MFAC
MALTA FISCAL ADVISORY COUNCIL

Annual Report and Statement of Accounts

2023

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The cut-off date for the information included in this Report is 23 February 2024.

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ANNUAL REPORT

AND

STATEMENT OF ACCOUNTS

2023

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18 March 2024

The Hon Mr Clyde Caruana B.Com. (Hons) Economics, M.A. Economics
Minister for Finance
Maison Demandols,
South Street,
Valletta. VLT 2000

Dear Minister,

LETTER OF TRANSMITTAL

In terms of article 58 of the Fiscal Responsibility Act, 2014 (Cap 534), I have the honour to transmit to you a copy of the Annual Report of the Malta Fiscal Advisory Council for the year 2023.

In terms of article 56 of the Fiscal Responsibility Act, I am also transmitting a copy of the audited accounts of the Council for the financial year ended 31 December 2023.

Yours sincerely,

Moira Catania
Chairperson

Vision

'To contribute to stronger fiscal governance in Malta and offer assurance about the quality of the official economic and fiscal projections, and about fiscal sustainability, through independent analysis and advice.'

Mission statement

The Malta Fiscal Advisory Council (MFAC) is an independent institution established under the Fiscal Responsibility Act (2014) which has the primary objective to contribute to sustainable public finances and sound economic policy making in Malta.

The MFAC seeks to carry out its statutory responsibilities by:

i. Assessing the plausibility of the Government's macroeconomic forecasts and fiscal projections and endorsing them as it considers appropriate;

ii. Assessing whether the fiscal stance is conducive to prudent economic and budgetary management;

iii. Assessing the extent to which the conduct of fiscal policy in Malta is consistent with the country's fiscal commitments as a member of the European Union;

iv. Assessing the extent to which the annual budgetary plan and medium-term fiscal plan comply with the Fiscal Responsibility Act and the Stability and Growth Pact;

v. Assessing the extent to which the fiscal and economic policy objectives proposed by the Government are being achieved;

vi. Determining whether exceptional circumstances, which would allow for a departure from the announced fiscal plans, exist or have ceased to exist;

vii. Issuing opinions and formulating recommendations in the areas of public finances and economic management;

viii. Advising the Government and the Public Accounts Committee concerning the maintenance of fiscal discipline; and

ix. Disseminating information and analysis to the public to increase awareness and understanding of economic and fiscal issues.

The Malta Fiscal Advisory Council

Chairperson

Dr Moira Catania

Council Member

Dr Stephanie Fabri

Council Member

Dr Stephanie Vella

Staff

Administrator and Council Secretary

Mrs Alison Bugeja Persiano

Chief Economist

Mr Gilmour Camilleri

Senior Economist

Mr Christian Xuereb

Senior Economist

Mr Kurt Davison

Economist

Ms Jessica Pace

Economist

Ms Kylie Spiteri

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List of acronyms

CAGR	Compound annual growth rate
CBM	Central Bank of Malta
COVID-19	Coronavirus disease 2019
CPE	Compensation per employee
DBP	Draft Budgetary Plan
DG ECFIN	Directorate-General for Economic and Financial Affairs
DG REFORM	Directorate-General for Structural Reform Support
EA	Euro Area
EU	European Union
ECM	Error Correction Model
EFB	European Fiscal Board
ESA	European System of Accounts
EU	European Union
EUNIFI	EU Network of Independent Fiscal Institutions
FRA	Fiscal Responsibility Act
GDP	Gross Domestic Product
GEAD	Generalised Exactly Additive Decomposition
GVA	Gross Value Added
IMF	International Monetary Fund
MFAC	Malta Fiscal Advisory Council
MFIN	Ministry for Finance
NACE	Nomenclature of Economic Activities
NSO	National Statistics Office
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
pp	percentage points
RULCs	Relative Unit Labour Costs
TSI	Technical Support Instrument
ULC	Unit Labour Cost
USP	Update of Stability Programme
VAT	Value Added Tax

Chairperson's statement

I am pleased to present the ninth Annual Report of the Malta Fiscal Advisory Council, covering the activities performed during 2023. This statement reflects on macroeconomic and fiscal policy developments during the past year, outlining some challenges and priorities for the short- to medium-term. The Report also contains three thematic chapters. The first chapter presents empirical estimates of the link between output and the unemployment rate in Malta based on Okun's law. It assesses the stability of this relationship over time, across sectors, and its susceptibility to the economic cycle. It also compares the strength of this relationship to other EU nations. The second chapter analyses Malta's historical trends in labour productivity and unit labour costs and the resultant implications for price competitiveness. This chapter subsequently delves into the impact of other domestic effects on price pressures by examining the role of profit margins, unit labour costs and unit taxes. The last thematic chapter outlines the fiscal revenue model utilised by the MFAC, detailing its methodology for computing historical and forecast revenue elasticity estimates to forecast revenue figures. It evaluates the model's economic rigour through simulation exercises, identifies limitations, and underscores the importance of its development for revenue forecasting.

Following a period of robust expansion post-pandemic in 2021 and 2022, the EU economy experienced a deceleration in momentum throughout 2023. EU real GDP exhibited mild contraction in the fourth quarter of 2022, followed by marginal growth in the subsequent three quarters of 2023. This subdued performance primarily stemmed from the pronounced impact of elevated living costs, which exceeded initial projections. Concurrently, the persistent conflict in Ukraine and emergent tensions in the Middle East further compounded pressures on the cost of living. Moreover, global trade dynamics offered limited respite. Monetary policy responses aimed at addressing inflationary pressures are gradually permeating the economy, while fiscal support measures are undergoing a phased withdrawal, with EU fiscal rules being reinstated in 2024.

Amidst the global challenges posed by the pandemic aftermath and geopolitical unrest, Malta's economic landscape remained resilient. Against a backdrop of heightened inflation, Malta sustained a robust economic growth trajectory characterised by an improved employment landscape with low unemployment rates and heightened labour force engagement. Whilst ending pandemic-related governmental assistance by mid-2022, Malta instituted strong fiscal support to shelter the economy and households from the impact of escalating international energy prices. While these initiatives facilitated economic recovery, Malta's fiscal deficit remained significant, projected at 5.0% of GDP. Despite the notable upsurge in government indebtedness, projections indicate that it will remain below the critical 60% threshold in 2023.

Looking ahead, the recent revocation of the EU's general escape clause highlights the importance of prudent fiscal management. At the same time, the EU economic governance framework is being reformed, with a provisional inter-institutional agreement reached in February 2024. The reform will introduce new fiscal rules and obligations. While the 3% deficit-to-GDP reference value and the 60% debt-to-GDP benchmark will be maintained, the emphasis within the new economic governance framework will be on debt sustainability. It will also involve a shift towards expenditure control, with specific expenditure paths depending on country-specificities. Concurrently, there will be a concerted effort to bolster structural reforms and public investments aimed at fostering sustainability and economic growth.

Whilst acknowledging the challenges inherent in this transitional phase, the Council underscored the need for the government to align its fiscal strategy with the framework and to achieve a sound medium-term fiscal position combined with efforts to achieve sustainable growth. The MFAC will continue to actively monitor developments regarding the revised EU economic governance framework, to ensure preparedness for any requisite adjustments and additional assessments to be performed by the Council.

In terms of Malta’s economic outlook, it is important to pivot towards enhancing Malta’s international competitiveness, promoting export-led growth, and safeguarding planned productive public capital expenditure. This entails prioritising labour productivity enhancements to drive competitiveness, bridge skill gaps and embrace the transition towards digitalisation and environmentally sustainable business practices. Such proactive measures will optimise organisational efficiency and sustainability, thus increasing Malta’s economic resilience. Initiating these reforms now is paramount as

the benefits of these investments require time to materialise. Furthermore, with the economic recovery well underway, it is also imperative to start rebuilding fiscal buffers in order to strengthen Malta's fiscal resilience.

Turning to the Council's operations, it is positive to note that throughout its years of operation, the government's official macroeconomic and fiscal projections have always been considered to lie within its endorsable range. Robust economic forecasts, together with realistic fiscal targets, are crucial inputs for sound policymaking.

In closing, I extend heartfelt gratitude to the Malta Fiscal Advisory Council's stakeholders for their unwavering support and collaboration throughout the year. I also commend the dedication and diligence of the MFAC staff, whose contributions have been invaluable in shaping our assessment.

Moira Catania
Chairperson

Chapter 1

Developments during 2023

1.1 The Fiscal Council

At the beginning of 2023, a new Council was appointed, with Dr Moira Catania as Chairperson and Dr Stephanie Vella and Dr Stephanie Fabri as Council Members. The **Malta Fiscal Advisory Council** (MFAC) held eleven Council meetings during 2023. These included discussions on administrative and operational matters, which involved decisions relating to the annual work programme, the Council's finances, operations, human resources, training programmes, and participation in official meetings and seminars. In addition, in-depth internal discussions and additional meetings on macroeconomic trends and the state of the public finances were held, focusing on the relevant risks at the time. These meetings were important in forming the Council's macro-fiscal assessments and the required endorsement of the government's official forecasts.

1.2 Relations with key stakeholders

Regular meetings were held with key domestic and international stakeholders. As in past years, regular dialogue was maintained with the **Ministry for Finance** (MFIN). Technical meetings were conducted to discuss and exchange views on the macroeconomic and fiscal forecasts, clarifying the assumptions and methodologies employed and addressing the surrounding risk factors. Meetings were also held on the national implications emanating from the proposed changes in the EU's economic governance framework and the termination of the exceptional circumstances clause as prescribed in the Fiscal Responsibility Act. Additionally, to keep adjourned on data-related revisions and changes in statistical recording methodologies, the MFAC also attended meetings and maintained regular communication with the **National Statistics Office** (NSO).

Apart from its independent assessment, the MFAC also assesses the plausibility of the government's official projections by comparing them with those of other reputable institutions. In this regard, the MFAC takes note of the various reports published by other forecasting bodies, such as the **Central Bank of Malta** (CBM). As part of their rating evaluations, a number of **credit rating agencies** also met with the Council in 2023 to discuss the above-mentioned issues. During such meetings, the MFAC elaborated on the contents of its published reports, which can serve as input for the rating assessments carried out by these agencies.

The MFAC met with officials from the Directorate-General for Economic and Financial Affairs within the **European Commission** in April and October, near the date when the government's official forecasts were published. The Council also participated in the 2023 Article IV consultation mission of the **International Monetary Fund** (IMF)**.** During these technical meetings, the Council exchanged its perspective and views on recent macroeconomic and fiscal developments. It also discussed possible risk factors that could derail the official short- and medium-term economic outlook, especially considering the elevated uncertainty during the period, including the geopolitical tensions between Russia and Ukraine and between Israel and Palestine, worldwide heightened inflationary pressures exerting material pressures on public finances and the reactivation and reformulation of the Stability and Growth Pact (SGP).

Throughout the year, the MFAC actively participated in initiatives coordinated by the **EU Network of Independent Fiscal Institutions** (EUNIFI), engaging in discussions on prevailing economic concerns and the Economic Governance Review. Meetings were also regularly held with the Commission's DG Reform regarding the MFAC's joint application for the Technical Support Instrument (TSI).[1]

The MFAC is also pursuing the development of bilateral relationships with other European independent fiscal institutions. In April, the MFAC hosted an in-person meeting with **Latvia's Fiscal Discipline Council**. During this meeting, both councils exchanged insights on the operations and practices related to the transparency and effectiveness of both Councils while fostering a better understanding of each other's methodologies and approaches to macroeconomic and fiscal oversight.

The Fiscal Responsibility Act prescribes that the Chairperson of the Fiscal Council shall appear before the **Public Accounts Committee** of the House of Representatives whenever requested to provide evidence to that Committee regarding the activities concerning the Fiscal Council's operations. In 2023, the Public Accounts Committee did not make such requests to the Fiscal Council.

[1] More details on the TSI are provided in a subsequent section within this Chapter.

1.3 Other meetings, seminars and conferences

The MFAC participated in several meetings, seminars, and conferences that were organised by local and foreign organisations (see Table 1.1). Most of the events that the Council attended were organised by the **EUNIFI**. Other events attended were organised by the European Commission, the **European Fiscal Board** (EFB)**,** and other national IFIs. The MFAC also attended events organised by local institutions.

Meetings and seminars attended by the MFAC during 2022

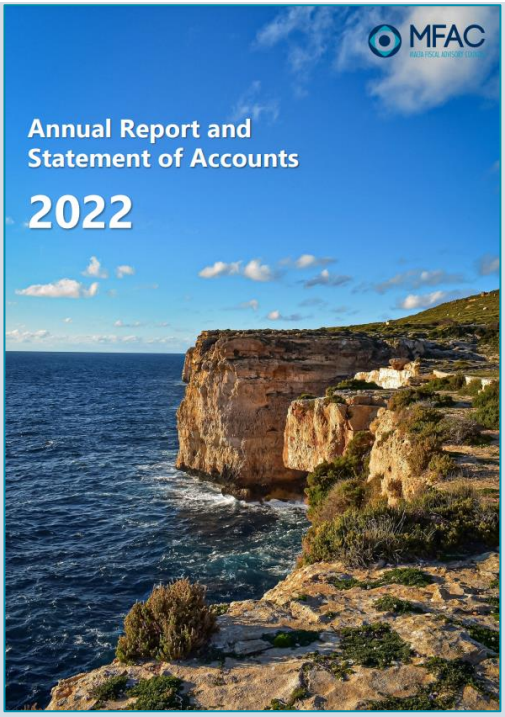
Event	Organiser
Various EU IFIs Network meetings	EUNIFI
Fiscal Policy under low interest rates	OECD
Path for the Public Finances 2023	Irish Fiscal Advisory Council
Fiscal Policy in times of high debt and economic turbulences	DG ECFIN
Network of EU IFIs meetings with EFC alternates	EUNIFI
Future of Public Spending	Committee of Senior Budget Officials, OECD
European Fiscal Board's annual conference	EFB
IFIs role in the Economic Governance review	CEPS
Joint workshop of EUIFIs and ESCB	IFI/ESCB
Malta's Property Market Outlook	KPMG
Various Meetings on the EU Economic Governance Framework	EUIFI
Climate change and long-term Fiscal Sustainability	TAIEX TSI
EUROMOD Training	European Commission, Joint Research Centre (JRC-Seville)
Various National Conferences	MEA / MFIN / Malta Chamber

1.4 Publications and research

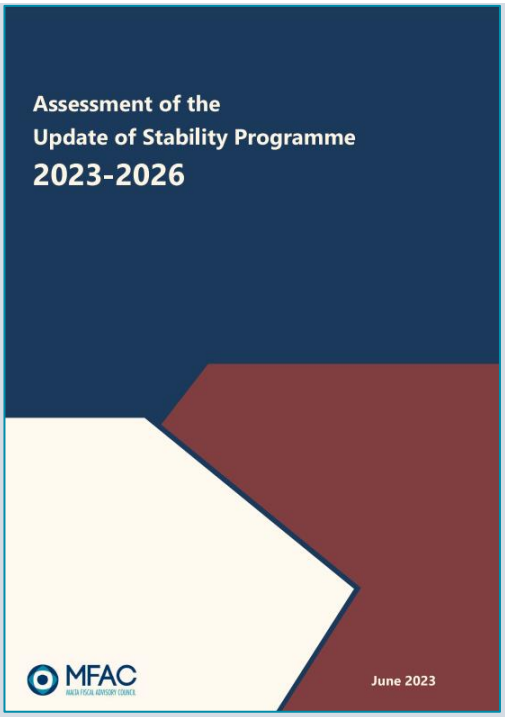
In 2023, the MFAC published **five reports**. The first publication of the year was the Annual Report and Statement of Accounts for 2022. The second report assessed the macroeconomic and fiscal forecasts contained within the Update of the Stability Programme 2023-2026. The third and fourth reports assessed the MFIN's Annual Report for 2022 and the Half-Yearly Report for 2023. The final report assessed the official forecasts presented in the Draft Budgetary Plan for 2024.

Apart from these five reports, the MFAC transmitted two **official letters** addressed to the Minister of Finance and Employment on 1 May 2023 and 15 October 2023. These letters formally endorsed the macroeconomic forecasts included in the Update of Stability Programme and the Draft Budgetary Plan published in 2023.

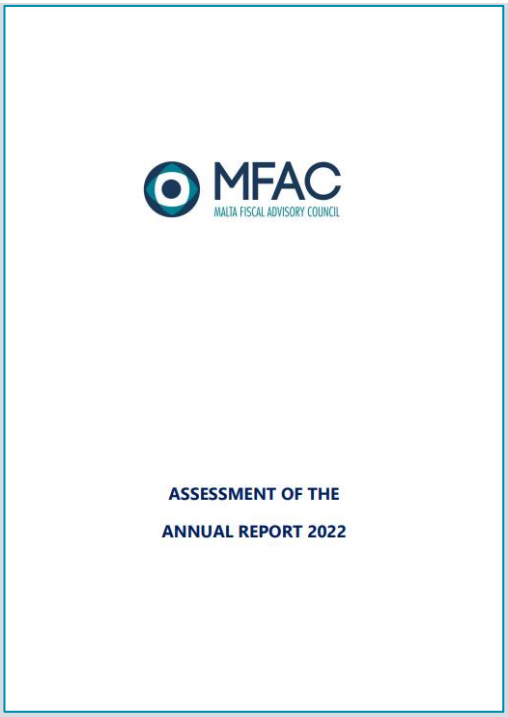
Reports published by the MFAC during 2023



The eighth Annual Report covered the activities performed by the MFAC during 2022 and presented the organisation's financial statements. The Report also contained two thematic chapters, one evaluating the macroeconomic forecasting performance of the MFIN while the second one gave a synopsis of the proposed reforms within the EU's economic governance framework as they were at that time.

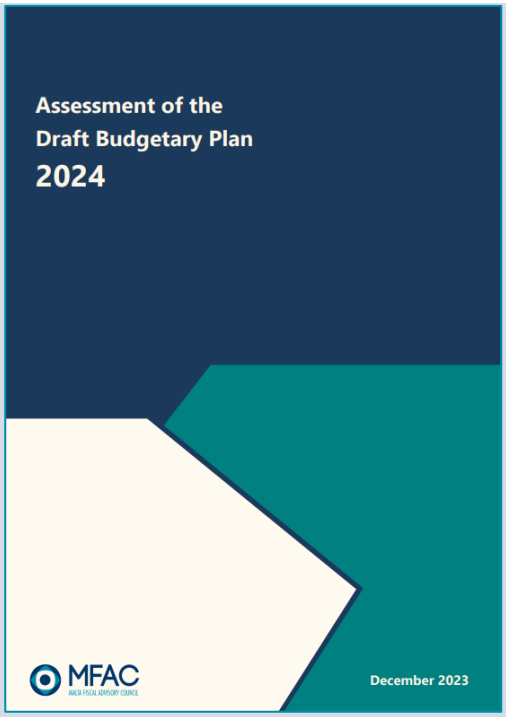


The macroeconomic and fiscal forecasts for the period 2023 to 2026 were considered to lie within the Council's endorsable range, though a number of risks were identified. The Council assessed that the risks for macroeconomic growth prospects tilt on the upside for the period under review on the back of stronger-than-expected domestic developments, reduced inflation, and improvements in the external trade balance. Concomitantly, the Council identified an upside risk for fiscal revenues throughout the forecast period, particularly in the outer forecast years. The Council also highlighted several fiscal risks, including uncertainties surrounding energy subsidies and costs associated with the national airline. The Council stressed the importance of maintaining a prudent fiscal stance once the general escape clause is de-activated, with a recommendation to utilise any surplus funds for rebuilding fiscal buffers rather than curtailing productive capital expenditure. The Council acknowledged that while a projected moderate increase in public debt was envisaged, debt would remain below the 60% threshold throughout the Programme's period.



In its assessment of the Ministry's Annual Report, the Council noted that economic growth in 2022 surpassed government projections in the USP and the DBP. This positive outturn was attributed to both domestic and external demand. In 2022, tax revenue also turned out better than expected. However, elevated government spending, driven by counter-cyclical responses to the Russia-Ukraine conflict, surpassed budgetary allocations. These measures were made possible through the use of past surpluses and the suspension of fiscal rules. While recognizing the beneficial effects of these measures, the MFAC advised against prolonged support, stressing the importance of targeted measures to mitigate potential fiscal risks.

In this report, the Council noted that the macroeconomic forecasts for 2023 were retained from the previous round (that is, those of the USP) and thus remained within its endorsable range. The Council noted that the first half of the year's fiscal estimates suggest potential expenditure savings, which could be used towards further rescindment of the deficit. The Council also encouraged the government to monitor closely those components where revenue generation over the first half of 2023 was slower than anticipated.



The MFAC considered the updated macroeconomic and fiscal forecasts for 2023 and 2024 to lie within its endorsable range. The assessment of the MFAC highlighted an upside risk for real GDP growth in 2023, partly reflecting greater than expected positive developments in the first half of the year and also because of the statistical base effect emanating from the second half of 2022. On the other hand, the Council expects a downside risk in 2024 as growth could turn out weaker than projected, especially from the external side. Meanwhile, the positive risk expected for real GDP in 2023 translates into the possibility of larger revenue from direct taxes and together with the opportunity for expenditure savings, these could result in a better improvement in the fiscal deficit in 2023 than the level projected by the MFIN. The Council also noted that, although the debt ratio is projected to increase, it is still expected to remain below the 60% of GDP benchmark.

During the period under review, the MFAC continued to contribute to the **European Fiscal Monitor** as part of the EUNIFI initiative. There were two publications which were issued in February and July.[2] The February edition highlighted the economic challenges stemming from the energy crisis and the conflict in Ukraine, resulting in a deceleration of GDP growth in the EU and heightened uncertainty regarding inflation. Governments responded to these challenges by implementing supportive fiscal measures; however, concerns emerged regarding the sustainability of long-term public spending. The second report indicated a gradual recovery from the pandemic and

[2] The documents are available here.

geopolitical shocks, marked by a decline in inflation and reduced reliance on fiscal interventions. Throughout these developments, National Independent Fiscal Institutions played an important role in assessing economic conditions and providing governments with guidance on effective fiscal strategies.

Throughout the year, the MFAC staff conducted additional **research** to continually enhance the institution's output quality. In the first half of 2023, the MFAC published a thematic chapter focusing on developments within Malta's tourism sector, employing a demand-supply analysis methodology to more effectively evaluate the estimates and assumptions concerning tourist numbers and expenditures utilised by the MFIN.[3]

Moreover, the MFAC published a **working paper** evaluating the MFIN's macroeconomic forecasting performance.[4] This evaluation encompassed forecasts for nominal and real GDP and its sub-components from 2004 to 2022, with assessments covering forecast accuracy, unbiasedness, and efficiency.

Throughout the year, additional thematic research on macroeconomic and public finance developments was also carried out internally.

1.5 Public relations of the MFAC

The MFAC issued several **press releases** during 2023, available in English and Maltese. These press releases aim to inform the general public about the latest MFAC reports and provide a non-technical summary of the Council's assessments.

Furthermore, the MFAC remains receptive to engagement in public events organised by **institutional bodies** and to interviews with the media on matters falling under its responsibility. Indeed, the Council's Chief Economist was invited by several organisations as a panel member and interviewed by the media on several occasions. The Council's Chairperson also participated in a panel discussion organised by a leading private consultancy firm.

[3] The thematic chapter titled "Tourism sector developments in Malta: A demand-supply analysis" can be accessed here.
[4] The working paper was concluded and published in the first week of January 2024. This can be accessed here.

The MFAC's **website** was also regularly updated to provide easy access to its reports and press releases and was updated with the latest GDP and fiscal statistics published by the National Statistics Office.

1.6 Human resources

The MFAC's staff complement remained unchanged during 2023, consisting of a Chief Economist, two Senior Economists, two Economists, and an Administrator who also serves as the Council's secretary. During the year, the Council maintained its commitment to fostering professional development among its personnel, actively encouraging participation in macro-fiscal training programmes to enhance expertise.

During the year, the Council reviewed and updated the MFAC handbook whilst taking into account the latest public administration directives.

1.7 Social media

During 2023, the MFAC recognised the imperative need to bolster its digital footprint. This initiative aligns with the Council's mission to enhance public awareness and understanding of the Council's role, thereby ensuring that the MFAC's efforts in promoting fiscal responsibility resonate effectively with the public. To broaden its outreach, the MFAC established **official pages** on both Facebook and LinkedIn platforms. The Facebook page allows the Council to tap into a broader demographic by informing the public of the Council's work and duties. At the same time, LinkedIn provides a professional platform to engage with industry peers. As much as possible, the Council tries to complement its publications through non-technical summaries to make its work more accessible to the public.

1.8 Technical Support Instrument

Alongside seven other EU-independent fiscal institutions (Lithuania, Czech Republic, Greece, Belgium, Spain, Latvia, and Cyprus), the MFAC has submitted a multi-country project application requesting EU funding for technical support under the Technical Support Instrument Programme (Regulation [EU] 2021/240). The technical support instrument aims to strengthen Member States' capacity in public management, particularly reinforcing independent oversight of Member States' public finances.

The multi-country project application covers four key pillars:

1. Development or upgrading of analytical tools for short- to medium-term macroeconomic and budgetary forecasting.
2. Assessing long-term fiscal sustainability and impact of climate transition.
3. Independent fiscal institutions' strategic, institutional, and operational support.
4. Increasing outreach and visibility towards the public and stakeholders.

The MFAC, together with Lithuania and Greece, will be actively participating in Pillar 1. Through collaboration with key experts in the field, the Council aims to develop an integrated macroeconomic-fiscal model for short- to medium-term forecasting for assessing the forecasts produced by the Ministry for Finance and Employment. Through this model, the Council aims to:

a. Produce macroeconomic and fiscal projections.
b. Allow for scenario analysis of different policies.
c. Assess the impact of different external assumptions on macroeconomic and fiscal forecasts.
d. Produce its own macroeconomic and risk scenarios and quantitatively assess the risk scenarios produced by the Ministry for Finance and Employment.

The multi-country application submitted by the consortium of independent fiscal institutions was successful, leading to the commencement of the project by the end of 2023. The envisaged duration of the project spans 36 months.

1.9 Recommendations made by the Council in 2023

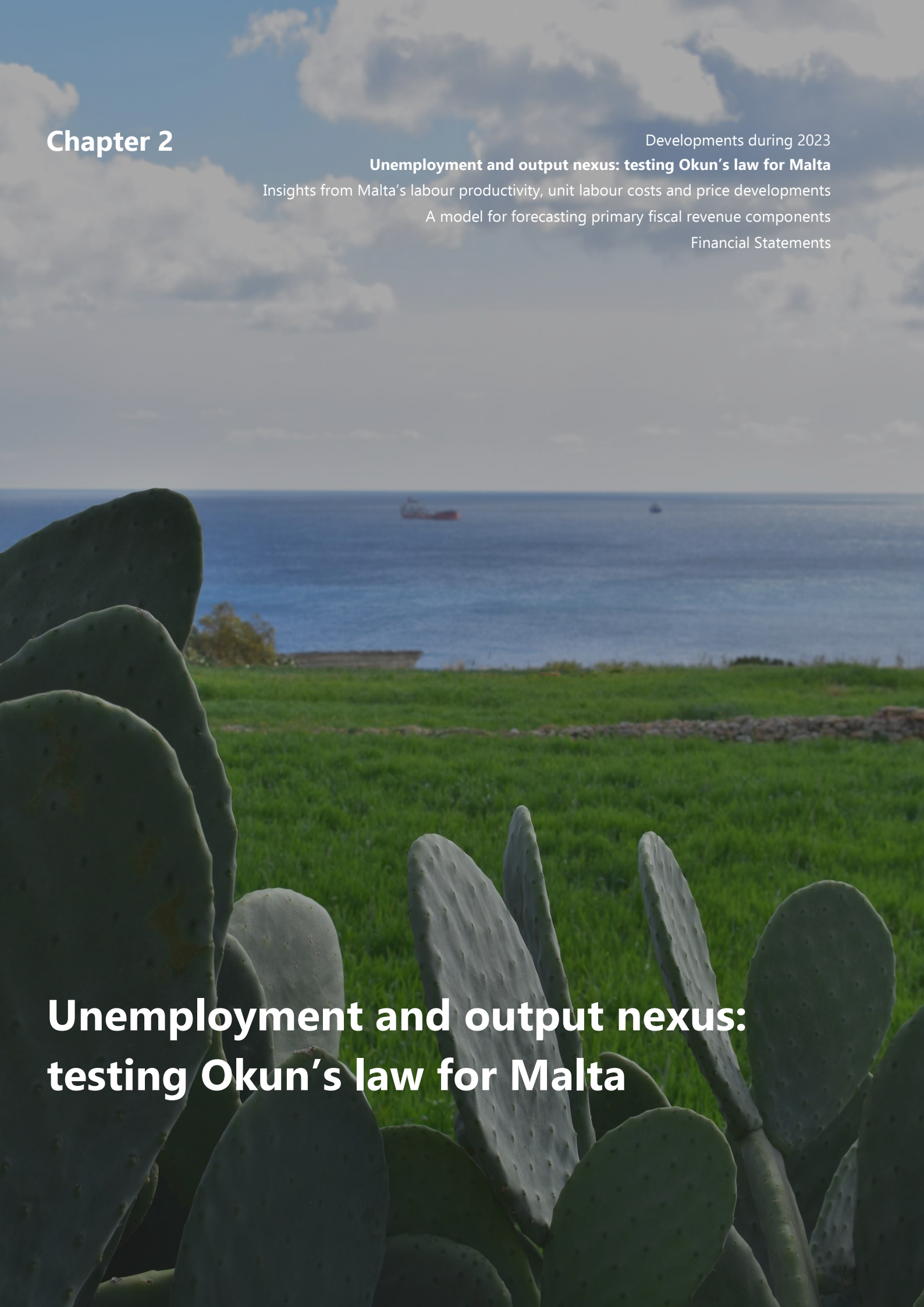
As mentioned in section 1.4 of this Chapter, the MFAC published five reports in 2023 which assess macroeconomic and fiscal developments as well as the projections produced by the MFIN. In these reports, the Council put forward a series of recommendations, which are summarised below:

Fiscal Council Recommendations during 2023

Recommendation	Publications
On the overall economic and fiscal policy stance:	
a. Economic growth should be more export-led, rather than being dependent on domestic demand, especially private consumption. This is particularly important in the context of the present high inflationary environment.	**Draft Budgetary Plan 2024**
b. To achieve export-led growth, there is a significant need to improve competitiveness through labour productivity increases. Addressing skill gaps and implementing the twin transition towards more digital and environmentally sustainable business practices should enable organisations to operate more efficiently and sustainably, thus improving labour productivity. This will ensure sustainable medium-term economic growth, but since the effects of these 44 investments take time to materialise, it is important to start implementing this reform agenda now.	**Draft Budgetary Plan 2024**
c. Government should strive towards achieving a sound medium-term fiscal position by building fiscal buffers, combined with efforts to achieve sustainable growth.	**Update of the Stability Programme 2023-2026; Annual Report 2022; Half-Yearly Report 2023; Draft Budgetary Plan 2024**

d. Any potential expenditure savings or higher than projected revenue should be directed to build fiscal buffers.	**Update of the Stability Programme 2023-2026; Annual Report 2022; Draft Budgetary Plan 2024**
On the composition of fiscal policy:	
a. Any deviations from the revenue and expenditure targets should not be compensated for by curtailing planned productive capital expenditure.	**Update of the Stability Programme 2023-2026; Half-Yearly Report 2023; Draft Budgetary Plan 2024**
b. Further steps should be taken to preserve nationally financed public investment, improve its efficiency and effectiveness whilst ensuring the effective absorption of RRF grants and other EU funds, particularly to foster the green and digital transitions.	**Annual Report 2022; Half-Yearly Report 2023; Draft Budgetary Plan 2024**
c. The Council encourages the government to accelerate the absorption of EU funds from the 2021-2027 programme and the remaining allocations from the RRF.	**Half-Yearly Report 2023**
d. Pursue further potential savings based on the developments noted over the first half of the year.	**Half-Yearly Report 2023**
e. Government should avoid inflating government spending, especially that which is not productive. Means of expenditure restraint should be explored in order to ensure that the minimum required fiscal effort is achieved.	**Draft Budgetary Plan 2024**
f. Continue achieving higher levels of collection of revenue arrears, but for future budgetary planning, the rate of 10% target collection can be plausibly revised upwards, as this is consistently being overachieved.	**Half-Yearly Report 2023**

On specific fiscal measures:	
a. Prepare an adequate exit strategy in related to the fixed-energy-price policy, adopt a more targeted approach and enhance incentives for energy savings.	**Annual Report 2022; Half-Yearly Report 2023; Draft Budgetary Plan 2024**
Other recommendations:	
a. Monitor closely those components where revenue generation over the first half of 2023 was slower than anticipated.	**Half-Yearly Report 2023**
b. MFIN to continue allocating adequate resources and time for good quality macroeconomic and fiscal forecasts, as well as for their ex-post assessment, and to address any forecast biases.	**Annual Report 2022**
c. Article 39(7) of the Fiscal Responsibility Act specifies that the Half-Yearly Report shall be tabled in Parliament by the end of July of each year. The Council notes that the Report was prepared by this deadline, but it was tabled after the summer parliamentary recess and made public in October…. The Council thus recommends that the Half-Yearly Report should be made public earlier.	**Half-Yearly Report 2023**
d. As regards the content of the Half-Yearly Report, the MFIN should also explore how to address Article 39(8)(h) of the Fiscal Responsibility Act, which prescribes that the Half-Yearly Report should contain "data on the absorption of European funds, indicating the approved program, the results achieved in the first six months and an updated forecast for the entire year" and Article 39(8)(i) which requires data on all outstanding creditors for the first six months of the year.	**Half-Yearly Report 2023**



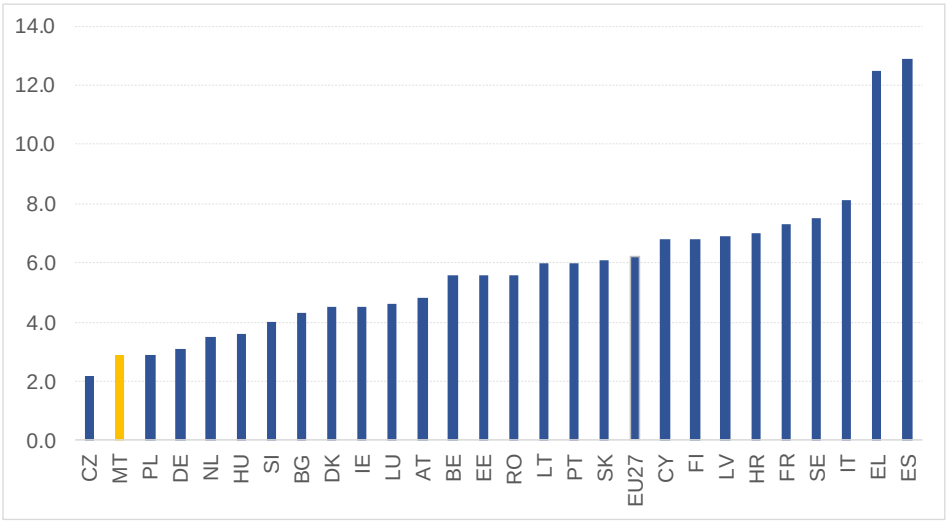
Chapter 2

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

2.1 Introduction

The last twenty years have been marked by notable periods of economic uncertainty, global instability, and international upheavals. Events such as the dot-com crash and the terrorist attacks of 9/11 in 2001, the economic and financial crisis of 2008–2009, the sovereign debt crisis that followed, the COVID-19 pandemic that started in early 2020, and the ongoing conflict between Russia and Ukraine since 2022, have all had a negative impact on labour markets, albeit to varying degrees across countries. This is best exemplified by the differences in unemployment rates among European Union (EU) member states. For example, in 2022, the Czech Republic had the lowest unemployment rate in the EU (2.2%), while Spain had the highest rate (12.9%). The unemployment rate in Malta stands at 2.9%, the second lowest rate in the EU. The disparity in unemployment rates across EU countries is primarily attributed, though not limited, to differences in labour market regulations and policies, differences in the industrial structures composing the economy and the extent of labour intensity in key sectors and the economy, and variations in policy initiatives designed to counter effect negative economic shocks and firm's response to such policies.

Unemployment Rate in EU Countries in 2022
(per cent of the labour force)



Source: Eurostat

The link between output and unemployment, known as Okun's law, was originally studied, and published in economic literature in the early 1960s using post-second World War US data. The study revealed a negative relationship between the two

variables.[5] Indeed, Okun found that a drop of 1 percentage point in output increased the unemployment rate by around 0.3 percentage points.

More recent estimates for the Euro Area reveal that from 1996 to the beginning of the 2008-09 recession, typical Okun coefficient estimates were close to -0.4.[6] However, studies based on data samples, which include the financial crisis of 2008-2009, find that the unemployment rate became less responsive to changes in output. This could be partly explained by the principle of labour hoarding, which, during the 2008-2009 subprime mortgage crisis, was further supported by short time working arrangements. Such policies have, to some extent, distorted the unemployment-output relationship.

During the pandemic, a similar distortion was seen in 2020 and 2021. The European Commission had urged Member States to adopt countercyclical fiscal policies to strengthen their economies and curtail the harsh consequences of COVID-19. This has been accomplished by activating the general escape clause in the Stability and Growth Pact. For example, Malta's labour market remained strong in 2020 despite an 8.1% fall in the country's real GDP, with the unemployment rate rising very little during that time. This was mainly because of the significant assistance provided by the Maltese government to safeguard employment through various initiatives, such as pay support programmes, which allowed most Maltese firms to retain their existing workforce.[7]

There are mixed perceptions about Okun's law among scholars and practitioners. Even while it is often acknowledged that this "law" is merely a statistical link and not always a structural aspect of an economy, part of its attraction is still its simplicity. This suggests that this association might not hold up over time, particularly if the economy experiences significant structural changes. New research indicates that this association varies significantly between countries, particularly following periods of severe economic unrest.[8] Additionally, research suggests that Okun's relationship has

[5] See Okun, A.M., "*Potential GNP: Its Measurement and Significance", Proceedings of the Business and Economic Statistics Section,* American Statistical Association, 1962, pp. 98 – 104.
[6] See box entitled "*Back to Okun's Law? Recent developments in euro area output and unemployment", ECB Monthly Bulletin,* June 2011.
[7] The support measures implemented by the government during the COVID-19 pandemic mainly consisted of the wage support scheme and other schemes administered by Malta Enterprise to assist those businesses which were impacted by the full or partial lockdown, together with spending vouchers for households. The wage support scheme, as well as the other schemes administered by Malta Enterprise, totalled €432.2 million in 2020, €368.2 million in 2021, and €124.7 million in 2022.
[8] See Pizzo, A., "Literature Review of Empirical Studies on Okun's Law in Latin America and the Caribbean", *Employment Working Paper,* Employment Policy Department, International Labour Organisation, Working Paper No. 252, 2019.

asymmetries, with unemployment increasing more during recessions than declining during periods of growth.[9]

Against this background, this thematic chapter presents empirical estimates of the link between output and the unemployment rate in Malta based on Okun's law. It also assesses the stability of this relationship over time, across sectors, and its susceptibility to the economic cycle. It also compares the strength of this relationship to other EU nations.

2.2 What is Okun's Law?

Arthur Okun, in 1962, estimated two versions of the relation between unemployment and production: a *difference* version and a *gap* version.

The **difference** version relates the change in production (expressed as changes in log of real GDP or percentage change of real GDP) [Y] to changes in the rate of unemployment [UR]:

$$\Delta UR_t = \beta_1 + \beta_2 \Delta Y_t$$

The β_2 parameter (which is commonly referred to as the Okun coefficient) is a measure of the elasticity of the unemployment rate with respect to output, while the parameter β_1 shows the change in the unemployment rate when there is no change in real output. *A priori,* one would expect parameter β_2 to be negative. Indeed, Okun found parameter β_1 to be equal to 0.3 and a β_2 value of -0.3.

The ratio $-\frac{\beta 1}{\beta 2}$ represents the minimum level of output growth which is needed to maintain a stable unemployment rate. As a result, this implies that the unemployment rate might increase even if GDP growth is positive.

Other research has employed different specifications of Okun's law relationship, such as the production function approach[10] and the dynamic version.[11] The dynamic version aims to consider potential omissions of important variables from the equation as well

[9] See Harris, R. and Silverstone, B., "*Testing for asymmetry in Okun's Law: a cross-country comparison", Economic Bulletin, 2001*, 5, pp. 1 – 13.
[10] See Daly, Mary C., John G. Fernald, Òscar Jordà, and Fernanda Nechio. "*Okun's Macroscope: Output and Employment after the great recession." Manuscript,* Federal Reserve Bank of San Francisco, 2012.
[11] See Knotek, E., "*How useful is Okun's law?" Economic Review Federal Reserve Bank of Kansas City 4,* 2007, pp. 73 – 103.

as changes in economic activity that have a delayed effect on the labour market. The production function approach version also seeks to look at the impact of other factors on the relationship between the two variables, such as productivity, participation and activity rates and population growth. Although the thematic chapter makes use of the dynamic version specification, it does not incorporate the production function approach within its methodological framework.

On the other hand, the **gap** version relates the gap between the actual and natural rates of unemployment to the output gap, i.e., the difference between actual and long-run GDP growth:

$$(UR_t - UR^*_t) = \beta_3 + \beta_4 (Y_t - Y^*_t)$$

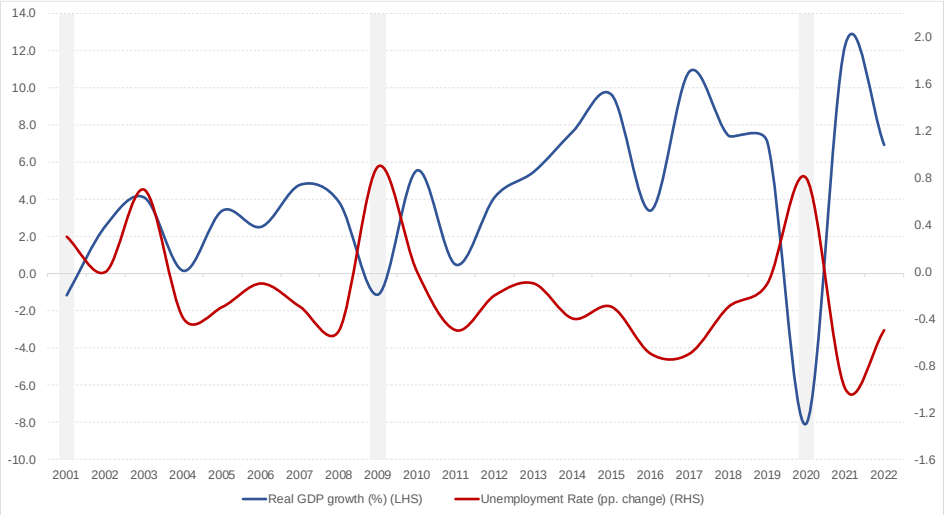
where UR* is the natural unemployment rate and Y* is potential output growth. In his seminal paper, Okun estimated β_3 to be equal to 3.72 and β_4 to be equal to -0.36. Indeed, *a priori,* one would expect β_4 to be negative. Notably, the gap version translates to the difference version of Okun's law if potential output growth and the natural rate of unemployment are constant.

The problem with the gap version of Okun's law is that this specification includes potential GDP, an unobservable variable which is then employed to calculate the output gap. The remainder of this study will concentrate on the difference version of Okun's law to prevent a discussion over the best way to estimate potential output and because of the method's sensitivity to the results.

2.3 Estimating Okun's law for Malta

On the basis of data between 2001 and 2022, there were three recessions (grey columns), with the most recent one being the most significant in terms of the drop in real GDP growth. Malta saw strong rates of real GDP growth in the remaining years of the study period. The data also points to the possibility of a negative correlation between changes in GDP growth and changes in unemployment rates; that is, when real GDP growth accelerates, the unemployment rate typically declines and vice-versa. Therefore, a priori, it is expected that the Okun coefficient will be negative and statistically significant.

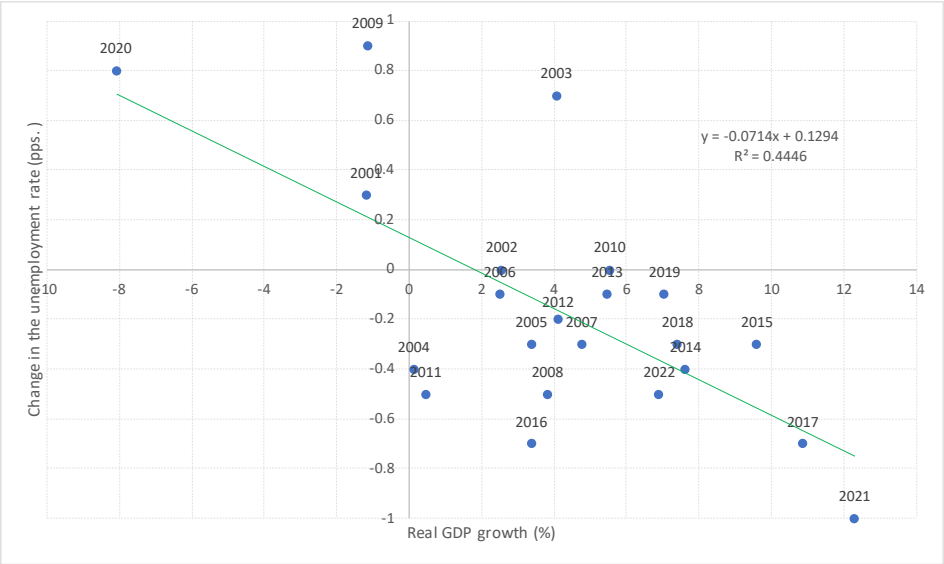
GDP growth and changes in the unemployment rate
(annual series)



Source: Eurostat

Indeed, when regressing the changes in the unemployment rate against real GDP growth using annual data from 2001 to 2022, the coefficient values obtained are 0.13 for the β_1 and -0.07 for the Okun coefficient β_2. This confirms a negative relationship between output and unemployment. The rate of output growth consistent with a stable unemployment rate is estimated at 1.8%. This means that a 1 percentage point increase in real GDP growth more than 1.8%, lowers the unemployment rate by around 0.07 percentage points.

Okun's Relationship in Malta
(annual data)



Source: Eurostat; Author's calculations

More econometric estimates for the difference version of Okun's law for Malta are shown in the following table, which makes use of quarterly data spanning from the first quarter of 2001 to the second quarter of 2023.[12] The GDP growth rate consistent with a stable unemployment rate is projected to be 1.6%, whereas the first static equation indicates an Okun coefficient of -0.07. The value of the Okun coefficient is very similar to the estimates obtained in a similar study by the Central Bank of Malta based on quarterly data between 2001Q1 until 2016Q2.[13] However, in this estimation, the intercept is not statistically different from zero at standard significance levels. When accounting for lags in the dependent and explanatory variables, the results hold steady, showing that changes in domestic economic activity have little impact on the labour market while being statistically significant. The dynamic specification, including lags both for the dependent and the explanatory variables, indicates that the long-run Okun's coefficient is close to zero, though acknowledging that the difference between the short and the long-run coefficient is marginal and that the long-run coefficient is fairly stable between the two dynamic version specifications.

Regression coefficients for Okun's law

Dependent variable: $\Delta(UR_t)$

Sample: 2001Q1 – 2023Q2

Specification	Explanatory variables				
	intercept	$\Delta(Y_t)$	$\Delta(Y_{t-1})$	$\Delta(UR_{t-1})$	Adjusted R2
Static	0.11	-0.07***			26%
Dynamic (a)	0.11	-0.07***	-0.00*		24%
Dynamic (b)	0.11	-0.07***	-0.02*	-0.32***	41%

*Statistical significance: * at 10% level, ** at 5% level, *** at 1% level*

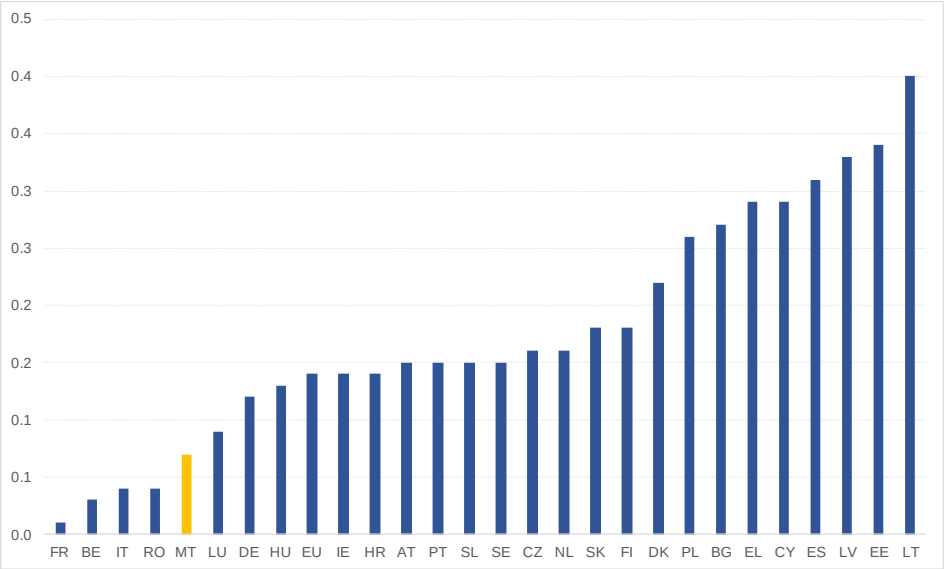
Source: Author's calculations

2.4 Comparison with EU countries

Using the static specification and the same sample of quarterly data, the following chart plots the Okun's coefficient for EU countries. Malta's Okun's coefficient is one of the lowest in the European Union.

[12] The first four observations are lost when calculating the yearly growth rate of GDP and the change in the unemployment rate because quarterly data only goes back to 2000. The National Accounts and the Labour Force Survey are the sources of the GDP and unemployment figures, respectively.
[13] See box entitled "*Estimating Okun's Law for Malta", Central Bank of Malta Quarterly Review,* 2013:3.

Comparison of Malta's Okun's Coefficient with EU countries
(estimates based on quarterly data, static equation, negative values)



Source: Author's calculations

The cross-country comparison shows a considerable degree of heterogeneity in Okun's coefficient. This heterogeneity is due to a number of factors, such as the degree of labour market flexibility, including the ease with which firms can fire and hire workers and the extent to which firms can adjust wages, the power of trade unionism and collective bargaining, including the firm's ability to reduce employees' working hours, employment protection legislation, the magnitude and type of shocks hitting the economy, and the degree of tightness in the labour market. For instance, the high Okun coefficient in the case of Spain could be related to the elevated incidence of temporary contracts.

In the case of Malta, an important reason for the relatively low Okun coefficient may be labour hoarding.[14] Hoarding labour would be the best course of action if businesses anticipate that the decline in demand will only be temporary. This is because doing so would prevent them from having to pay more expenses should they need to hire new workers in the future. This is at times complemented by government support to firms to retain workers during periods of deficient demand. A notable example of this is the

[14] Labour hoarding occurs when businesses hold on to more workers than necessary in the downturn. Labour hoarding is that part of labour input which is not fully utilised during the production process at any given point in time. Underutilisation of labour can manifest itself in various forms, such as reduced effort or hours worked, and the shift of labour to other uses, such as training. From the business point of view, some labour hoarding may be optimal given the fixed costs associated with adjusting staff numbers (which include costs of recruitment, screening and training of new workers, as well as costs related to the termination of contracts such as severance pay). Therefore, in the face of a downturn in activity, businesses may prefer to reduce labour input, at least to some extent, by shortening the hours worked, which is less costly than reducing staff numbers. It is also noteworthy that when excluding the crisis years, the Okun's coefficient in Malta decreases slightly by 0.02.

unprecedented government support in wage assistance schemes during the COVID-19 pandemic in order for employment to be maintained.

Malta's custom of lifetime employment may possibly have contributed to the country's comparatively low Okun coefficient.[15] For a large segment of the Maltese labour force, especially the older generations, this is most likely definitely the case. Employers are frequently reluctant to fire employees in these situations, also due to the costs associated with the firing and hiring of employees, which results in a relatively modest response of the unemployment rate to changes in GDP growth. This also holds true for workers in the public sector, whose employment makes up a larger portion of Malta's total than in most other EU countries and who usually enjoy protection from downturns in economic activity.[16] Furthermore, through the past two decades or so, Malta's unemployment rate has remained fairly stable in comparison to the EU average, reflecting limited variability in the dependent variable. Indeed, the unemployment rate in Malta stands at 4.5% compared to the 5.2% for the EU average. Similarly, the standard deviation for unemployment rates in Malta stands at 0.4 percentage points lower relative to the EU average.

Another possible reason for the lower Okun coefficient in Malta when compared to EU peers is the fact that in recent years, Malta's unemployment rate was at historically low levels, and, therefore, any increases in demand were catered for by the foreign inflow of workers. Indeed, upon the onset of the COVID-19 pandemic, Malta witnessed a relatively low increase in its unemployment rate when compared to the other EU countries. However, a significant number of migrant workers left the island.

2.5 The stability of Malta's Okun coefficient

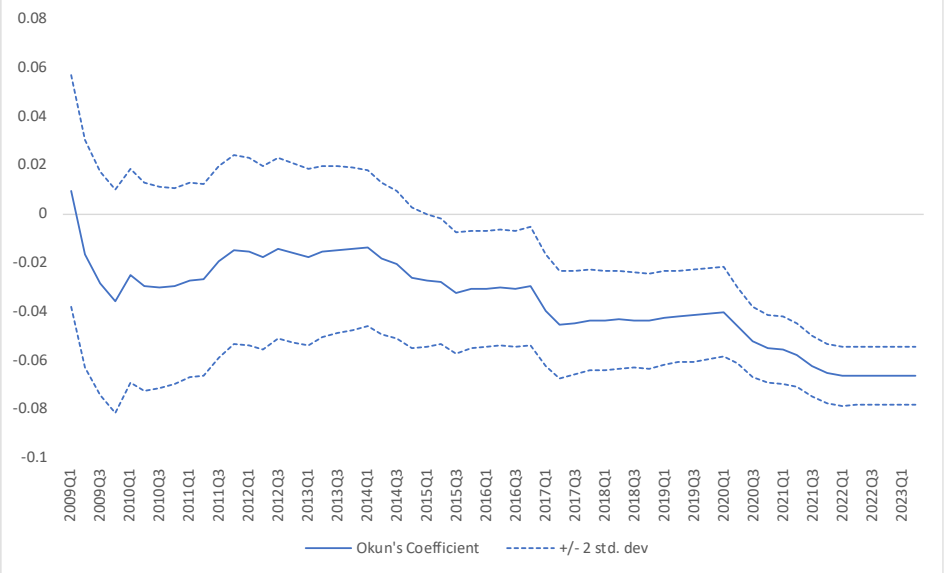
The stability of Okun's coefficient over time has been the subject of several debates and research (see, for instance, IMF, 2012)[17]. To test this, the rolling regressions technique was used to re-estimate the static equation[18]. In other words, the equation

[15] Apap and Gravino (2014). "*Okun's Law in Malta: Lessons Learnt from a Sectoral Perspective."* Economic Policy Department Working Paper Series.
[16] In 2022, employment in public administration and defence, education and human health services activities sector stood at 21.5% of total employment in Malta relative to 20.8% in the EU.
[17] IMF (2012). "*Unemployment dynamics during recessions and recoveries: Okun's law and beyond". World Economic Outlook*, 69-108.
[18] Rolling regression is often employed in empirical studies as a method to characterize changing economic relationships over time. As a simple robustness check, regression parameters are estimated using some fraction of the data early in the sample.

is estimated over a sequence of sample periods, thereby producing a set of estimated coefficients.

If the relationship between output and unemployment remained stable over the sample period, the coefficients from the regressions estimated over different samples should be relatively similar. Conversely, significant shifts in Okun's coefficient suggest that the relationship has not been steady over time.

Rolling Regression Estimate of Malta's Okun's Coefficient
(estimates based on quarterly data, static equation)



Source: Author's calculations

Econometric estimates show that the unemployment-output relationship in Malta has changed over the last years. This change, however, was not significant. Interestingly, the association is not statistically significant in the rolling regression sample's earlier years but becomes so after 2016. Restricting the sample to distinct endpoints validates this conclusion, as the Okun's coefficient becomes statistically significant and more responsive to output changes in comparison to endpoints prior to 2017.

The gig economy, which started to gain traction prior to the COVID-19 outbreak and continued to grow after it, may have contributed to the greater responsiveness of unemployment to economic activity in recent years. Indeed, Malta has seen increases in part-time workers and workers with temporary contracts. According to statistics issued by the National Statistics Office, almost 5% of all persons between 15 and 64

years carried out digital platform work or services in 2022[19]. These types of jobs have lower job security and are more likely to be terminated during periods of declining demand.

2.6 Differences in Malta's Okun coefficient at sectoral level

The Maltese economy has seen significant structural changes in recent years, most notably the shift towards a more service-oriented economy and the gig economy's growing popularity in Malta. The services sector is more labour-intensive. Indeed, over the past years, the share of employment in the manufacturing sector has declined from 21.7% in 2000 to 8.4% in 2022. At the same time, the share of the services sector has increased from 66.7% in 2000 to 83.4% in 2022. A steady increase in the share of employment within the services sector can be particularly observed post-EU membership.

Regression coefficients at sectoral level

Dependent variable: $\Delta(EMP_t)$

Sample: 2001Q1 – 2023Q2

Sector	Explanatory variables				
	Intercept	$\Delta(GVA_t)$	$\Delta(GVA_{t-1})$	$\Delta(EMP_{t-1})$	Adjusted R2
Primary	-0.20	0.01	0.02	0.84***	70.1%
Secondary	-0.15	0.07***	-0.02	0.84***	78.3%
Tertiary	0.11	0.09***	0.00	0.79***	80.8%

*Statistical significance: * at 10% level, ** at 5% level, *** at 1% level*

Source: Author's calculations

To conduct a sectoral analysis, given that unemployment and GDP statistics are not available at a sectoral level, the author resorted to using GVA as a measure of sectoral economic activity and employment statistics as the main dependent variable, all sourced from Malta's National Accounts. The estimation period is from 2001Q1 until 2023Q2.

Econometric estimates suggest that, when disaggregating the Maltese economy between the primary, secondary and tertiary sectors[20], employment in the tertiary

[19] NSO Statistics on Digital Platform Employment in 2022 may be accessed from here.
[20] The primary sector consists of sector A and B. The secondary sector is comprised of sectors C 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,

sector is slightly more responsive to sectoral GVA growth relative to the secondary and primary sectors. Such estimates are based on an autoregressive distributed lag model where the year-on-year growth rate in sectoral employment is regressed on its own lag and contemporaneous or lagged values of the year-on-year growth rate of sectoral gross value added.

2.7 Testing for asymmetry

Asymmetry in the output-unemployment relationship would imply that the unemployment rate's reaction to changes in GDP also depends on whether the economy is growing or contracting. This differs from the earlier specifications, which obliquely limit the GDP-unemployment relationship to remain constant between economic expansions and recessions. In this section, asymmetry is tested by distinguishing Okun's law relationship between periods of recessions and expansions[21].

To test for this, the GDP growth rate is split and replaced by two variables; (i) one is ΔY_t_exp, which contains the rate of change in GDP for those quarters when GDP is expanding while the remaining quarters show a value of zero, and (ii) ΔY_t_con, which contains the rate of change in GDP for those quarters when GDP is contracting while the remaining quarters are assigned a value of zero. Asymmetry is tested both on the static and dynamic regression specifications.

Regression coefficients for Okun's law with asymmetry

Dependent variable: $\Delta(UR_t)$

Sample: 2001Q1 – 2023Q2

Specification	Explanatory variables				
	intercept	$\Delta(UR_{t-1})$	ΔY_t_exp	ΔY_t_con	Adjusted R2
Static	0.06		-0.06***	-0.09***	27%
Dynamic	0.00	0.49***	-0.03**	-0.07***	48%

*Statistical significance: * at 10% level, ** at 5% level, *** at 1% level*

The two columns before the last refer to the specification of dummy variables to test for asymmetry.

Source: Author's calculations

K: Financial and insurance activities, L: Real estate activities, M and N: Professional, scientific, technical, administration and support service activities, O-Q: Public administration, defense, education, human health and social work activities, R-U: Arts, entertainment and recreation, repair of household goods and other services.

[21] The methodology adopted in this section closely follows the methodology adopted by Koro Yahia (2018). See Kori Yahia, A. (2018). "*Estimating Okun's Law for Malta".* MPRA Paper No. 83961, January 2018.

The above table presents the results for Malta from both the static and dynamic specifications of the difference version while testing for asymmetry. The dynamic equation, which includes the change in GDP in years 't' and 't+1' as regressors, was omitted to avoid issues of multicollinearity. In both the static and dynamic specifications, evidence was found of an unbalanced relationship in Okun's law though marginal. The response of unemployment to output tends to be more responsive during contractions relative to expansionary periods. It is notable that the output coefficients typically decrease slightly when an autoregressive term is included in the specification.

2.8 Defining the speed of adjustment

In this section, results from an error correction model estimation are presented to define the speed of adjustment of the unemployment rate to changes in the economic growth rate. The following table presents the results:

Error Correction Model (ECM) for the unemployment rate

Dependent variable: d_Δ(UR_t)

Sample: 2001Q1 – 2023Q2

Specification	$D(\Delta(UR)) = c(1)+c(2)*D(\Delta(Y))+c(3)*(\Delta UR_{t-1}+c(4)*(\Delta Y_{t-1}))$				
	c(1)	c(2)	c(3)	c(4)	Adjusted R2
Static	0.07	-0.04***	-0.51***	0.08***	30%

*Statistical significance: * at 10% level, ** at 5% level, *** at 1% level*

Source: Author's calculations

The results show that all the estimated parameters are statistically significant, except for the intercept. The estimated residual parameter with a one-period lag from the cointegration model (c(3)) indicates that the unemployment rate would adjust to equilibrium in each subsequent period by 51.4%. The value of the error correction term should be negative because a positive value would indicate a departure from equilibrium. This condition is met, and it is concluded that the estimated ECM model is stable. If the economic growth rate increases by 1%, the short-term unemployment rate would decrease by 0.04%. On the other hand, in the long run, if the economic growth rate increases by 1%, the unemployment rate will decrease by 0.08%. The long-run coefficient represents the equilibrium relationship between the variables in the model after any short-term deviations have been corrected by the error correction mechanism. Any short-run deviations from the long run are being corrected by 51.4% in each subsequent period.

2.9 Conclusions and policy implications

The results point to several interesting observations on the relationship between economic growth and the labour market in Malta, all of which can be summarised in four points as follows:

1. Through different econometric specifications, this study finds evidence of the Okun's law relationship in Malta, with an Okun coefficient which is statistically significant and hovering around 0.07. Furthermore, it was also noted that according to this relationship, the rate of output growth consistent with a stable unemployment rate is around 1.8%.

2. Juxtaposed with other EU economies, the relationship between output and unemployment in Malta is relatively weak, and only France, Belgium, Italy, and Romania reported an Okun coefficient that is lower than Malta's. Indeed, the cross-country analysis performed in this study reveals considerable heterogeneity in the Okun coefficient across EU economies, with Lithuania recording the highest coefficient at 0.4. This study also discussed potential reasons for Malta's relatively low Okun's coefficient, including labour hoarding, Malta's custom of lifetime employment, especially in older generations, and the fact that over recent years, Malta's unemployment rate was at historically low levels and therefore any changes in economic activity were mainly catered for by inflows of foreign workers rather than utilizing unemployment resources. Furthermore, the relatively stronger countercyclical fiscal policy adopted by the Maltese government during the COVID-19 pandemic has shielded the labour market against significant adverse shocks.

3. The unemployment-output relationship in Malta has changed over the last years but not by significant proportions. Such changes are on the back of the changing structure of the Maltese economy, particularly becoming more services-oriented and the higher prevalence of the gig economy over recent years. Such sectors tend to be more labour-intensive relative to the traditional sectors. Concomitantly, this study also found that the labour market in the tertiary sector is marginally more responsive to sectoral GVA growth in Malta relative to the primary and secondary sectors.

4. This analysis concludes that Okun’s law relationship in Malta tends to be slightly more responsive during contractionary periods than expansionary periods.

5. The results show a marginal difference between the short- and the long-run Okun coefficient in Malta and that any deviations between the short- and the long-run are corrected at a speed of adjustment of 51.4% in each subsequent period.

The above analysis points to several policy implications. The finding that Okun’s coefficient is slightly higher in recessionary compared to expansionary periods supports the MFAC's long-standing advice to adopt a countercyclical fiscal policy strategy by building fiscal buffers during prosperous times to create fiscal space. This allows for the creation of fiscal manoeuvre in times of subdued demand to stimulate economic activity and prevent significant shocks in the labour market.

Within the context of the Economic Governance Review (expected to come into force in 2025), the net primary expenditure upon which the Government must commit excludes cyclical unemployment expenditure. Based on the findings presented in this paper, the labour market in Malta has been highly resilient. Consequently, should this trend persist in the future, any deviations from the primary expenditure path would not be expected to emanate from cyclical unemployment.

Furthermore, the asymmetric relationship between output and unemployment suggests that the rate at which jobs are created during a recession would not be enough to take on the newly jobless. In order to help the unemployed improve their abilities and match the evolving demands of the new industries, a more proactive strategy should be taken to give them the necessary training and incentives, ultimately leading to the facilitation of their re-employment. Also, by facilitating the expedited employment of new entrants into the labour market, the government would mitigate the adverse and enduring effects of a recession on the nation's long-term potential output. Moreover, this study provides empirical evidence that addressing structural unemployment issues can help improve long-term economic growth. Policies focused on improving education, skills training, and labour market flexibility can enhance the economy's productive capacity over time, leading to higher levels of employment and output.

Chapter 3

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:

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

[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.

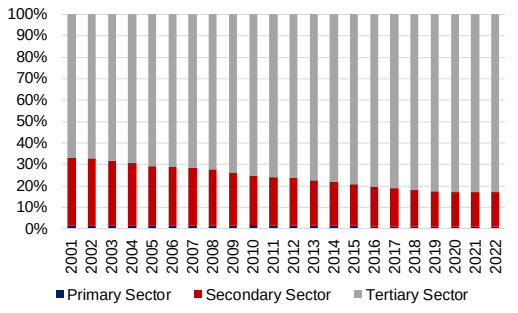
[25] See Tang, J., & Wang, W. "*Sources of aggregate labour productivity growth in Canada and the United States*". *Canadian Journal of Economics/Revue Canadienne d'économique*, 2004, 37(2), pp. 421–444.

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.

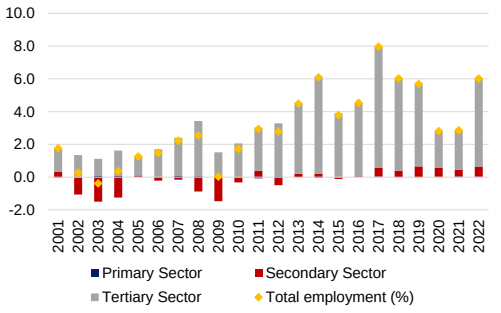
Sector's share of total employment

(percentage share)



Contributions of sectoral employment growth

(percentage contributions of year-on-year growth)

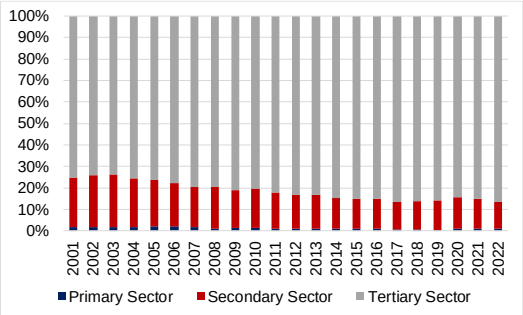


Sources: NSO & Author's calculations

[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.

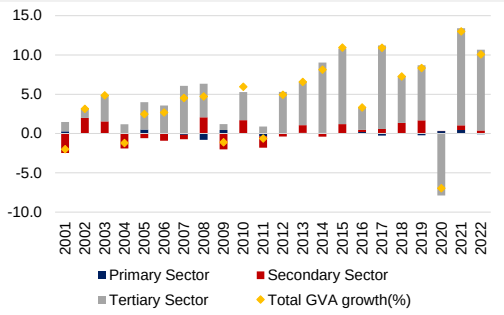
Sector's share of total GVA

(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.

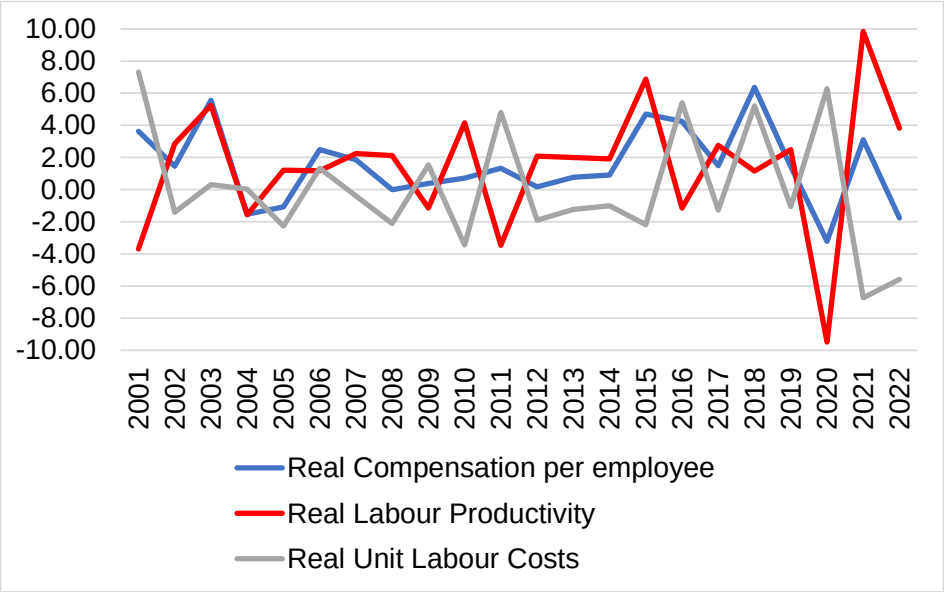
3.2.3 Real Unit labour cost

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:

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

[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

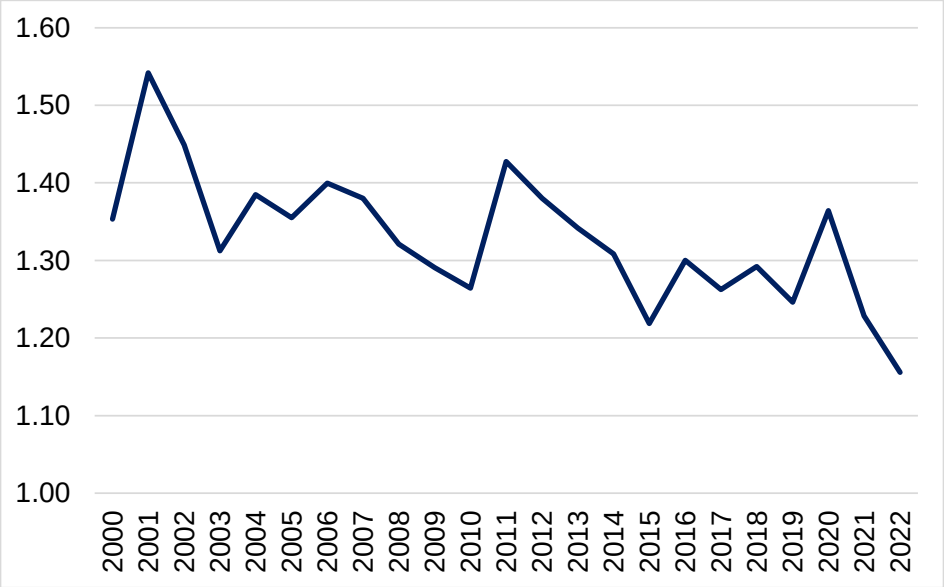
[36] The EA-19 countries are the following: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland. Croatia is not part of this list because it joined the Euro Area in 2023, which changed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

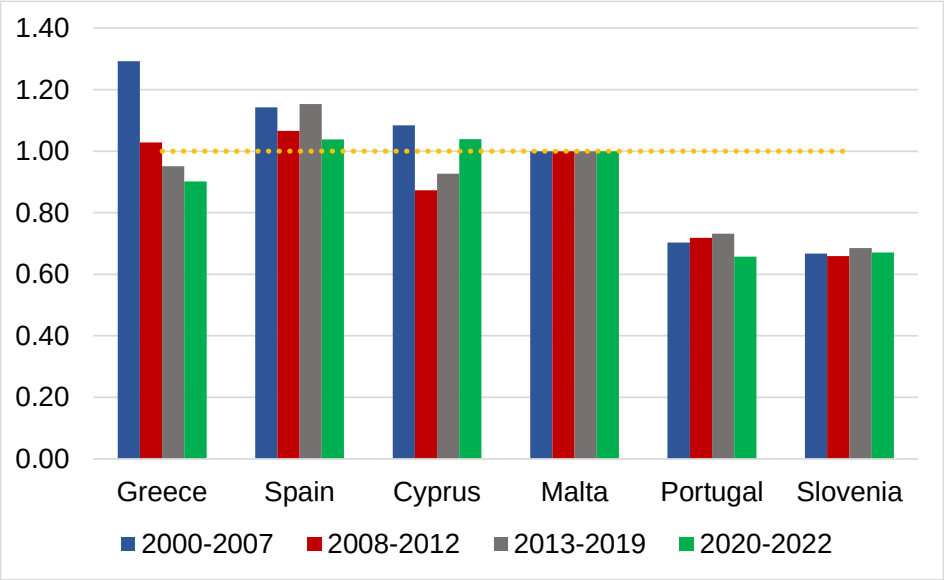
Comparisons with other EA countries provide insights into Malta's performance relative to its peers. While RULCs were calculated for all EA countries, this analysis focuses on comparing Malta to Greece, Spain, Cyprus, Portugal, and Slovenia as these countries share a similar level of development based 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.

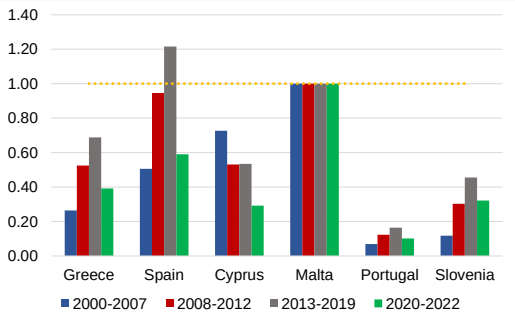
As regards to the 'public administration, defence, education, human health and social work activities' sector, Malta, on average, exhibits poorer price competitiveness compared to Greece, Spain and Cyprus but fares better when compared to Portugal and Slovenia.

[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.

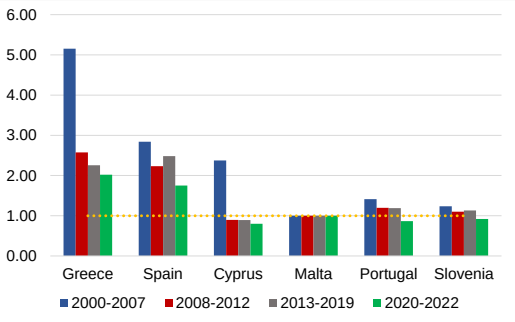
Relative unit labour costs of Malta as a ratio of the relative labour costs of other countries per sector

(Ratio)

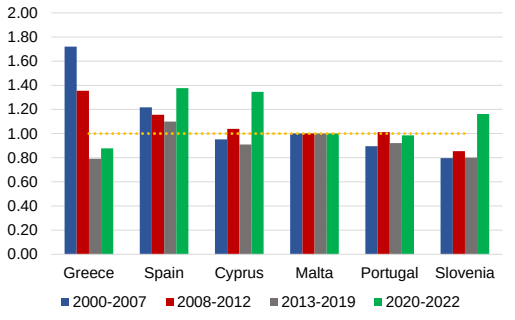
Agriculture, forestry and fishing



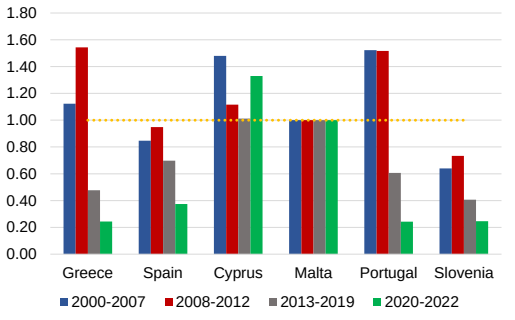
Industry inclusive of manufacturing



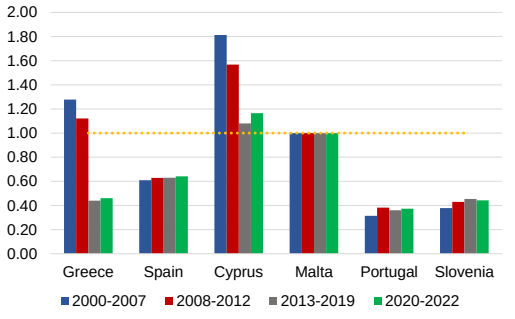
Wholesale and retail trade, transportation and storage, accommodation and food service activities



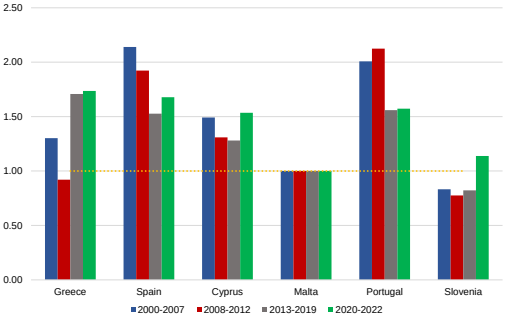
Information and Communication



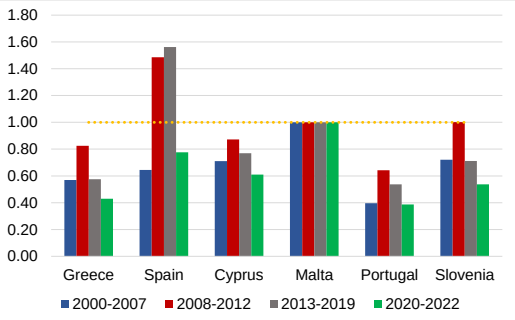
Professional, scientific, technical, administration and support service



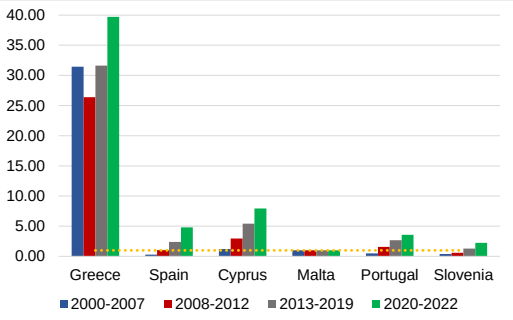
Financial and insurance activities



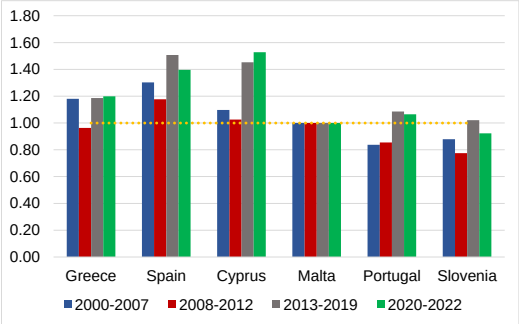
Construction



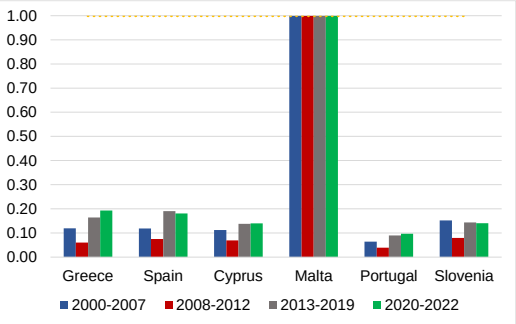
Real Estate activities



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

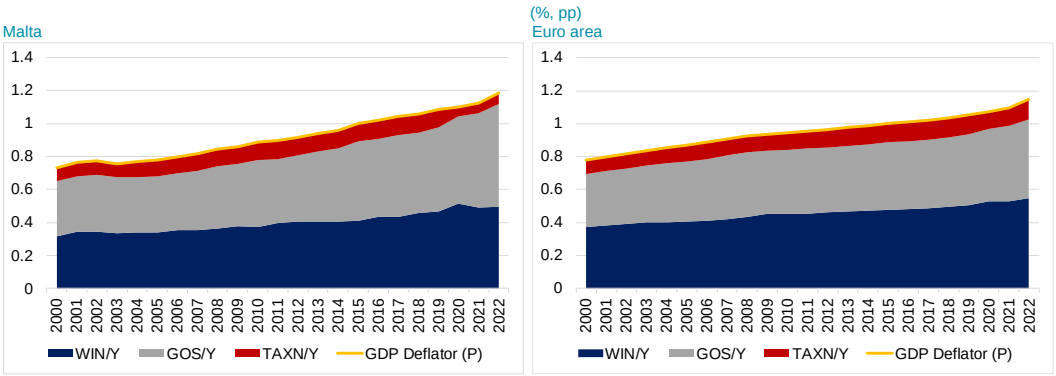
Price developments within the economy are important aspects in determining price competitiveness, which refers to a country's ability to sell its goods and services in international markets based on relative prices to competitors. In this section, an analysis is conducted to examine which domestic factors 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.

GDP deflator factors in Malta and the euro area[42]



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.

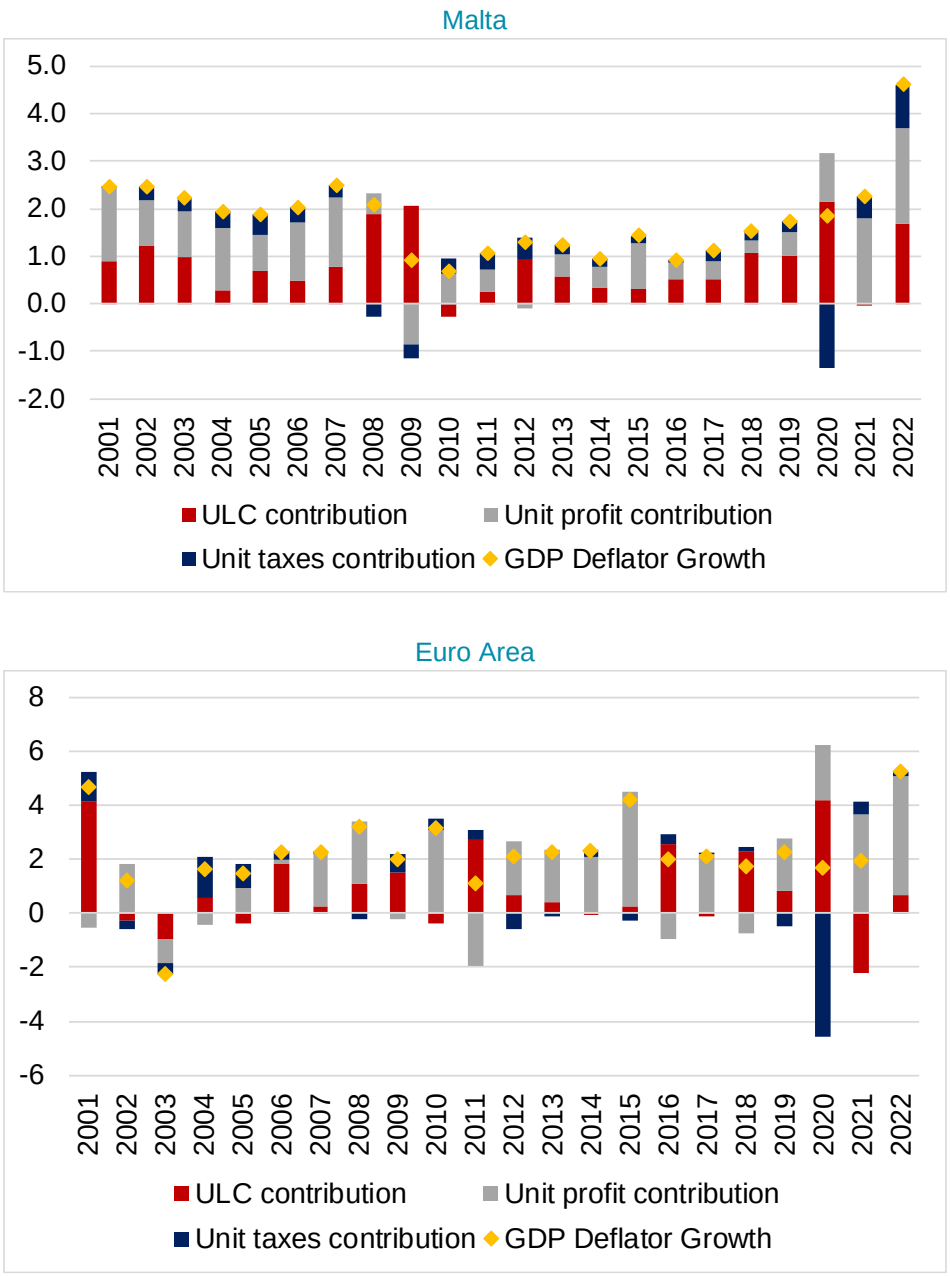
ULC fluctuations reflect the complex interplay of labour market conditions, wages, and productivity. In Malta, while ULC growth rates vary, the trend points to increasing labour expenses relative to output, potentially impacting production costs and inflationary pressures. The relationship between the 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)

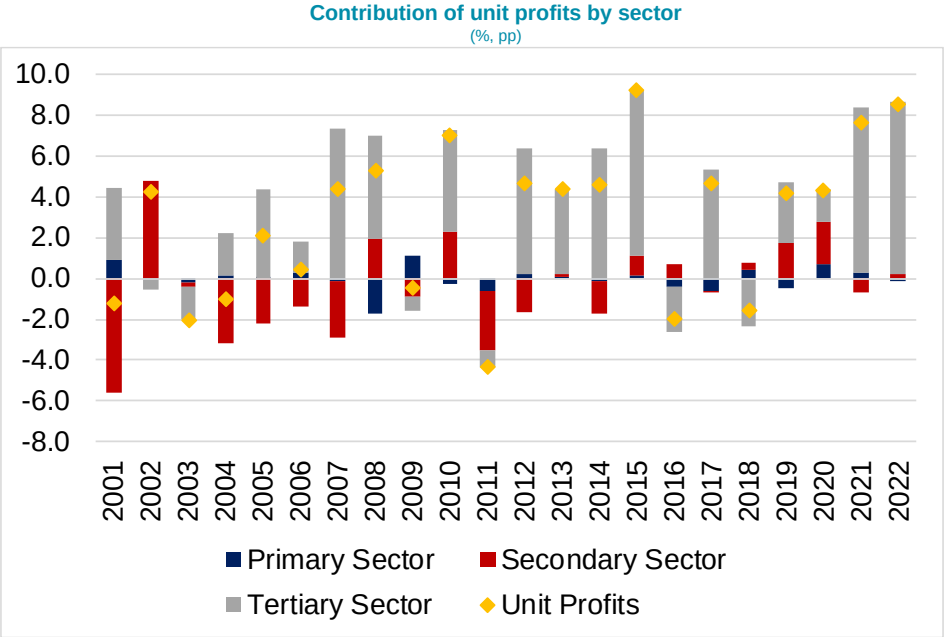


Source: Eurostat, MFAC calculations

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:

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

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							
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	`Aggregate real labour productivity growth (%)
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							
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	Aggregate real CPE growth (%)
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							
	A	B-E	Of which C	F	G-I	J	K	L	M-N	O-Q	R-U	Aggregate real ULCs growth (%)
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:

$$P \times Y = WIN + GOS + TAXN,$$

where: P ×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 = WIN/Y + 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.

A model for forecasting primary fiscal revenue components

4.1 Introduction

The Malta Fiscal Advisory Council (MFAC), as mandated by Article 13 of the Fiscal Responsibility Act (FRA) 2014 (Cap. 534 of the Laws of Malta), is required to endorse and provide an assessment of the extent to which the fiscal and economic policy objectives proposed by the Maltese government are being achieved. In this manner, it contributes to more transparency and clarity about the aims and effectiveness of fiscal policy in Malta. In particular, the MFAC conducts an ex-post assessment of the official fiscal forecasts published by the Ministry for Finance (MFIN) in the Update of Stability Programme (USP) at the end of April each year, and the Draft Budgetary Plan (DBP), by 15 October of each year.

To fulfil similar functions, around one-third of other European independent fiscal institutions (EUIFIs) utilise in-house models for fiscal monitoring and assessment, while approximately a fifth of EUIFIs produce fiscal forecasts at their own initiative, to serve as benchmarks in evaluating the credibility of official fiscal forecast targets.[43] According to the OECD, this forecasting process has helped IFIs to strengthen the analysis of fiscal policy in their countries and contribute to strengthen the governance of public finance at the national level.[44]

The MFAC had, prior to 2023, relied primarily on qualitative assessments of the budgetary forecasts produced by the MFIN. In order to enhance the comprehensiveness of the Council's assessments and to bridge the gap between qualitative and quantitative analyses, in 2023 the MFAC developed a fiscal-revenue forecasting model. This model facilitates a more exhaustive examination of key revenue components and provides deeper insights into fiscal dynamics. Through this model, the Council is generating and publishing its revenue forecasts, and is, in its ex-post assessments, including quantitative-based risks to the MFIN's revenue forecast figures. Such projections aid the Council with endorsing the official forecasts, together with strengthening its position to make well-informed recommendations and effectively evaluate fiscal risks emanating from the revenue side of the budget.

This thematic chapter aims to provide a comprehensive explanation of the basis of the fiscal revenue model and the methodological framework employed by the MFAC to

[43] See European Fiscal Board Annual Report 2023.
[44] See von Trapp, L. et al., *"OECD Review of the Independent Authority for Fiscal Responsibility (AIReF)"*, 2017.

compute historical and forecast revenue elasticity estimates and, eventually, the projections. The Chapter also explains the outputs derived from the model and includes a summary of the two forecast rounds conducted in 2023, highlighting the identified risks relative to the projections of the MFIN. The functionality of the model is then assessed through simulation exercise. Finally, the Chapter concludes by listing the limitations of the modelling framework, whilst summarising the insights and importance of having developed such a revenue forecasting model.

4.2 Modelling framework, data and historical elasticities

The MFAC's fiscal-revenue model follows a unidirectional macro-fiscal approach, wherein macroeconomic inputs exert influence on the pertinent fiscal revenue line items but in turn, fiscal revenue does not affect the macroeconomic variables.

The model focuses on the tax revenue components, namely taxes on production and imports, current taxes on income and wealth, and capital taxes. Besides these tax receipt components, the model also includes social security contributions. Consequently, the model excludes revenue variables such as market output, property income, and other revenue streams that exhibit greater volatility, discretion or lack association with specific macroeconomic proxy bases. The selected revenue categories have historically accounted for over four-fifths of central government revenue. Notably, in 2022, current taxes on income and wealth emerged as the predominant source of governmental income, comprising 39%, followed by taxes on production and imports at 30% and social contributions at 17%.

The model is based on annual data, mitigating disruptive effects of time adjustments and seasonal variations commonly observed in monthly and quarterly fiscal data. The model incorporates information from three primary data sources, all using the ESA 2010 framework. The primary data source comprises annual aggregated data on headline revenue indicators sourced from Eurostat. This data spans from 1995 up till the latest actual annual data available, which in the case of the latest assessment and model compiled by the Council, was 2022.[45,46] However, this dataset lacks a comprehensive disaggregation for all sub-components of the primary revenue

[45] This data is also published by NSO through the release titled *"Quarterly Accounts for General Government"*.
[46] It is to be noted that the analysis in this Chapter centers on the modelling and forecasting conducted for the assessment of the MFIN's October 2023 Draft Budgetary Plan, published in December 2023.

indicators. To facilitate a granular analysis, annual data for sub-components is incorporated by using the NSO's statistical release on tax revenue, which includes a detailed tax list covering the same time frame.[47] The third dataset employed consists of a list of discretionary budgetary measures. This data enables the Council to generate both no-policy change and policy change forecasts. The MFIN provides this dataset to the MFAC, which covers from 2011 onwards, also including the forecast years.

Changes in government revenue are predominantly determined by fluctuations in the tax base and shifts in policy and their responsiveness to such changes. The tax base serves as the foundation for revenue forecasting. The selection of macroeconomic bases for each fiscal revenue component was chosen by relying on both theoretical and empirical associations (see Appendix I to view the proxies chosen for each revenue component).[48]

Elasticities are compiled to gauge the relationship between the tax base and the respective revenue variable. Elasticities measure the response of a revenue variable to a 1 percent change in its allocated macroeconomic driver, under the assumption that government policy (such as tax rates) remains constant. For example, if the elasticity of income tax revenue is 1, then a 1 percent growth in the tax base would yield an increase in income tax receipts of 1 percent. An elasticity which is greater than 1 would indicate that the tax revenue component is very responsive (elastic) to a change in the tax base, whereas an elasticity less than 1 shows less responsiveness to a change in the tax base (inelastic).

The annual elasticities of actual data observations are computed by dividing the growth in a specific revenue component by the growth in the selected tax base. An exception is made for the computation of *'taxes on the income or profits of corporations including household gains'*. In this instance, the computation involves dividing the component's growth by the 5-year average growth of the tax base. This approach is designed to mitigate the inherent volatility of this particular component and to account for any income tax in arrears.

When the yearly elasticities are computed, a historical average spanning from 1996 to 2022 is derived. The most recent 3-year and 5-year elasticity averages are also

[47] The NSO's tax revenue release, used for this analysis, can be found here.
[48] As a rule of thumb Nominal GDP is used as a proxy when variables are not clearly related to other specific variables or where data is unavailable.

computed, both including and excluding the years mostly impacted by the COVID-19 pandemic, namely 2020 and 2021. These calculations are conducted for further analytical purposes, facilitating a more insightful analysis of recent trends in elasticity compared to historical patterns (see Appendix II for the complete list of historical elasticity averages computed).[49]

Generally, when examining the recent 3-year and 5-year averages if excluding COVID-19 years, an overall reduction in elasticities is observed. This suggests a shift towards a more inelastic relationship between the primary revenue components and their respective proxy basis (see Appendix II). Indirect taxes have experienced a notable weakening in the historical (1996-2022) unitary relationship between revenue from indirect taxes and the relationship with various proxies making up the tax base. For instance, the elasticity of '*Value Added Tax (VAT)*' has experienced a decline, with a 5-year average of 0.7 compared to its historical average of 1.1. Meanwhile, the average elasticity of '*excise duties and consumption taxes'* is typically more inelastic and its relationship with the tax base seems to be becoming more stable in the more recent years.

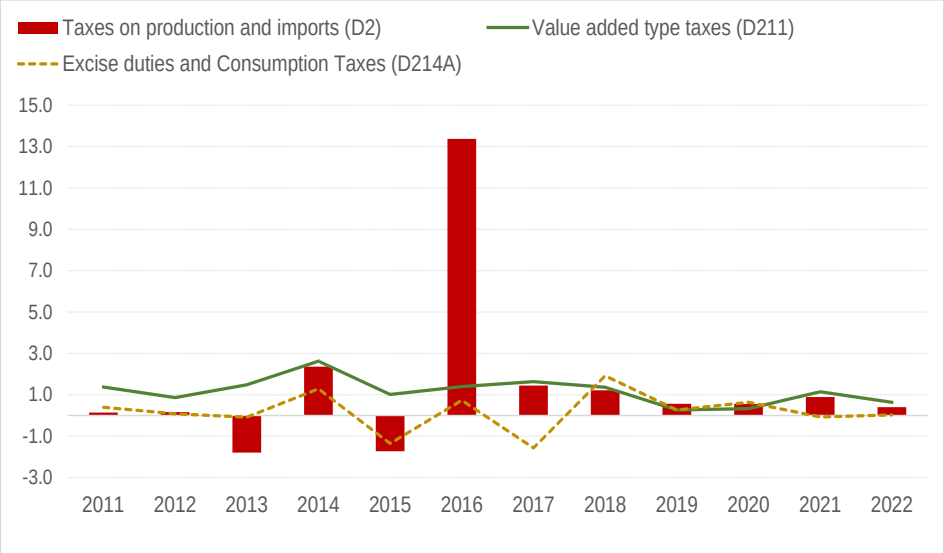
Since 2011, the elasticity for '*current taxes on income and wealth'* has fluctuated between 4.9, recorded in 2020 reflecting the disruptions caused by the pandemic, and 0.5, recorded in 2015. When compared to the historically (27-year) elastic relationship of 1.8 between the headline indicator and the respective macro-proxy variables, there was a notable decline of 1pp in the last 3 years excluding COVID-19, meaning that less taxes are being received compared to the growth in the selected tax base. Particularly the highly volatile sub-component '*taxes on the income or profits of corporations*' which historically had a high elasticity has contributed mostly to this decline in elasticity. Indeed, since 2011 this component has exhibited an average elasticity of 0.5, 1.3pp lower than its historical average. Meanwhile '*taxes on individual or household income*' have exhibited more stability, with an average elasticity of 1.7 since 2011, very close to its historical (27-year) elasticity of 1.8.

[49] It must be noted that tax elasticities could undergo sizeable fluctuations, rendering them potentially unstable in the short term, possibly influencing the 3- and 5-year elasticity averages. These fluctuations are often attributable to changes in the composition of aggregate demand (such as shifts in demand from net exports to private consumption or from low to more heavily taxed consumption goods), and changes in the distribution of income across households that are subject to different marginal tax rates. Consequently, the standard assumptions of exogenous and fixed elasticities might be a source of errors in revenue estimation in the short run (See Leal, T. et al., *"Fiscal forecasting: Lessons from the literature and challenges"*, *European Central Bank Working Paper Series No. 843,* 2007).

It is noted that the elasticity for this tax component is higher during the pandemic years, especially in 2020. This is due to the fact that current taxes on income and wealth declined by more than the corresponding tax base.

'*Net social contributions'* is a revenue component that exhibits more stable elasticity properties. Historically, this revenue stream has demonstrated a close-to-unitary elasticity of 0.9. This has marginally decreased to 0.7 in the recent three and five years excluding COVID-19 years. A notable rise in the elasticity is again noted during 2020 for social contributions, as wage income declined considerably during the pandemic, whilst national insurance contributions continued to be paid.

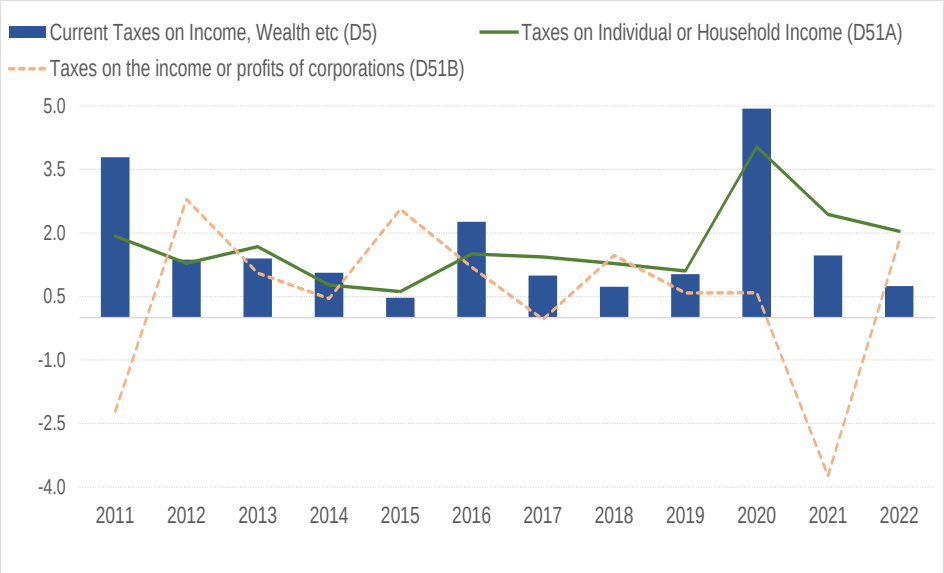
Elasticities of 'Taxes on Production and Imports', 'VAT', and 'Excise Duties and consumption taxes' (2011 – 2022) [50,51,52]



Source: Eurostat & Author's calculations

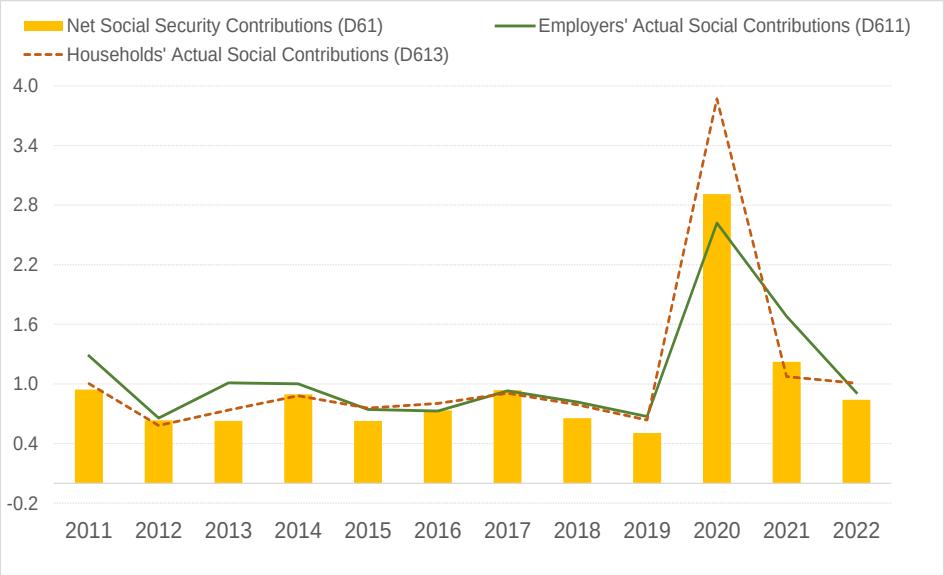
[50] Charts illustrate elasticities based on data from 2011 onwards, aligning with the availability of the discretionary revenue measures dataset from 2011.
[51] In 2016, the elasticity of taxes on production and imports was heavily influenced by a significant variation in the importation of fuel.
[52] In this chart, and the two charts which follow, two sub-components of each main revenue variable were selected for further analysis. However, it is important to note that there are more sub-components than these which contribute to the overall elasticity.

Elasticities of 'Current Taxes on Income and Wealth, etc', 'Taxes on individual or household income' and 'Taxes on the income or profits of corporations' (2011 - 2022)



Source: Eurostat & Author's calculations

Elasticities of 'Net Social Security Contributions', 'Employers' actual social contributions' and 'Household's actual social contributions' (2011 – 2022)



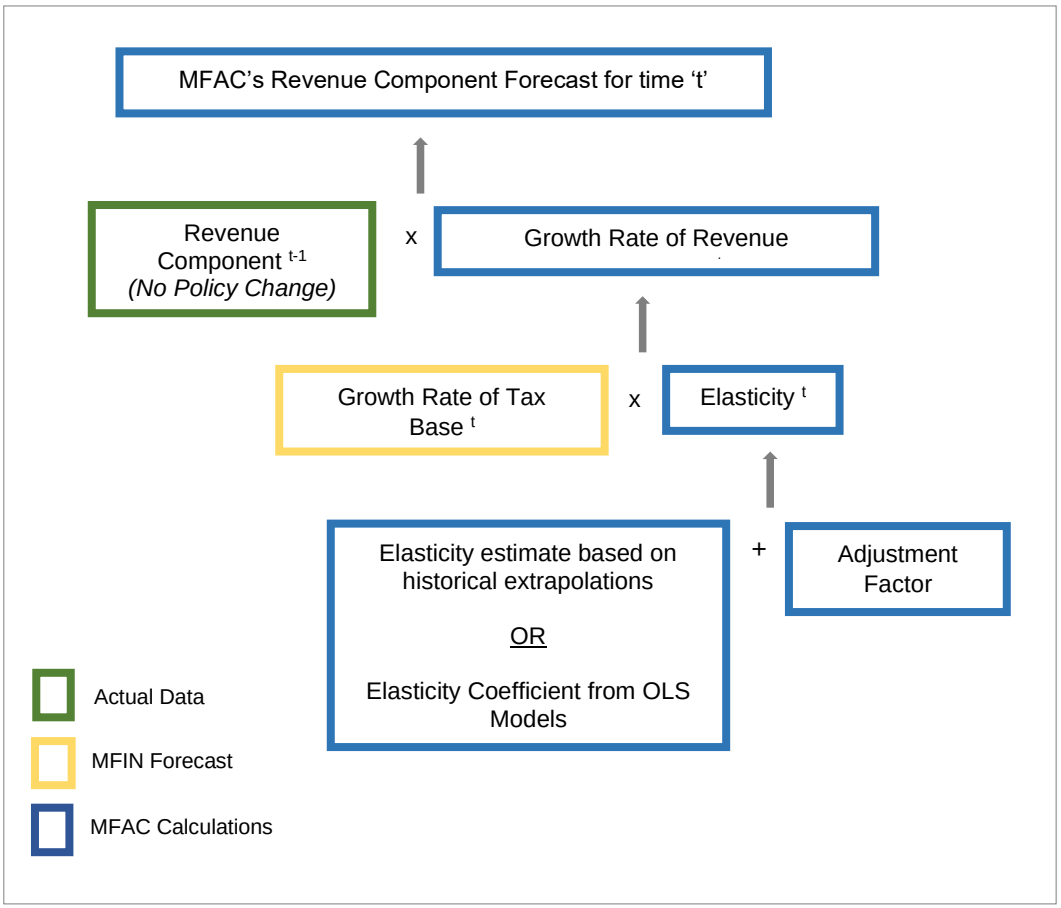
Source: Eurostat & Author's calculations

4.3 Forecasting

This section describes the bottom-up approach used by the Council to derive its forecast for a particular revenue variable (see the figure below). For explanatory purposes, this section shall be explained in terms of a forecast for the year 't'. [53]

The forecasts are formulated under the assumption of unchanged policy, therefore considering only permanent policy measures that are credibly announced and known in sufficient detail while excluding temporary budget measures. By assuming a no-policy change scenario, hence disregarding discretionary measures, empirical estimates can more accurately capture the relationship between the tax base and government revenue.[54] Utilising this no-policy change forecast modelling framework also enables forecasters to quantify the extent of policy adjustment required to achieve budgetary objectives or requirements.[55]

The No-Policy Change Forecast Modelling Framework for year 't'



[53] The same methodology is employed to estimate future periods (t+1 … t+n).
[54] See Conroy, N., *"The Role of Elasticities in Forecasting Irish Government Revenue" Irish Fiscal Advisory Council Working Paper Series No. 14. Dublin,* 2021.
[55] See European Commission "*Report on Public Finances in EMU" Institutional Paper 045*, 2016.

The no-policy change revenue forecasting methodology for year 't' consists of three main stages. The first stage involves determining the forecasted elasticity for that year. This calculation varies depending on the revenue variables, either calculated through historical extrapolations, such as utilising past elasticity averages or maintaining the previous year's elasticity value, or computed via an econometric model. The elasticities of some key revenue contributors are estimated through independent Ordinary Least Squares (OLS) models. More detail on these models is provided in a subsequent section of this Chapter. Following the compilation of these elasticities, expert judgment is applied to the fiscal revenue components by adding adjusting factors to the elasticity coefficients for year 't'.[56] This process enables the Council to apply its expert judgement without compromising the fundamental framework of the model.

In the next stage, the estimated elasticity of the revenue component is multiplied by the forecasted growth of its tax base, to produce the forecast growth rate of the revenue component. This provides a quantitative estimate of expected revenue changes for the specified period. The Council's base model relies on the most recent macroeconomic growth projections for the tax bases provided by the MFIN. By using identical macroeconomic inputs, the framework enables a nuanced comparison between the fiscal revenue forecasts of the MFIN and the MFAC.

In the last stage of the calculation process, the forecasted growth rate of the revenue component is multiplied by the component's preceding year outturn in absolute terms. The final step is then to incorporate the additional discretionary measures (as estimated and used by the MFIN) to the no-policy change forecast. This gives a policy change forecast, which is comparable to the fiscal projections published by the MFIN.

The above delineates the computation process for the base forecast model. Additionally, the MFAC estimates a second model that amalgamates the Council's macroeconomic expert judgment, thereby adjusting the macroeconomic forecast growth rates provided by the MFIN.[57] This expert judgment serves to refine revenue forecasts by incorporating also the MFAC's views on macroeconomic factors. This second model thus generates revenue forecasts which differ from those of the MFIN

[56] An example of such judgement could be, for instance, developments in quarterly data during the current year (which do not feature in the model since this is compiled on annual data) or other pertinent information which the MFAC might know of, that show that the elasticity might differ from past tendencies derived from the model.
[57] Further details regarding this model can be found in Section 4.4 of this Chapter.

due to both differences in elasticities (as in the first MFAC model) as well as differences in the macroeconomic tax bases.

4.3.1 OLS models

For twelve revenue variables, OLS models are used to generate the estimated elasticity coefficient instead of using one that is based on historical extrapolations, as explained in the previous section.[58] These coefficients are consequently employed as the base elasticity for the variables' forecast years. Notably, most models pertain to the '*taxes on production and imports'* revenue component, with eight models developed to estimate its sub-components. These are:

- Value-added type taxes (VAT)
- Taxes on duties on Imports
- Excise duties and consumption taxes
- Taxes on Financial and Capital transactions
- Car Registration taxes
- Taxes on Lotteries, gambling, and betting
- Other taxes on products, except VAT and Import Taxes
- Other taxes on production

Meanwhile, two models were estimated for the *'current taxes on income, wealth etc.'* component: '*taxes on individuals' income'* and '*taxes on the income/profits of corporations'*.

The main elements of the *'net social security contributions'* component*; 'employer's social contributions'* and *'employee's social contributions'*, have exhibited a consistent linear trend in their elasticity figures over time. Consequently, their elasticities were based on historical extrapolations. Conversely the elasticity trend of *'self-employed social contributions'* is rather volatile, necessitating the development of an independent OLS model for better analysis and forecasting accuracy. Additionally, a model was developed to examine the dynamics of capital taxes.

[58] OLS models are used to estimate parameters with statistical techniques that take into account the variability and uncertainty in the data. In such instances this could provide more reliable estimates of elasticities.

All twelve models are based on the simple linear regression (4.1) where y is the revenue sub-component, x represents the macro-proxy variable taken into consideration, β_1 is the intercept and β_2 is the slope coefficient.

$$y = \beta_1 + \beta_2 x \quad \textbf{(4.1)}$$

For the coefficients to represent proportional changes, a logarithmic transformation is applied to both sides of (X.1) which gives:

$$\log y = \beta_1 + \beta_2 \log x \quad \textbf{(4.2)}$$

Here β_2 represents the elasticity between the government revenue variable and the selected macro-proxy variable x. For instance, if β_2 = 0.8, a 1 percent change in the tax base results in a 0.8 percentage change in revenue implying that the component is inelastic. Thus, a double-log model allows for a straightforward interpretation of the elasticity coefficient.

Respecifying the model in logarithmic form also mitigates heteroscedasticity issues. This transformation, as represented by (4.2), tends to lessen these issues, if present, by compressing the scales on which the variables are measured and by reducing the spread of the data. Consequently, it can alleviate the influence of extreme values or outliers in the dataset, which often disproportionately affect statistical estimates and inference in regression analysis.

The regression estimation results for all twelve models are provided in Appendix III. The econometric outputs presented herein provide a comprehensive overview of specific revenue components, forming the foundation for deriving their respective elasticities. These results reflect the best possible outcome in an environment characterized by a relatively small sample size of 28 years, which encompasses multiple time-series breaks, and frequent data outliers. Nonetheless, the estimation process ensures reliable insights into the relationships between variables, contributing to a thorough understanding of the dynamics influencing the revenue components under consideration.

These time series models assume constant variable relationships over time. However, external factors like government policy changes (such as Malta joining the European Union), the 2008 Global Financial Crisis, and the COVID-19 pandemic can disrupt

these relationships. These events introduce outliers and structural breaks in the data, necessitating appropriate adjustments. Failure to address these anomalies risks model misspecification, resulting in poor forecast performance. Thereby, observations significantly influenced by extraordinary events were omitted from the regression analysis of several components that were most impacted by such events. From a statistical standpoint, although incorporating observations from these years increases the goodness of fit (R^2), it lacks economic rationale to include such observations due to their outlier nature. Apart from omissions of outlier data, additive dummy variables are also used to address outliers, particularly for the year/s impacted by the 2008 global financial crisis. Here, the dummy variable takes a value of 1 for the affected observation and 0 elsewhere. Models that have dummy variables are taxes on financial and capital transactions, car registration taxes, other taxes on products, and other taxes on production. The regression formula employed in these cases is as follows:

$$\log y = \beta_1 + \beta_2 \log x + \beta_3 D \qquad \textbf{(4.3)}$$

The resultant β_2 coefficient is consequently employed as the base elasticity for the variables' forecast years. An anti-logarithm can also be applied to the equation, giving the impact in absolute terms of a 1-unit change in the tax base.

4.4 Assessments performed using the revenue model

One of the main deliverables of using this modelling framework is to benchmark the revenue forecasts published by the MFIN with those of the MFAC, thus quantifying risks to the various revenue components. Such assessment was first published in the Council's assessment of the Update of Stability Programme (USP) 2023 – 2026 and subsequently in the assessment of the Draft Budgetary Plan (DBP) 2024. Two scenarios of the model were presented in each assessment.[59]

In the first scenario, the model maintains the same macroeconomic growth projections provided by the MFIN but uses the Council's extrapolations or model-driven elasticities to generate the revenue forecast (see Scenario 1). This model is also termed as the 'base model'. Discrepancies observed between the MFIN's forecast and that of the MFAC under this scenario may stem from variations in the tax base chosen to

[59] The forecasts generated by the Council are detailed in Box D of the USP 2023 - 2026 and Box C of the DBP 2024.

represent specific fiscal variables, discrepancies in specific models employed, and the resultant elasticity outcomes, which can also be due to different adjustment values assumptions. It facilitates a better understanding of how baseline risks impact individual fiscal components and ultimately influence the forecast of the fiscal balance.[60]

Meanwhile, the second scenario integrates changes to the macroeconomic projections based on the Council's expert judgment, reflecting macroeconomic risks delineated in the respective reports' macro sections (see Scenario 2). This is done by changing the tax base growth rate figures, from those projected by the MFIN, ultimately leading to further changes in the MFAC's revenue forecasts. Considerations include changes in global economic conditions, domestic policies, emerging trends, and other relevant factors and expectations that may be differently opined relative to the baseline macroeconomic outlook of the MFIN. This approach can be interpreted as the final risk outcome vis-à-vis the various revenue variables, as it includes both the base model's risks and other macroeconomic risks vis-à-vis the MFIN's baseline projections.

Reviewing the risk analyses presented in the two MFAC reports, the Council's overall stance was that of an upside risk for total revenue for 2023. This remained unchanged from the June to December assessments. However, in the base scenario (see Scenario 1) the magnitude of the risk declined following upward revisions to revenue made by the MFIN in the DBP. The main source of this overall upside risk emanated from current taxes on income and wealth. On the other hand, in the base scenario the downside risk identified for taxes on production and imports persisted across both rounds, but the magnitude of this risk was higher in the assessment of the DBP. For 2024 the magnitude of risks for both variables increased in the DBP when compared to the risks identified in the USP. However, this time, the downside risk viewed in the DBP for taxes on production and imports outweighed the upside risk viewed for current taxes on income and wealth, resulting in an overall downside risk to total revenue.

The Council's expert judgment (Scenario 2) reflected more positive macro tax bases, resulting in larger upside risk in both the USP and the DBP. In respect of current taxes on income and wealth, the Council maintained a positive outlook in both assessments. The identified upside risk in the USP was more pronounced in the DBP, and in both

[60] The fiscal model available permits the Council to make counter-factual assessments of macroeconomic and fiscal risks as well as providing a yardstick to compare the Ministry's results, including those of the sensitivity analysis.

rounds, the adjusted macroeconomic projections in scenario 2 yielded an even more positive outcome for direct taxes. Concerning net social contributions, marginal risks were observed across both forecast rounds, with a marginal downside at the time of the USP, shifting to the upside in the DBP, when the macroeconomic tax bases included the MFAC's expert judgment. Upside risks were also viewed in scenario 2 for taxes on production and imports at the time of the USP, which however shifted to negative in the DBP. Nonetheless, in the DBP, the upside risks viewed for both 2023 and 2024 for direct taxes and social contributions more than outweighed the negative risk viewed for taxes on production and imports, which risk was also lower than that of scenario 1.[61]

[61] The complete assessment of forecast performance and a thorough evaluation of identified risks within the latest USP and DBP reports are currently impeded by the unavailability of official annual data for 2023.

Scenario 1: MFAC Projections Assuming the same Macroeconomic Projections from the MFIN (EUR millions) [62]

	USP 2023 - 2026						DBP 2024					
	2023			2024			2023			2024		
	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN
Taxes on production and imports	1,923.3	1,924.7	(1.4)	2,022.6	2,035.7	(13.1)	1,928.4	1,981.4	(53.0)	2,041.4	2,161.1	(119.7)
of which VAT	1,295.7	1,300.0	(4.3)	1,369.9	1,376.0	(6.1)	1,298.7	1,315.0	(16.3)	1,382.3	1,450.0	(67.7)
Current taxes on income & wealth	2,508.7	2,463.1	45.6	2,649.0	2,617.2	31.8	2,538.8	2,483.7	55.1	2,713.4	2,636.2	77.2
Net Social Security Contributions	1,053.7	1,059.0	(5.3)	1,112.3	1,128.0	(15.7)	1,053.6	1,046.9	6.7	1,120.8	1,124.4	(3.6)
Risk on Government Revenue			38.9			3.0			8.8			(46.1)

Scenario 2: MFAC Projections incorporating changes in Macroeconomic Projections based on MFAC Expert Judgment (EUR millions)

	USP 2023 - 2026						DBP 2024					
	2023			2024			2023			2024		
	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN	MFAC	MFIN	MFAC-MFIN
Taxes on production and imports	1,943.7	1,924.7	19.0	2,054.4	2,035.7	18.7	1,956.5	1,981.4	(24.9)	2,083.3	2,161.1	(77.8)
of which VAT	1,313.1	1,300.0	13.1	1,397.4	1,376.0	21.4	1,321.4	1,315.0	6.4	1,418.6	1,450.0	(31.4)
Current taxes on income & wealth	2,521.3	2,463.1	58.2	2,646.7	2,617.2	29.5	2,613.2	2,483.7	129.5	2,800.8	2,636.2	164.6
Net Social Security Contributions	1,053.6	1,059.0	(5.4)	1,102.3	1,128.0	(25.7)	1,071.2	1,046.9	24.3	1,139.6	1,124.4	15.2
Risk on Government Revenue			71.8			22.5			128.9			102.0

[62] A positive balance in the tables above reflects an upside risk (green) to the projections by the MFIN, whilst a negative balance indicates a downside risk (red).

4.5 Simulations

This section presents the results of simulations that were performed to examine responses of fiscal variables to tax base changes over forecast years and to assess the extent to which the model captures the associated dynamics. The simulations also help in clarifying the likely magnitudes of responses to changing macroeconomic conditions and serve as a test to check the robustness of the model equations.

The simulations were performed by utilising the base model at the time of the DBP, thus the one taking the government's macroeconomic forecasts as given. They were done by increasing a macroeconomic variable's growth rate in the first year of the forecast (in this case 2023) by one percentage point (1 pp). By keeping everything else constant, the effect of the increase in the growth rate of solely one tax base on revenue variables is singled out. The three simulations shown here are those of a one pp increase in private consumption growth, for compensation of employees and gross operating surplus (see Appendix IV). These three proxy variables were chosen as they capture a large part of the tax bases used in the model for the different fiscal revenue items. It is important to note that, in theory, changes in, for example, private consumption lead to changes in overall GDP, which in most cases, is the tax base of several smaller (in absolute terms) revenue variables. However, for these macroeconomic feedback loops to be captured, a fully integrated model would need to be developed, which is not available at present. These results can therefore be interpreted as a 'floor' to the results which could be inferred from a fully integrated macro-fiscal model. Indeed, the effects of an increase in a particular tax base, for example private consumption, can be wider when incorporating all the macro effects, as the simulations only show the effect on those revenue components which have private consumption as a tax base.

Taking for instance private consumption expenditure, increasing the forecasted growth by 1 pp in 2023 led to a growth rate in taxes of production and imports for the forecast of 2023 that is 0.39 pp higher than in the base model. This difference is attributed to a rise in the VAT growth rate, which is the largest revenue source of indirect taxation, increasing by 0.47 pp, whilst other taxes on production growth rose by 1.54 pp. [63,64]

[63] The magnitude of the different revenue components must be considered when interpreting the resultant growth rates.
[64] The results from the simulations might differ from one forecast round to another based on developments in the data and revised elasticities or forecasting assumptions and techniques.

Increasing compensation of employees has a slightly more than unitary impact on the growth of current taxes on income and wealth in year ‘t’ of the simulation. This is attributed to taxes on individual or household income including household gains, which increases by 1.63 pp, which is in line with the historically elastic properties of this component. The effect on social security contributions is an additional 0.36 pp. Similarly, increasing gross operating surplus by 1 pp has a similar impact on the growth of social security contributions of 0.34 pp. The latter simulation has a limited impact on current taxes on income and wealth due to offsetting effects within its sub-components.

The simulations performed confirm a priori expectations with respect to the impact on the growth of the fiscal variables in response to positive shocks in proxy bases. Apart from the impact in the same year of the simulation, for the most part, a small impact from the simulation is also carried forward onto the next year, in this case, 2024. Such impacts can also be viewed in Appendix IV.

4.6 Conclusion and limitations

The development of the MFAC’s revenue-forecasting model in 2023 allows the Council to conduct more in-depth fiscal policy analysis. This chapter sought to delineate the various stages involved in the preparation of the Council’s forecasts, promoting the transparency of the modelling framework by providing a thorough explanation of the computational methodology and the rationale behind the forecasts.

Despite some limitations, the model allows the Council to generate quantitative forecasts rather than solely relying on qualitative opinions. This constitutes a further improvement in the MFAC’s assessment of fiscal estimates and strengthens its risk assessment capabilities while facilitating scenario analyses thus allowing the Council to gauge the fiscal impact of economic changes and test the sensitivity of specific revenue components to such changes. Along with examining the sensitivity of individual revenue components, the model can be used to observe the variables’ vulnerabilities and resilience to shocks. Additionally, it can aid the Council with undertaking counterfactual assessments, allowing for more rigorous examinations of the potential impact of alternative revenue measures and policy interventions. The Council now has the capability to compare its revenue forecasts with those of other institutions, enhancing the transparency and accountability of the MFAC's fiscal assessments, and thus improving credibility. At the EU level, several fiscal councils

produce forecasts, strengthening their ability to make more meaningful assessments. With the development of these tools, the Council aims to join other independent fiscal institutions which produce and publish their estimates.

Nevertheless, it is acknowledged that the modelling framework has some limitations. The first key constraint in the Council's forecasting process arises from the dependence on the MFIN's macroeconomic growth forecasts acting as a base input to the model. The Council presently relies on expert judgment to make adjustments to the macroeconomic projections provided by the MFIN. The establishment of an independent macroeconomic model would markedly enhance the model's autonomy and self-reliance. To this end, the MFAC has initiated the process towards developing an integrated macro-fiscal model, encompassing feedback effects from the fiscal to the macro side, with the help of the European Commission's DG REFORM and its Technical Support Instrument (TSI) as described in the first Chapter of this Annual Report. Another limitation relates to estimating the total effect of a specific macroeconomic variable on total revenue. The model captures the impact of particular variables if these are selected as a tax base, and is not used to model what the direct and indirect effect of increasing, for instance, nominal GDP, results on total revenue.

Another limitation stems from the variation in the cut-off dates of the data sources and the unavailability of a disaggregated dataset. The NSO's 'Tax Revenue' release has a different cut-off date compared to the other primary datasets, necessitating adjustments to sub-revenue components through historical extrapolations. Additionally, data for a given year is only made available in the subsequent October, resulting in the unavailability of detailed sub-component data, particularly during the publication period of the USP's assessment. Consequently, for this period, other data sources are used to disaggregate tax components, employing historical weights as a basis.

The challenge of working with a small sample size is particularly pronounced in studies conducted in Malta. This difficulty stems from the limited availability of official data, which extends back only to 1995. Consequently, studies, such as this one, contend with a maximum of 28 observations, leading to lower degrees of freedom and compromising the desired asymptotic properties, such as consistency, within the

results. Small sample sizes are especially susceptible to the influence of outliers, and structural economic reforms exacerbating the difficulty of detecting small effects.[65]

Additional limitations pertain to data collection, particularly regarding data availability which extends back to 1995 for all fiscal revenue and macroeconomic components. In cases where such official data was unavailable, data from local publications was extrapolated to supplement the dataset. Another issue is related to the shift from a no-policy change revenue series to an adjusted policy series, whereby the Council relies on discretionary measures forecast data provided by the MFIN. Additionally, this dataset is available only from 2011, impacting calculations for previous years and introducing potential biases linked to economic cycle-related tax policy changes.

Finally, economic modelling is inherently dynamic, demanding ongoing updates to reflect current domestic and global economic trends. From shifts in economic sectors to alterations in governmental policies or advancements in statistical methodologies, a spectrum of changes could possibly require adjustments to the model. In addition, in the future, it is intended to observe forecast versus actual data, to identify forecast errors and potentially improve the model based on such findings. In this context, any notable modifications within this modelling framework will be communicated through forthcoming assessment publications, ensuring stakeholders are informed of the model's potential improvements and adaptability to the evolving economic landscape.

[65] See Gujarati, D.N. *Basic Econometrics*, 4th edition, McGraw-Hill Education, 2003.

Appendix I: Tax Bases of Main Revenue Components

Main Components of Revenue Forecast	Tax Base
Taxes on production and imports	Private Consumption Expenditure + Tourism Earnings + Imports of Industrial + Imports of Fuel + Imports of Consumer Goods
Taxes on products	Private Consumption Expenditure + Tourism Earnings + Total Imports
Value added type taxes (VAT)	Private Consumption Expenditure + Tourism Earnings
Taxes and Duties on Imports excl. VAT	Imports of Goods and Services
Taxes on Products, except VAT & Import Taxes	Nominal GDP
Excise duties and Consumption Taxes	Imports of Capital + Imports of Industrial + Imports of Fuel + Imports of Consumer Goods
Stamp Taxes	Nominal GDP
Taxes on Financial & Capital Transactions	Nominal GDP
Car Registration Taxes	Nominal GDP
Taxes on lotteries, gambling & betting	Nominal GDP
Other	Nominal GDP
Other Taxes on Production	Private Consumption Expenditure
Current Taxes on Income, Wealth, etc.	Compensation of Employees + Gross Operating Surplus
Taxes on Income	Compensation of Employees + Gross Operating Surplus
Taxes on Individual or Household Income including Holding Gains	Compensation of Employees
Taxes on Individual or Household Income	Compensation of Employees
Taxes on individual or Household Holding Gains	Nominal GDP
Taxes on the income or profits of Corporations including Holding Gains	Gross Operating Surplus
Taxes on the income or profits of corporations	Gross Operating Surplus (5 Year Average)
Taxes on holding gains of corporations	Gross Operating Surplus
ITUs	Gross Operating Surplus
Other taxes on income	Nominal GDP
Other current taxes	Nominal GDP
Payments by households for licences - Motor Vehicle Licences	Nominal GDP
Taxes on International Transactions	Nominal GDP
Capital taxes	Nominal GDP
Total tax receipts	Nominal GDP
Net Social Security Contributions	Compensation of Employees
Actual Social Security Contributions	Compensation of Employees
Employers' Actual Pension Contributions	Compensation of Employees
Employer's Social Contribution - Government	Compensation of Employees
Employer's Social Contribution - Private	Compensation of Employees
Penalties on Employers	Compensation of Employees
Households' actual social contributions	Compensation of Employees
Employees' Social Contributions	Compensation of Employees
Self-employed Social Contributions	Gross Operating Surplus
Imputed social contributions	Nominal GDP
Total tax receipts + Social Security Contributions	Nominal GDP

Appendix II: Historical Elasticities

	Historical Average	3-Year Average	5-Year Average	Excl. COVID-19 Years	
				3-Year Average	5-Year Average
Taxes on Production and Imports	1.0	0.6	0.7	0.7	3.4
of which Value Added Taxes	1.1	0.7	0.7	0.8	1.1
Excise duties and Consumption Taxes	-0.4	0.2	0.6	0.7	0.3
Stamp Taxes	3.8	9.1	7.3	4.9	4.3
Taxes on Financial and Capital Transactions	1.5	3.3	2.6	1.0	1.7
Car Registration Taxes	-0.8	0.5	0.4	0.2	0.6
Taxes on lotteries, gambling, and betting	2.0	0.4	0.7	0.7	0.9
Other	0.2	0.3	0.6	1.0	1.9
Other Taxes on Production	3.6	1.0	1.9	2.6	1.7
Current Taxes on Income, Wealth, etc.	1.8	2.4	1.8	0.8	1.2
Taxes on Individual or Household Income including Holding Gains	1.7	2.1	1.7	1.4	1.4
Taxes on the income or profits of Corporations including Holding Gains	1.8	-0.5	-0.1	0.1	0.5
Other current taxes	2.7	0.1	0.4	0.5	0.5
Capital taxes	2.2	2.0	1.9	1.8	1.6
Net Social Security Contributions	0.9	1.7	1.2	0.7	0.7
Actual Social Security Contributions	0.9	1.9	1.4	0.8	0.8
Employers' Actual Pension Contributions	0.9	1.7	1.3	0.8	0.8
Households' actual social contributions	1.0	2.0	1.5	0.8	0.8
Imputed social contributions	1.0	0.0	-0.1	-0.2	0.2

Appendix III: OLS Models Equation [66,67]

				R^2	F	N
	C	Private Consumption Exp. + Tourism Earnings				
Value Added Tax	-5.76	1.40		0.99	1270.38	17
	0.02	0.00				
	C	Imports of Goods & Services				
Taxes & Duties on Imports excl. VAT	-3.42	0.64		0.66	21.68	13
	0.02	0.00				
	C	Imports Industrial Supplies + Capital Goods + Consumer Goods + Fuel				
Excise duties & Consumption Taxes	-0.27	0.66		0.44	7.10	11
	0.90	0.03				
	C	Nominal GDP	D.09			
Taxes on Financial and Capital Trans.	-4.13	0.92	-0.10	0.82	57.20	28
	0.00	0.00	0.67			
	C	Nominal GDP	D.09			
Car Registration Taxes	5.52	-0.20	0.03	0.24	3.93	28
	0.00	0.01	0.87			
	C	Nominal GDP				
Taxes on lotteries, gambling & betting	-1.21	0.57		0.91	87.90	11
	0.06	0.00				
	C	Nominal GDP	D.09			
Other taxes on products, excl. VAT & Import Taxes	-3.98	0.77	-0.20	0.73	33.70	28
	0.00	0.00	0.45			
	C	Private Final Consumption Exp.	D.10			
Other Taxes on Production	-11.84	1.84	1.03	0.97	356.21	28
	0.00	0.00	0.00			
	C	Compensation of Employees				
Taxes on Individual or Household Income	-4.92	1.35		0.99	1805.98	28
	0.00	0.00				
	C	Gross Operating Surplus (5 Yr Av.)				
Taxes on the income or profits of corp.	-0.11	0.67		0.83	101.16	23
	0.84	0.00				
	C	Gross Operating Surplus				
Households' actual social contributions	-0.17	0.47		0.93	298.78	23
	0.44	0.00				
	C	Nominal GDP				
Capital Taxes	-5.76	0.94		0.77	37.50	13
	0.00	0.00				

[66] In this table *C* denotes the intercept, *D* signifies Dummy Variable, R^2 indicates the goodness of fit, *F* denotes the F-statistic, and *N* signifies the number of observations. The statistical significance (P-Value) of each coefficient is indicated underneath the respective coefficient.
[67] The models reflect those used at the time of the DBP. Models are updated each forecast round. The elasticities shown here do not necessarily reflect the final elasticities used for forecasting since adjustment factors may be applied.

Appendix IV: Simulations

Simulating a 1 percentage point increase in the growth of tax base variables in 2023

	Private Consumption		Compensation of employees		Gross Operating Surplus	
	2023	**2024**	**2023**	**2024**	**2023**	**2024**
Taxes on production and imports	0.39	0.01				
Taxes on products	0.33	0.01				
Value added type taxes (VAT)	0.47	0.01				
Other Taxes on Production	1.54	0.00				
Current Taxes on Income, Wealth, etc.			1.04	0.04	0.02	0.01
Taxes on Individual or Household Income including Holding Gains			1.63	0.01		
Taxes on the income or profits of Corporations including Holding Gains					0.07	0.04
Net Social Security Contributions			0.36	0.01	0.34	0.00

Financial Statements

For the year ended 31 December 2023

Malta Fiscal Advisory Council
Report of the Council Members
For the year ended 31 December 2023

The Members of the Council present the annual report and the audited financial statements of the Malta Fiscal Advisory Council (the "Council") for the year ended 31 December 2023.

Principal Activity

The Malta Fiscal Advisory Council ("the Council") was established by the Minister for Finance with effect from 1 January 2015 in terms of the Fiscal Responsibility Act, 2014, Cap 534. The Council's aim is to review and assess the extent to which the fiscal and economic policy objectives proposed by the Government are being achieved and thus contribute to more transparency and clarity about the aims and effectiveness of economic policy. The Council is independent in the performance of its functions.

Performance Review

The Council received €281,000 in Government Subvention during the year ended 31 December 2023 (2022: € 274,000) in terms of the Fiscal Responsibility Act and incurred €310,667 in expenditure (2022: €243,168). The Council registered a deficit of (€29,667) for the year ended 31 December 2023 (2022: €30,832) as shown in the statement of comprehensive income on page vi.

Going concern

The Agency registered a deficit of (€29,667) during the year under review. Nonetheless, the council anticipates that current services will continue to be provided with full support from the Government of Malta. For this reason, the Council does not foresee a significant impact on its operational performance. Therefore, the financial statements have been prepared on the going concern basis which assumes that the Council will continue in operational existence for the foreseeable future and that adequate support will continue to be made available by the Government through the subventions to enable the Council to meet its commitments as and when they fall due.

Future Developments

The Council is not envisaging to change its principal activity.

Council Members

In accordance with the Fiscal Responsibility Act, the Council shall consist of the Chairperson and two other members.

The Committee constitutes of the following members which were appointed on 10th January 2023

Dr. Moira Catania – Chairperson
Dr. Stephanie Fabri – Council Member
Dr. Stephanie Vella – Council Member

The following committee members resigned on the same day.

Mr. John Cassar White – Chairperson
Dr. Carl Camilleri – Council Member
Dr. Ian Cassar – Council Member

Statement of Responsibilities of the Council

The Council members are required to prepare the financial statements for each financial year which give a true and fair view of the state of affairs of the Council at the end of the financial year and of the income and expenditure of the Council for that year.

Statement of Responsibilities of the Council (continued)

In preparing these financial statements, the Council members are required to: -

- Adopt the going concern basis, unless it is inappropriate to presume that the Council will continue in business;
- Select suitable accounting policies and apply them consistently from one accounting year to another;
- Make judgement and estimates that are reasonable and prudent;
- Account for income and charges relative to the accounting year on the accrual's basis; and
- Value separately the components of assets and liability items on a prudent basis.

The Council members are responsible for keeping proper accounting records which disclose with reasonable accuracy, at any time, the financial position of the Council and to enable them to ensure that the financial statements have been properly prepared. The Council members are also responsible for safeguarding the assets of the Council and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Disclosure of Information to the Auditors

So far as the Council Members are aware, all relevant information has been brought to the attention of the Council's Auditors.

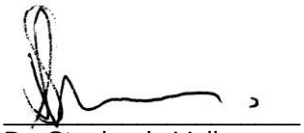
Auditors

PKF Malta Limited, Registered Auditors, have intimated their willingness to continue in office.

Approved by the Fiscal Council and signed on its behalf on 22nd February 2024 by:

Dr. Moira Catania
Chairperson

Dr. Stephanie Fabri
Council Member



Dr. Stephanie Vella
Council Member

Registered Office:

Malta Fiscal Advisory Council,
Level -1
New Street in Regional Road
Msida
Malta

Malta Fiscal Advisory Council

Independent Auditor's Report

To the Council Members of the Malta Fiscal Advisory Council

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of the Malta Fiscal Advisory Council (the 'Council'), set out on pages vi to xviii, which comprise the statement of financial position as at 31 December 2023, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements give a true and fair view of the financial position of the Council as at 31 December 2023, and of its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by the EU.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Council in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) together with the ethical requirements that are relevant to our audit of the financial statements in accordance with the Accountancy Profession (Code of Ethics for Warrant Holders) Directive issued in terms of the Accountancy Profession Act (Cap. 281) in Malta, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the IESBA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information

The Council is responsible for the other information. The other information comprises the Council Member's report and Schedule. Our opinion on the financial statements does not cover this information, including the Council Member's report. In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

In addition, in light of the knowledge and understanding of the Council and its environment obtained in the course of the audit, we are required to report if we have identified material misstatements in the Council Member's report. We have nothing to report in this regard.

Responsibilities of the Council

The Council Members are responsible for the preparation of the financial statements that give a true and fair view in accordance with International Financial Reporting Standards as adopted by the EU, and for such internal control as the Council Members determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Malta Fiscal Advisory Council
Independent Auditor's Report
To the Council Members of the Malta Fiscal Advisory Council

Auditors' Responsibilities for the Audit of the Financial Statements

In preparing the financial statements, the Council Members are responsible for assessing the Council's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Council Members either intends to liquidate the Council or to cease operations, or has no realistic alternative but to do so.

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Council's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Council Members.

- Conclude on the appropriateness of the Council Members' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Council's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Council to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Malta Fiscal Advisory Council
Independent Auditor's Report
To the Council Members of the Malta Fiscal Advisory Council

Auditors' Responsibilities for the Audit of the Financial Statements

- We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

We communicate with the Council Members regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

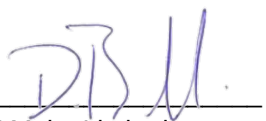
From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current year and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

Under the Fiscal Responsibility Act, 2014, Cap 534, we have nothing to report you with respect to the following matters:

- Proper accounting records have not been kept; or
- The Financial statements are not in agreement with the accounting records; or
- We have not obtained all the information and explanations which, to the best of our knowledge and belief, we require for the purpose of our audit;

The Director in charge of the audit resulting in this independent auditor's report is Ms. Donna Greaves for and on behalf of:



PKF Malta Limited
Registered Auditors

15, Level 3, Mannarino Road.
Birkirkara, BKR 9080
Malta

22nd February 2024

Malta Fiscal Advisory Council
Statement of Comprehensive Income
For the year ended 31 December 2023

	Notes	2023 EUR	2022 EUR
Income	3	281,000	274,000
Expenditure		(310,667)	(243,168)
Other Income		-	-
(Deficit)/Profit for the year	7	(29,667)	30,832

The notes to the financial statements on pages x to xviii form an integral part of these financial statements.

Malta Fiscal Advisory Council
Statement of Financial Position
As at 31 December 2023

	Notes	2023	2022
		EUR	EUR
ASSETS			
Non-Current Assets			
Intangible Assets	8	**-**	-
Plant and Equipment	9	**8,210**	9,670
		8,210	9,670
Current Assets			
Other Receivables		**575**	575
Cash and Cash Equivalents	10	**277,680**	285,867
Total Current Assets		**278,255**	286,442
TOTAL ASSETS		**286,465**	296,112
CAPITAL AND LIABILITIES			
Capital and Reserves			
Accumulated Surplus – Recurrent vote and operating activities	11	**264,194**	293,861
Current Liabilities			
Other Payables	12	**22,271**	2,251
TOTAL CAPITAL AND LIABILITIES		**286,465**	296,112

The notes to the financial statements on pages x to xviii form an integral part of these financial statements.

These financial statements were approved by the Malta Fiscal Advisory Council, authorised for issue on 22nd February 2024 and signed on its behalf by:

Dr. Moira Catania
Chairperson

Dr. Stephanie Fabri
Council Member

Dr. Stephanie Vella
Council Member

Malta Fiscal Advisory Council
Statement of Changes in Equity
For the year ended 31 December 2023

	Accumulated Surplus EUR
Balance as at 1st January 2022	263,029
Surplus for the year	30,832
Balance as at 31 December 2022	**293,861**
Deficit for the year	(29,667)
Balance as at 31 December 2023	**264,194**

The notes to the financial statements on pages x to xviii form an integral part of these financial statements.

Malta Fiscal Advisory Council
Statement of Cash Flows
For the year ended 31 December 2023

	Notes	**2023**	2022
		EUR	EUR
Cash Flows from Operating Activities			
Deficit/Surplus for the year		**(29,667)**	30,832
Adjustments for:			
Depreciation of Plant and Equipment	8	**2,080**	2,994
Operating surplus before working capital changes		**(27,587)**	33,826
Movement in other receivables		**-**	(575)
Movement in other payables	11	**20,018**	(126)
Net Cash flow (used in)/from Operating activities		**(7,569)**	33,125
Cash flows from Investing Activities			
Acquisition of Plant and Equipment	8	**(618)**	(9,486)
Net Cash used in Investing Activities		**(618)**	(9,486)
Movement in Cash and Cash Equivalents		**(8,187)**	23,639
Cash and Cash equivalents at start of the year		**285,867**	262,228
Cash and Cash equivalents at end of the year	9	**277,680**	285,867

The notes to the financial statements on pages x to xviii form an integral part of these financial statements.

1. Basis of Preparation

The principal accounting policies adopted in the preparation of these financial statements are set out below:

a) Statement of Compliance

The financial statements of the Malta Fiscal Advisory Council for the year ended 31 December 2023 have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union.

b) Basis of Measurement

These financial statements have been prepared on the historical cost basis.

c) Functional and Presentation Currency

The financial statements are presented in Euro (€), which is the Council's functional currency.

d) Changes in accounting policies and disclosures

Standards, interpretations and amendments to published standards as endorsed by the EU effective in the current year.

During the year under review, the Council has adopted a number of Standards and Interpretations issued by the International Accounting Standards Board and International Financial Reporting Interpretations Committee, and endorsed by the European Union. The Council is of the opinion that the adoption of these standards and interpretations did not have a material impact on the financial statements.

- Definition of Accounting Estimates – amendments to IAS 8
- Disclosure of Accounting Policies – Amendments to IAS 1 and IFRS Practice Statement 2.

New and revised IFRS Accounting Standards in issue but not yet effective

Certain new accounting standards, amendments to accounting standards and interpretations have been published that are not mandatory for 31 December 2023 reporting period and have not been early adopted by the Agency. These standards, amendments or interpretations are not expected to have a material impact on the entity in the current or future reporting periods and on foreseeable future transactions.

2. Significant Accounting Policies

a. Plant and Equipment

Recognition and Measurement

The cost of an item of plant and equipment is recognised as an asset when it is probable that the future economic benefits that are associated with the asset will flow to the Council and the cost can be measured reliably. Plant and equipment are initially measured at cost comprising the purchase price and any costs directly attributable to bringing the assets to a working condition for their intended use. Subsequent expenditure is capitalised as part of the cost of plant and equipment only if it enhances the economic benefits of an asset in excess of the previously assessed standard of performance, or it replaces or restores a component that has been separately depreciated over its useful life.

After initial recognition, plant and equipment may be carried under the cost model, that is at cost less any accumulated depreciation and any accumulated impairment losses, or under the revaluation model, that is at their fair value at the date of the revaluation less any accumulated depreciation and any accumulated impairment losses.

After initial recognition plant and equipment are carried under the cost model.

Depreciation

Depreciation commences when the depreciable assets are available for use and is charged to profit or loss so as to write off the cost amount, less any estimated residual value, over their estimated useful lives, using the straight-line method, on the following bases:

Fixtures and fittings	10% per annum
Computer and office equipment	25% per annum
Library books	10% per annum
Air conditioners	16.67% per annum

Depreciation method, useful life and residual value

The depreciation method applied, the residual value and the useful life of property, plant and equipment are reviewed on a regular basis and when necessary, revised with the effect of any changes in estimate being accounted for prospectively.

Derecognition

Property, plant and equipment are derecognised on disposal or when no future economic benefits are expected from their use or disposal. Gains or losses arising from derecognition represent the difference between the net disposal proceeds, if any, and the carrying amount, and are included in profit or loss in the period of derecognition.

2. Significant Accounting Policies (continued)

b. Financial Instruments

Financial assets and financial liabilities are recognised when the Council becomes a party to the contractual provisions of the instrument. Financial assets and financial liabilities are initially recognised at their fair value plus directly attributable transaction costs.

Financial assets and financial liabilities are offset and the net amount presented in the balance sheet when the Council has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

Financial assets are derecognised when the contractual rights to the cash flows from the financial assets expire or when the Council transfers the financial asset and the transfer qualifies for derecognition.

Classification

From 1 January 2018, the Council classifies its financial assets in the following measurement categories;

- those to be measured subsequently at fair value (either through OCI or through profit or loss), and
- those to be measured at amortised cost.

The classification depends on the entity's business model for managing the financial assets and the contractual terms of the cash flows. The Council's financial assets are classified at amortised cost.

For assets measured at fair value, gains and losses will either be recorded in profit or loss or OCI. For investments in equity instruments that are not held-for-trading, this will depend on whether the Council has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income (FVOCI). The Council reclassifies debt instruments when and only when its business model for managing those assets changes.

Recognition and derecognition

The Council recognises a financial asset in its statement of financial position when it becomes a party to the contractual provisions of the instrument.

Regular way purchases and sales of financial assets are recognised on settlement date, the date on which an asset is delivered to or by the Council. Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership or has not retained control of the asset.

Measurement

Subsequent measurement of debt instruments depends on the Council's business model for managing the asset and the cash flow characteristics of the asset. There are three measurement categories into which the Council classifies its debt instruments:

- Amortised cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in finance income using the effective interest rate method. Any gain or loss arising on derecognition is recognised directly in profit or loss and presented in other gains/(losses) together with foreign exchange gains and losses. Impairment losses are presented as separate line item in the statement of profit or loss.

2. Significant Accounting Policies (continued)

b. Financial Instruments (continued)

- FVOCI: Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at FVOCI. Movements in the carrying amount are taken through OCI, except for the recognition of impairment gains or losses, interest income and foreign exchange gains and losses which are recognised in profit or loss. When the financial asset is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss and recognised in other gains/(losses). Interest income from these financial assets is included in finance income using the effective interest rate method. Foreign exchange gains and losses are presented in other gains/(losses) and impairment expenses are presented as separate line item in the statement of profit or loss.

- FVPL: Assets that do not meet the criteria for amortised cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognised in profit or loss and presented net within other gains/(losses) in the period in which it arises. From 1 January 2018, the Council assesses on a forward-looking basis the expected credit loss associated with its debt instruments carried at amortised cost and FVOCI. The impairment methodology applied depends on whether there has been a significant increase in credit risk.

Impairment

From 1 January 2018, the Council assesses on a forward-looking basis the expected credit loss associated with its debt instruments carried at amortised cost and FVOCI. The impairment methodology applied depends on whether there has been a significant increase in credit risk.

Assets carried at amortised costs

For financial assets carried at amortised costs, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The asset's carrying amount is reduced and the amount of the loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the reversal of the previously recognised impairment loss is recognised in the profit or loss. Financial liabilities are derecognised when they are extinguished. This occurs when the obligation specified in the contract is discharged, cancelled or expires.

c. Other Receivables

Other receivables are classified with current assets and are stated at their nominal value. Appropriate allowances for estimated irrecoverable amounts are recognised in profit or loss when there is objective evidence that the asset is impaired.

d. Other Payables

Other payables are classified with current liabilities and are stated at their nominal value.

2. Significant Accounting Policies (continued)

e. Impairment

Financial Assets

A financial asset is considered to be impaired if objective evidence indicates that one or more events have had a negative effect on the estimated future cash flows of that asset.

Financial Assets (continued)

An impairment loss in respect of a financial asset measured at amortised cost is calculated as the difference between its carrying amount, and the present value of the estimated future cash flows discounted at the original effective interest rate. An impairment loss in respect of an available-for-sale financial asset is calculated by reference to its current fair value.

Individually significant financial assets are tested for impairment on an individual basis. The remaining financial assets are assessed collectively in groups that share similar credit risk circumstances. All impairment losses are recognised in profit or loss. Any cumulative loss in respect of an available-for-sale financial asset recognised previously in equity is transferred to profit or loss.

An impairment loss is reversed if the reversal can be related objectively to an event occurring after the impairment loss was recognised. For financial assets measured at cost and available-for-sale financial assets that are debt securities, the reversal is recognised in profit or loss. For available-for-sale financial assets that are equity securities, the reversal is recognised directly in equity.

Non-Financial Assets

The carrying amount of non-financial assets, are reviewed at each reporting date to determine whether there is any indication of impairment. If such indication exists, then the asset's recoverable amount is estimated.

Non-Financial Assets (continued)

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. A cash-generating unit is the smallest identifiable group that generates cash flows that largely are independent from other assets and groups. Impairment losses are recognised in profit or loss.

The recoverable amount of an asset or cash-generating unit is the greater of its value in use and its fair value less cost to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

Impairment losses recognised in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

2. Significant Accounting Policies (continued)

f. Cash and Cash Equivalents

Cash comprises cash on hand and demand deposits. Cash equivalents are short-term investments that are held to meet short-term cash commitments rather than for investment or other purposes.

g. Provisions and contingent liabilities

A provision is recognised when, as a result of a past event, the Council has a present obligation that can be estimated reliably and it is probable that the Council will be required to transfer economic benefits in settlement. Provisions are recognised as a liability in the balance sheet and as an expense in profit or loss or, when the provision relates to an item of property, plant and equipment, it is included as part of the cost of the underlying assets. A contingent liability is disclosed where the existence of the obligation will only be confirmed by future events or where the amount of the obligation cannot be measured with sufficient reliability.

h. Government subvention

Government grants are assistance by government, inter-governmental agencies and similar bodies whether local, national or international, in the form of cash or transfers of assets to the Council in return for past or future compliance with certain conditions relating to operating activities of the Council. Government grants are recognised when there is reasonable assurance that the Council will comply with the conditions attaching to them and the grants will be received.

Government grants are recognised in the income statement so as to match them with the expenditure towards which they are intended to contribute. Any grants relating to future periods are recognised as deferred income.

i. Going Concern

The financial statements have been prepared on the going concern basis, which assumes that the Government of Malta will continue to provide the subvention to the Council in accordance with Article 55 of the Fiscal Responsibility Act (Chapter 534 of the Laws of Malta) in the order to continue with the performance of its functions.

3. Income

Income represents the subvention voted to the Council by the Government of Malta and is analysed as follows:

	2023 EUR	2022 EUR
Government Subvention	**281,000**	274,000

The Government subvention as per Article 55 sub-articles (2), (4a) and (4b) of the Fiscal Responsibility Act amounts to not less than €281,000 annually and increases by the Index of Inflation as established and published by the National Statistics Office in each subsequent year.

4. Council Honoraria

	2023 EUR	2022 EUR
Honoraria	**40,859**	42,000
Number of Council Members	**3**	3

5. Taxation

As per previous practice, the council is considered as tax exempt and did not provide for tax at 35% in the Council's financial statements. A request in terms of Article 12(2) of the Income Tax Act to obtain a tax exemption of its surplus had been made with the Ministry of Finance and was obtained on the 27th March 2018.

6. Salaries and Consultancy Fees

	2023 EUR	2022 EUR
Staff Gross Salaries and Social Security Contributions	**234,717**	169,189
Average Number of Employees	**6**	6

7. Deficit for the year

Auditors' Remuneration

Total remuneration paid to the auditors during the year amounted to:

	2023 EUR	2022 EUR
Audit Fees	**1,239**	1,239

8. Intangible Assets

The Council has Computer Software, amounting to €4,053, which was fully depreciated in 2019.

9. Plant and Equipment

	Fixtures & Fittings	Computer and Office Equipment	Library Books	Air Conditioner	Total
	EUR	EUR	EUR	EUR	EUR
Cost					
Opening Balance	9,190	12,869	1,091	1,130	24,280
Additions		619	-	-	619
As at 31 December 2023	9,190	13,488	1,091	1,130	24,899
Depreciation					
Opening balance	1,948	10,947	773	941	14,609
Charge for the year	919	863	109	189	2,080
As at 31 December 2023	2,867	11,810	882	1,130	16,689
Net Book Value					
As at 31 December 2022	7,242	1,922	318	189	9,670
As at 31 December 2023	**6,323**	**1,678**	**209**	**-**	**8,210**

10. Cash and Cash Equivalents

For the purpose of the cash flow statements, the year-end cash and cash equivalents comprise the following amounts:

	2023	2022
	EUR	EUR
Bank Balances	**277,680**	285,867

11. Accumulated Reserve – Recurrent Vote and Operating Activities

The recurrent vote and operating activities represent the accumulated surplus resulting from operations.

12. Other Payables

	2023	2022
	EUR	EUR
Other Payables	**217**	264
Accrued expenses	**22,054**	1,987
	22,271	2,251

13. Financial Instruments

Fair Values of Financial Assets and Financial Liabilities

At 31 December 2023 the carrying amounts of financial assets and financial liabilities classified with current assets and current liabilities respectively approximated their fair values due to the short-term maturities of these assets and liabilities.

Financial Risk Management

The exposures to risk and the way risks arise, together with the Council's objectives, policies and processes for managing and measuring these risks are disclosed in more detail below. The objectives, policies and processes for managing financial risks and the methods used to measure such risks are subject to continual improvement and development.

Liquidity Risk

The Council monitors and manages its risk to a shortage of funds by maintaining sufficient cash and by monitoring the availability of raising funds to meet commitments associated with financial instruments and by maintaining adequate banking facilities.

Capital Risk Management

The Council's objectives when managing capital is to safeguard its ability to continue as a going concern.

The capital structure of the Council consists of cash and cash equivalents as disclosed in note 10 and items presented within the accumulated reserve in the statement of financial position.

14. Related Parties

The Malta Fiscal Advisory Council is an independent fiscal institution and reports to Parliament on an annual basis. The Council Members are appointed by the Government of Malta. In terms of the Fiscal Responsibility Act, Council Members will not seek or receive instructions from public authorities or from any other institution or council.

Transactions with Council Members which occurred during the years ended 31 December 2023 and 2022 are disclosed in note 4.

15. Comparative Information

Certain comparative information has been reclassified to conform to the current's year disclosure for the purpose of fairer presentation.

The Schedules and Appendices on the pages that follow do not form part of the Financial Statements.

Malta Fiscal Advisory Council
Schedules to the Expenditure Account
For the year ended 31 December 2023

Expenditure

	2023	2022
	EUR	EUR
Accountancy fees	**590**	590
Advertising	**-**	1,478
Annual report	**1,368**	866
Audit fees	**1,239**	1,239
Bank charges	**417**	225
Cleaning	**1,904**	1,803
Consumables and IT Equipment	**-**	3,760
Depreciation	**2,080**	2,994
Licences	**2,147**	130
Gross salaries, bonuses and allowances	**219,021**	158,232
Council Honoraria	**40,859**	42,000
Social Security Contributions	**15,696**	10,957
Insurance	**1,308**	1,341
Hospitality	**58**	140
MITA subscription	**5,133**	1,850
General expenses	**1,743**	2,752
Postage, other printing and stationery	**2,285**	2,220
Staff welfare	**1,263**	620
Subscriptions	**769**	1,052
Survey	**-**	2,690
Telecommunication and internet costs	**4,400**	1,776
Travel and training costs	**7,154**	3,702
Payroll services	**469**	-
Website	**764**	749
Total Expenditure	**310,667**	243,168

Malta Fiscal Advisory Council
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