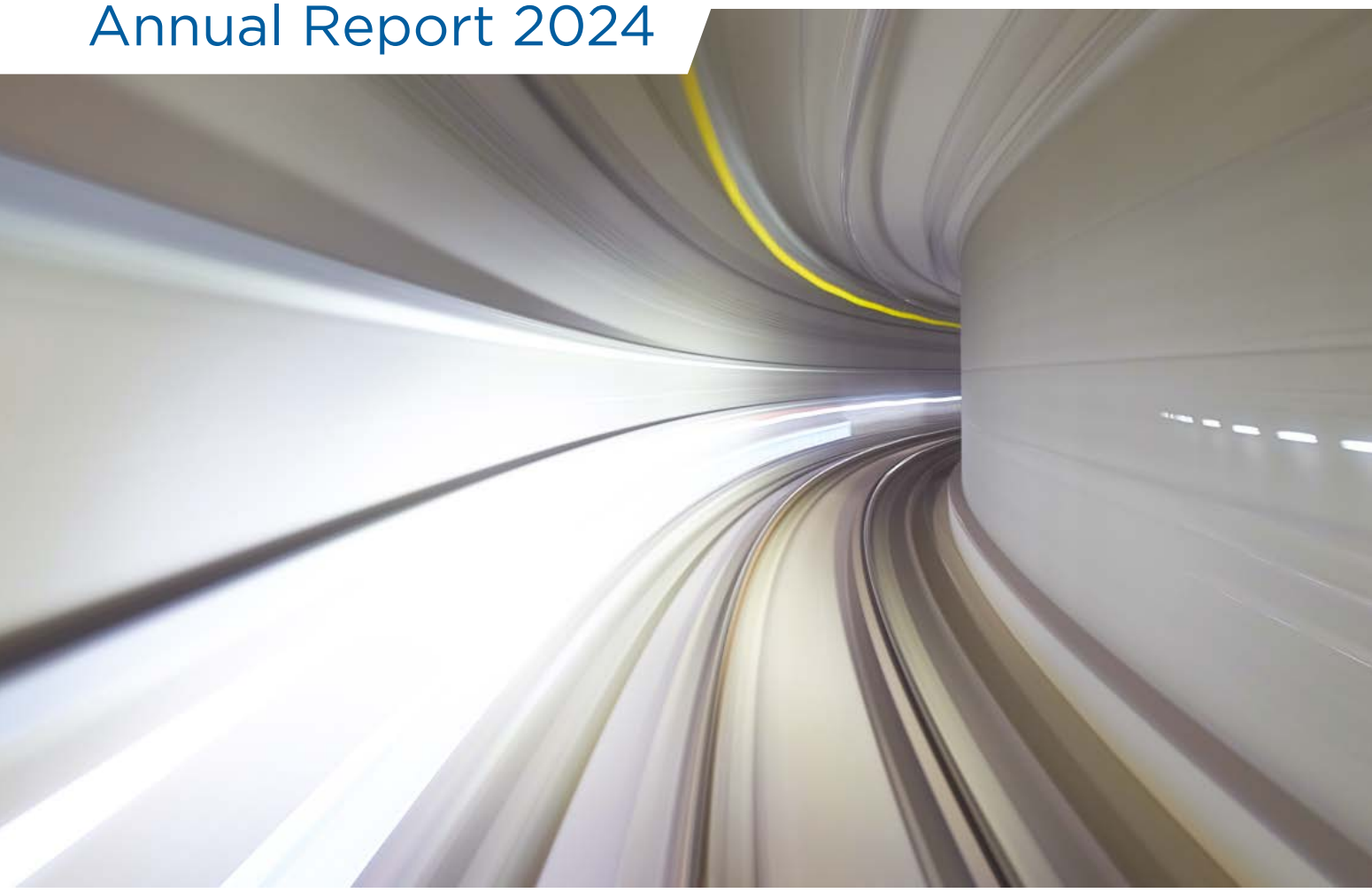
GREEK NATIONAL PRODUCTIVITY BOARD

Annual Report 2024



Challenges and Pathways to Sustainable Development

GREEK NATIONAL PRODUCTIVITY BOARD (NPB)

CENTRE OF PLANNING AND ECONOMIC RESEARCH (KEPE)

Greek National Productivity Board Annual Report 2024

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Contributions

This report was prepared by the Centre of Planning and Economic Research, which acts as the National Productivity Board (NPB) of Greece, under the coordination and scientific editing of its Steering Committee.

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1.1. Overview of productivity developments (**Theodore Tsekeris**), 1.2. The scope of the annual report for 2024 (**Theodore Tsekeris**), 2.1. Macroeconomic environment (**Vlassis Missos**, **Nikolaos Rodousakis**), 2.2. Own economic projections for 2024-2025 (**KEPE**), 2.3. Aggregate productivity growth (**Vlassis Missos**, **Nikolaos Rodousakis**), 2.4. Sectoral productivity growth (**Vlassis Missos**, **Nikolaos Rodousakis**), 2.5. Metropolitan productivity growth (**Theodore Tsekeris**), 2.6. The performance of SMEs in Greece and the EU27 (**Georgios Bertsatos**, **Vlassis Missos**, **Nikolaos Rodousakis**), 3.1. Recent developments in public finance (**Georgios Bertsatos**), 3.2. Current account balance and indices (**Georgios Bertsatos**), 3.3. Cost/price competitiveness indices (**Georgia Skintzi**), 3.4. Global value and supply chain indicators (**Georgia Skintzi**), 3.5. Structural reforms to enhance export performance (**Ersi Athanassiou, Ioannis Cholezas, Agapi Kotsi**), 3.6. Indicators for FDI, justice and education (**Athanasios Chymis**), 4. Conclusions and policy suggestions (**all authors**).

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Foreword

Panagiotis Liargovas

The Centre of Planning and Economic Research (KEPE) assumed the function of the Greek National Productivity Board in April 2019.[1] Even though this is a new role for KEPE, the Centre has a long history of research in matters concerning the Greek economy and its productivity. Indeed, since its establishment in 1959, headed by Andreas G. Papandreou, who would later become the Prime Minister of Greece, KEPE has kept a close eye on the Greek economy, producing studies and reports that have helped economic policy makers in their decisions and contributed to the scientific study of the Greek economy. Today, with 30 researchers on staff, KEPE remains the largest research institute on economic matters in Greece. KEPE is mostly financed by the Greek Government, but retains its independence. Researchers are hired with open calls for specific positions and their recruitment and promotion is decided by independent committees. We have researchers specialising in different fields of research and sectors of the Greek economy. This expertise has been put to use in producing the sixth productivity and competitiveness report at hand.

Apart from drawing up the annual report on productivity, KEPE has already published a number of studies and reports that deal directly with issues pertaining to productivity. As a National Productivity Board, KEPE is in the process of producing a number of more specialised studies to be published in the newly established series Productivity Reviews.

The findings of this annual report stress that the effective absorption and disbursement of the Recovery Fund and the NSRF is a priority. This is crucial for achieving the projected growth rates of gross fixed capital formation over the next two years. In addition, it is necessary to continue and intensify reforms. Although considerable progress has been made in recent years, Greece lags significantly behind in promoting reforms in the areas of product and service markets, especially in network markets, where oligopolistic structures and high prices and charges prevail; the tax system (reducing the tax burden of employees, broadening the tax base by combating tax evasion, simplifying tax procedures, redefining the VAT system); labour and production (continuing the reduction of employer and social security

1. Law 4605/2019, Art. 37, Gov. Gaz. A΄ 52/1.4.2019.

contributions, linking the labour market with universities); bureaucracy (it is not enough to convert paper to digital paperwork, but to completely eliminate it); justice (reducing the time it takes to adjudicate cases, strengthening the independence of the judiciary) and institutions (strengthening the credibility and trust of citizens). The reforms will, in turn, increase the country's overall productivity, incentivise private actors and lead the economy to a new production model based on high wages for wage labour, investment in high value-added sectors, and exports. It is important for citizens to know when and how the plans that will affect their daily lives will be implemented, so that they can monitor and evaluate the progress of these reforms. In other words, there must be a clear road map, a clear timetable. They should see the state as a strong and reliable institution working for the common good. This increases collective trust and encourages a more positive interaction between citizens and state institutions, helping to establish a more equitable and efficient socio-economic structure. It is also necessary to continue the fiscal balance of recent years. In order to achieve the required deceleration of the public debt-to-GDP ratio, it is necessary to maintain primary surpluses, in cyclically-adjusted terms, of 2% of GDP per year. However, a key precondition for this is to increase the efficiency of public spending, through better targeting of social spending, in order to increase public investment and education and health spending, which have a particularly positive impact on the medium-term GDP growth.

After 2027, things will get worse: the climate crisis will deepen, the digital transition will become more difficult, the debt settlement will weigh on the budget, the new fiscal rules will limit the flexibility of economic policy and, above all, the demographic problem will grow. The government must therefore 'take advantage' of the current juncture, where the economy is in a virtuous cycle, and implement the necessary reforms to ensure long-term sustainable growth.

We hope that this report, which takes a long view of examining the performance of the Greek economy, will provide a useful overview of the current situation and will indicate the necessary reforms to accompany the growth path of the economy.

Professor Panagiotis Liargovas
Scientific Director, National Productivity Board
Chairman of the Board and Scientific Director,
Centre of Planning and Economic Research (KEPE)

Preface

Theodore Tsekeris

In the current era of multiple crises, countries face new challenges and opportunities to increase the sustainability and resilience of their economies. They attempt to upgrade their position in global value chains and supply networks so as to increase their strategic autonomy, improve their competitiveness and reduce trade costs and geopolitical risks. In the EU context, a higher degree of policy coordination among member states is required to guide socio-economic and technological transformations in progress and help them achieve competitiveness gains through effective structural reforms, impactful investment plans and socially inclusive strategies.

This year's report of the Greek NPB aims to investigate developments, trends and challenges in productivity at the national, sectoral and regional levels as well as across firm categories. The findings stress the important role of (i) state institutions, to remove sources of inefficiency in key public functions and services; (ii) metropolitan areas, to harness agglomeration economies and drive convergence; and (iii) (very) small firms, to promote innovation and extroversion. The findings also underline the need to deploy more comprehensive plans to create sectoral and spatial policy synergies to enhance and more evenly diffuse productivity gains and prosperity.

The Greek economy needs to increase both domestic and foreign investments to expand its production base, reduce its reliance on imports and boost exports with increased value added. However, there are specific challenges that must be addressed to facilitate productive investments. Among others, challenges that are examined in this report include a) reforming the judiciary system and speeding up the overall time for reaching decisions and closing cases, b) reforming the education and training system to address labour shortages and skills mismatches, and c) supporting the green and digital transitions of enterprises, so that they upgrade their level of technology, value-added production and trade facilitation, and create a more efficient and transparent business environment.

Theodore Tsekeris
Head of the Steering Committee
National Productivity Board of Greece

Executive Summary

The successive crises of recent years, from the COVID-19 pandemic to the conflicts in Ukraine and the Middle East, have significantly strained European economies. Policy measures to improve productivity are considered as vital to promote sustainable development, enhance competitiveness and upgrade the standards of living and doing business. Apart from the international crises, Greece faces long-term vulnerabilities such as high debt and a low employment rate, compared with other European countries. These problems are coupled with additional reform challenges, the cost of energy transition, the need for workforce upskilling, and frequent and severe natural disasters, such as wildfires and floods. Investments and reforms aimed at enhancing competitiveness and promoting the dual transition, while maintaining a prudent fiscal stance, are the main way forward.

While many EU countries have entered a period of prolonged stagnation, the 2023 GDP in Greece has expanded by 2%, the 7th highest in the EU, hours worked by 1.7%, employment by 1%, and capital by 0.35%. Consequently, labour productivity per hour worked improved by 0.3%, and labour productivity per person employed by 1%. Total factor productivity increased by 2.9% when using hours worked as the labour input and by 3.8% when using employment as the labour input. The majority of per capita growth is attributed to labour utilisation (2.1%), due to the decreasing unemployment and the increasing average hours worked, while labour productivity contributed only 0.3%, underlying the fact that, since 2008, the role of labour productivity in supporting per capita output has diminished. The negative impact of capital intensity has been only marginally offset by total factor productivity (TFP). This outcome is attributed to the increasing trend in hours worked. However, capital productivity increased by 1.8% in 2023, suggesting that businesses have become more efficient in their use of resources.

The major driver of GDP growth has been private household consumption. Investment is the second most important factor contributing to growth, while the lower impact of government expenditure is offset by a negative effect of equal magnitude in the balance of trade (goods and services). The current account balance reached -6.3% of GDP in 2023, exhibiting a remarkable improvement of 4 percentage points relative to 2022. In 2023, the Greek balance of services (goods) increased by 0.5 (4.4) percentage points to 9.9% (-14.7%) of GDP. In the same year, exports for Greece were 22.6%, while imports were 37.5% of the nominal GDP. This is because increased investment and consumption are closely correlated with more imports, as a direct result of the production structure of the Greek economy, since a significant portion of capital goods required for various industrial purposes is imported.

Compared to 2022, general government net borrowing dropped to 1.6% of GDP, significantly lower than the EU average of 3.5%. Additionally, the primary balance was positive and, overall, fiscal discipline has led to a marked reduction in the debt-to-GDP ratio by more than 10 percentage points in one year, bringing it to an estimated 161.9% of GDP in 2023, and by more than 45 percentage points since 2020. Nonetheless, trade deficits affect the medium- and long-term growth prospects of the Greek economy and may destabilise fiscal indicators, as the current

account deficit contributes to twin deficits. At the same time, industrial activities experienced the largest decline in labour productivity (nearly -8%) in 2023 due to significant increases in labour input and decreases in value added.

At the level of metropolitan regions, the functional urban areas (FUAs) of Athens and Thessaloniki experienced the largest labour productivity decline compared to all other EU FUAs (except Groningen) during 2010-2020 (by -23% and -21%, respectively). This outcome stresses the need to deploy place-based policies to harness agglomeration economies and address the shortage of dynamism, twin transition challenges and amplified productivity gaps among the EU regions. Moreover, while productivity gains appear to be disproportionately concentrated among small firms, as large firms are not actively contributing to value creation, the labour productivity of very small firms has been significantly reduced in Greece; this decline reached -20% between 2009-2023 in high-tech and knowledge-intensive SMEs.

Regarding the cost competitiveness of Greece, the Real Effective Exchange Rates (REERs) reached their lowest level in 2023 for the whole period from 2010 to 2023. The nominal unit labour cost (ULC) in Greece recorded the fourth lowest ULC increase among the EU member states, with only Denmark, Malta, and Italy exhibiting lower increases, while the relative ULC decreased by 1.6 percentage points in 2023 compared to 2022, which represents the fifth largest decrease among the EU27 member states. During 2018-2020, Greece's backward participation remained above the EU27 average, meaning that Greece depends more on imported inputs in order to produce goods or services that will be exported, compared to the other EU27 country members. This outcome shows the increasing reliance of the Greek economy on foreign markets, particularly in high-productivity sectors, such as manufacturing. Additionally, Greece performs above the EU27 average in all six key dimensions of the Logistics Performance Index (LPI), except the Customs indicator, and, since 2018, has improved its scores and rankings in all six key dimensions, suggesting the country's progress in enhancing its logistics capabilities. In order to further facilitate trade, Greece should emphasise the implementation of cross-border paperless trade, which requires improvements in electronic exchange and the legal recognition of trade-related data and documents across borders.

Greece ranks 25th (just ahead of Bulgaria) among the EU27 (except Malta) in terms of digital competitiveness, which means that it has to accelerate its digital transition to substantially converge with the corresponding EU27 average. According to the 2024 IMD edition, Greece's economic performance and its government efficiency rank very low, i.e., both rank 52nd among 67 countries while they rank 23rd and 22nd, respectively, within the EU27 (except Malta). These weaknesses, together with the problems in the justice and education systems, deteriorate the attractiveness of foreign direct investment (FDI), whose flows are mostly concentrated in the real estate sector, which is not a productive one. Despite the rise in the amount of FDI inflow, the FDI stock is still at levels far enough from the EU27 average.

Specifically with regard to the Greek justice system, it particularly suffers from lengthy procedures, as the estimated time needed to resolve litigious civil, commercial and administrative cases is among the longest in the EU27. Digital acceleration, artificial intelligence applications, electronic case allocation and electronic communication tools are just some of the solutions and reforms

that could have a significant impact on boosting the efficiency of the Greek justice system and would help increase its perceived independence.

Regarding the education system, among others, Greece ranks low among the OECD countries at the levels of proficiency and skills in literacy, numeracy and problem-solving in technology-rich environments for adults, while these skills are not as highly rewarded in terms of high wages as in other OECD countries. The already low student performance in Greece was exacerbated during the pandemic, during which Greek students essentially lost a full school year in math and reading as well as half a school year in science. Effective remote learning environments, the strengthening of the school-family partnership, the creation of opportunities in the curriculum of students to engage in creative thinking and/or interdisciplinary work, and the alignment of the education system and of the highly skilled workforce with industry needs will bolster Greece's capacity to innovate and compete internationally.

1. Introduction

1.1. Overview of productivity developments

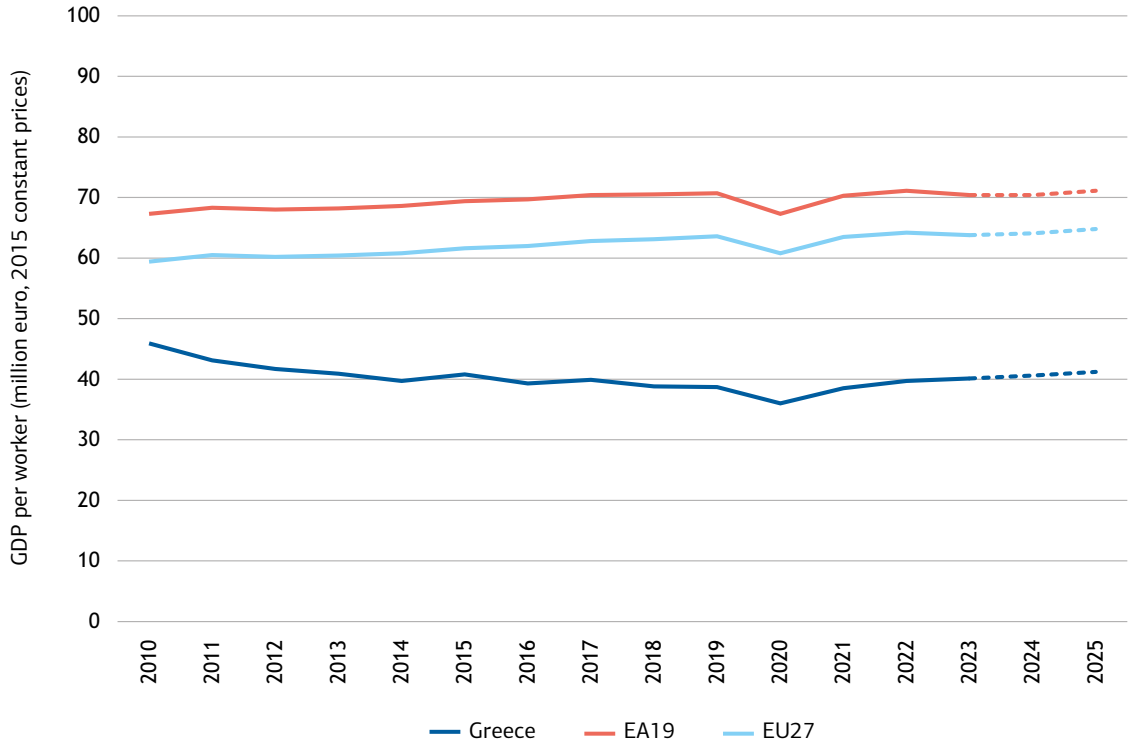
In the post-pandemic era, stunning differences are found in productivity trends across countries. This is because not all determining factors are cyclical, and various decisive policy actions –through faster and effective structural reforms– are required to boost labour supply, business dynamism, and supply chains and to reallocate scarce resources to more productive uses (IMF, 2024). During the last three decades, the EU labour productivity growth has slowed by more than the US and has fallen back below 80% of the US level (Draghi, 2024).

Greece is among those EU countries where the real GDP grew faster (about 2%) than the corresponding averages of the euro area (EA19) (0.42%) and the European Union (EU27) (0.44%) during 2022-2023. The economic activity in the country is currently driven by private consumption benefited from rising real disposable income, by investment –mostly in construction– and by net exports (EC, 2024a). Despite the strong post-pandemic recovery of Greece's economic activity and the recent productivity developments, its labour productivity gap with the EU average has not substantially changed (Figures 1.1 and 1.2). Looking back, during the decade after the financial crisis (between 2010-2019), the average productivity growth was negative for Greece (-1.8%), while the other EU member states exhibited a positive average productivity growth (except Luxemburg) (Eurostat, 2024).

Greece presented a faster growth in labour input than in capital input compared with most of the other countries, especially the eastern and central European ones, where the aggregate capital-to-labour ratio was basically driven by capital accumulation (EC, 2024a). These developments led the latter countries to substantially converge with the EU average from their time of accession until 2023 (Eurostat, 2024). In addition, the productive investment share of GDP in Greece is only 12.4%, below the EU average of 16.7% (EC, 2024b), while the accelerating investment growth is considered as having a significant import content because of the higher import demand. In turn, net exports have a limited impact on growth and the current account, reducing competitiveness gains (EC, 2024a, 2024c). The structural problems in the country's production base, the high inflation, particularly in food, energy, and housing, the restraints imposed on public spending, and demographic pressures intensify the need for raising productivity growth to ensure macroeconomic stability, improve the well-being of citizens, strengthen the resilience to exogenous shocks and experience a substantial convergence process.

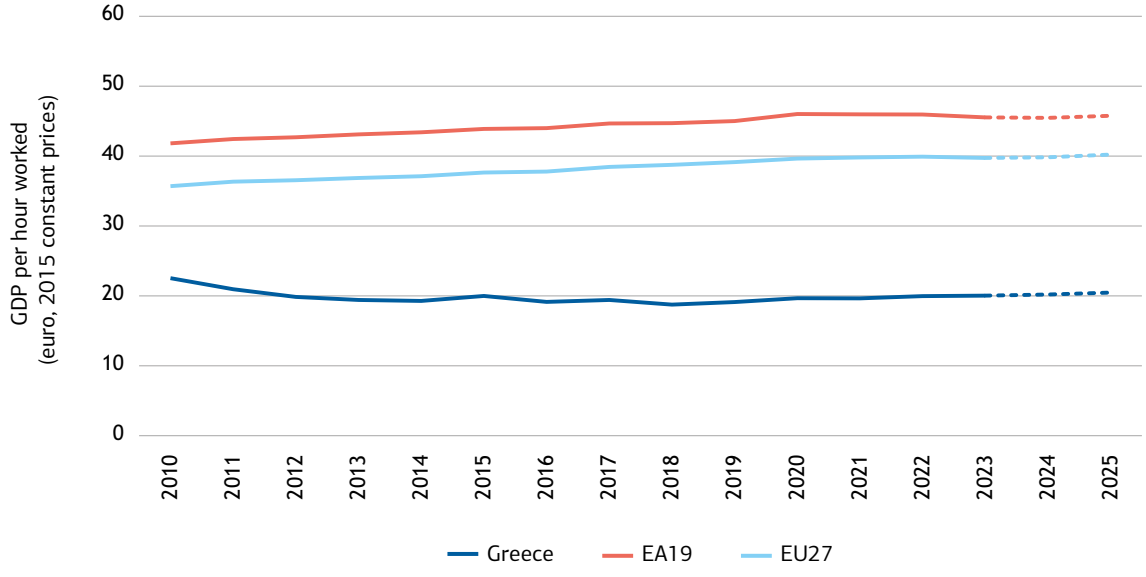
During the year 2023, several improvements in economic aggregates, productivity indices and competitiveness indicators are observed in Greece (see Sections 2 and 3). Specifically, in comparison to year 2022, slight improvements are observed in all productivity metrics reported here, including labour productivity in terms of GDP per worker (1%) (Figure 1.1), labour productivity in terms of GDP per hour worked (0.29%) (Figure 1.2), and total factor productivity (TFP) (0.86%) (Figure 1.3). In contrast, both the EA19 and the EU27 presented small productivity losses in 2023 compared to 2022, which are -0.98% and -0.62%, respectively, for labour productivity in terms

Figure 1.1 Labour productivity in GDP (million euro, constant prices) per worker in Greece, the EA19 and the EU27 during 2010-2023 and 2024-2025 forecasts



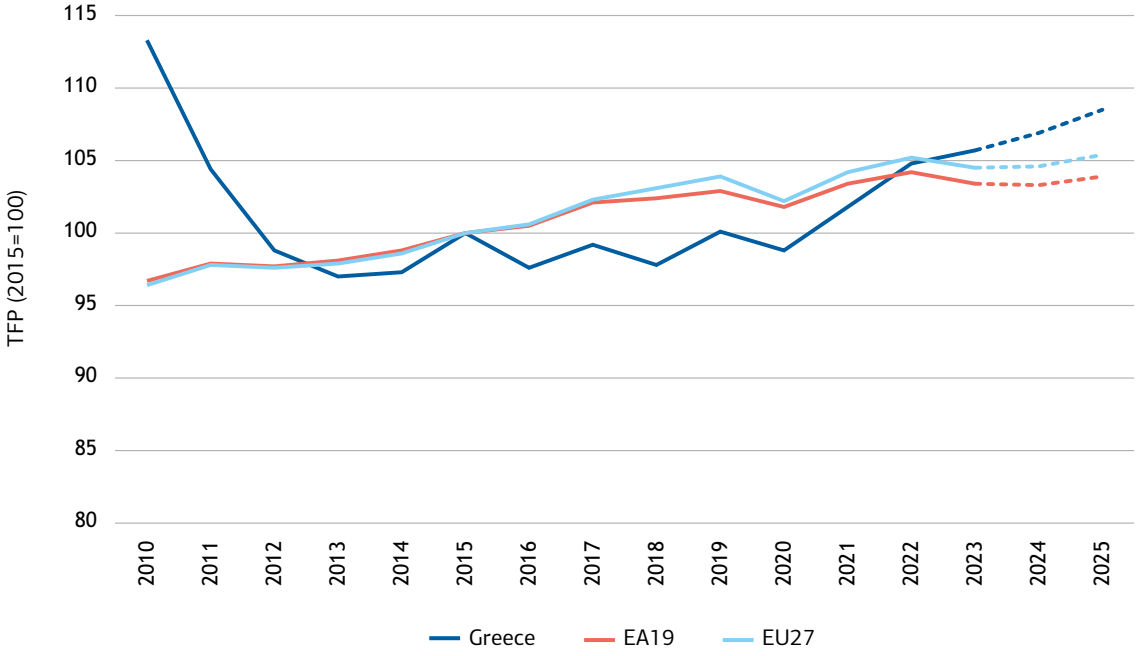
Source: AMECO and author's own processing.

Figure 1.2 Labour productivity in GDP (euro, constant prices) per hour worked in Greece, the EA19 and the EU27 during 2010-2023 and 2024-2025 forecasts



Source: AMECO and author's own processing.

Figure 1.3 TFP evolution in Greece, the EA19 and the EU27 during 2010-2023, and 2024-2025 forecasts (2015=100)



Source: AMECO and author's own processing.

of GDP per worker, -0.88% and -0.48% for labour productivity in terms of GDP per hour worked, and -0.77% and -0.67% for TFP.

Regarding the coming years, the productivity of the Greek economy is expected to grow faster, with a forecasted total increase in 2025 of 2.7% in terms of GDP per worker, 2.3% in terms of GDP per hour worked, and 2.6% in TFP compared to 2023. The corresponding productivity growth in the EA19 and EU27 is expected to be slower than Greece during the same period (2023-2025), namely, 1% and 1.6% in terms of GDP per worker, 0.5% and 1.2% in terms of GDP per hour worked, and 0.5% and 0.9% in TFP, respectively.

Nevertheless, it is stressed that, despite these developments, the labour productivity of the Greek economy is far from following a trajectory of substantial convergence with Europe. In particular, in 2023, the Greek GDP per worker remained about 57% of the EA average and 63% of the EU average, while the Greek GDP per hour worked was even lower, namely, 44% of the EA average and 50% of the EU average.

1.2. The scope of the annual report for 2024

This annual report is composed of two main parts. The first one (Section 2) describes how the Greek economy is progressing in major macroeconomic aggregates and emphasises the main productivity indices, through the output per capita, labour productivity and labour utilisation

decompositions. In addition, both the sectoral and spatial dimensions of labour productivity are analysed here, focusing on the productivity performance and convergence at the metropolitan level. Additionally, special consideration is given to the productivity performance of Greek SMEs in relation to European ones.

The second part (Section 3) reports the main developments in public finance and the current accounts of the Greek economy and the recent improvements in cost/price competitiveness indices. Special emphasis is given to the participation of Greece in global value chains as well as its performance in supply chains, with the use of suitable indicators, which demonstrate not only the enhancement of the country's logistics capabilities, but also its increasing dependence on foreign markets, particularly in high-productivity sectors such as manufacturing. Also, recent structural reforms are presented with regard to promoting the export performance of firms and their facilitation to trade abroad. Moreover, the report presents specific indicators to explain the country's performance in overall competitiveness, in attracting foreign direct investment, and in selected public sector services, such as the justice and education systems, underlying the need for substantial reforms.

Section 4 summarises and concludes, encompassing a range of policy implications. Among others, these implications concern the improvement of productivity at various (national, sectoral, metropolitan, and firm) levels, the strengthening of fiscal stability and the trade balance, the attraction of FDI, the sustainable integration in resilient value and supply chains, and efficient reforms of the justice and education systems.

2. Macroeconomic Trends and Productivity Developments

2.1. Macroeconomic environment

While many EU countries have entered a period of prolonged stagnation, the 2023 GDP in Greece has expanded by 2%, the 7th highest in the EU. As of 2023, the repercussions from the ongoing war in Ukraine have been milder in Greece than in countries such as Ireland (-3.2%), Estonia (-3%), or even Germany (-0.2%), where contractionary trends have been observed (EIB, 2022; Papunen, 2024). Moreover, inflationary pressures, as reflected by the consumer price index, have decreased from the high point reached during the previous year and are estimated at 3.5%. Although at the beginning of the current year expectations for decisive global rate cuts were diminished due to persistent underlying inflationary pressures, particularly in the US, inflation forecasts are now somewhat more optimistic. However, the signals remain ambiguous, reflecting uncertainty over prevailing global conditions. In the euro area, following the European Central Bank's latest interest rate cut in September 2024, markets anticipate a gradual pace of further rate cuts.[1]

On the other hand, the general rate of unemployment (for people aged 15-74 years) in 2023 remained in double digits, at 11.1%. Greece has the second-highest unemployment rate in the EU, after Spain (12.2%), and the highest rate of youth unemployment, reaching 21.8%. Furthermore, not all aspects of aggregate demand contribute equally to growth. Over the last five available quarters (from 2023q1 to 2024q2), the major driver of GDP growth has been private household consumption. Investment is the second most important factor contributing to growth, while the lower impact of government expenditure is offset by a negative effect of equal magnitude in the balance of trade (goods and services).

For the last few decades, deficits in the current account have been both persistent and, at times, significant. The largest portion of this deficit is due to the trade balance of goods. During the prolonged economic recession, and due to suppressed domestic demand, the current account balance (CAB) was reduced to -0.7% of GDP. However, in the aftermath of the COVID-19 period, this deficit substantially widened to 6.9% (see also Section 3.1).

Public finances improved during 2023 (see also Section 3.1). Compared to the previous year, general government net borrowing dropped to 1.6% of GDP, significantly lower than the EU average of 3.5%. Additionally, the primary balance was positive, primarily due to adjustments on the side of social expenditures. Total public expenditure decreased by 2.6 percentage points to 50.5%, while revenues were contained by only 1.7 percentage points. Overall, fiscal discipline

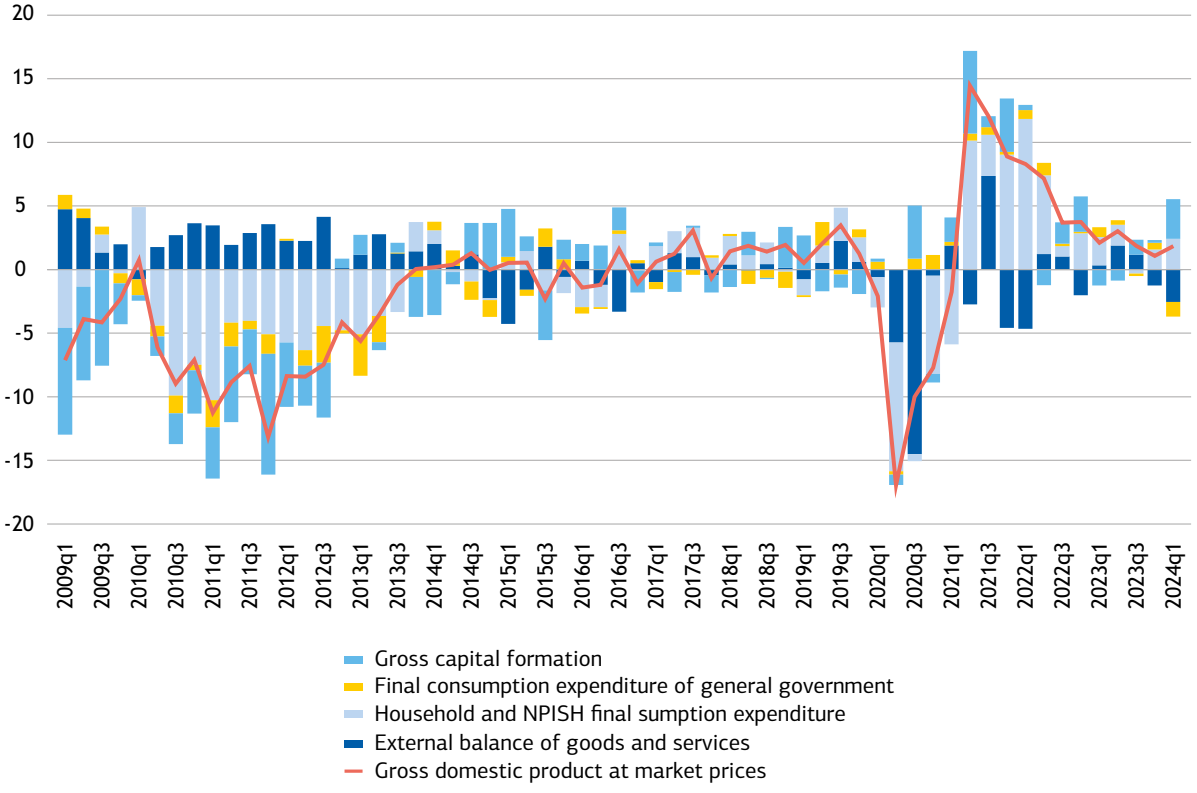
1. The Governing Council decided to lower the three key ECB interest rates by 25 basis points. Accordingly, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will be decreased to 4.25%, 4.50% and 3.75%, respectively, taking effect from 12 June 2024. Available at: <https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.mp240606~2148ecdb3c.en.html>.

has led to a marked reduction in the debt-to-GDP ratio by more than 10 percentage points in one year, bringing it to an estimated 161.9% of GDP in 2023, and by more than 45 percentage points since 2020.

Examining the factors contributing to GDP growth in the past year, starting from the first quarter of 2023, GDP grew at an annual rate of about 2%. This growth is primarily attributed to a strong increase in private final consumption expenditure, which improved by 1.3%, and, secondarily, to the increase in the external balance of goods and services by 0.5%. The value of exports outperformed imports due to a considerable surplus recorded in the balance of services. Additionally, general government consumption expenditure contributed 0.4% to overall growth, while the gross investment contribution was marginally negative at -0.2%.

In the aftermath of COVID-19, the Greek economy shows signs of decelerating growth. The only consistent contributor to GDP growth over the quarters following the long-term contraction phase (2009-2016), depicted in Figure 2.1.1, is private consumption. Investment, on the other hand, has been quite volatile and often too weak to significantly impact GDP growth. However, over the last four years, its quarterly accumulated growth has been positive and close to the level of private consumption.

Figure 2.1.1 Contributions to GDP growth, Greece, 2009q1-2024q1



Source: Eurostat.

During the second quarter of 2023, economic activity peaked as GDP grew at a rate of 3%. This growth was driven by an increase in private consumption, which contributed 1.6% to GDP growth, and an improvement in the external trade balance, which added 1.9%. However, capital formation was deficient during this same quarter. In the first quarter of 2024, economic activity increased at a slower pace of 1.9%. Although this rate cannot be considered high, it is still above the Eurozone's average. This growth was primarily due to private consumption, which contributed 2.4%, and investment activity, which added 3.1%. In contrast, general government expenditure had a negative impact of 1.1%, and net exports were also negative at 2.5%, which is substantial relative to the overall level of growth.

In the case of Greece, increased investment and consumption are closely correlated with greater imports. This is a direct result of the production structure of the Greek economy, as a significant portion of the capital goods required for various industrial purposes is imported. Consequently, every increase in investment, which typically occurs alongside phases of economic expansion, is hampered by a significant drag on the trade balance and a resulting current account deficit. This structural feature of the Greek economy affects its medium- and long-term growth prospects and destabilises fiscal indicators, as the current account deficit contributes to twin deficits.

Reliance on imports for critical capital equipment means that any boost in investment and consumption disproportionately benefits foreign producers, rather than stimulating domestic activity and employment. Persistent deficits lead to increasing borrowing costs and the accumulation of external debt. These factors collectively erode fiscal credibility. Addressing these issues requires a multifaceted approach. Policies aimed at enhancing domestic production capabilities, particularly in the manufacturing sector, are essential. Incentivizing investments in technology, technical education, and innovation; improving infrastructure; and fostering a more business-friendly environment to attract both domestic and foreign investment in productive activities are crucial steps. Policies aimed at the gradual reduction of required imports for capital goods by supporting the development of local industries are also crucial. Additionally, strengthening the education and training systems to provide a skilled workforce capable of supporting high-tech manufacturing and other advanced industries would be beneficial (see Section 3.6).

2.2. Own economic projections for 2024-2025

As of the first half of 2024, GDP estimates suggest growth, in continuation of the previous year's GDP dynamics (Section 2.1). However, this growth is not primarily driven by traditional elements of autonomous demand, such as private consumption or exports. Instead, it is largely due to increases in gross capital formation. This analysis explores the key factors influencing GDP growth in Greece for 2024 and 2025 under different scenarios, focusing on the impacts of government spending, investment programmes, and external sector performance.

The baseline scenario projects GDP growth rates of 1.9% in 2024 and 2.1% in 2025 (Table 2.2.1), assuming that government consumption remains neutral and maintaining public expenditure at pre-COVID-19 levels to support fiscal stability. This scenario also incorporates the impact of the National Recovery and Resilience Plan (RRP), which is expected to significantly boost investment.

Table 2.2.1 GDP, employment and imports estimates, 2024-2025

	2024	2025
Baseline scenario		
GDP	1.9%	2.1%
Employment	1.4%	1.0%
Imports	4.6%	4.8%
Optimistic scenario		
GDP	2.2%	2.3%
Employment	1.5%	1.3%
Imports	4.2%	3.9%

Source: Authors' own calculations.

We assume that funds allocated to the Greek government and the private sector for 2024 and 2025 will be fully received and utilised, leading to considerable investment growth by 16% in 2024 and 10.5% in 2025. By stabilising government consumption, the baseline scenario aims to keep public finances balanced without increasing the national debt burden. Investment-led growth, as seen in the baseline scenario, emphasises enhancing productive capacity and infrastructure. This approach aligns with Greece's broader economic goals of sustainable development and structural reform to boost competitiveness. Nonetheless, while investments can drive long-term growth, their immediate impact on employment and household incomes may be limited compared to the consumption-driven growth. Projections for employment growth are modest, with increases of 1.4% in 2024 and 1.0% in 2025.

The external sector plays a significant role in shaping Greece's economic outlook. In the baseline scenario, increased investments are expected to drive up imports, particularly of capital goods, with projected increases of 4.6% in 2024 and 4.8% in 2025. While rising imports indicate robust domestic activity, they also pose a challenge to the trade balance. Expected export growth of around 4% annually during the same period will only partly offset this increase in imports. Tourism is expected to see modest revenue increases in 2024 and 2025. While this sector continues to grow in the post-pandemic era, it faces challenges due to global uncertainties and shifting travel habits, which may temper its contribution to overall economic growth compared to pre-pandemic levels.

An alternative, more optimistic scenario explores the potential impact of higher government spending. In this scenario, we assume the government will increase expenditure by 1.4% in 2024 and 1% in 2025, driven by the needs for social cohesion and taming inflationary pressures. This scenario suggests that higher public spending could stimulate economic activity more immediately, enhancing employment growth and supporting vulnerable populations affected by rising prices.

The optimistic scenario projects slightly higher GDP growth rates of 2.2% in 2024 and 2.3% in 2025, with employment increasing by 1.5% and 1.3% over the same period (Table 2.2.1). These outcomes highlight the short-term benefits of fiscal expansion, though they must be weighed against the potential risks of increased public debt and long-term fiscal sustainability concerns. To sum up, Greece's economic outlook for 2024 and 2025 is shaped by investment dynamics, government spending options, and external sector performance. The baseline scenario anticipates

moderate growth driven by substantial investments, supported by the RRP, while maintaining fiscal discipline. The optimistic scenario considers a more expansive fiscal stance, highlighting the potential benefits of increased government spending on economic activity and employment.

2.3. Aggregate productivity growth

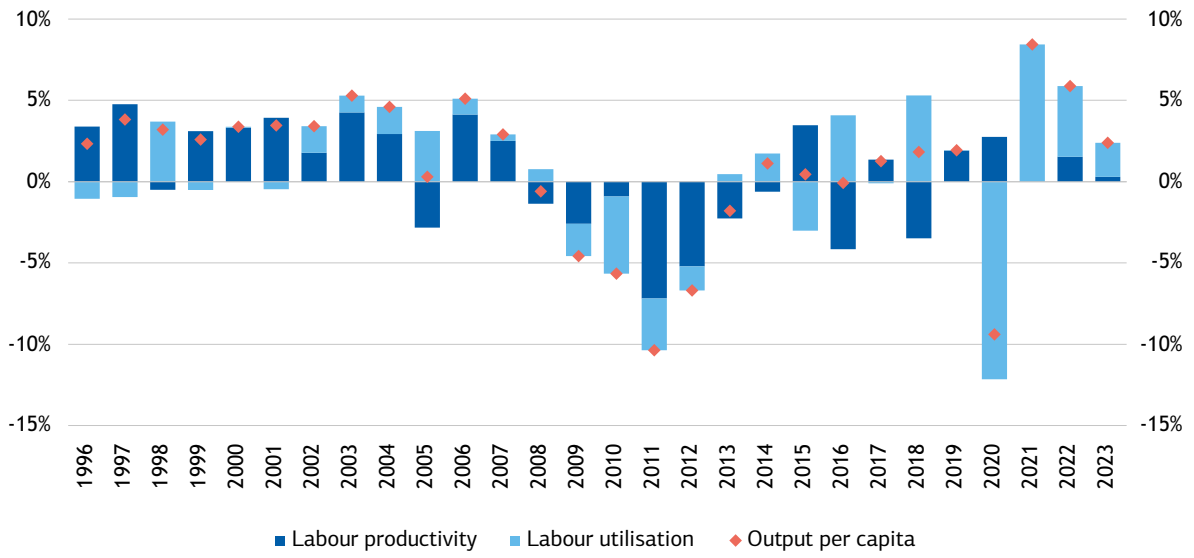
During 2023, real output increased by 2%, hours worked by 1.7%, employment by 1%, and capital by 0.35%. Consequently, labour productivity per hour worked improved by 0.3%, and labour productivity per person employed improved by 1%. Total factor productivity increased by 2.9% when using hours worked as the labour input and by 3.8% when using employment as the labour input. Moreover, real per capita output growth, although slower, remained positive for a third consecutive year at 2.4%. This growth can be decomposed into changes between labour productivity (Y/L) and labour utilisation, i.e., the ratio of employees to the population (L/N) (see Box 2.3.1). The results from 1996 to 2023 are depicted in Figure 2.3.1. In 2023, the majority of per capita growth is attributed to labour utilisation (2.1%), while labour productivity contributes only marginally, by just 0.3%. It is evident that since 2008, the role of labour productivity in supporting per capita output has diminished.

Each of these components can be further analysed to capture the macroeconomic elements affecting its performance. Labour productivity reflects the combined effects of total factor productivity and capital intensity (see Figure 2.3.2). Since 2021, the negative impact of capital intensity has been only marginally offset by total factor productivity. This outcome is attributed to the increasing trend in hours worked. It is noteworthy that in 2023, among the EU27 countries, Greece ranks second –after Poland– in total hours worked per employee. In contrast, the average hours across the EU27 have declined, suggesting the introduction of more efficient and productive technologies (EC, 2024a, p. 34). The disparity between the rapid growth in hours worked and the slower growth in the capital stock suppresses capital intensity to the extent that total factor productivity has a limited influence on the outcome (Passas, 2023).

Figure 2.3.3 illustrates a clear negative relationship between the productivity gap and total hours worked per person across the EU27 countries. The productivity gap is calculated as the ratio of a country's real GDP per hour worked compared to the EU27 average. Accordingly, a productivity gap greater than 1 indicates that a country has a higher productivity level than the EU average. The data reveal that countries with above-average productivity levels tend to have fewer hours worked per person. Conversely, countries where labour-intensive activities are more prevalent typically show lower productivity levels, as reflected by a productivity gap below 1. The negative and robust correlation[2] observed underscores a broader economic trend: countries with more labour-intensive economies often struggle to achieve higher productivity, suggesting a trade-off between the intensity of labour usage and efficiency gains in production. The findings emphasise the challenges faced by countries with labour-intensive industries in closing the productivity gap with their more productive counterparts in the EU27.

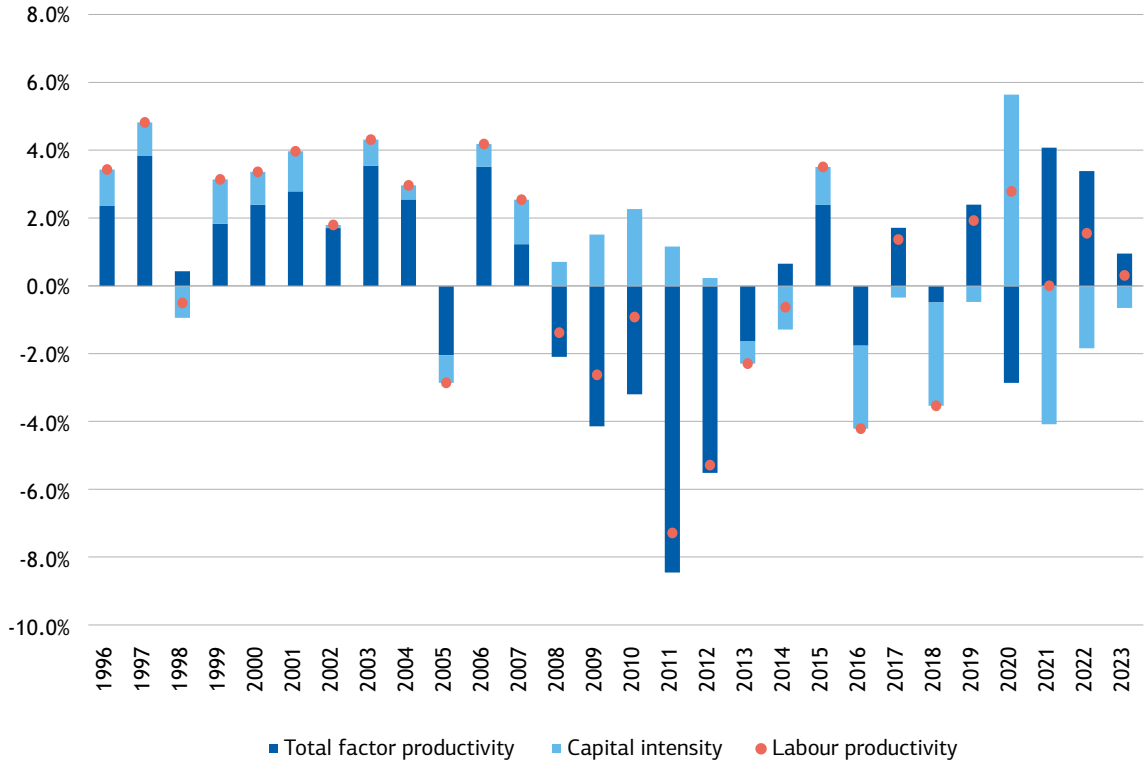
2. The R^2 value is 0.46, but when Ireland is excluded, it increases to 0.61.

Figure 2.3.1 Output per capita decomposition, Greece, 1996-2023



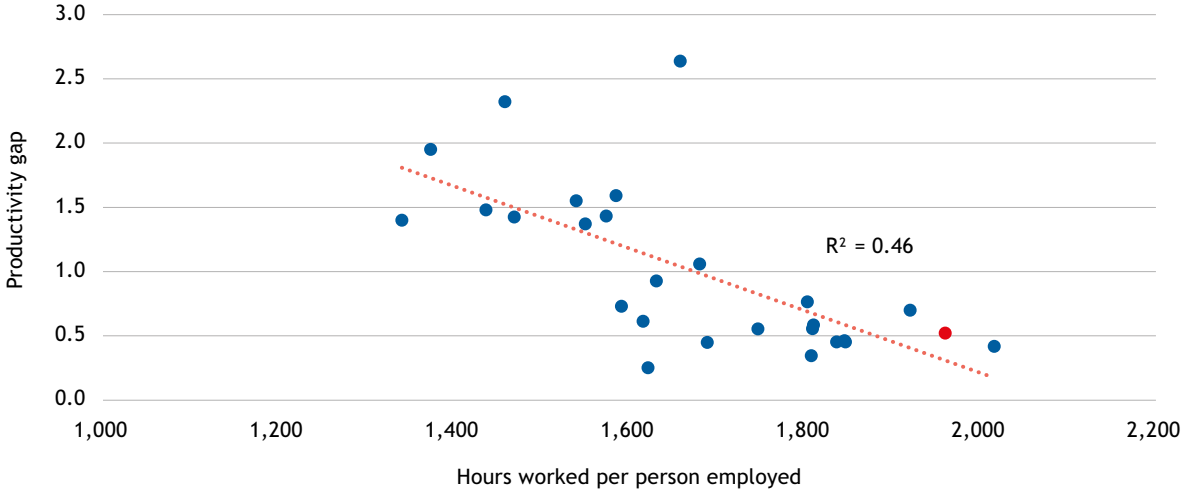
Source: Eurostat, authors' own calculations.

Figure 2.3.2 Labour productivity decomposition, Greece, 1996-2023



Source: Eurostat, authors' own calculations.

Figure 2.3.3 Correlation between the productivity gap and hours worked per person employed, countries of the EU27, average 2019-2023



Source: Eurostat, authors' own calculations. Greece is marked with the red dot.

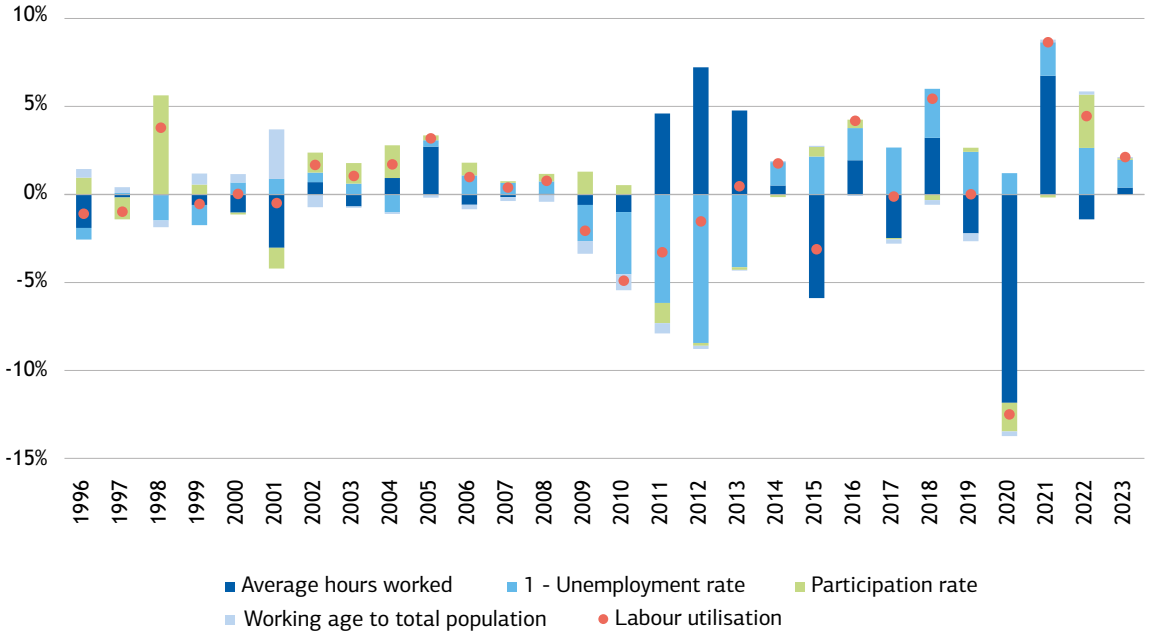
Similar to labour productivity, labour utilisation can be decomposed into several components (see Figure 2.3.4). In 2023, decreasing unemployment improved labour utilisation by 1.6%, while average hours worked increased labour utilisation by 0.4%. Lastly, the participation rate and the ratio of working age to total population contributed just 0.1%. The increase in average hours worked, combined with the rise in the participation rate, indicates that employees are working more hours than before.

Capital productivity, illustrated in Figure 2.3.5, is defined as output per unit of physical capital and is equally crucial as labour productivity in determining the standard of living for a population. Physical capital encompasses infrastructure, machinery (including ICT), and intellectual assets. An increase in capital productivity signifies more efficient use of these assets in the production process, whereas a decrease suggests progressively less efficient utilisation. Findings reveal that capital productivity increased by 1.8% in 2023.

Several factors have arguably contributed to this rise. Firstly, there may have been improvements in technology and processes that facilitated more effective utilisation of existing capital. Secondly, investments in new, more efficient machinery and infrastructure may have played a significant role. Thirdly, better management practices and optimisation strategies could have also contributed to this enhanced productivity.

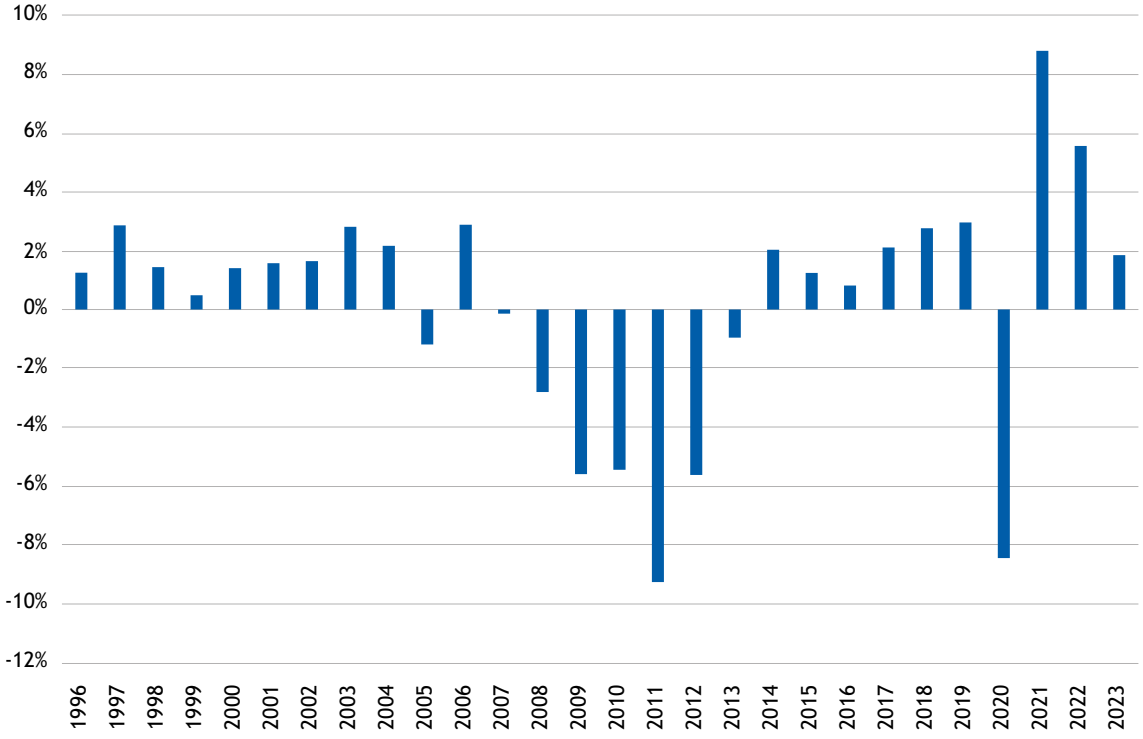
This increase in capital productivity has significant implications for the economy. It indicates that businesses are becoming more efficient in their use of resources, which can lead to higher overall economic growth. Additionally, it helps mitigate the effects of labour shortages by ensuring that available physical capital is used to its fullest potential. Over the long term, sustained improvements in capital productivity can enhance competitiveness, promote sustainable development, and improve the standard of living for the population.

Figure 2.3.4 Labour utilisation decomposition, 1996-2023



Source: Eurostat, authors' own calculations.

Figure 2.3.5 Capital productivity, Greece, 1996-2023



Source: Eurostat, authors' own calculations.

Box 2.3.1 Output decomposition

Given that labour productivity can be decomposed into total factor productivity and capital intensity (see, e.g., Gomez-Salvador et al., 2006): $\frac{Y}{L} = TFP \times \left(\frac{K}{L_h}\right)^{1-\alpha}$ and that labour utilisation can be decomposed into effects for average hours worked, the unemployment rate, the participation rate, and aging: $\frac{L_h}{N} = \left(\frac{L_h}{EMP}\right) \times \left(1 - \frac{U}{LF}\right) \times \left(\frac{LF}{POP}\right) \times \left(\frac{POP}{N}\right)$, then output per capita can be decomposed into the effects of labour productivity and labour utilisation: $\frac{Y}{N} = \frac{Y}{L} \times \frac{L}{N}$, with Y being output, L_h hours worked, K capital, α the labour share of income, TFP total factor productivity, N total population, EMP employment, U unemployment, LF labour force, POP population of working age.

2.4. Sectoral productivity growth

Turning to the sectoral dimension of productivity growth in the Greek economy, significant variation is evident across economic sectors (see Table 2.4.1). Out of the 10 broad sectors of the economy, 8 experienced slight productivity increases as output grew faster than employment, while 2 sectors showed slight decreases in productivity. When grouping sectors by productivity change, a first group with substantial productivity increases includes both production and services sectors. Specifically, "Agricultural activities" rebounded significantly in output and hours worked, leading to a labour productivity increase of 12.6%. A similar trend is observed in "Professional, scientific, and technical activities", where labour productivity rose by 11.5%.

In a second group of sectors, more moderate labour productivity increases were observed in "Real estate" services and "Information and communication", with productivity rising by 3.7%. The sectors of "Wholesale and retail trade" and "Arts, recreation, and entertainment" also presented productivity gains of slightly more than 3%. In the same group, the "Construction" and "Public administration" sectors experienced productivity increases that were minimal but also positive (by around 2% in both cases).

Finally, in the third group, labour productivity in "Financial and insurance activities" decreased by -5.5%, while industrial activities ("Industry [except construction]") appear to have the largest losses, as productivity decreased by nearly -8%, due to significant increases in labour input and decreases in value added. This result is particularly worrisome, given Greece's structural problem of heavy reliance on both final and intermediate goods. Decreasing productivity in sectors traditionally considered crucial for promoting economic growth undermines efforts to enhance living standards.

Table 2.4.1 Contributions to labour productivity growth per sector, 2023

		Labour productivity	GVA	Hours worked
A	Agriculture, forestry and fishing	12.6%	12.1%	-0.5%
B-E	Industry (except Construction)	-8.0%	-4.9%	3.3%
F	Construction	2.1%	9.5%	7.3%
G-I	Wholesale and retail trade, transport, accommodation and food service activities	3.1%	10.8%	7.5%
J	Information and communication	4.5%	4.2%	-0.2%
K	Financial and insurance activities	-5.5%	2.1%	8.0%
L	Real estate activities	3.7%	2.3%	-1.4%
M-N	Professional, scientific and technical activities; administrative and support service activities	11.5%	11.6%	0.1%
O-Q	Public administration, defence, education, human health and social work activities	1.6%	2.4%	0.7%
R-U	Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organisations and bodies	3.2%	11.7%	8.2%

Source: Eurostat, authors' own calculations.

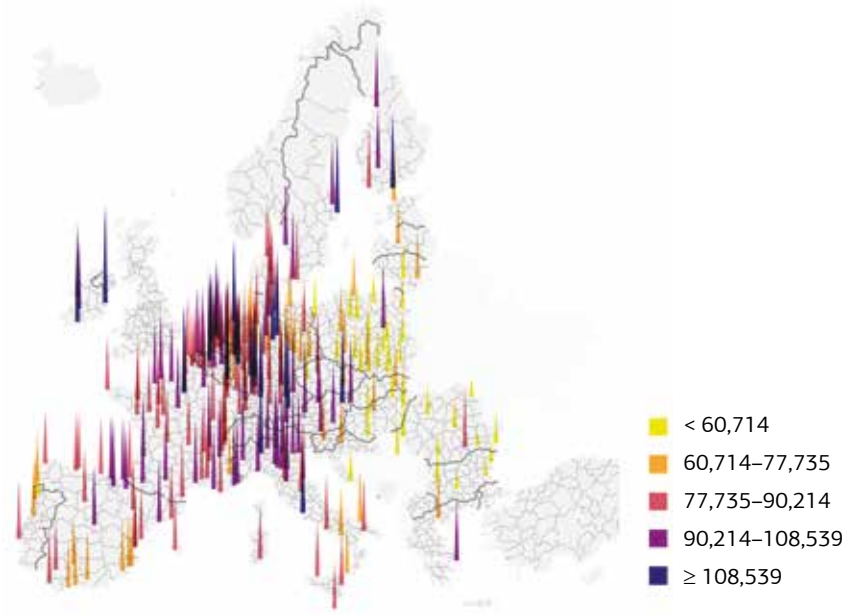
2.5. Metropolitan productivity growth

2.5.1. Productivity trends in the EU metropolitan regions

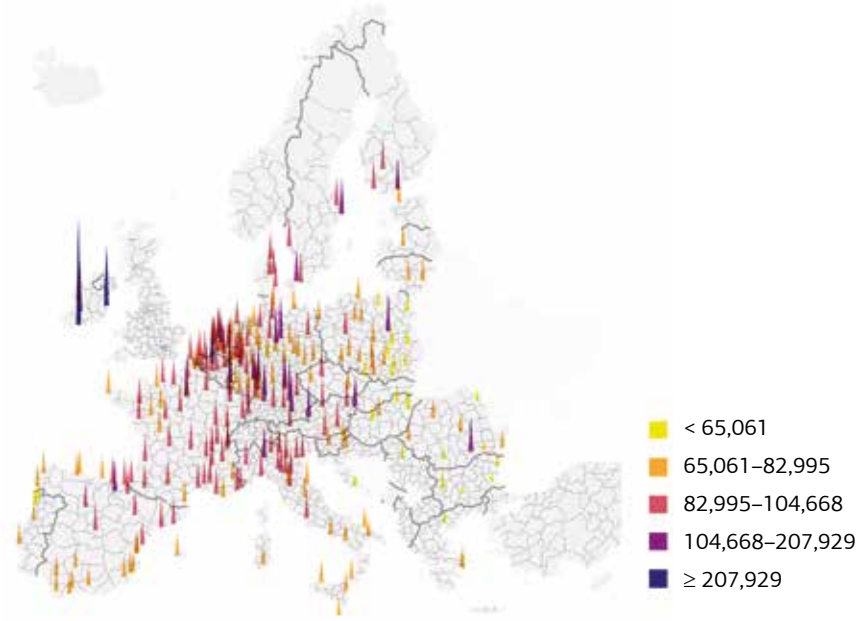
The productivity gains resulting from agglomeration economies are considered as major economic growth drivers for metropolitan areas and regions. Although there is a scarcity of research in productivity issues below the NUTS-2 level of regions, the investigation of productivity at the level of metropolitan areas can possibly address measurement issues, more accurately account for spatial variations and help to interpret related trends and diverse growth patterns in the European Union (Longhi, 2008; Dijkstra, Garcilazo and McCann, 2013). This section compares the labour productivity, as defined by the ratio between GDP and the number of workers, among the EU metropolitan regions or Functional Urban Areas (FUAs), based on the relevant OECD definitions and city statistics (OECD, 2013), during the period 2010-2020, emphasising the two main FUAs of Greece, namely that of Athens (Athina) and Thessaloniki.

Map 2.5.1 and Map 2.5.2 illustrate the labour productivity in the EU metropolitan regions at the beginning (2010) and final year (2020) of the study period, respectively. Each map groups FUAs into five (5) distinct groups according to their productivity level (with the first being the frontier group and the fifth the laggard group). The empirical findings reveal some clear regional

Map 2.5.1 Labour productivity (GDP per worker in USD, constant prices, constant PPP, base year 2015) in the EU metropolitan regions, 2010



Map 2.5.2 Labour productivity (GDP per worker in USD, constant prices, constant PPP, base year 2015) in the EU metropolitan regions, 2020



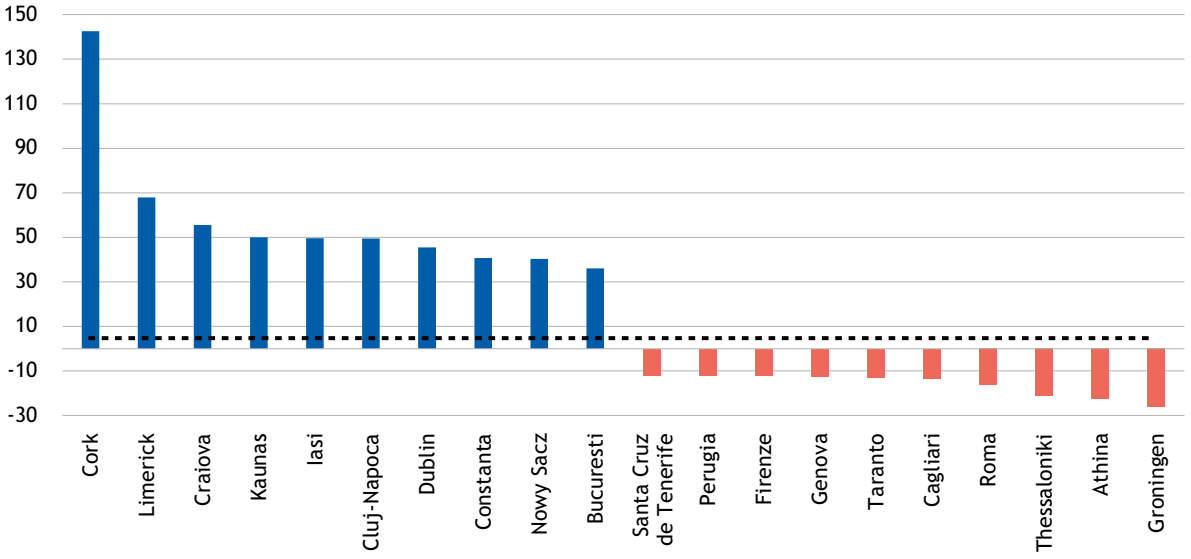
Note: The bin ranges designating each group in these maps are expressed as 'natural breaks' according to the Jenks optimization method (Jenks, 1967), which is a data clustering method designed to determine the best arrangement of values into different classes. This method minimises the average deviation of each class from the class mean, while it maximises the deviation of each class from the means of the other groups; hence, it reduces the variance within classes and maximises the variance between classes.

productivity patterns both between and within the EU countries. In general, large and/or capital metropolitan areas mostly located in central and western Europe, such as Luxembourg, Dublin, Paris, Brussels and Munich (in 2010) are included in the top-10 productive ones, as represented by the blue coloured group. The laggard EU regions are largely situated in the eastern and southern countries of Europe. However, this geographical (core-periphery) pattern is much less evident and more spatially heterogeneous in 2020. While Athens was classified in the second productivity group and Thessaloniki in the fourth productivity group in 2010, both Greek FUAs presented a significant drop in 2020, i.e., Athens to the fourth group and Thessaloniki to the fifth group.

Specifically with regard to the dynamism of the EU metropolitan regions, most of the best performing FUAs in terms of productivity growth during 2010-2020 belong to the eastern bloc of Europe (Figure 2.5.1). Specifically, the metropolitan regions having the highest productivity growth, except for the Irish regions (Cork, Limerick and Dublin), are situated in Romania (Craiova, Iasi, Cluj-Napoca, Constanta, Bucuresti), Lithuania (Kaunas) and Poland (Nowy Sacz). In contrast, the FUAs exhibiting the lowest productivity growth are largely situated in southern Europe. Athina and Thessaloniki have the most negative productivity growth (except Groningen), amounting to -23% and -21%, respectively. The other FUAs with the largest productivity decline are in Italy (Perugia, Firenze, Genova, Taranto, Cagliari, Roma) and Spain (Santa Cruz de Tenerife).

During the study period, the top 10 performing FUAs grew with an average annual rate of 5.8%, whereas the bottom 10 performing FUAs shrank with an average annual rate of -1.6%. It is

Figure 2.5.1 Top 10 and bottom 10 EU metropolitan regions in labour productivity growth (%), 2010-2020



Source: OECD and author's own calculations.
Note: The horizontal dashed line corresponds to the average level of productivity growth in the EU regions.

also stressed that the overall productivity growth of most FUAs in central-western, northern and southern Europe is around or (well) below the EU average (4.7%). The above detected patterns of productivity growth reflect the existence of considerable interregional disparities within the EU, signifying a multi-speed catching-up process among the EU metropolitan regions.

2.5.2. Productivity convergence across metropolitan areas

Productivity convergence is essential for promoting innovation, technological diffusion and knowledge spillovers across regions, while reducing disparities which hinder the overall economic progress. In order to further understand the dynamics and heterogeneity of productivity growth in the European FUAs, the catch-up or convergence hypothesis is tested for the whole sample as well as for a sample that excludes metropolitan regions of (the later entrant) eastern European countries. The hypothesis tested follows the well-known concept of β-convergence, which refers to the faster growth rate in regions with a backward income/technological level, resulting in the narrowing gap among regions over time (see Box 2.5.1).

Box 2.5.1 Technical note on the convergence hypothesis

Let $y_{i,t,t+T} \equiv \log(y_{i,t+T}/y_{i,t})/T$ be the average annual growth rate of productivity of metropolitan region i between the initial year t and the final year $t+T$, T be the length of the time period of analysis, and $\log(y_{i,t})$ the logarithm of each metropolitan region's i initial productivity at year t. We estimate the regression:

$$y_{i,t,t+T} = a - \beta \log(y_{i,t}) + \varepsilon_{i,t}. \quad (1)$$

If we find that β is positive and statistically significant, then it is considered that the sample metropolitan regions show (absolute or unconditional) β-convergence during the given time period (Barro and Sala-i-Martin, 1992; Bernard and Jones, 1996). Subsequently, the speed of convergence β_s can be calculated as follows:

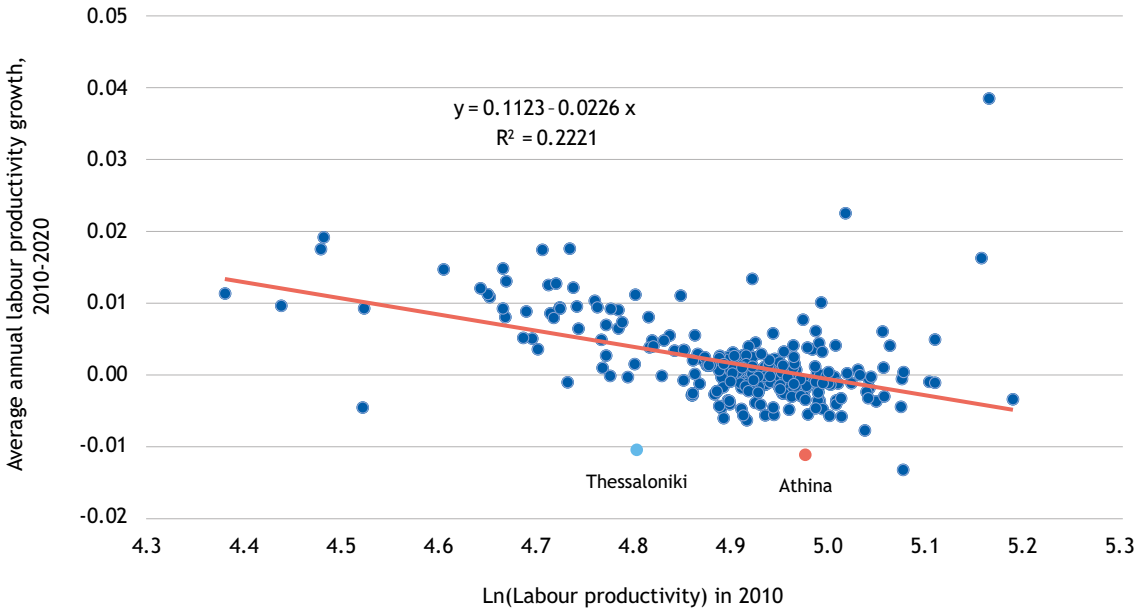
$$\beta_s = \frac{\ln(1+\beta T)}{T}. \quad (2)$$

The estimate of β_s allows us to calculate the time it takes to reduce the interregional productivity gap by half ($t_{0.5}$), as follows:

$$t_{0.5} = \frac{\ln 2}{\beta_s}. \quad (3)$$

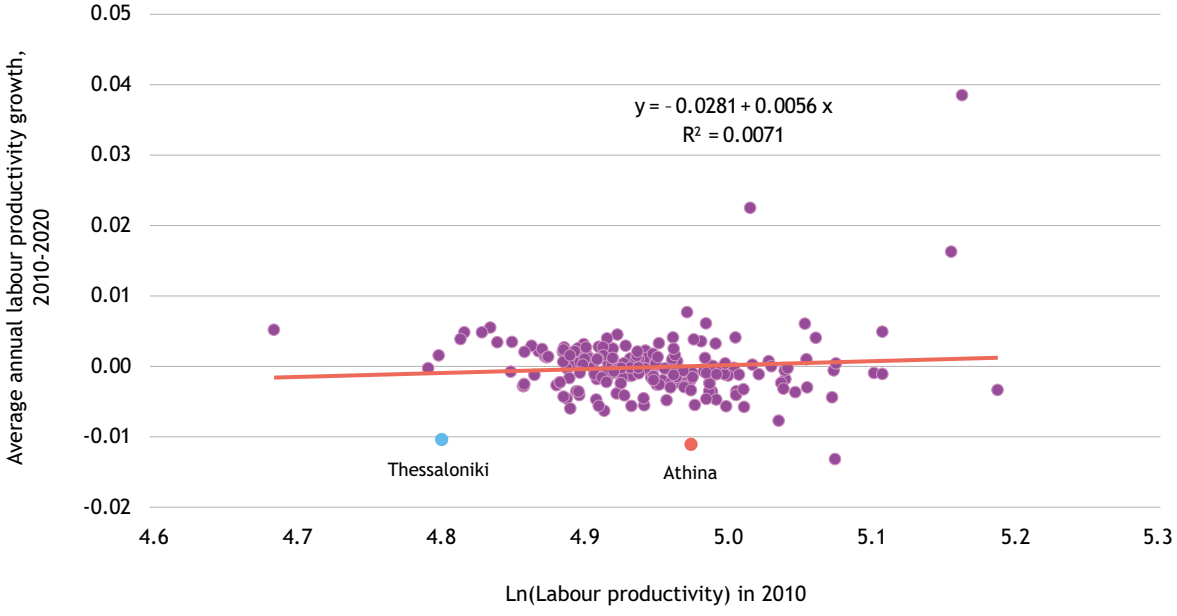
Figure 2.5.2 indicates the existence of a clear trend of convergence across the entire sample of the EU metropolitan regions during 2010-2020, as the β coefficient (gradient) of the downward linear trendline has the expected and statistically significant (at the 0.01 significance level) sign, that is, β = 0.023. In turn, the speed of convergence is positive over the study period and equal to

Figure 2.5.2 Diagrammatic representation of the (unconditional) beta (β) convergence of labour productivity (GDP per worker in USD, constant prices, constant PPP, base year 2015) among the EU metropolitan regions, 2010-2020



Source: Author's own calculations.

Figure 2.5.3 Diagrammatic representation of the (unconditional) beta (β) convergence of labour productivity (GDP per worker in USD, constant prices, constant PPP, base year 2015) among the EU metropolitan regions when omitting the eastern European regions, 2010-2020



Source: Author's own calculations.

β_s = 0.020, where T is the length of the time period (in years). These results imply that it should take $t_{0.5} \approx 34$ years to reduce the inter-metropolitan productivity gap in the whole EU by half. When excluding from the sample of metropolitan regions those situated in the eastern bloc of EU countries (Figure 2.5.3), the convergence hypothesis is not accepted. More specifically, this convergence is negative, implying a divergence process, reflected in the value of the β coefficient (β = –0.0056), which is statistically nonsignificant at both levels of confidence, 1% and 5%.

The latter outcome reassures that the transition from centrally planned to market-based economies has stimulated the catch-up growth of central-eastern European countries, largely contributing to the EU convergence process (Bisciari, Essers, and Vincent 2020; Pina and Sicari, 2021). Hence, the metropolitan catching-up process, as had been previously identified (Longhi, 2008), was essentially driven by the eastern FUAs during the 2010s, given also the fact that southern European countries lost ground, especially after the global financial crisis. The present outcomes are largely consistent with those of other studies in the literature (Männasoo, Hein and Ruubel 2018; Kijek and Matras-Bolibok, 2020; Tsekeris and Papaioannou, 2021), in the sense that the productivity in catching-up regions with low levels of productivity (particularly in the eastern EU) grew faster than in those with high levels of productivity.

It is stressed that the diverging trends of the metropolitan regions of Athens and Thessaloniki (as characteristically marked in Figures 2.5.2 and 2.5.3) followed not only the deep and persistent recession of the Greek economy during the 2010s, but also the population decline, in contrast with the increasing share of people living in metropolitan regions in other OECD countries (OECD, 2023a). These findings further support previous empirical evidence at the regional level (OECD, 2018; Tsekeris and Papaioannou, 2021) that most of the growth dynamics in the so-called 'Old Europe' are concentrated at the frontier regions, whose steady-state growth path stays ahead of the laggard ones, with an insubstantial catch-up effect.

2.6. The performance of SMEs in Greece and the EU27

SMEs form the backbone of entrepreneurial activity across the EU, and Greece is no exception. Table 2.6.1 shows the percentage shares of firms, employees, and value added for different firm-size groups. The 4-year periods 2008-2012 and 2019-2023 were selected as they mark the start and end of the available time series. In terms of the number of firms of any type/size, the differences between Greece and the EU27 appear insignificant. However, even minor disparities in the composition of firm sizes can considerably affect the domestic production structure. Notably, between 2008 and 2023, the share of very small firms in Greece decreased by 2.8 percentage points in favour of small firms, whereas in the EU27, the share of very small firms only slightly decreased.

Disparities in employee allocation are far more significant. In Greece, a larger portion of the labour force is absorbed by very small firms, although this percentage is declining. Over the years, the shares of employees working in small and large firms have increased. Comparing Greece to the EU27, the gap in the percentage of people working in large firms is striking.

In Greece, this share has risen from around 12.9% to 16.4%, whereas in the EU27, the share of those employed in large firms increased from 31.5% to 37.1%. While the difference in the proportion of large firms is just 0.1 percentage point, in relative terms, large firms in the EU27 are twice as prevalent as in Greece in terms of employees. Lastly, the shifts in the relative share of value added reflect substantial changes during a period shaped by two major crises: the global financial crisis, which had a profound impact on Greece, and the COVID-19 pandemic. During this time, the value added by very small firms plummeted from 37.8% to 18%, signaling a significant transformation in the production structure. Most of this adjustment appears to have been channeled towards the value added produced by large firms, as their share of value added rose from 23% to 37.3%.

The use of innovative technologies and the degree of specialisation and advanced knowledge required for producing goods and services are crucial factors contributing to higher productivity. In this regard, Tables 2.6.2 to 2.6.7 highlight the technological deficiency of the production structure in Greece. The country falls short in all fundamental metrics concerning the technology level of SMEs and large firms. In Tables 2.6.2 to 2.6.7, firms are categorised by the level of technology used in production and the skills and knowledge required by employees in specific sectors. Firms are classified as those producing goods ("high technology", "medium-high technology", "medium-low technology", "low technology") and those offering services ("knowledge intensive" and "non-knowledge intensive").

A notable difference between Greece and the EU average concerning high-technology firms (see Table 2.6.2) is the concentration of employees and value added in large firms. In Greece, a relatively high percentage of firms, employees, and value added are clustered around very small firms, which are typically unable to fully leverage the advanced skills required for higher productivity. The same trend is observed in medium-high technology firms (see Table 2.6.3). In both cases, potential productivity gains appear to be disproportionately concentrated among small firms, while large firms –despite their potential for generating increasing returns– are not actively contributing to value creation.

A similar pattern is observed in Greece for medium-low (see Table 2.6.4) and low technology firms (see Table 2.6.5). However, an important difference is that the relative productivity of very small firms has been significantly reduced, largely due to a decline in their share of value added. In relative terms, much of this decrease appears to be concentrated in large firms.

Knowledge is a key driver of productivity growth as it equips workers with specialised skills, fosters innovation, and improves the managerial techniques of decision-making (Audretsch and Belitski, 2024). Enhancing knowledge helps businesses to optimise their processes, reduce inefficiencies, and adapt to technological advances. Additionally, informed strategies may be vital to organisations to remain competitive, leading to sustained improvements in productivity over time. From this perspective, as far as Tables 2.6.6 and 2.6.7 are concerned, while the percentage of low knowledge-intensive firms in the EU is almost identical to that in Greece, the crucial difference lies in the percentage of employees working in low-tech very small and small firms, which is markedly lower in the EU.

Table 2.6.1 Firms, employment, and value added among SMEs, in percentage shares, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	96.9%	93.4%	94.1%	93.2%	58.4%	30.8%	45.4%	28.0%	37.8%	22.8%	18.0%	18.3%
Small	3.0%	6.1%	5.3%	5.7%	17.8%	20.3%	25.6%	19.0%	22.3%	19.3%	23.7%	16.5%
Medium	0.4%	1.0%	0.5%	0.9%	11.1%	17.6%	12.6%	15.9%	17.0%	19.4%	20.9%	17.3%
Large	0.1%	0.2%	0.1%	0.2%	12.9%	31.5%	16.4%	37.1%	23.0%	38.8%	37.3%	47.8%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Note: Very small firms employ fewer than 9 workers, small firms operate with 10 to 49 workers, medium firms with 50 to 249 workers, and firms with more than 250 workers are considered large.

Table 2.6.2 Percentage shares of high-technology firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	85.6%	72.7%	82.8%	75.1%	16.4%	4.9%	6.5%	4.1%	9.6%	1.3%	2.8%	1.4%
Small	7.8%	17.7%	11.2%	16.1%	10.4%	10.3%	9.9%	8.5%	6.0%	4.0%	8.1%	3.7%
Medium	4.9%	7.0%	3.8%	6.2%	29.6%	20.9%	21.3%	16.8%	24.7%	7.8%	22.2%	8.9%
Large	1.7%	2.6%	2.3%	2.6%	43.6%	63.9%	62.3%	70.5%	59.7%	86.8%	66.9%	86.1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Table 2.6.3 Percentage shares of medium-high technology firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	90.2%	67.6%	87.9%	69.3%	33.5%	4.7%	26.4%	3.5%	28.7%	2.8%	12.5%	2.0%
Small	7.8%	21.8%	10.0%	20.1%	19.0%	11.6%	27.9%	9.3%	17.0%	9.0%	23.6%	6.5%
Medium	1.6%	8.1%	1.8%	7.8%	18.3%	21.8%	24.6%	17.9%	25.6%	19.5%	39.5%	14.8%
Large	0.3%	2.5%	0.3%	2.8%	29.2%	61.9%	21.1%	69.4%	28.7%	68.8%	24.5%	76.7%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Table 2.6.4 Percentage shares of medium-low technology firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	95.1%	82.0%	92.8%	84.4%	48.0%	17.1%	33.9%	15.5%	26.0%	10.3%	8.1%	8.6%
Small	3.9%	14.3%	6.1%	12.3%	16.5%	24.7%	23.2%	22.4%	11.3%	21.2%	14.6%	18.5%
Medium	0.9%	3.2%	0.9%	2.7%	16.0%	27.5%	17.5%	24.8%	15.1%	26.8%	18.2%	24.2%
Large	0.2%	0.6%	0.2%	0.6%	19.4%	30.7%	25.4%	37.3%	47.6%	41.6%	59.2%	48.7%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Table 2.6.5 Percentage shares of low technology firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	95.8%	84.8%	91.3%	86.8%	46.9%	21.4%	36.5%	19.4%	28.2%	12.7%	9.8%	9.0%
Small	3.4%	12.2%	7.4%	10.6%	17.2%	24.9%	25.7%	22.6%	16.2%	20.7%	19.1%	15.3%
Medium	0.7%	2.5%	1.1%	2.1%	18.4%	26.7%	20.3%	23.1%	22.3%	26.5%	30.3%	21.6%
Large	0.1%	0.5%	0.2%	0.4%	17.5%	27.0%	17.4%	34.9%	33.2%	40.1%	40.7%	54.2%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Table 2.6.6 Percentage shares of knowledge-intensive firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	98.0%	96.2%	98.7%	96.8%	54.7%	38.2%	63.9%	35.4%	44.0%	37.5%	35.3%	30.2%
Small	1.6%	3.1%	1.1%	2.7%	11.8%	15.5%	9.9%	14.2%	19.1%	19.5%	17.6%	17.9%
Medium	0.3%	0.5%	0.2%	0.5%	14.2%	14.2%	7.6%	13.1%	17.9%	16.0%	11.5%	15.1%
Large	0.1%	0.1%	0.1%	0.1%	19.3%	32.1%	18.6%	37.4%	19.0%	27.0%	35.6%	36.8%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

Table 2.6.7 Percentage shares of low knowledge-intensive firms, employees and value added by firm size and levels of technology and knowledge used in production: Data for Greece and the EU27, average 2008-2012 and average 2019-2023

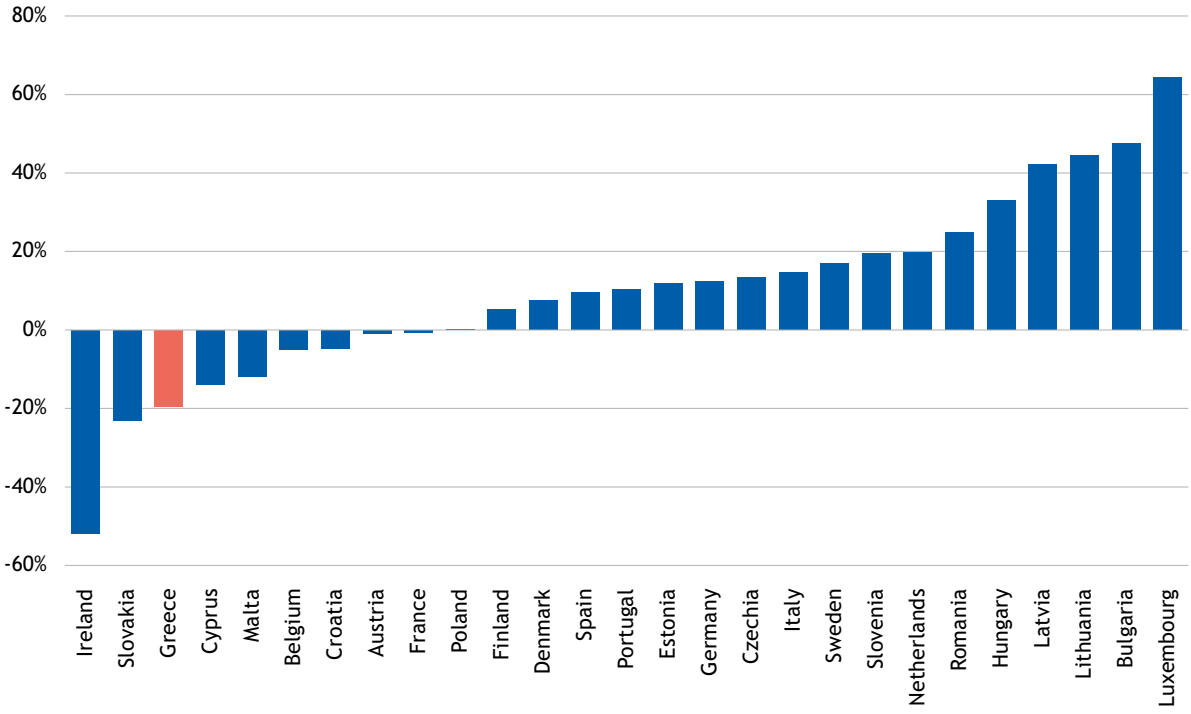
	Percentage share of firms				Percentage share of employees				Percentage share of value added			
	Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023		Avg. 2008-2012		Avg. 2019-2023	
	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27	Greece	EU27
Very small	96.4%	93.6%	92.9%	93.5%	61.6%	37.6%	44.4%	33.5%	41.6%	29.7%	17.3%	24.8%
Small	3.3%	5.6%	6.5%	5.7%	19.0%	21.5%	28.9%	21.0%	27.3%	22.1%	28.9%	20.1%
Medium	0.3%	0.7%	0.5%	0.7%	9.1%	14.5%	11.9%	13.9%	15.3%	17.8%	20.7%	17.3%
Large	0.03%	0.1%	0.1%	0.1%	10.2%	26.5%	14.7%	31.7%	15.9%	30.4%	33.1%	37.7%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Eurostat, Structural Business Statistics and authors' own calculations.

As a general rule, the concentration of a significant percentage of employees in very small firms, where productivity levels are lower compared to larger firms, can have several economic effects. Firstly, it can limit overall economic growth, as smaller firms often lack the resources, technology, and capital to fully exploit productivity-enhancing innovations. This may lead to inefficiencies and a slower pace of knowledge adoption and diffusion across industries. Additionally, such firms may struggle to compete internationally, reducing the export potential (Bernard and Jensen, 1999). The uneven distribution of productivity also affects income distribution (Dvoskin and Feldman, 2015), as employees in larger firms typically enjoy higher wages and better working conditions, deepening economic inequality. Ultimately, this imbalance can constrain national competitiveness and limit long-term economic development.

The underwhelming productivity performance of high-tech and knowledge-intensive (HTKI) SMEs in Greece is also depicted in Figure 2.6.1, which shows real productivity change (productivity deflated by the 2015 chain links). From 2009 to 2023, productivity changes among EU27 countries varied significantly. The productivity of HTKI SMEs diminished by 52% in Ireland –a destination for many large US tech multinationals– by 23% in Slovakia, and by 20% in Greece. Additionally, Cyprus, Malta, and Belgium also experienced slowdowns in productivity. On the other hand, 17 countries demonstrated a positive performance, while Poland remained stagnant.

Figure 2.6.1 Real productivity change (%) between 2009 and 2023 of HTKI SMEs, countries of EU27



Source: Eurostat, Structural Business Statistics and authors' own calculations.

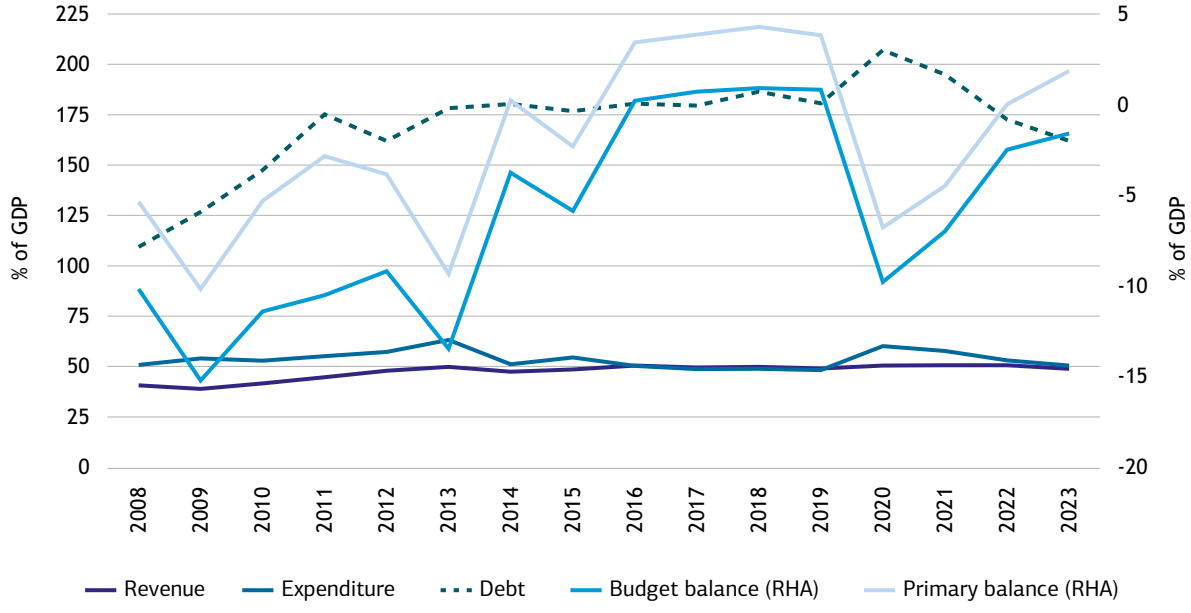
3. Competitiveness Performance Indicators and Reforms

3.1. Recent developments in public finance

Greek government revenues hit a new historical high of €107.8 bn in 2023, recording an annual increase of almost 3.1%. Tax revenues in levels recorded a new high as well, as they reached €61.9 bn and covered about 57.4% of total revenues and 28.1% of GDP in 2023. Nonetheless, expenditures for Greece in 2023 increased further at €111.3 bn (nearly +1.5% annual increase), i.e., a value that equals the 67th percentile of the empirical historical distribution of expenditures in the examined period (2008-2023). Overall, Greece suffered a deficit of €3.5 bn in 2023 (-1.6% of GDP, see Figure 3.1.1), which is the lowest one in the covered period both in levels and as a percentage of GDP. Furthermore, in terms of the 2023 GDP, revenues and expenditures equalled 48.9% and 50.5%, respectively (see Figure 3.1.1).

Interest payments amounted to €7.6 bn in 2023 (3.5% of GDP) and increased more than 47% relative to 2022. Incorporating this amount to the budget balance, it turns out that the primary balance of Greece becomes positive at about €4.1 bn, or 1.9% of GDP (see Figure 3.1.1), up from €0.027 bn or 0.01% of GDP in 2022. The last time Greece exhibited a positive primary balance was in 2019 (almost €7.0 bn or 3.8% of GDP).

Figure 3.1.1 General government budget and primary balance, revenue, expenditure, and debt (Greece)



Source: Eurostat.

The government debt-to-GDP ratio of Greece decreased further from 172.7% to 161.9% in 2023 as a share of GDP (see Figure 3.1.1), and such a value was recorded again in 2012. However, at levels, government debt remained stable in 2023 at about €357 bn, being almost equal to the 2011 value. Therefore, the fall of the debt-to-GDP ratio in 2023 stems completely from the denominator, i.e., due to the GDP that increased 6.6% in nominal terms. Thus, the time has come for the Greek authorities to make progress in reducing government debt at levels too.

3.2. Current account balance and indices

3.2.1. Current account balance

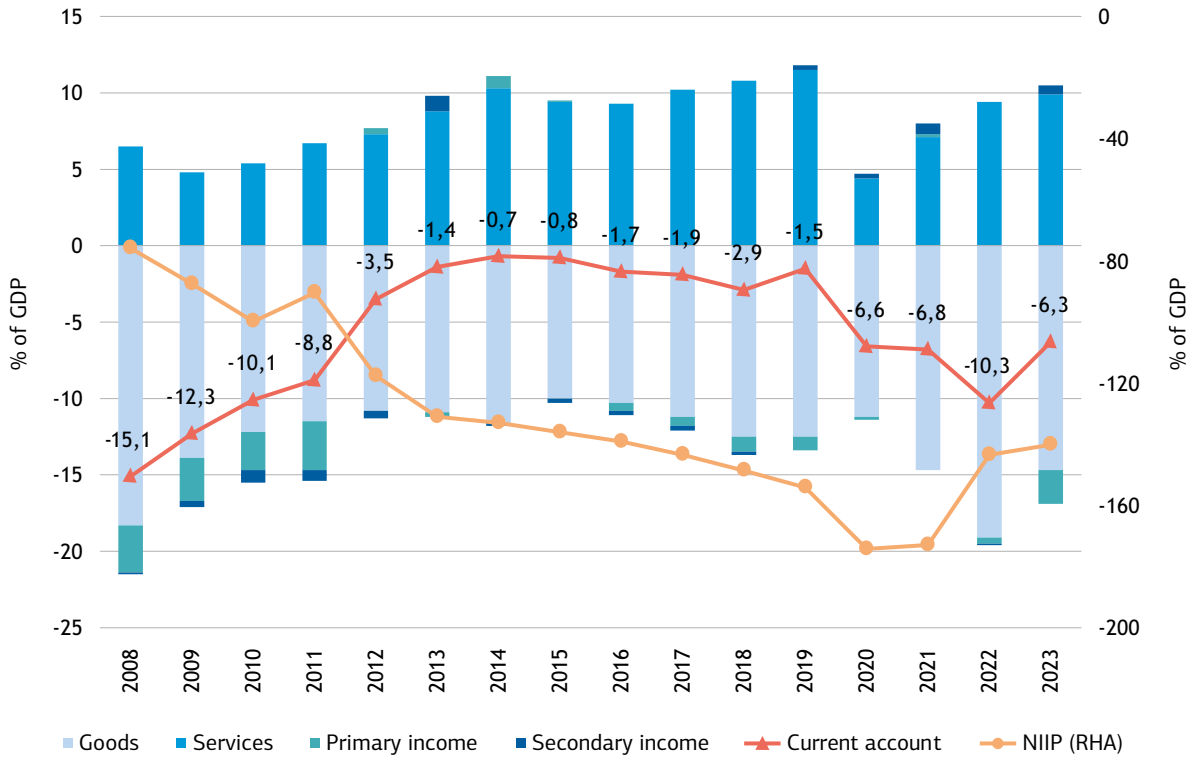
Figure 3.2.1 shows the components of the Greek current account balance, i.e., the sum of net exports of goods and services, primary income and secondary income, as well as the time-series of the net international investment position (NIIP) of Greece, i.e., the difference in the value of foreign assets owned by Greece with that of Greek assets owned by foreign nations.

One could notice that Greece suffered constantly from negative values in the current account balance during the covered period. However, Greece's current account balance reached -6.3% of GDP in 2023, exhibiting a remarkable improvement of 4 percentage points relative to 2022. The (next two) lowest values of current accounts in 2023 in the EU27 was -12.1% for Cyprus and -7% for Romania. Conversely, the highest values were recorded in the Netherlands (10.2% of GDP), and Denmark and Ireland (both 9.9% of GDP). The Greek balance of services (goods) in 2023 increased by 0.5 (4.4) percentage points to 9.9% (-14.7%) of GDP. Cyprus (-23.9%) and Croatia (-22.6%) recorded the lowest values in the balance of goods as a percentage of GDP, followed by Greece (-14.7%) in 2023, whilst the highest values took place in Ireland (32%) and the Netherlands (8.2%). Regarding the balance of services, the highest values were recorded in Luxembourg (34.4%) and Malta (29.1%), and the lowest in Finland (-3.1%) and Germany (-1.5%).

Furthermore, the primary and secondary incomes for Greece in 2023 were -2.2% and 0.6% of GDP, respectively. In particular, in 2023, the Greek primary income was lower than the median of the EA19 (-1.80%) and surpassed the corresponding mean (-4.37%), while the Greek secondary income exceeded both the average (-0.43%) and median (-0.80%) in the EA19. Finally, the NIIP in 2023 for Greece took a value of -140.1%, as it increased by 3.4 percentage points relative to 2022. This NIIP value is the highest in the last seven years (2017-2023 period), but Greece is still a debtor nation.

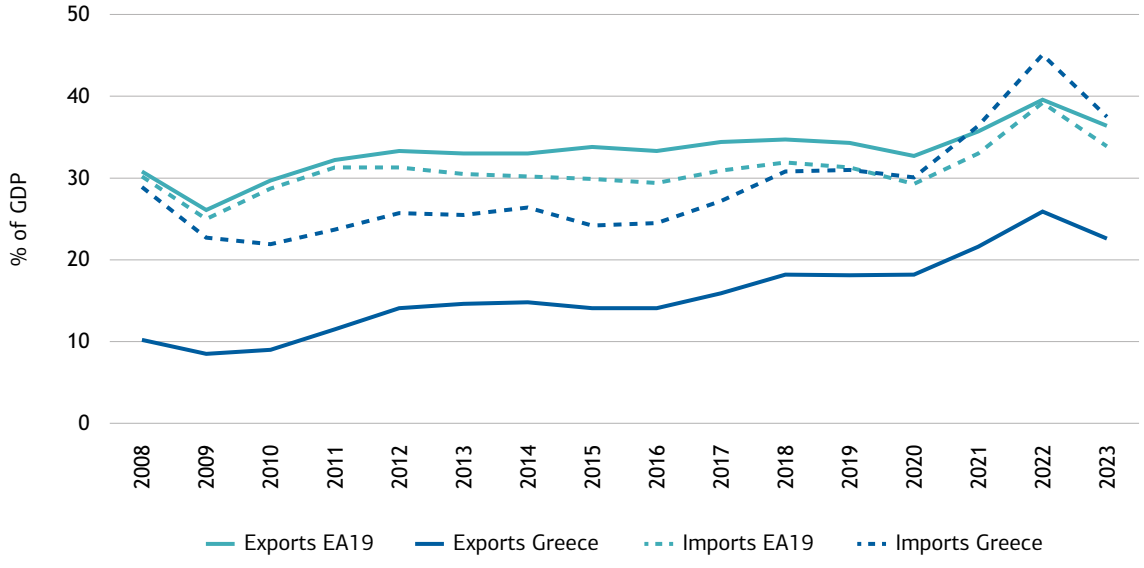
Next, Figures 3.2.2 and 3.2.3 show that Greece continues to face a persistent deficit in goods ("net importer") and a persistent surplus in services ("net exporter"). To the contrary, the EA19 is a "net exporter" in goods and seems to be close to equilibrium in services. The exports of goods for the EA19 are constantly greater than those for Greece, in terms of nominal GDP. In 2023, exports (imports) of goods for the EA19 amount to 36.4% (33.9%) of GDP. When it comes to Greece, the corresponding value for exports is 22.6% and for imports is 37.5%. Next, imports of services for the EA19 (14.6%) are larger than those in Greece (12.3%) in 2023, whilst the exports of services for Greece (22.2%) exceed those for the EA19 (15.9%).

Figure 3.2.1 Current account balance, components, and NIIP (Greece)



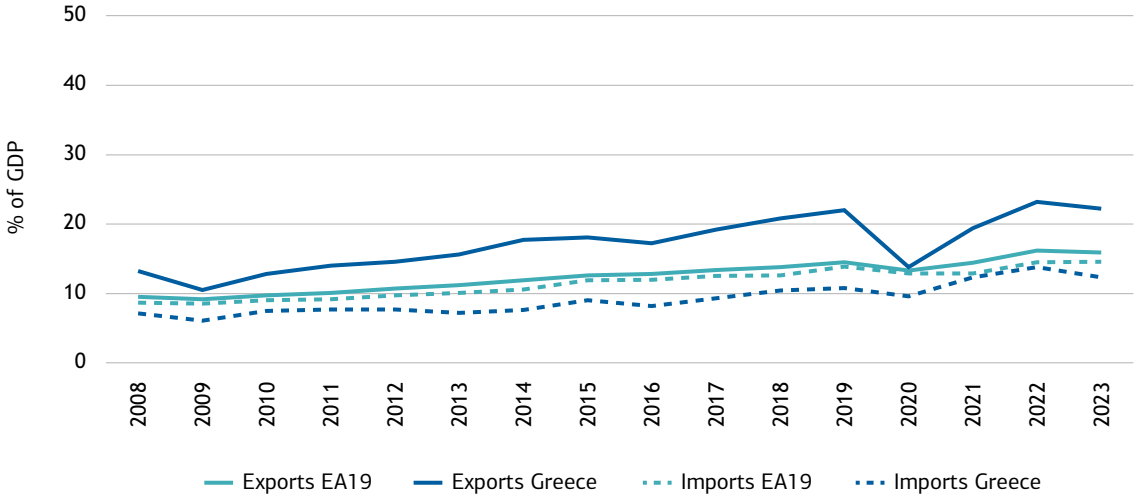
Source: Eurostat.

Figure 3.2.2 Exports and imports of goods, in Greece and the EA19 (% of GDP)



Source: Eurostat.

Figure 3.2.3 Exports and imports of services, in Greece and the EA19 (% of GDP)



Source: Eurostat.

3.2.2. Current account indices

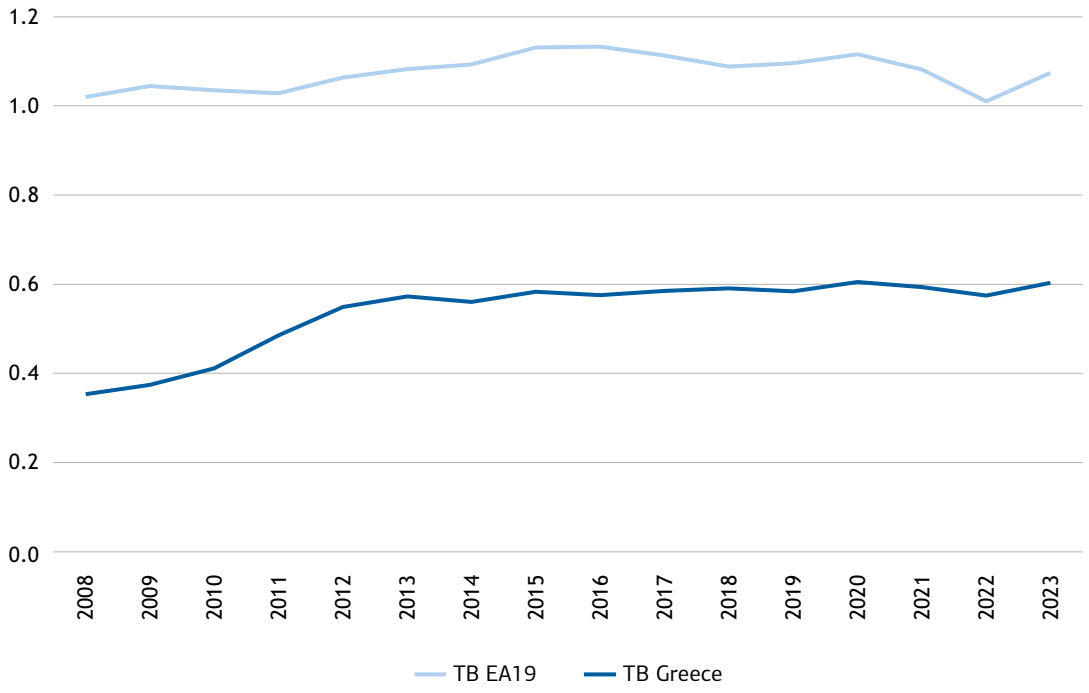
Figures 3.2.4 to 3.2.5 illustrate the trade-balance (TB) ratio of Greece and the EA19 based on goods and services, respectively. TB is defined as the value of exports over the value of imports. The TB ratio for goods in 2023 equals 1.07 for the EA19 and 0.60 for Greece. Alternatively, the exports of the EA19 for goods are 7% more than the imports, while in Greece the exports of goods are about 60% of the imports of goods. TB for services is equal to 1.80 for Greece in 2023 and 1.09 for the EA19. In other words, exports for services in Greece (the EA19) are 80% (9%) larger than imports for services.

Focusing on the TB ratio for both goods and services (see Figure 3.2.6), it turns out that the EA19 enjoys an 8% greater export value of goods and services relative to the import corresponding value (TB equal 1.08), whilst Greece's TB ratio increased to 0.90 in 2023, demonstrating an increasing trend since 2020. Overall, Greece faces a value of exports equal to 90% of the value of imports, and it appears that trade equilibrium, i.e., TB = 1, could be achieved should, primarily, the deficit in goods be reduced and, secondly, the surplus in services is preserved or improved.

Finally, the trade openness (TO) for Greece and the EA19 is shown in Figure 3.2.7. TO equals the value of exports and imports over the GDP in current prices.[3] The trade openness of Greece and the EA19 is calculated for both goods and services. After achieving values greater than 108% of GDP in 2022, TO dropped in 2023 to 100.8% in the EA19 and 94.6% in Greece, resulting in a deviation of 6.2 percentage points in 2023 from a divergence of 1.5 percentage points in 2022. The EA19 preserves a value of TO larger than 96% of GDP, and Greece has maintained its TO at values greater than 90% of GDP in the last three years (2021-2023), correspondingly.

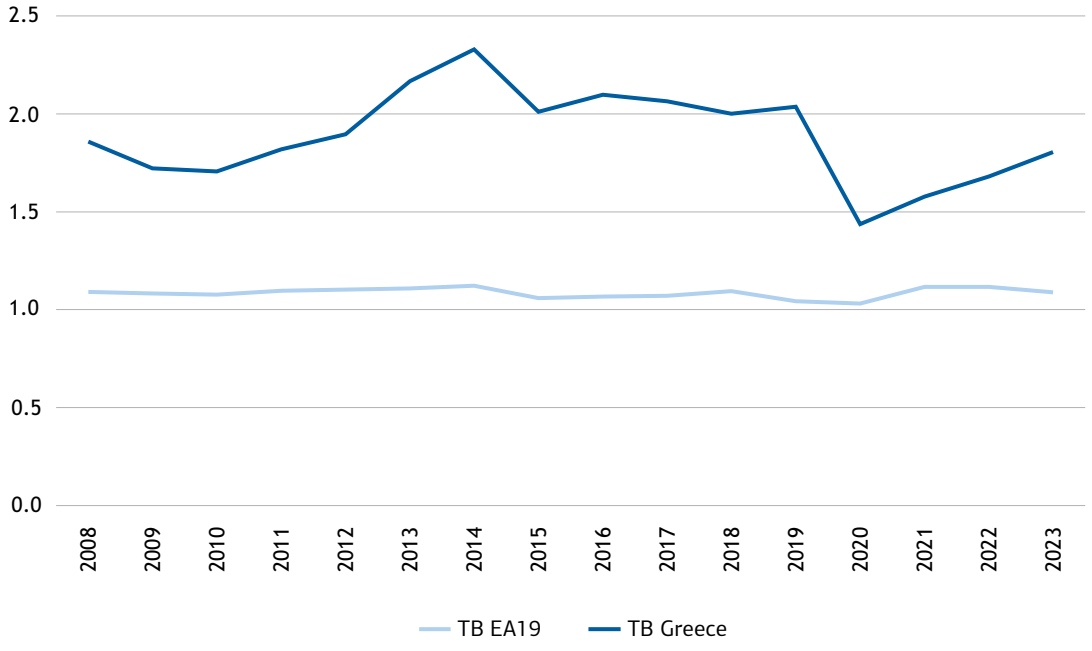
3. For more details, see, among others, Bahmani-Oskooee, Harvey and Hegerty (2018), and Bertsatos, Tsounis and Agiomirgianakis (2024), as well as the Greek NPB (2023).

Figure 3.2.4 Trade-balance ratio (TB), based on goods, of Greece and the EA19



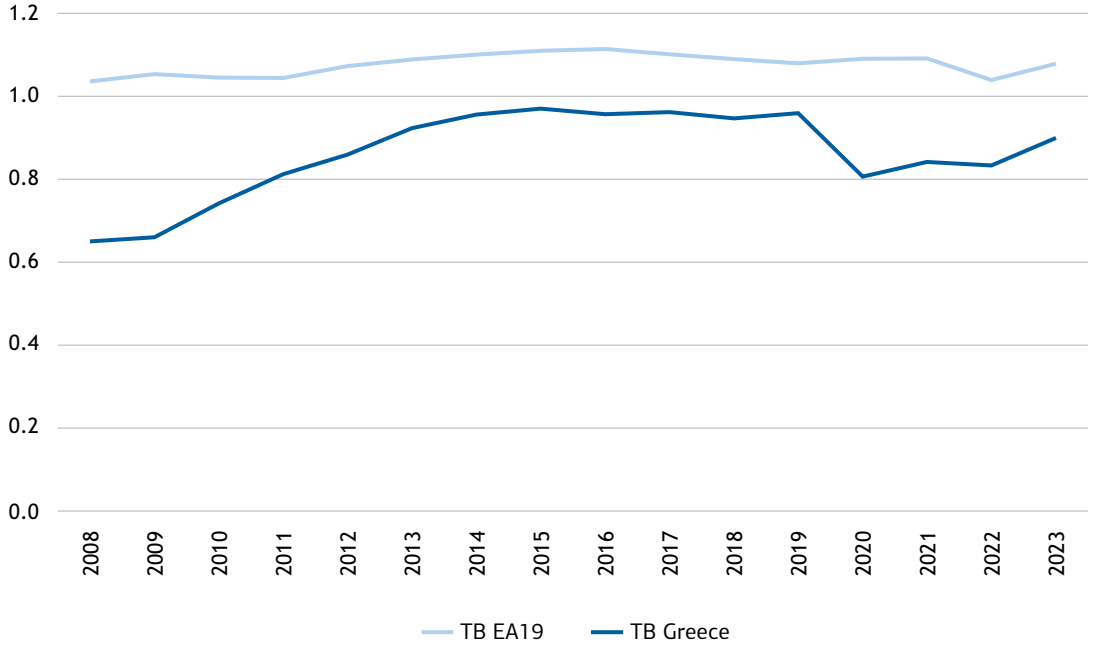
Source: Eurostat. Author's own calculations.

Figure 3.2.5 Trade-balance ratio (TB), based on services, of Greece and the EA19



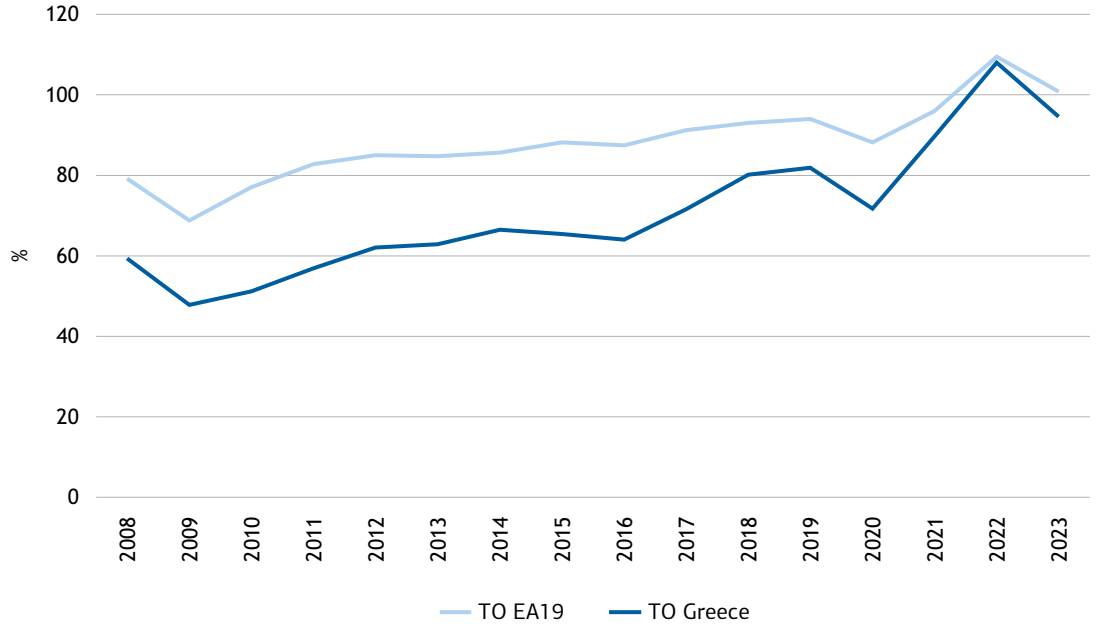
Source: Eurostat. Author's own calculations.

Figure 3.2.6 Trade-balance ratio (TB) for goods and services of Greece and the EA19



Source: Eurostat. Author's own calculations.

Figure 3.2.7 Trade openness (TO), based on goods and services, of Greece and the EA19



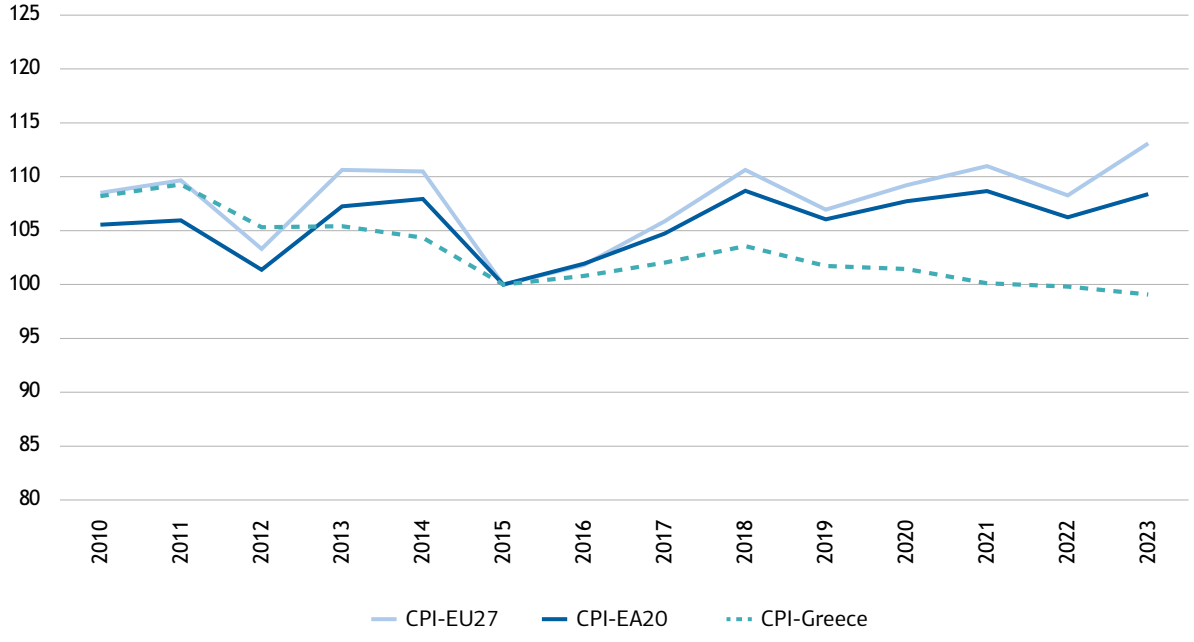
Source: Eurostat. Author's own calculations.

3.3. Cost/price competitiveness indices

Real Effective Exchange Rates (REERs) are widely utilised indicators of cost/price competitiveness. They illustrate a country's competitive position relative to its key trading partners. Typically, REERs are computed using either the consumer price index (CPI) or the unit labour cost (ULC) as a deflator. In the case of Greece, the CPI-based REER (Figure 3.3.1) showed a slight decrease in 2023, marking the fifth consecutive year of decline. Meanwhile, the ULC-based REER (Figure 3.3.2) also experienced a decline in 2023 for the third consecutive year. Both indices reached their lowest level in 2023 out of the whole period from 2010 to 2023, remaining below 100 since 2016. These downward trends indicate a continued enhancement in Greece's trade competitiveness. As far as the EA20 and the EU27 are concerned, both indices increased in 2023, compared to the previous year, indicating that the competitiveness of the Eurozone and the EU has deteriorated. It should be noted that only six member states recorded an increase in the CPI-based REER (Sweden and Hungary experienced the highest decrease and increase, respectively). Moreover, six member states recorded a decrease in the ULC-based REER (in this case, also Sweden and Hungary again experienced the highest decrease and increase, respectively).

Furthermore, the nominal unit labour cost[4] (ULC) in Greece experienced a significant increase in 2020 compared to 2019. This was followed by consecutive decreases in 2021 and 2022. However, in 2023, the ULC surged once again, surpassing the levels observed in 2020 (Figure 3.3.3). Despite

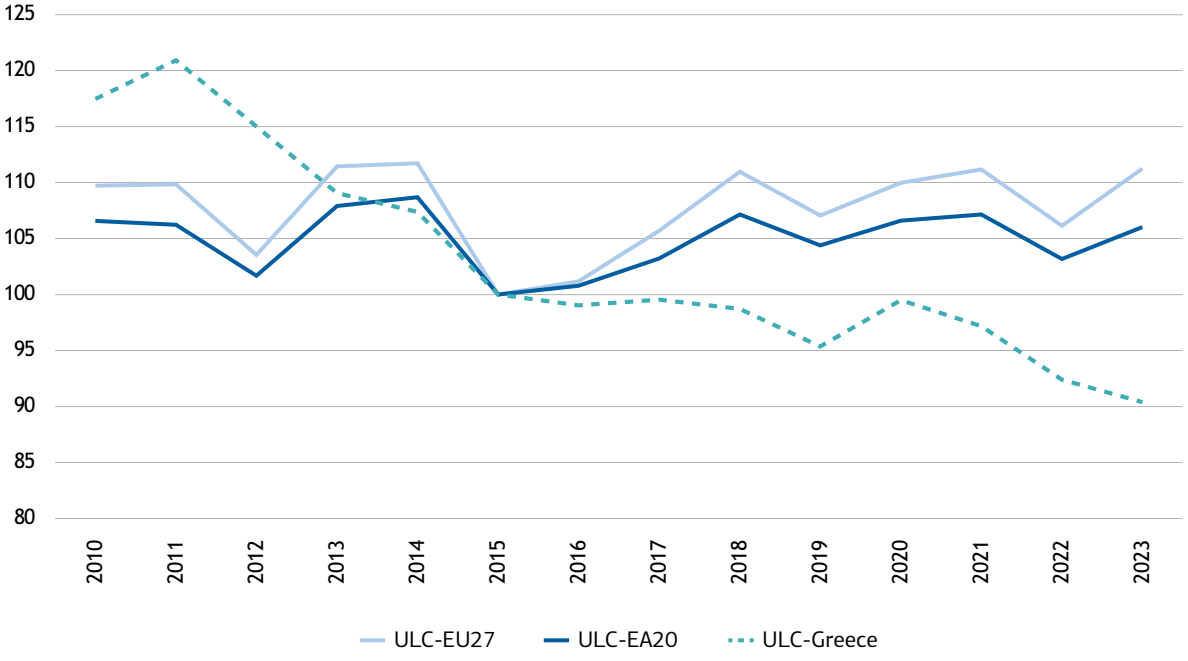
Figure 3.3.1 Real Effective Exchange Rates, deflator CPI (37 trading partners, 2015=100)



Source: Eurostat.

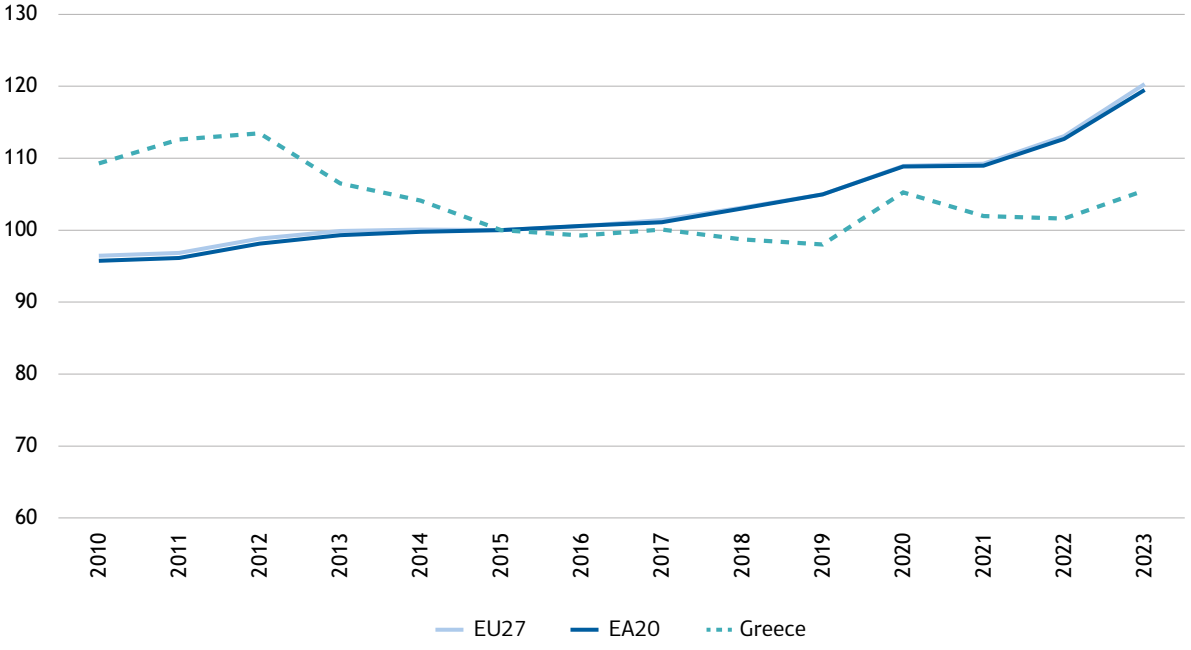
4. Nominal unit labour cost on hours worked.

Figure 3.3.2 Real Effective Exchange Rates, deflator ULC (37 trading partners, 2015=100)



Source: Eurostat.

Figure 3.3.3 Nominal unit labour cost based on hours worked (2015=100)



Source: Eurostat.

Note: Data for 2021-2023 are provisional.

this fluctuation, Greece recorded the fourth lowest ULC increase among EU member states, with only Denmark, Malta, and Italy exhibiting lower increases. In addition, the ULC continued to rise within the EA20 and EU27 countries. Specifically, in 2020, the ULC saw a substantial increase, followed by a moderate rise in 2021. By 2022, the increase nearly matched the significant growth recorded in 2020. The escalation in 2023 marked the highest increase within the examined period (2010-2023) for both the EA20 and the EU27. Notably, no member state experienced a decrease in ULC in 2023 compared to 2022. On the other hand, the relative unit labour cost, which assesses Greece's competitive position relative to its euro area partners, decreased by 1.6 percentage points in 2023 compared to 2022. This represents the fifth largest decrease among the EU27 member states. Greece is one of the nine EU27 member states that recorded a decline in relative unit labour cost.

3.4. Global value and supply chain indicators

During the last four decades, as offshoring was turning into a mainstream business strategy, global value and supply chains grew larger and more complex. Two-thirds of international trade is facilitated by global supply chains (Amighini et al., 2023). Traditional trade measures on a gross basis may not be sufficient to capture the role of global value chains (GVCs) in competitiveness; for example, gross exports incorporated both domestic and foreign-sourced inputs. Moreover, a country's performance on trade logistics is directly connected with competitiveness, especially in the context of global supply chains (GSCs). High logistics performance facilitates trade flows, reduces transaction costs, and enhances supply chain reliability, thereby boosting a nation's competitiveness in the global markets. Therefore, in this section, we investigate the participation of Greece in GVCs through backward and forward linkages, and we present its performance in the Logistics Performance Index (LPI).

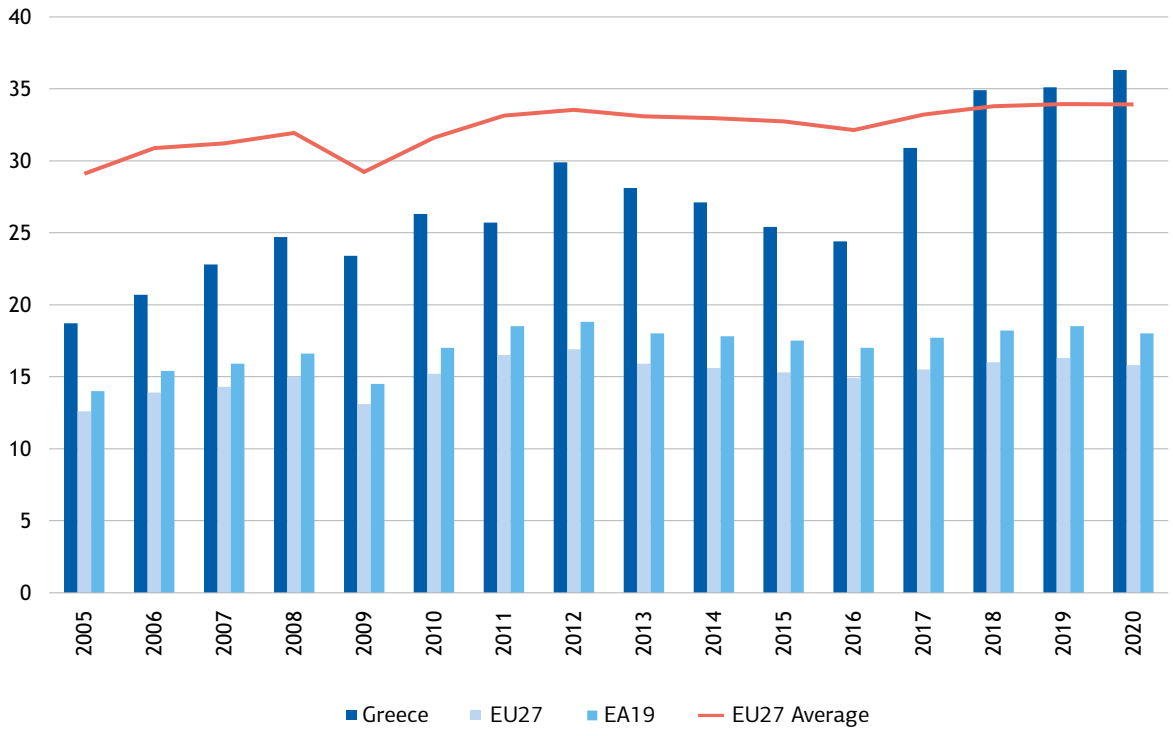
3.4.1. Global value chain indicators

The backward participation of Greece in GVCs (i.e., the foreign value-added contribution to Greece's gross exports) reached its peak in 2020, corresponding to 36.3% of gross exports, and increased by 1.2 p.p. compared to 2019 (Figure 3.4.1). During the last three years of the examination period (2018-2020), Greece's backward participation has remained above the EU27 average, meaning that Greece depends more on imported inputs in order to produce goods or services that will be exported compared to the other EU27 member states. It should be noted that the import content of Greek exports almost doubled from 2005 to 2020, recording the second largest increase after Cyprus. The top three import partners of Greece in terms of value added are Germany (9.8%), China (8.6%) and the Russian Federation (8.2%).[5]

As far as the forward participation of Greece in GVCs (i.e., the domestic value added incorporated in intermediate goods or services exported to a partner economy that re-exports them) is concerned,

5. <https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/trade-in-value-added/tiva-2023-GRC.pdf>.

Figure 3.4.1 Backward participation in GVCs (% of total gross exports)



Source: OECD database Trade in Value Added, author's own calculations.

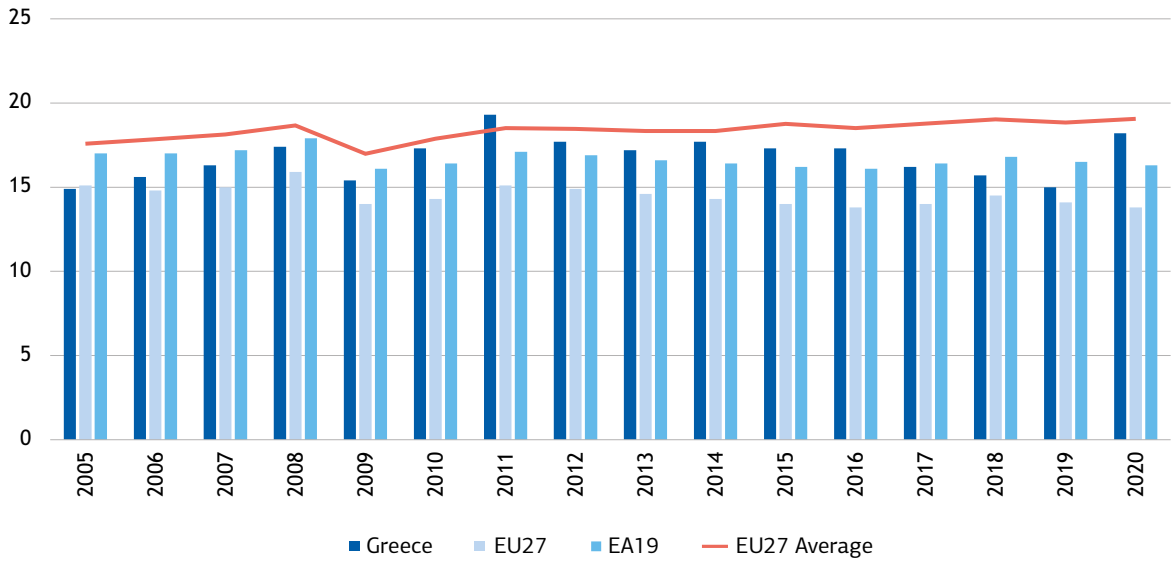
Note: The EU27 and the EA19 are treated as single economies, and value-added flows between member states are considered domestic value added. The EU27 average is the unweighted average of all member states. The same holds for Figure 3.4.2.

Greece has remained below the EU27 average for almost the entire period under examination, with the only exception being 2011, when it reached its peak (Figure 3.4.2). Nevertheless, in 2020, Greece was among the 11 member states whose forward participation increased, recording the highest increase by 3.2 p.p. The top three importers of Greece's value added in 2020 were the USA (12.3%), Germany (8.2%) and China (5.9%).[6]

Regarding sectoral backward linkages, the foreign value-added contribution to Greece's gross exports lies above the EU27 average, in both the manufacturing and services sectors. Notably, the manufacturing export industry is particularly reliant on imported inputs, with the foreign content of its gross exports reaching nearly 52% in 2020, an increase of over 21 p.p. since 2005 (Table 3.4.1). In fact, the foreign content across all industries rose significantly during the period from 2005 to 2020, with the sole exception being the mining and quarrying sector. This outcome shows the increasing reliance of the Greek economy on foreign markets, particularly in high-productivity sectors, such as manufacturing.

6. <https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/trade-in-value-added/tiva-2023-GRC.pdf>.

Figure 3.4.2 Forward participation in GVCs (% of total gross exports)



Source: OECD database Trade in Value Added.

Table 3.4.1 Foreign sectoral value-added contributions to gross exports (% of industry's total gross exports), 2020

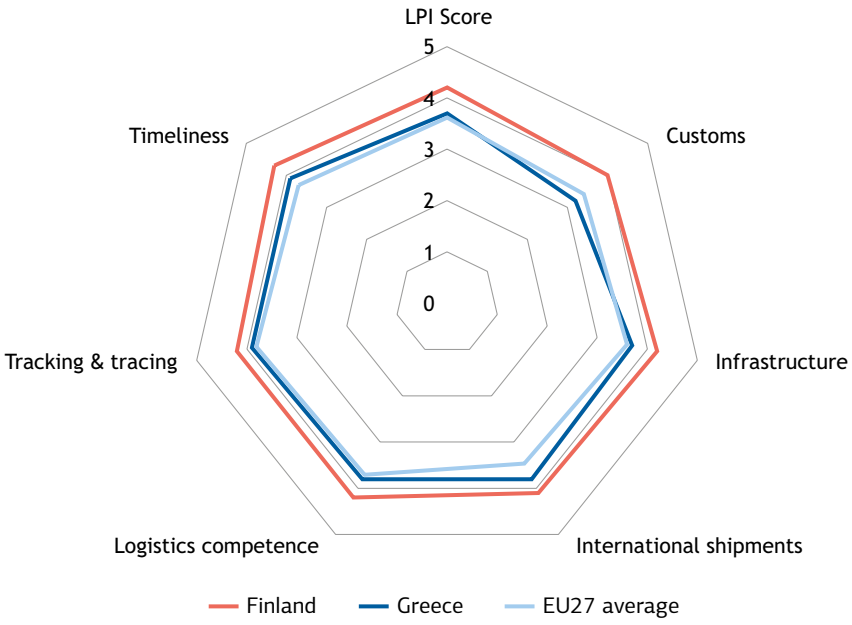
Export industry	Greece		EU27 (average)	
	2005	2020	2005	2020
Agriculture, hunting, forestry and fishing	10.5	17.5	21.7	26.3
Mining and quarrying	11.7	8.7	22.5	26.0
Manufacturing	30.2	51.8	36.3	39.8
Electricity, gas, steam and air conditioning supply; water supply; sewerage, waste and remediation services	10.3	17.9	23.1	23.0
Total services (including construction)	15.5	30.3	20.3	25.2

Source: OECD database Trade in Value Added, author's own calculations.

3.4.2. Global supply chain indicators

The LPI is published by the World Bank and is based on a global survey of logistics experts. The total score is based on six key dimensions: a) efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs, b) quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology), c) ease of arranging competitively priced shipments, d) competence and quality of logistics services (e.g., transport operators, customs brokers), e) ability to track and trace consignments, and f) timeliness of shipments in reaching destination within the scheduled or expected delivery time.

Figure 3.4.3 LPI and key dimensions, 2023



Source: The World Bank, author's own calculations.

Note: The EU27 average is the unweighted average of all member states' scores for LPI and each key dimension.

Table 3.4.2 LPI and key dimensions scores and ranking for Greece, 2023

Indicators	2023		2018	
	Score	Ranking	Score	Ranking
LPI	3.7	19	3.2	42
Customs	3.2	37	2.84	47
Infrastructure	3.7	25	3.17	38
International shipments	3.8	4	3.30	35
Logistics competence	3.8	20	3.06	48
Tracking & tracing	3.9	20	3.18	45
Timeliness	3.9	21	3.66	42

Source: The World Bank.

Regarding the overall LPI, Greece ranked 19th in 2023, along with Australia, China, Italy, Norway, South Africa and the United Kingdom, indicating a significant improvement considering that in 2018 Greece ranked 42nd. Moreover, Greece ranked 5th in 2023 among the EU27 member states, along with Italy, below Finland (top performer in the EU27), Denmark, Germany, the Netherlands, Austria, Belgium, Sweden, France and Spain, while in 2018, Greece ranked 20th. Greece performs above the EU27 average in all six key dimensions with the sole exception being the Customs

indicator (Figure 3.4.3). Notably, since 2018, Greece has improved its scores and rankings in all six key dimensions, as shown in Table 3.4.2. This upward trend underscores the country's progress in enhancing its logistics capabilities and overall competitiveness.

3.5. Structural reforms to enhance export performance

The export performance of Greek firms is affected by a wide range of policy measures and investment incentives aimed at improving the business environment and strengthening the productivity and competitiveness of the Greek economy. Beyond this wider policy context, in recent years Greece has moved further ahead, supporting openness through a new dedicated strategy to promote outward-looking business activity.

As a first step towards this strategy, the main public services and organizations concerned with international economic relations were gathered under the responsibility of the Ministry of Foreign Affairs. Thus, the Ministry's newly established General Secretariat of International Economic Relations and Openness took charge of the coordination of relevant activities of economic diplomacy, as well as the supervision of two key organisations for openness: the official investment and trade promotion agency of the Greek State, Enterprise Greece, and the national Export Credit Insurance Organisation (ECIO). This new institutional structure supports the formulation, coordination and supervision of a detailed annual strategic plan for openness, laid out in 2021 in the annual National Strategy for Extroversion. The latest version of this plan (MFA, 2023) includes a total of 779 actions to promote openness, some of which take the form of structural reforms focusing on two interrelated but distinct strategic priorities:

- the strengthening of economic diplomacy structures, and
- the facilitation of external trade.

The *reforms to strengthen economic diplomacy* include a wide spectrum of measures to a) enhance the role of Enterprise Greece, b) reorganise and expand the scope of Export Credit Greece (former ECIO) and c) upgrade the Economic and Commercial Affairs (ECA) Offices that form part of the Greek diplomatic or consular authorities in 51 countries with particular economic and commercial interest to Greece.

More specifically, Enterprise Greece has implemented a series of internal restructuring reforms to enhance its role in the support of outward-looking businesses and investors, improve its organisation and operation, strengthen its human resources, establish auditing mechanisms and modernise procurement procedures. Furthermore, Enterprise Greece is moving forward to upgrade information systems and digitise internal processes, while also introducing new innovative digital services, such as the Exports Academy training programme and the Export Helpdesk, a new online platform providing information to exporters and potential export companies on issues and procedures of foreign trade. The RRF programme "Digitisation of the Economic Diplomacy Network", starting in 2024, will contribute to digitising the organisation's processes and files, upgrading its digital systems, redesigning the Export Helpdesk and developing a Single National Portal for exporting companies and prospective investors.

The reform of the national export credit agency was initiated with the transformation of ECIO into Export Credit Greece S.A., a limited company aiming to strengthen its support to exporting businesses, through the implementation of a new business model and the expansion of its portfolio of services. Export Credit Greece will offer wider insurance coverage for exports, while also providing new guarantee and financing products that will be of particular support to small and medium-sized exporting businesses encountering challenges with liquidity and access to the financial system.

The reform of ECA Offices includes their restructuring, the strengthening and upskilling of their staff, and the implementation of the ISO quality management system to secure compliance of their services to international standards. With the support of the National Strategic Reference Framework (NSRF), ECA Offices have started to provide services based on standardised procedures, in line with the ISO system, which is expected to be fully implemented by the end of 2024. The information material prepared by the Offices for the use of businesses is published online via the "Agora" portal of the Ministry of Foreign Affairs (www.agora.mfa.gr).

The reform agenda to promote *trade facilitation* is outlined in the Trade Facilitation Roadmap 2022-2026 (Hellenic Republic, 2022), which counts 21 key reforms and actions aimed at a) simplifying and digitising pre-customs and customs procedures, b) strengthening trade connectivity between Greece and neighbouring countries and c) enhancing the institutional governance of the trade facilitation process.

Institutional governance reforms focus on promoting a more efficient trade facilitation process through the cooperation and joint action of all public authorities and services involved in pre-customs and customs procedures. In this direction, the Trade Facilitation Committee and a supporting Working Group were established to co-ordinate and monitor trade facilitation actions. Furthermore, several related initiatives are being implemented to assist with the dissemination of information, the acquisition of know-how and the stimulation of feedback and cooperation between private sector stakeholders and the competent state bodies.

Reforms to simplify and digitise pre-customs and customs procedures are led by the development of a Single and Integrated IT system for customs (Single Window). When fully operational, the Single Window will provide a gateway between businesses and Greek border processes and systems, allowing users to acquire all necessary information and documentation, and to submit customs clearance documents once and in one place. The implementation of the Single Window system is supported by a series of additional complementary reforms, targeting the simplification of procedures for

i. the submission of applications to issue certificates/permits/approvals,

ii. the harmonisation of the content of these documents with the information on declaration statements for customs,

iii. the coordination of customs inspections involving more than one authority,

iv. the adoption of the digital departure confirmation for exports (IE590 message),

v. the digital submission and inspection of road transport documents (CMR),

vi. the facilitation of procedures for cargo transported by sea,

vii. the digitisation of permit processes for special categories of goods (dual-use goods with both civilian and military applications, military equipment),

viii. the listing of all administrative procedures for trade in the National Register of Administrative Procedures (www.mitos.gr), and

ix. the operation of the easyexport.gov.gr platform, through which exporters of live animals and products of animal origin can submit their applications for export hygiene certificates.

The strengthening of trade connectivity between Greece and neighbouring countries is promoted through joint transnational cooperation initiatives with the countries of the Western Balkans, aiming to simplify procedures and reduce delays in cross-border freight transport. The progress with trade facilitation reforms in Greece is reflected in the evolution of the United Nations (UN) Trade Facilitation Score, which maps the implementation rates for a wide range of measures covering all aspects of trade facilitation. The information provided by the Trade Facilitation Score can be considered as complementary to the logistics performance index (Section 3.4), since a strong correlation has been found between the implementation of trade facilitation, the trade cost, and the LPI in the countries surveyed (UN, 2023a, p. 54).

According to the latest publication of the Score (UN, 2023a; 2023b), Greece reached an overall implementation rate of 77.4% in 2023, up from 67.7% in 2021 and just 34.4% back in 2015 (Table 3.5.1). This indicator suggests that the trade facilitation reforms discussed above have resulted in a marked improvement in the country's trade facilitation performance. However, as seen in Figure 3.5.1, there is still significant room for improvement in order to facilitate trade at the extent implemented by the leading EU countries in this field.

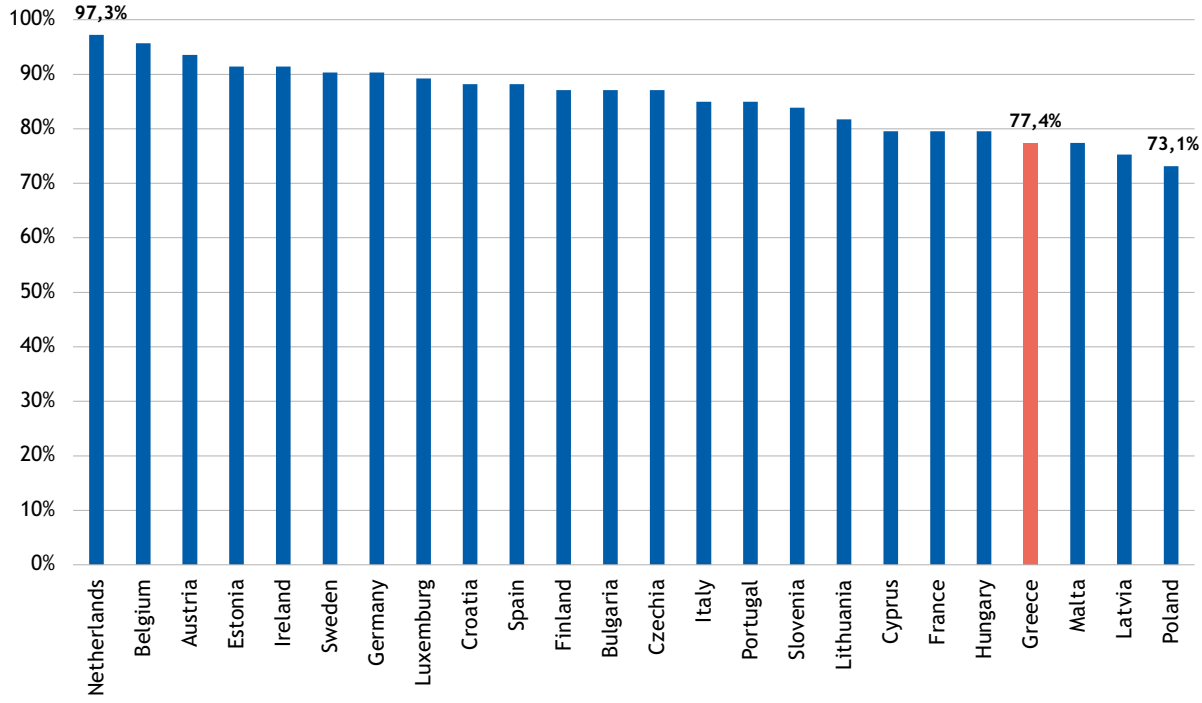
Considering the main sub-indicators of the trade facilitation score (Table 3.5.1), it is notable that as far as transparency is concerned, which is related, among others, to the availability of information about existing and new trade-related regulations and the operation of a consultation mechanism with stakeholders, Greece reached the top of the rating scale (100%) in 2023, achieving

Table 3.5.1 Trade facilitation score and selected trade facilitation indicators for Greece, 2015-2023

	2015	2017	2019	2021	2023
Transparency	60.0%	86.7%	86.7%	86.7%	100.0%
Formalities	50.0%	79.2%	79.2%	83.3%	83.3%
Institutional arrangement and cooperation	44.4%	77.8%	77.8%	77.8%	77.8%
Paperless trade	25.9%	48.2%	48.2%	63.0%	81.5%
Cross-border paperless trade	0.0%	33.3%	33.3%	33.3%	44.4%
Trade facilitation score	34.4%	62.4%	62.4%	67.7%	77.4%

Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023.

Figure 3.5.1 Trade facilitation score in the EU, 2023



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023.

full implementation of the relevant measures. Greece's performance has also been considerably enhanced in the fields of simplifying formalities (83.3%), promoting institutional improvements and cooperation (77.8%) and applying paperless trade (81.5%). However, as in many other countries, there is room for further improvements regarding the implementation of cross-border paperless trade (44%), with significant challenges remaining in enabling the electronic exchange and legal recognition of trade-related data and documents across borders.

3.6. Indicators for FDI, justice and education

3.6.1. Competitiveness and foreign direct investment

After significant increases in 2019 and 2021, Greece seems to have lost momentum in competitiveness gains. According to the latest publication of the *World Competitiveness Yearbook* (IMD, 2024), the overall competitiveness of the Greek economy has improved, ranking 47th, up from 49th place in 2023, but lower than the 46th place in 2021. Table 3.6.1 illustrates the IMD World Competitiveness rankings as well as the Digital Competitiveness rankings for all EU27 (except Malta) member states which are included in the report. The table also presents the breakdown of the World Competitiveness Index: Economic performance, Government efficiency, Business efficiency and Infrastructure rankings.

The rankings are based on 67 countries, for the World Competitiveness Index and 64 countries for the Digital Competitiveness Index (IMD, 2023). It is notable that EU member states perform relatively worse with respect to economic performance. The best among the EU27 (except Malta) is the Netherlands, in 9th place, followed by Ireland, in 10th; Germany, 13th; Belgium, 17th; and Poland, 19th. Notably, there are only 5 European countries in the first 20 countries in the world. This should be something for the EU to work on, as it seems Europe lags behind other countries with respect to the performance of its economy. Getting back to the Greek case, the table demonstrates that in the 2024 IMD edition, economic performance as well as government efficiency are the weakest (in both indicators, Greece ranks 52nd among 67 countries and 23rd and 22nd, respectively, within the EU27 except Malta), while business efficiency and infrastructure are the strongest (44th and 40th, respectively, among 67 countries and 17th and 20th, respectively).

Regarding Digital Competitiveness, results are more worrisome. Despite the promising performance during the COVID-19 period, the Greek economy has retreated to 52nd place in the 2023 edition, down from 44th in 2021 and just one place up from the 53rd place it held in 2019. These results show that the country does not keep up with the much needed –as well as promised by all governments since 2015– reform agenda. Comparing Greece with its EU partners, it ranks 25th (just ahead of Bulgaria) among the EU27 (except Malta) in terms of digital competitiveness. This means other member states accelerated their digital transition and Greece again lags behind most of them without the signs of convergence that were shown a few years ago, thus losing the competitiveness gains made in previous years.

The present section focuses on aspects of government efficiency, which, in Greece, is among the weakest in the EU27. The reason for this is because, according to many studies cited by international organisations studying competitiveness (IMD, 2024, 2023), government efficiency is key for an economy in attracting foreign direct investment (FDI). Specifically, the quality of the justice system and the education system is crucial in sustaining competitiveness and guarantying the flow of FDI in an economy (IMD, 2024, 2023; WJP, 2023; OECD, 2016, 2024b; EC, 2024d).

Looking at the FDI flows in the Greek economy (Table 3.6.2), the amount of FDI inflow –despite its rise– is by far not enough to substantially raise the FDI stock to levels close to the EU27 average. As the report of 2022 argued, much of the FDI in Greece is in the real estate sector, which is not a productive one. In contrast, FDI in the so-called greenfield investments, which are considered the most productive investments, are relatively low in Greece (GNPB, 2022).

Coming back to the IMD report, the Greek economy needs to increase investments (both domestic and foreign) so that the production base of the country can expand (IMD, 2024). However, there are specific challenges that must be addressed to facilitate investments. These challenges include a) reforming the judiciary system and speeding up the overall time for reaching decisions and closing cases, b) reforming vocational education and training system to address labour shortages and skills mismatches, c) simplifying the regulatory framework concerning entrepreneurship, and d) introducing policies that support the green and digital transitions of enterprises (IMD, 2024). The next two sections discuss the first two challenges, namely, those referring to the judicial and the education systems.

Table 3.6.1 IMD World Competitiveness rankings, its four pillars, and World Digital Competitiveness rankings

	Rank/ change	Economic performance	Government efficiency	Business efficiency	Infrastructure	Digital competitiveness
Denmark	3/-2	22	5	1	2	4/-3
Ireland	4/-2	10	6	3	17	21/+3
Sweden	6/+2	23	10	4	3	7/-4
Netherlands	9/-4	9	14	8	8	2/+4
Finland	15/-4	50	16	18	6	8/-1
Belgium	18/-5	17	35	17	19	15/+8
Luxembourg	23/-3	**57**	11	26	24	26/+4
Germany	24/-2	13	32	35	20	23/-4
Austria	26/-2	33	40	29	14	22/-4
Czechia	29/-11	35	25	30	28	24/+9
Lithuania	30/+2	48	26	24	29	28/-3
France	31/+2	29	43	32	21	27/-5
Estonia	33/-7	54	20	31	32	18/+2
Portugal	36/+3	39	41	39	26	36/+2
Spain	40/-4	27	**58**	38	27	31/-3
Poland	41/+2	19	44	**46**	38	39/+7
Italy	42/-1	44	**57**	37	30	43/-4
Cyprus	43/+2	28	28	**55**	**42**	51/-6
Latvia	45/+6	**59**	36	**49**	36	40/-6
Slovenia	46/-4	37	46	**57**	37	37/+2
Greece	47/+2 (21st)	52 (23rd)	52 (22nd)	44 (17th)	40 (20th)	52/-2 (25th)
Romania	50/-2	47	48	**54**	**51**	48/+1
Croatia	51/-1	49	47	**59**	**44**	44/-1
Hungary	54/-8	36	51	**67**	**41**	47/-5
Bulgaria	58/-1	45	**56**	**65**	**59**	**55/-7**
Slovakia	59/-6	**56**	**62**	**64**	**50**	46/-5

Source: IMD, 2024, 2023.

Note: In parentheses: Rank among the EU27 (except Malta, which is not included in the IMD rankings). Bold: countries ranked below Greece. Data for Digital competitiveness is from the 2023 edition. Numbers with +/- show a rise or fall in the ranking compared with previous edition.

Table 3.6.2 FDI flows and stocks (% of GDP) in the EU since 2021

Economy	FDI inward flows in billion $			Economy	FDI inward stock (% of GDP)*		
	2021	2022	2023		2021	2022	2023
Germany	51.21	27.37	36.70	Luxembourg	1,875.3	1,460.1	1,328.6
Spain	33.06	42.84	34.38	Netherlands	275.9	275.0	245.1
France	30.88	36.37	29.80	Ireland	268.5	264.2	239.2
Sweden	21.56	46.28	29.44	Estonia	93.0	96.2	96.9
Poland	29.82	31.10	24.64	Belgium	93.9	91.0	-
Belgium	9.90	11.54	23.02	*EU-27*	*72.2*	*70.9*	*65.1*
Italy	-2.95	32.13	18.22	Czechia	71.1	71.0	64.6
Denmark	6.90	7.93	8.78	Portugal	69.6	69.4	-
Finland	13.29	5.79	7.92	Hungary	58.1	60.6	60.1
Czechia	9.05	9.25	7.79	Sweden	60.4	71.4	57.5
Portugal	9.61	9.76	7.22	Latvia	59.9	62.1	57.0
Hungary	8.84	9.93	6.02	Spain	55.3	57.3	56.7
Greece	**6.38**	**8.44**	**5.43**	Slovakia	50.5	49.7	45.5
Estonia	0.26	0.91	4.57	Lithuania	46.0	48.2	-
Austria	17.11	9.36	4.50	Austria	45.2	45.2	44.3
Lithuania	2.80	2.16	1.91	Poland	40.1	39.0	39.8
Latvia	3.29	1.40	1.20	Slovenia	34.4	35.9	34.7
Slovenia	1.85	2.04	1.10	Denmark	34.3	30.8	32.9
Slovakia	1.82	2.90	0.18	France	31.9	32.3	-
Ireland	15.93	1.49	-9.35	Finland	29.1	29.4	-
Luxembourg	21.77	-417.14	-62.81	Germany	27.0	27.4	27.3
Netherlands	-70.23	-80.33	-168.46	**Greece**	**20.3**	**23.2**	**25.8**
EU-27	*179.285*	*-142.56*	*-53.75*	Italy	21.1	22.4	22.6

Source: OECD, 2024a.

* The OECD definition of FDI stock is the following: "The inward FDI stock is the value of foreign investors' equity in and net loans to enterprises resident in the reporting economy. FDI stocks are measured in USD and as a share of GDP."

3.6.2. The justice system

The World Justice Project (WJP) produces annually the Rule of Law index, a comprehensive index about the justice systems across 142 countries and jurisdictions. Table 3.6.3 presents the score, the rank, and the change of score and rank compared with the previous publication of the index (of 2022), for the EU27. It is worth noting that 13 out of 27 member states had a negative change in the score between 2022 and 2023. However, the largest negative change was in Greece, and this is something that must draw the attention of policy makers. The negative change in the score of the Greek justice system resulted in the fall of Greece in the global rank by 3 places, the largest fall among the EU27.

According to the WJP (2023), the index is composed of eight main factors, namely: 1) Constraints on government powers, 2) Absence of corruption, 3) Open government, 4) Fundamental rights, 5) Order and security, 6) Regulatory enforcement, 7) Civil justice, and 8) Criminal justice. Table 3.6.4 presents the performance of Greece in the above factors. Each factor is composed of a few indicators (between 3 and 8). Based on the Index, Table 3.6.5 presents the variables in which Greece particularly needs to improve, as these are parameters that may affect potential investors' decisions.

The European Commission produces annually the EU justice scoreboard. The purpose of these reports is not to rank member states but to provide an overview of how the justice systems of member states operate based on relevant indicators. Ultimately, the scoreboard aims to assist the EU27 to improve the effectiveness of their justice systems by identifying the essential parameters for an effective justice system and provide relevant annual data (EC, 2024d). As the EC states: "effective justice systems are essential for enhancing trust and improving the investment climate and the sustainability of long-term growth" (EC, 2024d).

Moreover, the report confirms that there is a strong link between an efficient, independent and high-quality justice system and the business environment. High-quality justice systems foster investment and innovation, and they contribute to productivity and competitiveness (EC, 2024d). A well-functioning justice system boosts growth and development and sets the foundations for an economy that works for the people (EC, 2024d). Consequently, many companies and potential investors thoroughly review the rule of law conditions in the countries where they invest or plan to invest (EC, 2024d). The next paragraphs can be seen as propositions for improvement of the Greek justice system.

Data used in the scoreboard are mostly focused on civil, commercial and administrative cases. According to the scoreboard, the Greek justice system especially suffers from lengthy procedures. Specifically, the estimated time needed to resolve litigious civil, commercial and administrative cases at the Court of 1st instance has become lengthier, at 750 days in 2022, up from 480 days in 2012. This is among the worst performances in the EU27. Another example of undue delay is that the average length of proceedings before the national competition authorities in Greece for the 2020-2022 period is 2,100 days, whereas the EU27 average is less than 1,500.

Table 3.6.3 World Justice Project: Rule of Law index 2023 for the EU27

	Score	% change	Rank	Change
Denmark	0.90	-0.3	1	0
Finland	0.87	0.4	3	0
Sweden	0.85	-0.4	4	0
Germany	0.83	0.0	5	1
Luxembourg	0.83	0.8	6	2
Netherlands	0.83	-0.3	7	-2
Estonia	0.82	0.0	9	0
Ireland	0.81	0.3	10	0
Austria	0.80	-0.3	11	0
Belgium	0.78	-1.0	16	-2
Lithuania	0.77	0.4	18	0
Czechia	0.73	0.1	20	0
France	0.73	-0.4	21	0
Latvia	0.73	0.7	22	2
Spain	0.72	-0.8	24	-1
Slovenia	0.69	1.6	27	4
Portugal	0.68	-0.9	28	-1
Malta	0.68	0.1	30	0
Cyprus	0.68	-0.9	31	-3
Italy	0.67	0.0	32	0
Slovakia	0.66	0.3	34	1
Poland	0.64	-0.6	36	0
Romania	0.63	-0.4	40	-2
Croatia	0.61	0.3	45	2
Greece	0.61	**-1.4**	47	-3
Bulgaria	0.56	1.7	59	3
Hungary	0.51	-0.2	73	2

Source: WJP, 2023.

Note: The score range is between 0-1, where 0 the lowest and 1 is the highest. Green (red) colour indicates a positive (negative) change relative to 2022. The ranking is based on 142 countries.

Table 3.6.4 Score and rank of Greece in the 8 Rule-of-Law factors

Factors	Score	EU27 Rank	Global rank
Constraints on government powers	0.67	19	30
Absence of corruption	0.56	24	53
Open government	0.61	23	39
Fundamental rights	0.65	24	44
Order and security	0.72	27	73
Regulatory enforcement	0.55	25	51
Civil justice	0.58	22	50
Criminal justice	0.50	25	56

Source: WJP, 2023. Global rank is among 142 countries.

Table 3.6.5 Greek justice system variables in need of immediate improvement

Variable (referring factor)	Score
Absence of corruption in the legislature (Absence of corruption)	0.20
Absence of violent redress (Order and security)	0.34
No unreasonable delay (Regulatory enforcement)	0.42
Respect in due process (Regulatory enforcement)	0.45
No unreasonable delay (Civil justice)	0.25
Effective correctional system (Criminal justice)	0.33

Source: WJP, 2023.

At the same time, the number of judges per 100,000 inhabitants is relatively high in Greece, 37 in 2022, up from 23 in 2012, while the EU average is around 25. Similarly, the number of lawyers in Greece in 2022 is more than 440 lawyers per 100,000 inhabitants, up from around 380 in 2012, while the EU average is less than 250. The large numbers of judges and lawyers, in combination with the lengthy procedures, show that the Greek justice system considerably lacks efficiency.

An important reason behind this lack is the low use of digitalisation. For example, while Greece has some procedural rules allowing digital technology in courts in civil/commercial and criminal cases, there are no such rules in administrative cases. Similarly, Greece has the lowest (among the EU27) use of digital technology by courts and prosecution services. Specifically, as of 2023, the Greek justice system did not make use of a) distributed ledger technologies (blockchain), b) artificial intelligence applications in core activities, c) electronic case allocation with automatic

distribution based on objective criteria. Moreover, the Greek justice system makes only partial use of a) an electronic Case Management System, b) distance communication technology, particularly for videoconferencing, and c) judges / prosecutors as well as staff working securely remotely.

Courts' electronic communication tools are also mostly unavailable in the Greek justice system (last among the EU27). While there is partial availability of secure electronic communication a) between courts for proceedings and b) between courts and lawyers for proceedings, there is no availability of secure electronic communication between a) courts and detention facilities, b) courts and notaries, and c) courts and bailiffs/judicial officers. According to the report, secure electronic communication streamlines processes and reduces the need for paper-based communication as well as physical presence, thus improving the quality of justice systems. This can lead to a reduction in the length of pre-trial activities and court proceedings (EC, 2024d).

Finally, the perceived independence of courts and judges in Greece is comparatively low (ranks 21st) with 40% of people surveyed by the Eurobarometer in 2024 replying positively (very good and fairly good) and more than 55% replying negatively (fairly bad and very bad) (EC, 2024d). What is worrying is that there has been a decline since 2022, when 53% replied positively. It is good news that the perceived independence of courts and judges is higher among surveyed companies. In 2024, 48% of companies replied positively against 48% negatively (4% didn't know), ranking Greece 15th. However, in 2022, 58% of companies perceived the independence of the Greek justice system as very good and fairly good which indicates a deterioration of perceived independence among companies since 2022.

3.6.3. The education system

The average global talent shortage had been increasing since 2014 (36%), reaching its maximum in 2023 (77%) but decreasing slightly in 2024 (75%) (ManpowerGroup, 2024). According to the 2024 survey of 40,077 employers in 41 countries (17 of which are EU member states), the highest talent scarcity is in Japan 85%, while the highest scarcity in the EU27 is in Germany and Greece (82%), Ireland and Portugal (81%), France (80%), Romania and Slovakia (79%), Spain and Austria (78%), Sweden (77%), Italy (75%), Belgium (74%), Hungary (73%), the Netherlands (71%), Poland and Czechia (66%), and Finland (59%) (the lowest).

The lack of talent is closely related to the education system, including vocational education and employee training (IMD, 2024; OECD, 2023b). For this reason, the OECD runs two programmes: the Programme for the International Assessment of Adult Competences (PIAAC) and the Programme for International Student Assessment (PISA). The PIAAC, or the Survey of Adult Skills, assesses the proficiency of adults aged 16-65 in literacy, numeracy and problem solving in technology-rich environments. These skills are "key information-processing competences" that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life (OECD, 2016). The survey, which was initiated in 2011, continues to cover many countries and hundreds of thousands of individuals.

The PIAAC survey in Greece was conducted from 1 April 2014 to 31 March 2015, and involved 4,925 adults aged 16-65. Table 3.6.6 briefly presents Greece's rank in the adult skills survey. The key findings of this survey are the following:

a) The share of adults who score at the highest levels of proficiency in literacy and numeracy is considerably smaller than the OECD average, while the proportion of adults with poor skills in literacy and numeracy is considerably larger than the OECD average.

b) In contrast to what is observed in other countries, 25–34-year-olds in Greece perform as well in literacy as 55–65-year-olds.

c) Greece is one of the few countries where women outperform men in literacy.

d) Tertiary-educated adults in Greece have relatively low proficiency in literacy, numeracy and problem solving in technology-rich environments.

e) The relationship between information-processing skills and levels of social trust, voluntary activities and subjective health is considerably weaker in Greece than in other participating countries.

f) Workers in Greece use their numeracy and problem-solving skills at work as frequently as the average across OECD countries, but their proficiency in these skills is not as highly rewarded with higher wages as in other OECD countries.

The PISA has been running every three years since 2000. This allows not only for country comparisons but also for time comparisons. Through PISA, the OECD assesses the skills and knowledge of 15-year-old students in reading, mathematics and science (OECD, 2023b). Eighty-one countries participated in the 2022 assessment, which was delayed for a year due to the COVID-19 outbreak. Moreover, in 2022, PISA initiated assessing students' ability in creative thinking. It is important to know how well education systems are preparing students to think outside the box in different task contexts because these students will be the future work force and talents (OECD, 2024b). The definition of creative thinking is the following: "the competence to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination" (OECD, 2024b:47).[7]

Table 3.6.6 Programme for the International Assessment of Adult Competences

Literacy proficiency		Numeracy proficiency		Problem solving in technology-rich environments	
EU rank	OECD rank	EU rank	OECD rank	EU rank	OECD rank
18/19	30/34	17/19	29/34	14/14	27/28

Source: OECD, 2016. The study includes 19 EU member states and 34 countries overall.

7. For more information regarding the test, refer to PISA 2022 results, Volume III.

Table 3.6.7 PISA 2022 scores for the EU27

	Average	Mathematics	Reading	Science	Creative thinking
Estonia	515.7	510 (-13)	511 (-12)	526 (-4)	36
Ireland	504.0	492 (-8)	516 (-2)	504 (+8)	-
Netherlands	480.0	493 (-27)	459 (-26)	488 (-15)	32
Finland	495.0	484 (-23)	490 (-30)	511 (-11)	36
Czechia	491.3	487 (-12)	489 (-2)	498 (+1)	33
Poland	492.3	489 (-27)	489 (-23)	499 (-12)	34
Denmark	490.7	489 (-20)	489 (-12)	494 (+1)	35
Sweden	487.6	482 (-21)	487 (-19)	494 (-6)	-
Belgium	486.3	489 (-19)	479 (-14)	491 (-8)	35
Austria	486.0	487 (-12)	480 (-4)	491 (+1)	-
Slovenia	484.6	485 (-24)	469 (-27)	500 (-7)	30
Latvia	484.0	483 (-13)	475 (-4)	494 (+7)	35
Germany	482.3	475 (-25)	480 (-18)	492 (-11)	33
France	478.3	474 (-21)	474 (-19)	487 (-6)	32
Portugal	477.7	472 (-21)	477 (-15)	484 (-7)	34
OECD	**477.6**	**472 (-15)**	**476 (-10)**	**485 (-2)**	**33**
Spain	477.3	473	474	485	33
Hungary	477.3	473 (-8)	473 (-3)	486 (+5)	31
Lithuania	477.0	475 (-6)	472 (-4)	484 (+2)	33
Italy	476.6	471 (-15)	482 (+5)	477 (+9)	31
Croatia	473.6	463 (-1)	475 (-3)	483 (+10)	30
Malta	459.0	466 (-6)	445 (-3)	466 (+9)	31
Slovakia	457.6	464 (-22)	447 (-11)	462 (-2)	29
Greece	**436.3**	**430 (-21)**	**438 (-19)**	**441 (-11)**	**27**
Romania	428.0	428 (-2)	428 (+1)	428 (+2)	26
Bulgaria	414.0	417 (-19)	404 (-16)	421 (-3)	21
Cyprus	403.3	418 (-32)	381 (-43)	411 (-28)	24

Source: OECD, 2023b; OECD, 2024b.

Note: Numbers in parentheses indicate the change between PISA 2022 and PISA 2018.

Table 3.6.7 presents the PISA 2022 results. The average is calculated from the three main tests (mathematics, reading and science) purely for ranking purposes. PISA does not calculate an average and presents the scores of mathematics, reading and science separately. The score of creative thinking is not included for the calculation of the average as it is a new test with a different score scale. A first observation is that most countries had a significant drop in the test score. Part of the drop can be attributed to the COVID-19 pandemic but not all (OECD, 2023b). In many OECD countries, the trend had been downward prior to the pandemic (OECD, 2023b).

The OECD notes that a drop of 20 points is equivalent to one year of schooling (OECD, 2023b). This means that Greek students have essentially lost a full school year in math (a drop of 21 points) and reading (drop of 19 points) as well as half a school year in science (drop of 11 points). Given that Greece already had a low score in 2018, Greek students have fallen behind faster than students in other OECD countries. Table 3.6.8 illustrates the performance of Greek students in PISA tests since the beginning in 2000. The trend is clearly negative. Except for mathematics, where there are three PISA rounds (2006, 2009, 2015), students improved their performance, and except for reading, where there is one PISA round (2009), students improved their performance, in most PISA rounds the score declines, particularly, in the last round of 2022.

Table 3.6.8 Evolution of performance of Greek 15-year-old students in PISA test

PISA year	Mathematics	Reading	Science
2000	-	474	-
2003	445	472	-
2006	459	460	473
2009	466	483	470
2012	453	477	467
2015	454	467	455
2018	451	457	452
2022	430	438	441
Change in score till 2018	+6	-17	-21
Change in score since the last test (2018)	-21	-19	-11

Source: OECD, 2023b.

Note: The test for mathematics in Greece was first introduced in 2003 and for science in 2006. Green (red) colour indicates better (worse) performance relative to the previous PISA test.

4. Conclusions and Policy Suggestions

In the era of multiple crises and challenges for the global, European and national economies, Greece continues to expand its GDP at a pace faster than most of the other EU economies, while it also improves several key competitiveness indicators. The country must intensify its efforts to follow a sustainable growth path, with smooth green and digital transformations, without burdening the cost of living and doing business, while ensuring fiscal and external trade balances. At the same time, it must address the consequences of climate change and frequent natural disasters, moderate the effect of demographic aging and reduce social and spatial inequalities. These challenges require a series of synchronised changes to the institutional/regulatory framework, productive investment, workforce upskilling, innovation and technological advances to increase the country's forward linkages in global value chains.

Policy proposals to boost productivity and competitiveness in public sector services and key economic activities, such as the ones described in the following paragraphs, are not to be seen and implemented separately, but in a holistic manner. Such an approach requires the deployment of a well organised programme that deals with all aspects of reforms and sectors. Particularly, the reform of the justice and education systems is a *sine qua non* condition for keeping and increasing the flow of both domestic and foreign investments. It is also necessary to broaden and deepen the production base of the Greek economy and safeguard it from future crises.

4.1. Macroeconomic and sectoral policies to enhance productivity

Reliance on key imports, such as critical capital equipment, means that any boost in investment and consumption disproportionately benefits foreign producers, rather than stimulating domestic activity and employment. Persistent deficits lead to increased borrowing costs and the accumulation of external debt. These factors collectively erode fiscal credibility. Addressing these issues requires a multifaceted approach. Policies aimed at enhancing domestic production capabilities, particularly in the manufacturing sector, are essential. Incentivising investment in new technologies, technical education and innovation, improving infrastructure, and fostering a more business-friendly environment to attract both domestic and foreign investment in productive activities are crucial steps.

Additionally, policies aimed at the gradual reduction of required imports for capital goods by supporting the development of local industries are crucial. Strengthening the education and training systems to provide a skilled workforce capable of supporting high-tech manufacturing and other advanced industries would also be beneficial. Current trends of decreasing productivity in sectors traditionally considered crucial for promoting economic growth undermines efforts to enhance standards. The intricate relationship between investment, consumption, and imports in Greece highlights the need for comprehensive reforms that can boost domestic

production and address the underlying chronic imbalances that have historically hindered sustainable economic growth and the effective management of international shocks causing macroeconomic instability.

4.2. Enhancing the productivity and resilience of metropolitan regions

The empirical results verify the considerable and persistent productivity disparities of the Greek metropolitan regions of Athens and Thessaloniki, which presented the largest labour productivity decline compared to all other EU FUAs (except Groningen) during 2010-2020. In turn, the findings highlight the need to prioritise and integrate decision-making processes to tackle productivity shortfalls at various (regional-metropolitan) levels of spatial governance to remove development barriers and enhance the resilience and sustainability of large urban areas.

In particular, the results underscore the urgent need to shape and/or strengthen place-based policies to address the increased heterogeneity, lack of dynamism, twin transition challenges, amplified productivity gaps and shortage of synergistic effects, to help metropolitan areas reach their full potential. These policies may encompass a combination of well-coordinated spatial planning strategies, supplementary with the main objectives and priorities of the 2021-2027 EU cohesion policy. They may also include the strengthening of metropolitan governance, technological progress, and investment in physical and human capital, innovation and green energy, in conjunction with the efficient land use management, the enhancement of agglomeration economies and the reinforcement of the intra- and inter-regional market access.

4.3. Promoting the productivity and competitiveness of SMEs

The findings show that potential productivity gains appear to be disproportionately concentrated among very small firms in Greece and in the EU27, while large firms –despite their potential for generating increasing returns– are not actively contributing to value creation. However, the relative productivity of very small firms has been significantly reduced, largely due to a decline in their share of value added. In relative terms, much of this decrease appears to be concentrated in large firms. Additionally, the productivity performance of high-tech and knowledge-intensive (HTKI) SMEs in Greece is underwhelming, as it diminished by 20% in Greece between 2009 and 2023.

The concentration of a significant percentage of employees in very small firms, where productivity levels are lower compared to larger firms, can have several economic effects. Firstly, it can limit overall economic growth, as smaller firms often lack the resources, technology, and capital to fully exploit productivity-enhancing innovations. This may lead to inefficiencies and a slower pace of knowledge adoption and diffusion across industries. Ultimately, this imbalance can constrain national competitiveness and limit long-term economic development.

Technological capabilities and advanced skills are essential for enhancing the productivity and competitiveness of enterprises. Policies should aim to encourage SMEs to implement and absorb new innovative techniques that would advance the methods of production and elevate the level of sophistication required for upgrading the value added. This can be achieved through several strategic measures, such as providing subsidies and grants for research and development, facilitating access to cutting-edge technologies, and offering training programmes to enhance the technical skills of the workforce. Additionally, fostering collaboration between SMEs and research institutions can drive innovation and help in the practical application of advanced technologies. Creating a supportive ecosystem that includes financial incentives, regulatory reforms, and infrastructural improvements will further enable SMEs to overcome barriers to innovation and growth. By adopting these approaches, SMEs can significantly enhance their productivity, contribute to economic growth, and improve their competitive edge in the global market.

4.4. Balancing fiscal and current accounts

Given the repeated deficits in goods, Greek policy makers should focus on how Greece could increase the production of domestic goods (e.g., through implementing region-specific policies for each of the 13 Greek regions and with emphasis on the primary and industrial sectors) to [i] substitute the imports of goods and become more self-sufficient, and [ii] increase the exports of goods, sustaining or improving, at the same time, the booming surpluses in services. In this way, the goods' account could improve and become less negative (valued at -14.7% of GDP in 2023) as a first stage. Moreover, since the deficits in the current account are primarily driven by deficits in goods and considering the flourishing surpluses in services, smaller deficits in goods could [i] even push the Greek current account (valued at -6.3% of GDP in 2023) to the positively valued zone, and [ii] contribute to non-trivial reductions of the Greek government debt, which remains at levels close to the 2011 value (almost €357 bn).

4.5. Reforms to strengthen supply chains, facilitate trade and attract investment

Since 2020, a series of shocks have caused severe supply disruptions, putting significant pressure on international trade and global supply chains, which have been slowing down since the 2008 Global Financial Crisis. The COVID-19 pandemic, the energy price hikes, the conflicts in Ukraine and the Middle East, the US-China trade war, and Brexit have tested, and continue to test, the resilience and robustness of global supply chains. As the vulnerabilities and the fragility of global supply chains have been unveiled, the discussion about making global supply chains shorter or more diversified has been reignited. The EU is heavily dependent on third-country imports, compared to other large economies, such as the US and China (Bodea, Výškrabka and Zeugner, 2024).

The same holds for Greece, which also has to face additional "domestic" challenges. Although Greece has enhanced its participation in global value chains and its logistics capabilities, there

is still significant room to facilitate trade, to the extent implemented by the leading EU countries in this field. Relevant reforms should focus on the implementation of cross-border paperless trade, which requires improvements in electronic exchange and the legal recognition of trade-related data and documents across borders. At the same time, Greece should consider its further diversification of trade connectivity and its participation in new dynamic markets (Tsekeris and Tsiotas, 2024), together with developing combined (sea-rail) transport operations and establishing smart logistics centers to increase its resilience to supply chain disruptions.

Greece is found to be increasingly dependent on foreign markets, particularly in high-productivity sectors, such as manufacturing. Therefore, public policies that support the dual transition, along with investments in knowledge, research, innovation, and technology, must be deployed to enhance the country's competitiveness in global value chains. Investing in digital technology can streamline administrative processes, enhance public services, and foster a more efficient and transparent business environment. Additionally, policies promoting the green transition can lead to sustainable development, reduce environmental impacts, and attract green investments. Supporting such investments and measures together can create a more productive, dynamic and resilient economy, capable of adapting to global shifts and securing long-term growth and prosperity.

4.6. Reforming the Greek justice system

The World Justice Project and the EU Justice Scoreboard contain many good practices and suggestions for improving justice systems around the globe and within the EU, respectively. Greek policy makers need to delve into these reports and try to adopt and adapt policies that can enhance the performance of the justice system. The lack of digitalisation is a main factor impeding the faster and more efficient function of justice in Greece. Artificial intelligence applications, electronic case allocation and electronic communication tools are just some of the solutions and reforms which, if introduced in the Greek justice system, could have a significant impact on boosting its efficiency. As the EU justice scoreboard puts it, "the use of digital tools can streamline work process, ensure fair workload allocation and lead to significant time reduction" (EC, 2024d: 36). The above measures can also help increase the perceived independence of the justice system. This is very important given that independence of the justice system increases trust, which is an integral part of a society governed by the rule of law.

4.7. Reforming the Greek education system

The OECD has many proposals which have come out of the two programmes (PISA and PIAAC). Some interesting results are the following: i) students in schools that did not close for long periods during the pandemic scored higher, particularly in math, ii) students perform better when remote learning runs smoothly and does not encounter many problems, iii) teachers can play a significant role in enhancing students' confidence in their capacity for self-directed learning,

iv) digital devices in class can either distract from or boost learning, depending on their use, v) strengthening the school-family partnership and keeping parents involved in students' learning help students perform better, particularly disadvantaged students, vi) schools need to create opportunities in the curriculum for students to embed creativity and to engage in creative thinking and/or interdisciplinary work, and vii) teachers must be supported to recognise, develop and evaluate creative thinking by defining learning progressions and performance standards. Moreover, enhancing educational systems to produce a highly skilled workforce aligned with industry needs will bolster Greece's capacity to innovate and compete internationally. Finally, cooperation between universities and industries, vocational education, life-long learning and continuous employee training are key factors to address the acute problem of labour market mismatches.

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GREEK NATIONAL PRODUCTIVITY BOARD ANNUAL REPORT 2024

The 2024 edition of the Greek National Productivity Board Annual Report is structured into four key sections. Section 1 introduces the report, providing an overview of productivity trends in Greece and Europe. Section 2 examines Greece's progress across major macroeconomic indicators, with a focus on core productivity-related indices such as output per capita, labour productivity, and labour utilization. It also delves into labour productivity from both sectoral and regional perspectives, highlighting the performance and convergence at the metropolitan level.
A particular emphasis is placed on the productivity of Greek SMEs in comparison to their European counterparts. Section 3 explores significant developments in public finance, the current account, and cost/price competitiveness.
It also describes Greece's role in global value and supply chains, where indicators reflect both improved logistics capabilities and rising dependence on foreign markets, especially in high-productivity sectors like manufacturing. Recent structural reforms aimed at enhancing export performance and trade facilitation are discussed, alongside specific competitiveness indicators relevant to attracting foreign investment and improving public sector efficiency, notably in justice and education. Finally, Section 4 presents a summary with policy recommendations, focusing on productivity improvement at multiple levels, fiscal stability, trade balance, FDI attraction, integration in resilient supply chains, and public sector reform needs.

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