
Information and Communication



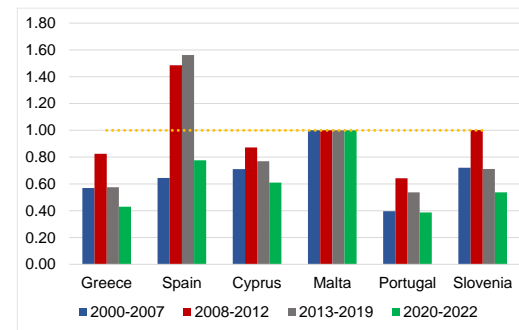
Professional, scientific, technical, administration and support service



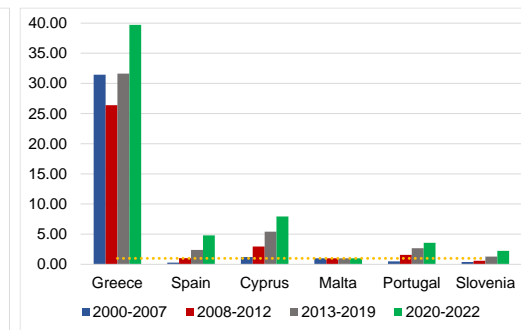
Financial and insurance activities



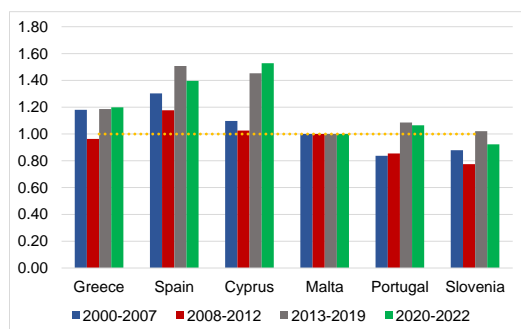
Construction



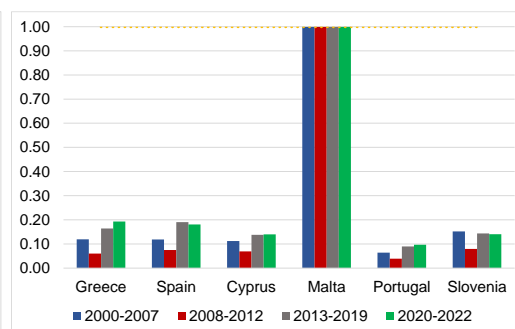
Real Estate activities



Public administration, defence, education, human health and social work activities



Arts, entertainment and recreation, repair of household goods and other services.



Sources: Eurostat & Author's calculations

Overall, Malta stands out as a strong contender in the ‘arts, entertainment, and recreation’ sector with its relative unit labour costs considerably below 1 compared to the analysed countries. This achievement stems from high labour productivity and low unit labour costs. The emergence of the online gaming sector has contributed significantly to Malta's competitive edge in these areas, positioning it as a global centre for iGaming activities. Malta gained substantial recognition by becoming the first EU member to regulate remote gaming in 2004, a key milestone which gave Malta a first-mover advantage in such regulatory practices that has attracted numerous gaming companies to reallocate to Malta.

The analysis of RULCs of Malta in comparison to the EA-19 and member states with a similar level of development provides valuable insights into Malta's price competitiveness based on labour costs. Nonetheless, it is essential to acknowledge that factors beyond labour costs, such as energy costs, regulatory environments, taxation, and fiscal policies, also influence overall price competitiveness. Despite outperforming in sectors like the ‘arts, entertainment, and recreation’, Malta lags behind in price competitiveness in the ‘industry’ inclusive of manufacturing, wholesale and retail trade, transportation and storage, accommodation, and food service activities and financial and insurance activities sectors.

The 2023 country report by the European Commission highlights Malta's research and innovation performance as weak, with an overall ranking on the research and innovation index standing at 84.7% of the EU average.⁴⁰ Recognizing the pivotal role of research and innovation in boosting productivity and competitiveness, there is a need to encourage businesses to invest in advanced technologies. This can take the

⁴⁰ Malta's country report for 2023 published by the European Commission may be accessed [here](#).

form of incentives, grants, or subsidies aimed at promoting the adoption of automation, digitalization, and other efficiency-improving technologies in different sectors. By facilitating such advancements, Malta can enhance productivity, maintain competitiveness, and mitigate costs for businesses in the long run.

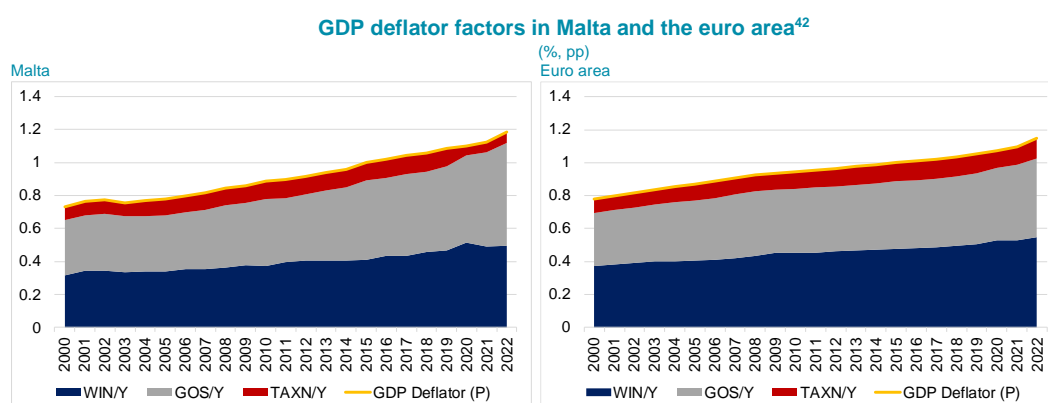
3.4 Domestic pressures on price developments in Malta

Price developments within the economy are important aspects in determining price competitiveness, which refers to a country's ability to sell its goods and services in international markets based on relative prices to competitors. In this section, an analysis is conducted to examine which domestic factors across the years have influenced price developments in Malta. This is then compared to price developments for the EA average. In the domestic economy, other than unit labour costs, prices are also impacted by the amount of profits businesses make and the taxes due. Utilising data from 2000 to 2022, this analysis uses national accounts data from the income approach to estimate unit labour costs, unit profits and unit taxes and analyse how these contributed to the GDP deflator, a measure of the overall price level of goods and services produced in an economy.

When examining domestic pressures on price competitiveness, generally there is most attention to the development of unit labour costs. Less attention is paid to profit, which, in national accounts data, is a residual value obtained by subtracting labour costs and non-labour costs from income. However, profit indicators are important as well. They are strongly tied to the state of the market since their evolution reflects the ability of businesses to alter the prices of commodities produced and services rendered in response to changes in costs. For example, if labour costs change when production demand is high, enterprises may raise production prices, thus maintaining the profit earned or even earning higher profits. If labour costs increase when the economy is in a downturn (for example, due to legislative increases in the minimum wage), possibilities for enterprises to transfer this increase to consumer prices are limited, and they may need to cover the increase in costs from their profit. The ability to pass on higher costs onto consumer prices is also dependent on the degree of competition within the particular sector within which the firm operates.

Malta's GDP deflator (2015 = 1) exhibits a consistent upward trend over the period, suggesting general increases in the overall price level.⁴¹ With a compound annual growth rate (CAGR) of approximately 2.9% over 2000 to 2022, the data indicates moderate inflationary trends in the Maltese economy over the years. At the same time, the EA GDP deflator also shows increases across the same period; however, to a lesser extent, with a CAGR of around 2.0%. Over the period analysed, the GDP deflator for both Malta and the EA follows a rather stable, gradually increasing trend; however, the distribution of its components seems to be more stable across the years for the EA. Indeed, in the case of Malta, the share of unit taxes in the GDP deflator has fallen from an average of 11.5% (2000-2019) to 5.5% in more recent years, reflecting an increase in subsidies provided by the government during this period, while the share of unit profits has increased from an average share of 45.1% (2000-2019) to 50.5% in the last three years. The share of unit labour cost has remained relatively stable across the years, averaging 43.5%. In comparison, in the EA the share of unit taxes has only fallen by 1.0 pp from 11.2% (2000-2019) to 10.2% (2020-2022), at the same time the share of unit profits remained stable around the 41.5% mark, while unit labour costs increased by around 1.0 pp across these periods.

The GDP deflator growth provides insight into overall price level changes within the economy. Fluctuations in growth rates over time signal shifts in economic conditions. In the EA, GDP deflator growth rates range from 0.7% to 4.6%, indicating relatively moderate variability. Conversely, Malta's GDP deflator growth rate displays a wider range, from -2.2% to 5.3%, suggesting greater volatility in price levels over time compared to the broader EA average.



Source: Eurostat, MFAC calculations

⁴¹ Refer to the technical appendix to understand how unit labour costs, unit profits and unit taxes are derived.

⁴² 'WIN/Y' represents unit labour costs, 'GOS/Y' represents unit profits, while 'TAXN/Y' represents unit taxes.

ULC fluctuations reflect the complex interplay of labour market conditions, wages, and productivity. In Malta, while ULC growth rates vary, the trend points to increasing labour expenses relative to output, potentially impacting production costs and inflationary pressures. The relationship between the ULC and GDP deflator growth, mostly positive but occasionally negative, exhibits a degree of variability. In Malta and the Euro Area average, the contribution to growth of ULC on the GDP deflator are significant, displaying wider variability in Malta (-2.2pp to 4.1pp) compared to the Euro Area (-0.3pp to 2.2pp). This suggests that labour cost dynamics may have a more significant impact on price levels in Malta.

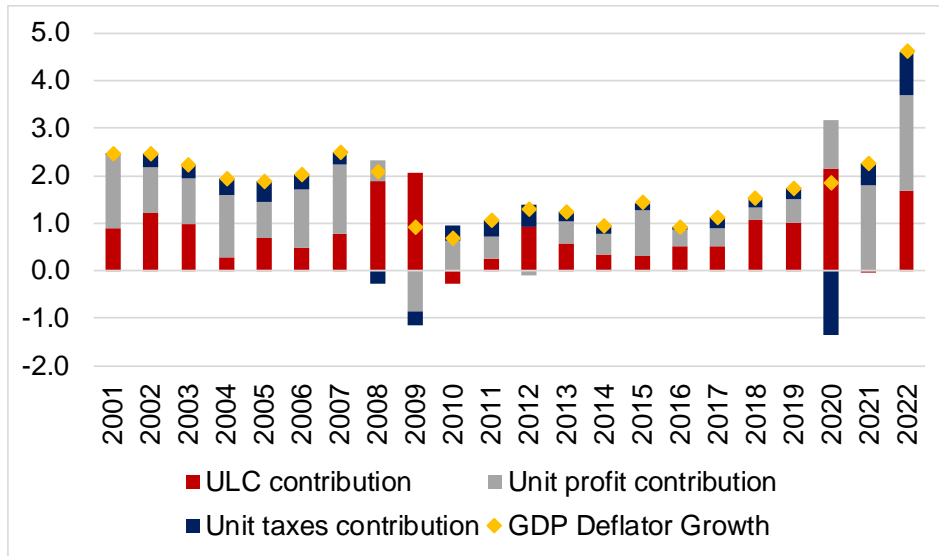
Meanwhile, unit profits exhibit a generally increasing trend, indicating improved profitability in the economy. The growth in unit profits surpassing that of ULC suggests potential efficiency gains or pricing power contributing to enhanced profitability. Again, unit profits have higher variability in Malta (-2.0pp to 4.4pp) compared to the Euro Area (-0.9pp to 2.0pp). Factors such as market conditions, competition, regulatory environments, and economic policies may contribute to these fluctuations in profitability. The broader range of variability in unit profits in Malta implies that businesses in Malta may experience more significant shifts in their profitability over time, which can have implications for investment decisions, employment levels, and overall economic stability. The wider range exhibited in Malta's unit profits may also be attributed to the fact that most firms in Malta are comparatively smaller than most businesses operating within the euro area.

On the other hand, overall, unit taxes show relatively stable levels with minor fluctuations around the mean, suggesting a muted impact on GDP deflator growth compared to ULC and unit profits. Again, for the influence of unit taxes on GDP deflator growth, Malta displays wider variability (-4.6 pp to 1.5 pp) compared to the Euro Area (-1.3 pp to 0.9 pp), indicating a potentially more significant impact on price levels in Malta.

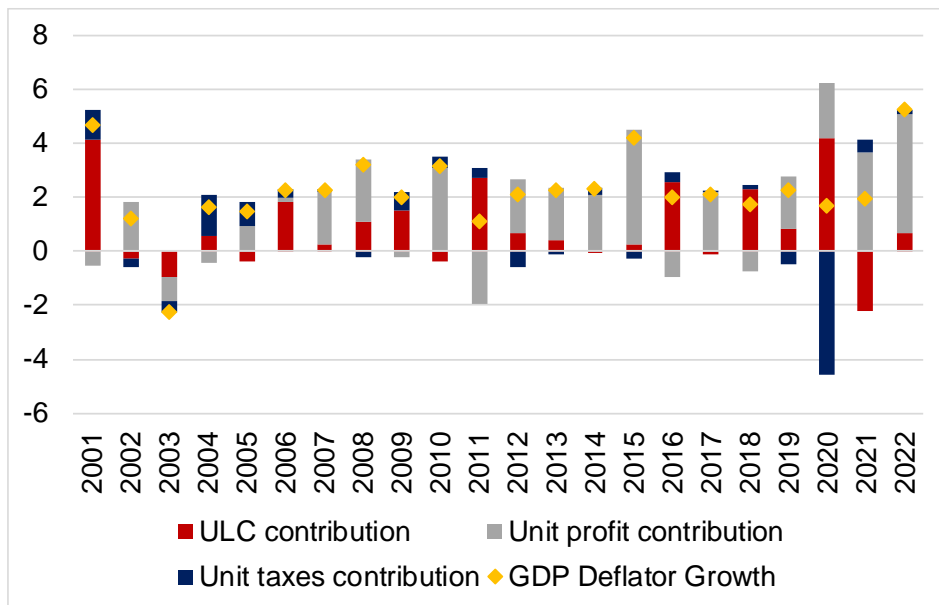
Overall, the wider variability observed in the factors contributing to Malta's GDP deflator growth highlights unique economic conditions, emphasizing the need for tailored policy responses to address price-level fluctuations and ensure sustainable economic growth.

Contribution to GDP deflator changes in Malta and the euro area
(%, pp)

Malta



Euro Area

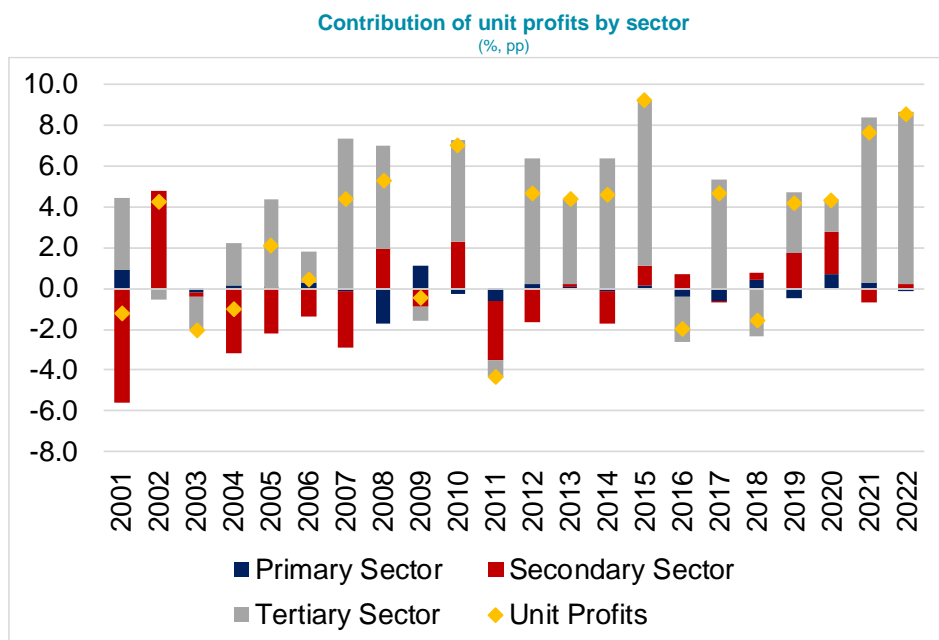


Source: Eurostat, MFAC calculations

The increasing trend of unit profits raises the need for a more thorough examination at the sectoral level to pinpoint the underlying sources driving the recent increase in unit profitability. Indeed, we identify the contributions derived from the primary, secondary, and tertiary sectors to the growth in unit profits over time. Each sector's fluctuations in contributions shed light on their respective impacts on overall profitability.

The primary sector's contributions to unit profits exhibit variability across the years. While it adds to unit profits in some years, it detracts from them in others. Overall, the primary sector's influence on overall profitability is modest and subject to fluctuations.

Similarly, the secondary sector's contributions to unit profits vary, showing positive and negative impacts. From 2001 to 2014, negative contributions were recorded in most years - reflecting challenges faced by the sector. In more recent years, contributions of unit profits by the secondary sector were generally positive, although marginal in some years, suggesting improved profitability in this sector. Businesses operating in the secondary sector may need to adapt to changing market conditions and enhance resilience to maintain profitability.



Source: Eurostat, MFAC calculations

In contrast, the tertiary sector consistently emerges as the primary driver of unit profits, with contributions often outweighing those of the primary and secondary sectors combined. Its substantial and mostly positive impacts underscore its critical role in driving overall profitability and economic growth. Policymakers may prioritise policies that promote innovation, efficiency, and competitiveness within the tertiary sector to sustain its positive contributions to unit profits and ensure economic resilience.

Profit growth surged notably in recent years, by 7.7% in 2021 and 8.6% in 2022, following a still heightened but more modest increase in 2020 (4.4%) during the COVID-19 pandemic. During 2020, the secondary sector experienced heightened

profits compared to previous years, while the tertiary sector's contribution decreased, but remained positive. However, most of the growth in 2021 and 2022 stemmed from the tertiary sector.

In general, the pursuit of profit should be considered in relation to ESG principles which is essential for fostering a healthy and sustainable economic environment in the post-pandemic era. Moreover, excess profits should be channelled towards investment and enhancing labour productivity, particularly where deficiencies are identified. This strategic investment can bolster competitiveness within each sector, thereby fortifying the economy as a whole.

3.5 Conclusion

Analysing real unit labour costs and price developments within Malta's economy offers valuable insights into its price competitiveness and broader economic dynamics. The analysis clearly indicates that the reallocation of resources toward higher-productivity sectors, particularly within the tertiary sector, has been a central theme driving Malta's economic transformation over the past two decades. This restructuring highlights a strategic realignment towards more efficient utilisation of labour resources.

Historical analysis reveals periods of both challenges and opportunities. Instances such as the early 2000s, marked by technological transitions and external economic shocks, posed temporary setbacks to productivity growth, particularly in the secondary sector. However, strategic initiatives post the financial crisis of 2008 led to diversification and a renewed focus on high-value services, driving productivity improvements in service-oriented industries. This has been critical for the development of Malta's economy especially as a tool to overcome the challenges in the years following this period.

The COVID-19 pandemic brought about unprecedented disruptions, leading to a significant contraction in productivity in 2020, as economic activity declined whilst jobs were safeguarded through government support. Nonetheless, subsequent years witnessed a remarkable recovery, propelled by sectors like 'wholesale and retail trade, transportation and storage, and accommodation and food service activities'. Despite challenges in certain sectors, the overall trajectory suggests a resilient economy capable of rebounding from adversity.

While Malta has made strides in enhancing its price competitiveness in certain sectors, challenges persist, particularly in industries where unit labour costs exceed those of its peers in the Euro Area. This includes sectors like the secondary sector, which comprises manufacturing. On the other hand, in sectors where it outperforms its peers, such as the arts, entertainment and recreation sector, which includes online gaming, Malta should focus on improving further its competitive advantage. Overall, strategic investments in technology, human capital, and innovation will be crucial in enhancing Malta's competitiveness and sustaining economic growth in the evolving global landscape.

Examining price developments through the lens of unit labour costs, unit profits, and unit taxes provides a comprehensive understanding of the forces shaping price levels and inflationary pressures over time. The upward trend in Malta's GDP deflator reflects general increases in the price level. This trend reflects the complex interplay of domestic factors, including labour market conditions, productivity growth, and business profitability.

Unit labour costs emerge as a critical determinant of price competitiveness, with fluctuations reflecting changes in labour market dynamics and productivity levels. The wider variability observed in Malta compared to the Euro Area suggests a greater sensitivity of price levels to labour cost dynamics within Malta's economy. Meanwhile, unit profits display a generally increasing trend, indicating improved profitability, particularly within the tertiary sector.

In General, the pursuit of profit should be considered in relation to the ESG principles which is essential for fostering a healthy and sustainable economic environment in the post-pandemic era. Additionally, excess profits should be channelled towards investment, including investment in research and innovation and improving labour productivity to enhance sectoral competitiveness and overall economic strength.

Appendix

Partial derivation of the GAED

Aggregate labour productivity is computed by taking the ratio of the real aggregate value added to total employment where Z_t is aggregate labour productivity in period t , X_t is the aggregate value added measured in real volumes and L_t is aggregate employment implying the following equation:

$$Z_t = \frac{X_t}{L_t}$$

Note that output (X_t) is the aggregate nominal value added (Y_t) deflated by the economy-wide price level P_t i.e., $X_t = \frac{Y_t}{P_t}$. Additionally, nominal output is the aggregate sum of the individual sector (i) outputs so $Y_t = \sum y_t^i$ where y_t^i is the value added of sector i at time t in nominal terms. This implies the following:

$$Z_t = \frac{\sum y_t^i}{P_t L_t} = \sum \frac{x_t^i P_t^i}{P_t L_t}$$

Multiplying and dividing the above by L_t^i :

$$Z_t = \sum \frac{P_t^i L_t^i X_t^i}{P_t L_t L_t^i} = \sum p_t^i l_t^i Z_t^i$$

where p_t^i is the relative price level of sector i (P_t^i) compared with the economy price level (P_t), l_t^i is the labour share of sector i (L_t^i) in total employment (L_t) and Z_t^i is the labour productivity of sector i .

Table A1: Sectoral Contributions to aggregate labour productivity growth
(percentage points, chain-linked)

	Primary	Secondary			Tertiary							Aggregate real labour productivity growth (%)
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	
2001	0.3	-4.4	-4.5	0.2	-1.2	0.2	-0.2	-0.2	0.1	1.2	0.4	-3.7
2002	0.0	0.4	0.3	1.5	-0.2	0.0	-0.4	0.2	0.3	0.6	0.4	2.9
2003	-0.1	0.5	0.8	0.9	0.5	0.3	0.5	0.6	0.8	0.8	0.5	5.3
2004	-0.1	-2.6	-2.3	-0.3	-0.8	0.2	1.3	0.3	0.1	0.5	-0.3	-1.6
2005	0.0	-0.7	-0.3	-0.3	-1.2	0.4	1.9	-0.3	0.3	0.0	1.1	1.2
2006	0.1	0.1	-0.5	-1.1	0.1	0.3	1.0	0.1	0.7	-0.1	0.0	1.2
2007	0.0	0.2	0.3	-1.7	0.7	-0.4	0.7	0.1	0.2	0.0	2.5	2.2
2008	-0.9	1.3	1.4	0.1	-0.9	0.1	-1.0	0.1	0.1	0.2	2.9	2.1
2009	0.4	-1.8	-2.6	-0.3	-1.1	-0.1	1.3	0.5	0.2	0.9	-1.1	-1.1
2010	-0.1	0.2	0.4	0.5	0.4	0.4	0.8	0.1	1.0	0.0	0.9	4.2
2011	-0.3	-1.4	-0.3	-0.5	-0.2	0.5	-0.7	-0.4	0.1	0.3	-0.8	-3.5
2012	0.1	-1.1	-0.2	-0.3	0.7	-0.2	1.4	0.0	1.0	0.2	0.4	2.1
2013	0.0	-0.4	-1.5	0.3	1.2	-0.3	0.0	-0.1	0.4	0.0	0.9	2.0
2014	-0.1	-0.9	-0.8	-0.6	-0.5	1.0	-0.8	-0.3	0.7	0.2	3.3	1.9
2015	0.0	-0.1	-0.7	0.2	1.6	0.6	0.5	0.4	2.0	-0.1	1.8	6.9
2016	0.0	0.0	-0.4	-0.1	-1.6	0.9	0.4	0.4	1.7	0.2	-3.0	-1.2
2017	-0.3	-0.7	-0.2	0.3	1.1	0.3	0.2	0.2	1.8	-0.6	0.4	2.7
2018	0.0	0.1	0.0	0.3	-0.4	0.4	0.2	-0.1	0.0	0.3	0.4	1.2
2019	-0.2	-0.1	0.0	0.9	-0.4	0.7	0.1	0.1	1.3	0.5	-0.4	2.5
2020	0.2	-0.4	-0.2	-0.1	-7.5	-0.5	0.5	-0.3	-1.9	-0.1	0.6	-9.5
2021	0.2	0.3	0.1	0.0	3.7	1.3	-0.3	0.1	1.8	1.2	1.4	9.8
2022	-0.1	0.3	0.4	-0.2	4.4	0.5	-0.3	-0.2	0.5	-0.8	-0.3	3.8

Table A2: Sectoral Contributions to aggregate CPE growth
(percentage points, chain-linked)

	Primary	Secondary			Tertiary							Aggregate real CPE growth (%)
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	
2001	0.0	0.0	-0.0	-0.2	0.3	0.1	0.2	0.0	-0.1	3.1	0.1	3.6
2002	0.1	0.6	0.6	0.5	-0.3	0.1	0.0	-0.0	0.2	0.3	0.0	1.4
2003	-0.2	1.8	1.5	0.2	1.0	0.3	0.3	0.1	0.6	1.1	0.2	5.6
2004	-0.1	-1.4	-1.3	-0.0	-0.2	-0.1	0.7	0.0	-0.5	0.1	-0.0	-1.5
2005	0.0	0.2	0.3	-0.3	-1.1	0.1	0.0	-0.1	0.6	-0.4	0.0	-1.1
2006	-0.0	0.3	0.3	-0.3	0.5	0.5	0.7	0.0	0.2	0.0	0.7	2.5
2007	0.0	0.5	0.4	0.1	0.4	-0.1	-0.0	-0.0	0.1	1.0	-0.1	1.8
2008	-0.1	2.2	2.2	0.0	-0.6	-0.3	-0.6	-0.1	-0.9	0.2	0.2	0.0
2009	0.0	-1.6	-1.6	-0.0	-0.9	0.7	0.3	0.1	0.5	1.0	0.2	0.4
2010	-0.0	-0.7	-0.7	0.3	0.9	-0.4	-0.0	-0.2	0.4	0.6	-0.1	0.7
2011	0.0	-0.0	-0.1	0.2	1.2	0.2	-0.0	-0.1	0.4	-0.6	-0.1	1.3
2012	-0.0	0.2	0.3	-0.3	-0.5	0.2	0.5	0.0	0.1	0.2	-0.4	0.2
2013	0.0	0.2	0.2	0.1	-0.3	0.3	0.3	-0.1	-0.1	0.2	0.1	0.8
2014	0.0	-0.1	-0.1	-0.3	-1.1	0.1	0.7	0.0	0.1	0.8	0.7	0.9
2015	0.0	0.0	0.2	0.0	1.7	0.0	0.8	0.1	0.4	0.8	0.6	4.7
2016	-0.0	0.1	0.1	0.1	1.0	0.3	0.5	-0.1	0.6	1.4	0.3	4.3
2017	0.0	0.2	0.1	-0.2	-0.9	0.4	-0.1	-0.1	-0.4	0.8	1.7	1.5
2018	0.0	0.8	0.8	0.2	0.1	0.7	0.6	-0.1	1.5	1.7	0.7	6.4
2019	0.0	0.2	0.1	-0.3	-0.8	0.2	0.6	-0.1	-0.1	1.6	0.2	1.4
2020	-0.0	-0.3	-0.3	-0.2	-2.3	-0.1	0.2	-0.0	-0.7	0.5	-0.3	-3.2
2021	-0.0	0.3	0.3	-0.0	0.4	-0.0	0.1	-0.1	0.3	2.0	0.2	3.1
2022	-0.0	0.2	0.2	-0.3	0.1	-0.2	0.3	-0.1	-0.4	-0.9	-0.4	-1.8

Table A3: Sectoral Contributions to aggregate ULCs growth
(percentage points, chain-linked)

	Primary	Secondary			Tertiary							Aggregate real ULCs growth (%)
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	
2001	-0.3	4.4	4.5	-0.3	1.5	-0.1	0.3	0.2	-0.2	1.9	-0.3	7.3
2002	0.1	0.2	0.3	-1.0	-0.2	0.0	0.4	-0.3	0.0	-0.3	-0.3	-1.4
2003	-0.1	1.4	0.6	-0.6	0.5	0.0	-0.1	-0.5	-0.2	0.3	-0.3	0.3
2004	0.0	1.1	1.0	0.2	0.6	-0.3	-0.6	-0.3	-0.6	-0.4	0.3	0.0
2005	0.0	1.0	0.6	0.0	0.1	-0.4	-1.9	0.2	0.2	-0.4	-1.1	-2.3
2006	-0.1	0.2	0.8	0.7	0.4	0.2	-0.3	-0.1	-0.5	0.1	0.7	1.3
2007	0.0	0.3	0.1	1.8	-0.3	0.3	-0.7	-0.1	-0.1	1.0	-2.6	-0.4
2008	0.8	0.9	0.7	-0.1	0.3	-0.5	0.4	-0.1	-1.0	0.0	-2.7	-2.1
2009	-0.4	0.2	1.1	0.3	0.2	0.8	-1.0	-0.4	0.3	0.1	1.3	1.5
2010	0.1	-0.8	-1.1	-0.3	0.5	-0.8	-0.8	-0.3	-0.5	0.5	-1.0	-3.4
2011	0.4	1.4	0.3	0.7	1.4	-0.3	0.7	0.4	0.3	-0.9	0.7	4.8
2012	-0.1	1.4	0.4	-0.1	-1.2	0.4	-0.9	0.1	-0.9	0.1	-0.8	-1.9
2013	0.0	0.7	1.8	-0.2	-1.5	0.6	0.3	0.0	-0.5	0.2	-0.8	-1.2
2014	0.1	0.8	0.7	0.3	-0.6	-0.8	1.5	0.3	-0.6	0.6	-2.6	-1.0
2015	0.1	0.2	1.0	-0.1	0.1	-0.5	0.3	-0.3	-1.6	0.9	-1.2	-2.2
2016	0.0	0.1	0.4	0.2	2.6	-0.6	0.1	-0.5	-1.1	1.2	3.3	5.4
2017	0.3	0.9	0.3	-0.6	-1.9	0.1	-0.3	-0.2	-2.2	1.4	1.3	-1.3
2018	0.0	0.7	0.8	0.0	0.5	0.3	0.4	0.1	1.5	1.4	0.3	5.2
2019	0.2	0.2	0.1	-1.2	-0.4	-0.5	0.5	-0.3	-1.3	1.1	0.5	-1.1
2020	-0.3	0.1	-0.1	0.0	5.2	0.5	-0.3	0.3	1.2	0.6	-0.9	6.3
2021	-0.3	0.0	0.2	0.0	-3.2	-1.3	0.4	-0.2	-1.6	0.8	-1.2	-6.7
2022	0.1	-0.1	-0.2	-0.1	-4.2	-0.6	0.6	0.1	-1.0	-0.1	-0.1	-5.6

The logic and formulas of the GDP deflator breakdown

When breaking down the GDP deflator into components, national accounts data are used, specifically — real GDP and components of nominal GDP calculated using the income approach. These components are income of various kinds, such as compensation of employees, gross operating surplus and mixed income, as well as taxes:

$$P \times Y = \text{WIN} + \text{GOS} + \text{TAXN},$$

where: $P \times Y$ — nominal GDP (P — GDP deflator, Y — GDP volume or real GDP), WIN — nominal compensation of employees, GOS — gross operating surplus and mixed income, TAXN — taxes (more precisely, difference of taxes, applied to production and imports, as well as subsidies). The indicator of gross operating surplus and mixed income is considered to be the measure most similar to profit, which can be obtained from national accounts, thus thereafter it will be called profit.

By dividing both sides of the presented identity by the GDP volume, unit (i.e., the production unit) indicators are obtained. Thus, the price of the GDP unit (GDP deflator) is the sum of unit labour costs (ULC), unit profits (UGOS) and unit taxes (UTAXN):

$P = W/N + GOS/Y + TAXN/Y = ULC + UGOS + UTAXN$. Since the GDP deflator may be broken down into unit components, its change may be explained by the changes in these components.