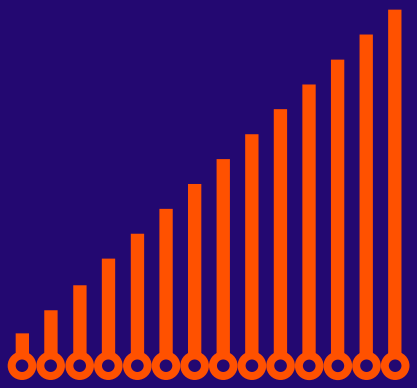
CENTRE OF PLANNING AND ECONOMIC RESEARCH

Issue 56, February 2025

GREEK ECONOMIC OUTLOOK



- Recent (macro-)economic developments
- Fiscal developments
- Human resources and social policies
- Reforms-Economic development
- Special topics

GREEK

Economic Outlook

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Editor:
Panagiotis G. Liargovas

Managing editor:
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Editorial Board:
Fotini Economou
Konstantinos Loizos
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Editing:
Helen Soultanakis

Publications Department Information:
Eva Toulitsi
Tel.: 210 3676347

Printed by:
[βιβλιοτεχνια]
Pappas Fotis and Co

11, Amerikis str., 106 72 Athens, Greece
Tel.: +30-210-3676.300, 210-3676.350
Fax: +30-210-3630.122, 210-3611.136
Website: www.kepe.gr

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Executive Summary

The global economy shows remarkable resilience

In 2024, the global economy showed remarkable resilience despite significant geopolitical and economic challenges (see section 1.5). The ongoing military conflicts in Ukraine and the Middle East, increasing protectionism in international trade and the turbulence in international financial markets towards the end of the summer were not sufficient to prevent positive growth rates from being sustained.

In particular, the United States performed impressively, while high GDP growth rates in emerging economies such as Brazil and Russia were a positive surprise. In 2024 and 2025, the global economy is expected to continue its growth path at 3.2%-3.3%, supported by the recovery in the euro area, Japan, the United Kingdom and India. The moderation of inflation and the easing of monetary policy will contribute to strengthening aggregate demand.

However, despite the positive performance of the global economy, the growth rate remains 2.5 percentage points below the average of the decade preceding the pandemic. The main problems reinforcing this trend include:

- anemic productive investment,
- low productivity growth rates,
- inflated government and private debt,
- demographic pressures.

Geopolitical tensions and the potential increase in protectionist measures are serious risk factors. The possibility of a new wave of protectionist measures could destabilize the economic recovery, negatively affecting international trade, investment and market efficiency.

Greece continues to grow, albeit at a lower level

In Greece, inflation in December 2024 stood at 2.6%, while structural inflation reached 4.1% (see section 1.2). The most significant increases were recorded in sectors such as clothing and footwear (6.2%) and hotels-cafés-restaurants (5.9%). At the same time, there was a decrease in the food price sub-index (-0.3%) for the first time since May 2021. At the euro area level, inflation is expected to increase slightly to 2.5% in January 2025 (Eurostat, 2025).

According to the econometric estimates of the Centre for Planning and Economic Research (KEPE), the Greek economy is expected to continue its growth path until the second quarter of 2025 (see section 1.3). Specifically, for the fourth quarter of 2024, the rate of change in real GDP is projected at 2.4% compared to the corresponding quarter of 2023, confirming the maintenance of positive momentum. The estimate for the average growth rate of the Greek economy for the whole of 2024 is 2.3%, slightly higher than the previous KEPE forecast (2.1%). This upward revision reflects the favourable developments in several of the economic indicators incorporated in the KEPE's factor model.

The small positive divergence in estimates is mainly due to the revision of the provisional ELSTAT data for the first half of 2024, as well as the better-than-expected performance of the economy in the third quarter of the year. Specifically, the growth rate for the third quarter stood at 2.4%, compared to the previous forecast of 2.2% by the KEPE. This positive development suggests the relative resilience of the Greek economy in the face of European and international uncertainties, confirming the impact of factors such as stronger consumption, increased investment and the inflow of financial resources from European programmes.

As regards the outlook for the Greek economy in 2025, the estimates for the first half of the year point to the maintenance of a stable growth path. The average rate of change in real GDP for the first half of 2025 is estimated at 2.1%, compared with the corresponding period of 2024. This forecast incorporates the continuation of positive trends recorded in the previous year, albeit at a slightly softer growth rate.

The maintenance of this growth trajectory is supported by a number of factors, such as strengthening domestic demand, maintaining a positive employment trend and a gradual decline in inflation. In addition, the inflow of investment capital, both from domestic and international sources, is expected to help support economic activity. However, there are also challenges, as the European economy continues to face demand constraints, high borrowing costs and geopolitical uncertainties, which could affect the dynamics of the Greek economy. However, the overall picture remains pos-

itive, with estimates suggesting that the Greek economy is on track for another year of growth, despite the challenging international environment.

The labour market maintains its positive trend, but the share of the long-term unemployed remains high

The Greek labour market has maintained its positive trend, although there are still differences between population groups (see section 3.1). In 2024, there was a decline in the total population and labour force, but labour market participation remained high. The increase in the presence of foreign workers is largely due to the need to fill vacancies, particularly in high-demand sectors. However, there remains a need to increase the participation of specific population groups, such as women, in order to address labour shortages.

The fall in the number of people employed in the third quarter of 2024 (2024c) was a cause for concern, as it moves against the previous trend, but was offset by annual employment growth. New jobs were mainly full-time and salaried positions, while forced conversions of contracts to rotational work decreased. Labour demand was mainly driven by the trade and construction sectors, while, in contrast, the agricultural sector recorded a decline in employment.

The unemployment rate has declined further to 9%, although disparities between different regions and social groups persist. Despite the improvement in overall indicators, the share of the long-term unemployed remains high, confirming the need for targeted employment policies. Moreover, the reduction in job vacancies to around 50,000 suggests that, despite the improvement in employment, structural weaknesses in certain sectors remain. Although the situation in Greece is less acute than in other European countries, targeted interventions are needed to maintain the positive dynamics and prevent the problem from worsening in the future.

The stock market is performing impressively, and Greece is close to a full recovery of its investment grade rating by Moody's

The Greek stock market closed 2024 with an impressive performance, showing positive returns, increasing market capitalisation and improved transaction values (see section 1.4). The large-cap index stood out with a stronger performance than the Athens Exchange (AEX) General Index, while the mid- and small-cap indices posted positive but milder increases. The performance of sectoral indices was particularly notable, with manufacturing, basic goods, banks and financial services recording significant gains. The gradual easing of interest rates by the European Central Bank, combined with the country's credit rating upgrades, helped to increase investment interest and lower borrowing costs.

The positive dynamics of the bond market was an additional supportive factor, as corporate bonds recorded increased transaction values and positive returns, strengthening the investment environment. Greece is now close to a full recovery of its investment grade rating by Moody's, which may lead to the upgrade of the Athens Exchange in developed markets. Such a development could offer new investment opportunities and increased liquidity to businesses, strengthening the economy as a whole.

Strengthening digital convergence boosts competitiveness, but gaps remain in the digital transformation of businesses

The improvement of the Greek economy's position in the DESI (Digital Economy and Society Index) is an encouraging sign of comparative convergence with the European average (see section 4.1). However, this convergence is mainly recorded in the dimension of digitization of public services, where important reforms have been implemented. In contrast, the gap with the European average remains noticeable in the digital transformation of enterprises and digital infrastructure, while a larger gap is observed in the area of digital skills. Accelerating the digitization of the Greek economy requires a particular focus on improving internet speeds, which still lag significantly behind European partners, as well as on the education and training of workers in ICT. At the same time, helping enterprises in their digital transformation –by increasing the use of cloud technologies and artificial intelligence– should be a strategic priority to enhance their competitiveness.

The DESI index reveals the key areas where the Greek economy needs to strengthen its efforts in order to keep pace with technological developments and the demands of international competition. The adoption of modern technologies by businesses, the development of digital skills among the active population and the upgrading of telecommunications infrastructure are critical factors for the formation of a dynamic and innovative production model. Strengthening digital literacy from the earliest stages of education, creating employee retraining programmes and providing incentives for the adoption of digital solutions by businesses can accelerate the adaptation of the Greek economy to the new requirements of the digital era.

To ensure a sustained upward competitiveness path, accelerated reforms in key sectors of the economy are needed

In addition to digital convergence, the competitiveness of the Greek economy is also assessed through the IMD (World Competitiveness Index), which includes a set of indicators of overall economic performance (see section 4.1). According to this index, Greece's improvement in the DESI is also reflected in the rise in its overall competitiveness, which indicates a broader modernisation dynamic. However, in order to ensure a steady upward trajectory, accelerated reforms are needed in key areas such as educating and training workers, improving access to finance for the digital transformation of enterprises and making the legal system more efficient, particularly in the enforcement of contracts.

The need to attract foreign high-tech companies is another critical parameter for the strengthening of the Greek economy. The establishment of such firms not only provides direct investment flows, but also acts as a mechanism for transferring know-how, creating a core of innovation that can feed the domestic economy. At the same time, a successful strategy for attracting foreign investment in the technology sector could contribute to transforming the brain drain into a dynamic return of skilled scientists (brain gain), enhancing the country's human capital.

The distribution of FDI shows a high concentration in the real estate sector

The analysis of net Foreign Direct Investment (FDI) in Greece by group of economic activity reveals significant trends and variations (see section 4.2). Non-financial and insurance services have, over time, played a dominant role in net FDI, maintaining its primacy over the other categories. Financial and insurance services follow in second place, confirming that the services sector is the main driver for attracting foreign investment to the country. Over the last five years (2019-2023), net FDI in the services sector has been above €3 billion per annum, with the exception of 2020, when a drop to €1.9 billion was recorded due to the pandemic. An historic record of €3.4 billion was set in 2019, which was surpassed in 2022 with a new high of €4.8 billion.

Overall, net FDI in Greece has followed an upward trend, with an all-time record of €4.27 billion in 2006, which was surpassed in 2019 with €4.48 billion. In the following years, the upward trend continued, with investments reaching €5.35 billion in 2021 and soaring to over €8 billion in 2022, an increase of more than 50% compared to the previous year. According to provisional data for 2023, net FDI amounts to around €4.8 billion, registering a relative decline but remaining at high levels.

Nevertheless, net FDI in real estate constitutes a growing share of total foreign investment in Greece. Since 2013, when their share was only 7.4%, the share of FDI in real estate has increased significantly, reaching 33.5% in 2018. In the years 2019-2020, this percentage was maintained above 30%, which is mainly attributed to the implementation of the "golden visa" program, which increased the investment interest from third country nationals. Despite a drop to 22% in 2021, a further increase to 24.6% was recorded in 2022, while a record high of 44.7% (based on provisional data) was achieved in 2023.

Professor PANAGIOTIS LIARGOVAS
Chairman of the Board and Scientific Director,
Centre of Planning and Economic Research (KEPE)

1. Recent (macro-)economic developments

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 6-15

1.1. The main demand components in the first nine months of 2024

1.1.1. Introduction - Domestic and external demand

Yannis Panagopoulos

In this section, utilizing the recorded macroeconomic data, we proceed to the analysis of the current developments of the first nine months of 2024. Specifically, based on the results of Table 1.1.1, we observe the existence of positive rates of change in individual aggregates excluding exports of goods and public consumption. There is also relative stability in the growth of the economy [GDP (%)] compared to the corresponding nine months of 2023 (2.3% and 2.4%, respectively). Of note are the better performance of private consumption, total exports and the decrease in the growth rate of imports for the 3rd quarter of 2024 compared to that of the 2nd quarter, in terms of economic growth.

Regarding the macroeconomic factors that contributed to the upward trend of GDP growth in the first nine months of 2024 (2.3%), it should be noted that gross fixed capital formation recorded the largest positive rate of change (2.2%), followed by private consumption (1.8%). On the other hand, public consumption (-4.1%) and exports of goods & services (-0.1%) had negative signs.

Quarterly speaking, for the 3rd quarter of 2024, we have a somewhat different path in terms of the order of importance of the individual factors for GDP growth. Specifically, the most positive component was that of exports of goods and services (3.3%), followed by private consumption (2.1%) and gross fixed capital formation (0.3%) (Table 1.1.1).

Domestic demand also recorded a similar path for the 3rd quarter of 2024 (Figure 1.1.2). Thus, under the existing components in the recorded GDP growth (using seasonally adjusted data), private consumption continued to be the most positive component (1.45), followed by fixed capital formation (0.04), while government consumption continued to be a negative component (-0.27).

As regards the share of the domestic and external sectors of demand (i.e., the balance of goods and services) in GDP, for the 3rd quarter of 2024, we have a relatively positive balance, mainly due to the significant positive contribution of both the change in inventories (4.62) and the domestic demand (4.56) (Figure 1.1.3). Thus, the negative contribution of the balance of goods and services (-0.69) was adequately addressed by the positive contribution of these two components.

Regarding now the Economic Sentiment Index (ESI), as the future "proxy" of demand, Figure 1.1.4 records the expectations of households and businesses for the period 1/2024-12/2024. This index followed a period of volatility that started from 107.3 points in January 2024 and "returned" to 106 points in December 2024. To sum up, households and firms' expectations for 2024 were somewhat volatile, but generally restrained.

Below, a more detailed discussion on the contribution of the country's balance of goods and services to GDP is presented.

Balance of goods and services

The development of the external sector (percentage change in exports minus imports), for the first nine months of 2024, as is presented in Figure 1.1.3, is slightly negative (-0.69). Below, we will refer separately to the rate of change of goods and to the rate of change of services. Starting with exports, let us underline that services, which constitute the relatively smaller part of exports, showed a 9-month increase of 3.2%, while goods, which were the largest part of exports, showed a decrease of -2.6% for the same period. On the other hand, the imported services had an increase of 7.4%, while imported goods had an increase of 5.1%.

Turning now to the contribution of the balance of goods and services to the rate of change of GDP, let us repeat here that for the 3rd quarter of 2024, it stood at -0.69 points in contrast to -1.36 points for the 3rd

TABLE 1.1.1 Basic macroeconomic variables

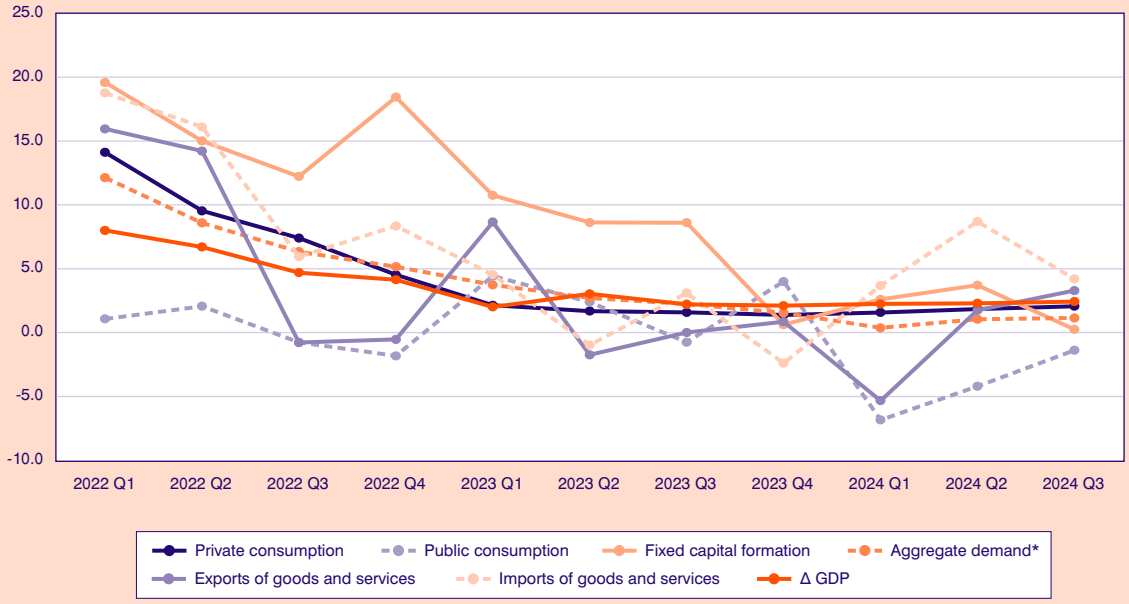
(% rates of change with seasonally adjusted data, at constant prices)

	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	9 months 2023	9 months 2024
Private consumption	14.1	9.5	7.4	4.5	2.1	1.7	1.6	1.4	1.6	1.8	2.1	1.8	1.8
Public consumption	1.1	2.1	-0.8	-1.8	4.4	2.4	-0.8	4.0	-6.8	-4.2	-1.4	2.0	-4.1
Fixed capital formation	19.6	15.0	12.2	18.4	10.7	8.6	8.6	0.6	2.6	3.7	0.3	9.3	2.2
Aggregate demand*	12.1	8.6	6.3	5.2	3.7	2.7	2.2	1.5	0.4	1.0	1.1	2.8	0.9
Exports of goods and services	15.9	14.2	-0.8	-0.5	8.7	-1.7	0.0	0.9	-5.3	1.7	3.3	2.3	-0.1
Imports of goods and services	18.8	16.1	6.0	8.3	4.5	-1.0	3.1	-2.4	3.7	8.7	4.2	2.2	5.5
Δ GDP	8.0	6.7	4.7	4.1	2.0	3.0	2.2	2.1	2.2	2.3	2.4	2.4	2.3

Source: National Accounts, ELSTAT.

* Without change of Inventories.

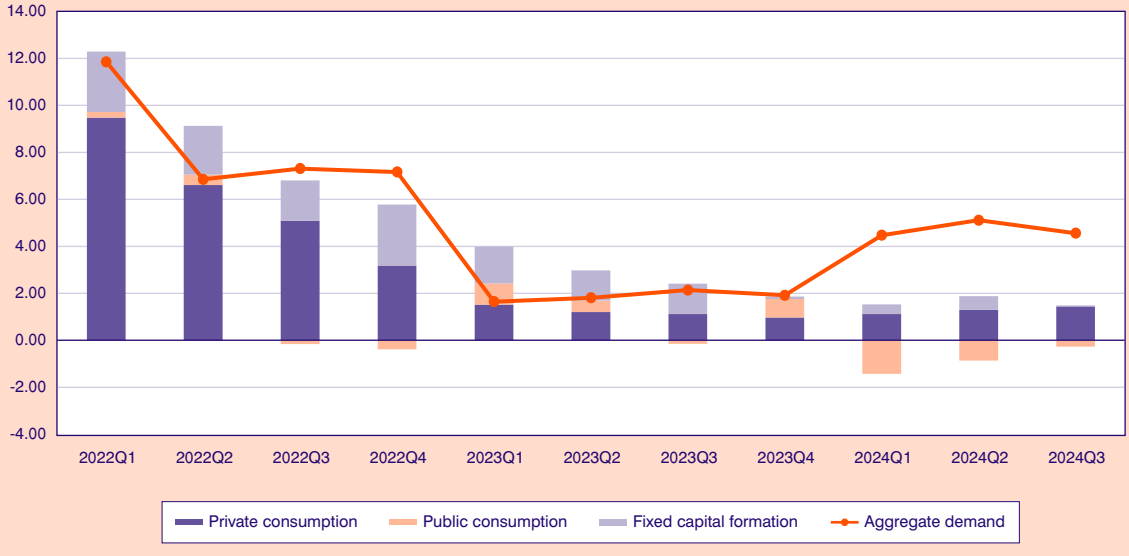
FIGURE 1.1.1
Basic macroeconomic variables
(% rates of change with seasonally adjusted data, at constant prices)



Source: National Accounts, ELSTAT. Data processing by the author.

* Without change of inventories.

FIGURE 1.1.2
Sub-components of domestic demand



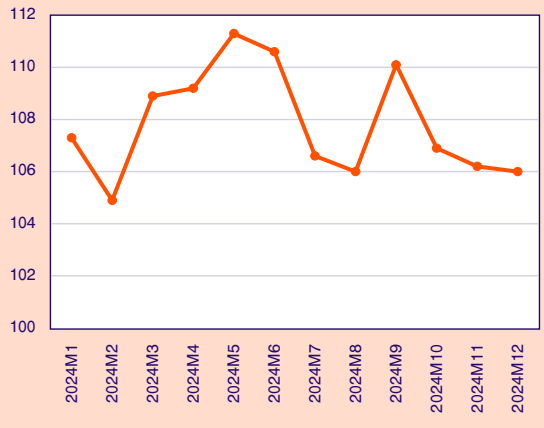
Source: National Accounts, ELSTAT. Data processing by the author.

FIGURE 1.1.3
Domestic and net external demand*

Source: National Accounts, ELSTAT. Data processing by the author.

* The change of inventories in 2024Q1 and Q2 is the author's estimation.

FIGURE 1.1.4
Economic Sentiment Index – ESI (1/2024-8/2024)



Source: Eurostat.

quarter of 2023 (Figure 1.1.5). More analytically, we record a positive contribution of total exports to GDP, estimated at 1.17 units, while, on the other hand, we made a negative contribution of total imports to GDP at -1.86 points. The overall picture over time, with the corresponding histograms of exports and imports, is presented in detail in Figure 1.1.5.

1.1.2. Private consumption and investment

Konstantinos Loizos

1.1.2.1. Private consumption

Small increasing trend in private consumption expenditure in the three first quarters of 2024

According to the quarterly, seasonally adjusted *National Accounts*,[1] private consumption of households

1. *Quarterly National Accounts,* Press Release, ELSTAT, December 6, 2024.

FIGURE 1.1.5
Sub-components of external demand

Source: National Accounts, ELSTAT. Data processing by the author.

and NPISH[2] increased from 40,012 million euros in current prices in the first quarter of 2024 to 40,524 million euros in the second quarter and 41,074 million euros in the third quarter of 2024. Likewise, in terms of chain-linked volumes with 2020 as a reference year, private consumption rose from 35,104 million euros in the first quarter of 2024 to 35,205 million euros in the second quarter and 35,239 million euros in the third quarter of 2024. In terms of percentage changes[3] with respect to the preceding quarter, based on seasonally adjusted chain-linked volumes, private consumption showed positive but decreasing rates of change, which were 0.8% in the first quarter of 2024, 0.3% in the second quarter and 0.1% in the third quarter of the same year. However, with respect to the corresponding quarter of the previous year, the relevant rates of change were positive and increasing, namely, 1.6%, 1.8%, and 2.1%.

Private consumption, as a percentage of GDP, was 68.98% on average during the first nine months of 2024, demonstrating a slight increasing change from its average in 2023, which was 68.93%. On the contrary, as a percentage of GDP, public consumption was clearly lower and equal to 18.44% in the first nine months of 2024, instead of 19.39% of total expenditure in 2023. We observe the opposite trend in gross capital formation (fixed capital and changes in inventories) since, during the first nine months of 2024, it was on average 17.76% of GDP, higher than the average figure in 2023, which was 16.66% of GDP. Moreover, the balance of the trade deficit rose on average as a percentage of GDP from -4.99% in 2023 to -5.19% of GDP in the first nine months of 2024 (Figure 1.1.6). Therefore, during the first nine months of 2024, we observed a slight rise in the share of private consumption in parallel with a rise in the share of gross private investment in GDP and the decline of the share of public consumption, while the balance of the trade deficit increased.

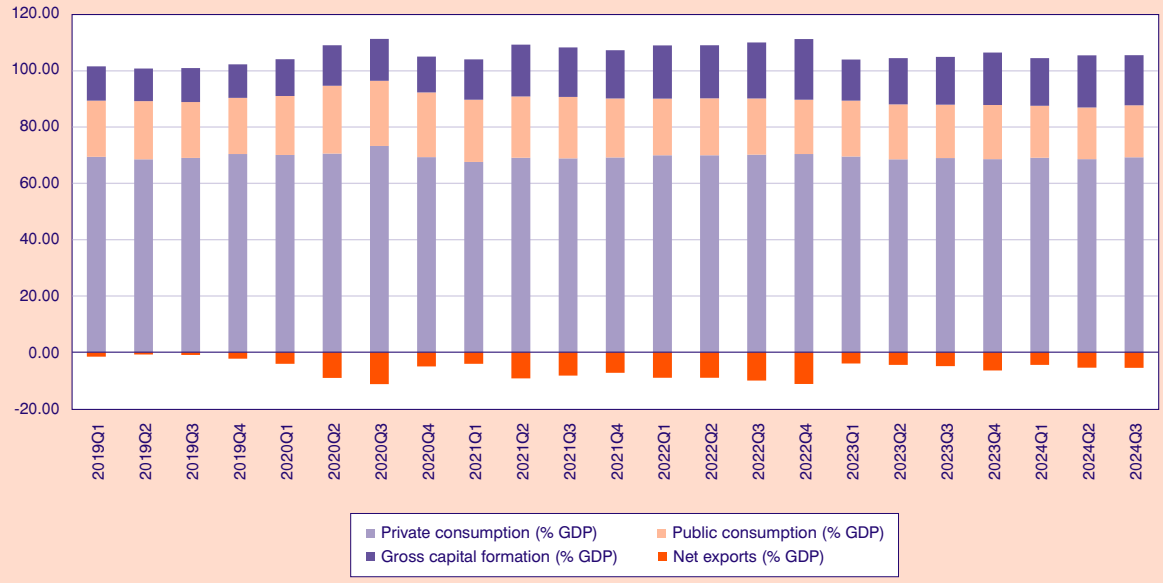
Small-scale negative developments in retail trade during the first nine months of 2024

The evolution of retail trade in terms of percentage changes of the overall volume index was negative on average during the first nine months of 2024 (-1.23%) with respect to the corresponding months of the previous year, based on ELSTAT monthly data (Figure 1.1.7). The corresponding negative figure in 2023

2. Non-profit institutions serving households.

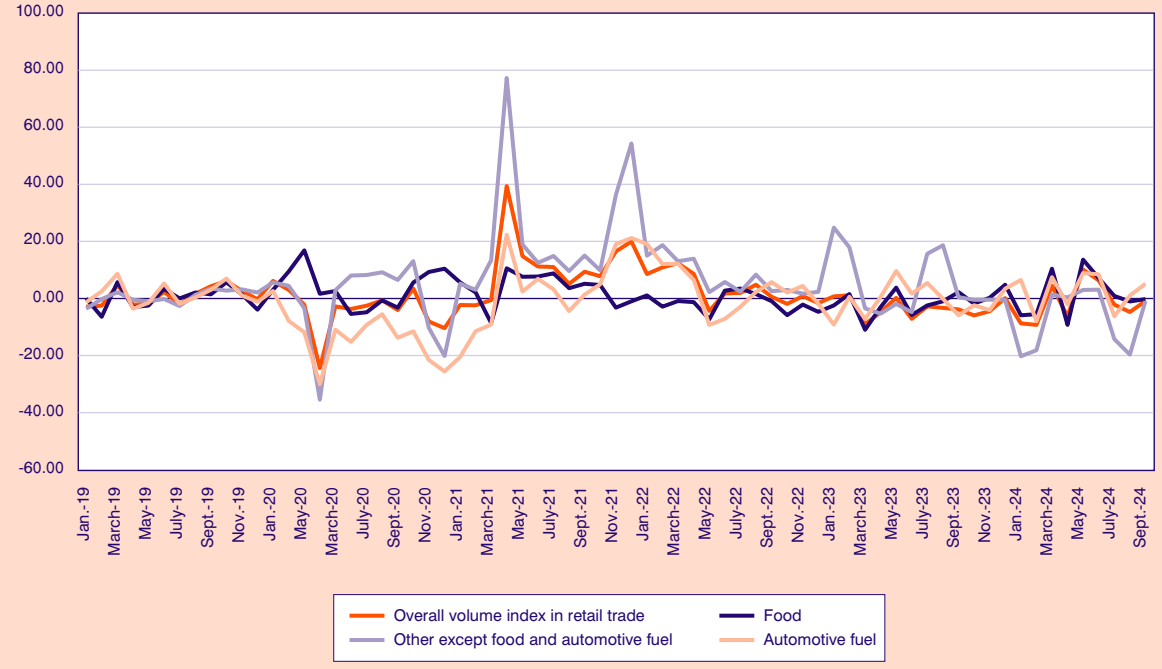
3. Percentage changes are calculated using the formula $\frac{X_t - X_{t-1}}{X_{t-1}}$.

FIGURE 1.1.6
Evolution of private consumption and other components of demand as a percentage of GDP
(expenditure approach) (seasonally adjusted data in current prices)



Source: ELSTAT, data processing by the author.

FIGURE 1.1.7
Percentage changes in the seasonally adjusted overall volume index and the main sector indices in retail trade



Source: ELSTAT, data processing by the author.

was much higher since, on average, the percentage change of the overall volume index was -3.25%. However, in food items, we notice a positive average percentage change in the first nine months of 2024 (1.13%), which contrasts with the negative average percentage change in 2023 (-1.23%). In automotive fuel, the positive average percentage change of 5.05% in 2023 was followed by a negative change of -7.26% in the first nine months of 2024. Moreover, in other items except food and automotive fuel, the negative average percentage change of -0.62% in 2023 was followed by a positive percentage change of 2.36% on average in the first nine months of 2024. If we suppose that the overall volume index does provide an accurate picture of the situation, then indeed, on average, the negative percentage changes in 2023 repeat themselves in the first nine months of 2024. However, it is worth mentioning the reversal that is observed between 2023 and the first nine months of 2024 concerning the components of the overall volume index with an emphasis on the positive rate of change in food items and automotive fuel. To the degree that these last two categories corresponded to goods that are essential for the maintenance of households, it seems that they contributed to the decline in the negative rate of change of the overall volume index during the first nine months of 2024 in comparison with 2023.

Stagnant expectations in retail trade with a possibility of deterioration

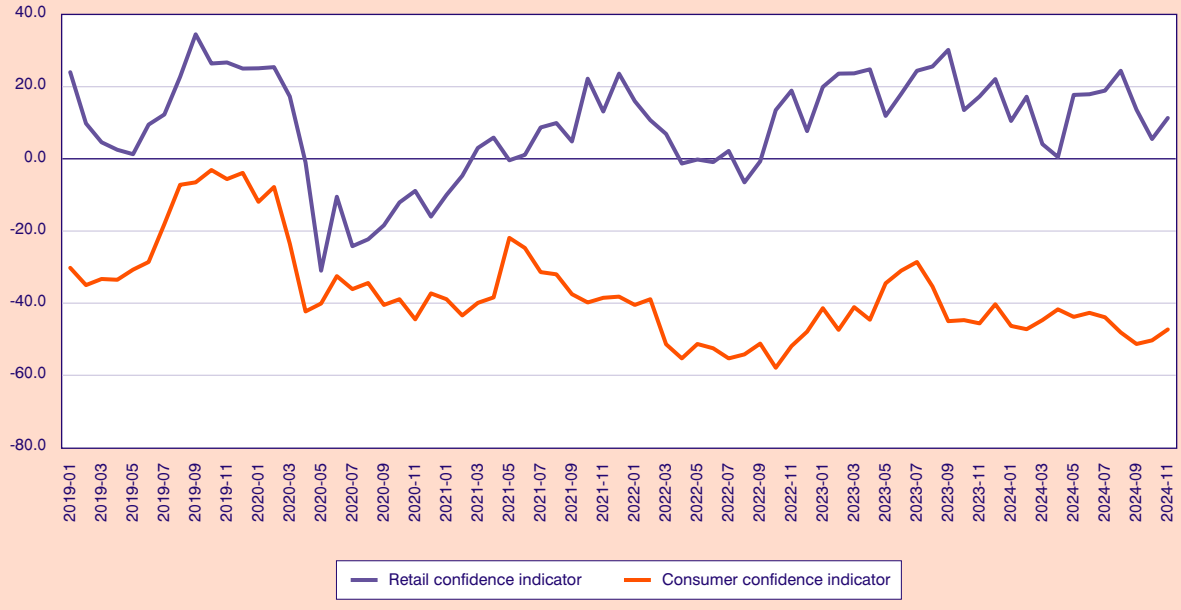
Confidence indicators published by Eurostat (Figure 1.1.8) show that the fluctuations of both expectations indices from January 2023 continue to November 2024. This stagnation of expectations does not foretell a quick reversal of the negative developments in retail trade in the future, while, at the same time, it does not preclude possible favorable percentage changes in the components of the overall volume index of retail trade. In any case, the uncertainty about future developments in retail trade continues. However, in terms of average annual values, we observe a deterioration of these indices and in particular of the consumer confidence indicator, from -39.97 in 2023 to -46.12 in 2024 (until November), and of the retail confidence indicator, from 21.25 in 2023 to 12.87 in 2024.

1.1.2.2. Investment

The developments in gross investment during the first nine months of 2024 are not clear

Gross fixed capital formation increased from 8,649 million euros in the first quarter of 2024 in current prices to 8,847 million euros in the second quarter

FIGURE 1.1.8
Confidence indicators in retail trade

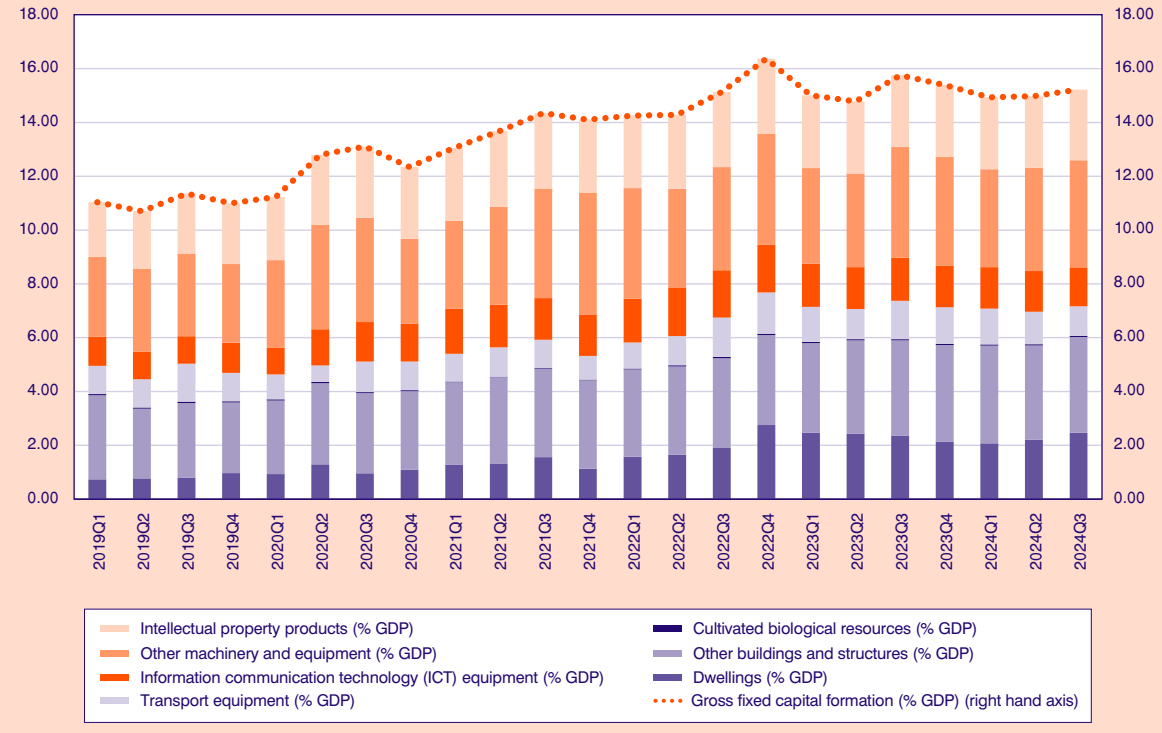


Source: Eurostat, data processing by the author.

and to 9,028 million euros in the third quarter of 2024. Similarly, in terms of chain-linked volumes in constant 2020 prices, gross fixed capital formation rose from 7,882 million euros in the first quarter of 2024 to 7,996 million euros in the second quarter before falling again to 7,911 million euros in the third quarter of 2024. Concerning the percentage changes with respect to the corresponding quarter of the previous year, we observed positive percentage changes in gross investment of 2.6% in the first quarter of 2024 and 3.7% in the second quarter, but only 0.3% in the third quarter of 2024. Finally, the percentage changes with respect to the preceding quarter were positive during the first two quarters of 2024 (0.5% and 1.4%) but negative in the third quarter of the year (-1.1%), according to the seasonally adjusted chain-linked volumes.

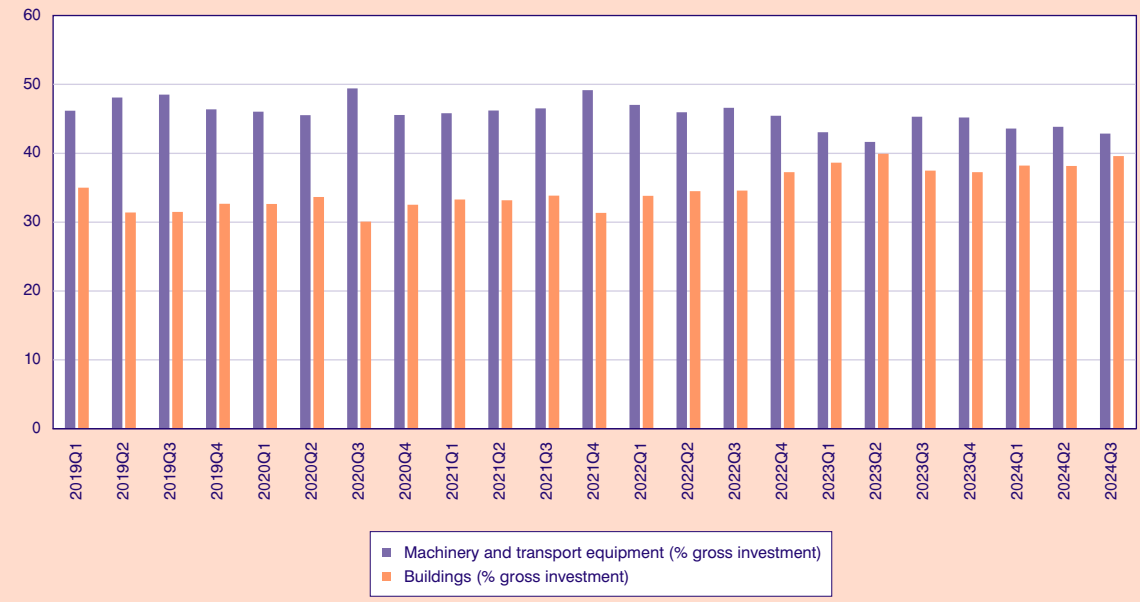
However, as a percentage of GDP in current prices (Figure 1.1.9), the average percentage change in gross fixed capital formation during the first nine months of 2024 with respect to the previous quarter was -0.34%, in accordance with the negative average percentage change in 2023 (-1.39%). Likewise, concerning machinery and transport equipment as a percent of GDP, the negative average percentage change of -1.12% in 2023 was followed by a negative average percentage change of -2.06% during the first nine months of 2024. In contrast to the above, buildings (dwellings and other constructions) as a percent of GDP showed a percentage change of -1.50% on average in 2023 which became a positive, on average, percentage change of 1.72% during the first nine months of 2024. Consequently, despite the fact that investment increased its share in GDP in current prices on average during the first nine months of 2024, the average trend was negative because of the significant decline between the last quarter of 2023 and the first quarter of 2024. On the other hand, in real terms, we observe a decline in the last quarter of 2024. The above provide a blurred picture of the evolution in overall fixed capital formation that is intensified by the contradictory developments in its components.

FIGURE 1.1.9
Gross fixed capital formation as a percentage of GDP (overall and by asset)
(seasonally adjusted data in current prices)



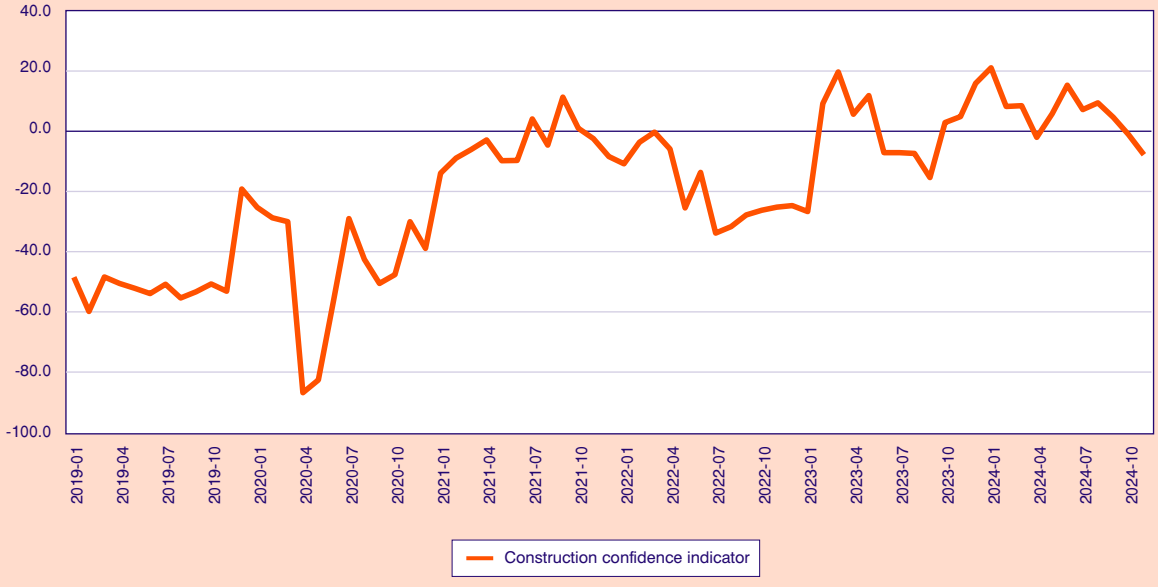
Source: ELSTAT, data processing by the author.

FIGURE 1.1.10
Machinery and transport equipment and buildings as a percentage of gross fixed capital formation



Source: ELSTAT, data processing by the author.

FIGURE 1.1.11
Construction confidence indicator



Source: Eurostat, data processing by the author.

The share of machinery and transport equipment in gross investment falls to the benefit of buildings

According to Figure 1.1.10, the share of buildings in total gross fixed capital formation increased at the expense of machinery and transport equipment during the first nine months of 2024, especially in the third quarter of that year. On average, the share of machinery and transport equipment in gross investment declined from 43.81% in 2023 to 43.43% in the first nine months of 2024, while that of buildings rose from 38.32% in 2023 to 38.65% during the same time period.

Improvement of expectations trend in the construction sector

The evolution of business expectations in the construction sector shows fluctuations starting from January 2023. However, in terms of annual average values, it seems that the confidence indicator demonstrates signs of improvement. Indeed, the average value of the construction confidence indicator in 2023 was 0.53, but it rose to the value of 6.29 on average during the period January to November 2024. The above indicate that optimism in the construction sector is maintained despite fluctuations.

1.1.2.3. Conclusions

The above analysis showed some positive developments in the first nine months of 2024 in consumer expenditure and retail trade along with unclear evidence concerning the evolution of private investment. In the latter case, the share of machinery and transport equipment in gross investment decreased, as opposed to that of buildings. The contradictory nature in the evolution of these macroeconomic variables is reflected in the rather deteriorating trend of expectations in retail trade in contrast to the more optimistic situation for business expectations in buildings until November 2024. The above increase the uncertainty concerning the evolution of expenditure and income in the Greek economy in the next period given the rise in the trade deficit as a percentage of GDP that accompanied the small rise in the share of private consumption and private investment in GDP.

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 16-20

1.2. Developments in inflation in Greece and the Eurozone

Emilia G. Marsellou

Introduction

In December 2024, inflation in Greece stood at 2.6%, while core inflation was 4.1%. The largest price increases were recorded in the sub-indices for the categories of Clothing and Footwear (6.2%), Hotels, Cafés, and Restaurants (5.9%), Health (3.8%), and Housing (3.7%). On the other hand, a year-on-year percentage decrease was observed in the sub-index for the category of Household equipment (-1.1%), as well as, for the first time since May 2021, the sub-index for the category of Food and Non-Alcoholic Beverages (-0.3%).

The rate of increase in the prices of Services showed further strengthening, reaching 5.7% in December 2024, compared to 5.4% in November. Meanwhile, the rate of increase in the prices of Goods experienced a marginal rise, albeit at a much lower level, reaching 0.3% compared to 0.2% in November (Figure 1.2.2).

At the Eurozone level, based on the preliminary estimates from Eurostat, inflation in January 2025 is expected to show a slight increase, reaching 2.5% compared to 2.4% in December 2024. The highest rate of price increase is anticipated in the Services sector (3.9%), followed by Food, Alcohol, and Tobacco (2.3%), Energy (1.8%), and Non-Energy Industrial Goods (0.5%).

1.2.1. Greece

Based on the monthly data, the National Harmonized Index of Consumer Prices (HICP) in December 2024 recorded an annual increase of 2.6%, higher than the 2.4% increase in November and October 2024 (Table 1.2.1). The rate of increase in the core HICP also reached a higher level, standing at 4.1%, compared to 4.0% in November and 3.7% in October, respectively.

The sub-indices for the Goods and Services categories with the highest annual price increase in December 2024 (Table 1.2.2) are Clothing and Footwear (6.2% in December 2024 compared to 7.2% in November), Hotels, Cafés, and Restaurants (5.9% compared to 6.0% in November), Health (3.8% compared to 3.6% in November), and Housing (3.7% compared to 2.1% in November). A decrease was observed in the sub-index for the category of Food and Non-Alcoholic Beverages (-0.3% compared to 0.6% in November) and in Household equipment (-1.1% compared to -0.1% in November).

The largest impact on the formation of inflation in December 2024 came from the group Hotels, Cafés, and Restaurants, contributing 0.63 percentage points, followed by Transportation with 0.48 percentage points and Housing with 0.46 percentage points. The smallest (negative) impact was recorded by the Food and Non-Alcoholic Beverages group with -0.07 percentage points and the Household equipment group with -0.05 percentage points.

The inflation based on the National General HICP in December 2024 (2.6%) is a combined result of changes in the sub-indices of the following Goods and Services categories. Specifically, the following increases were recorded:

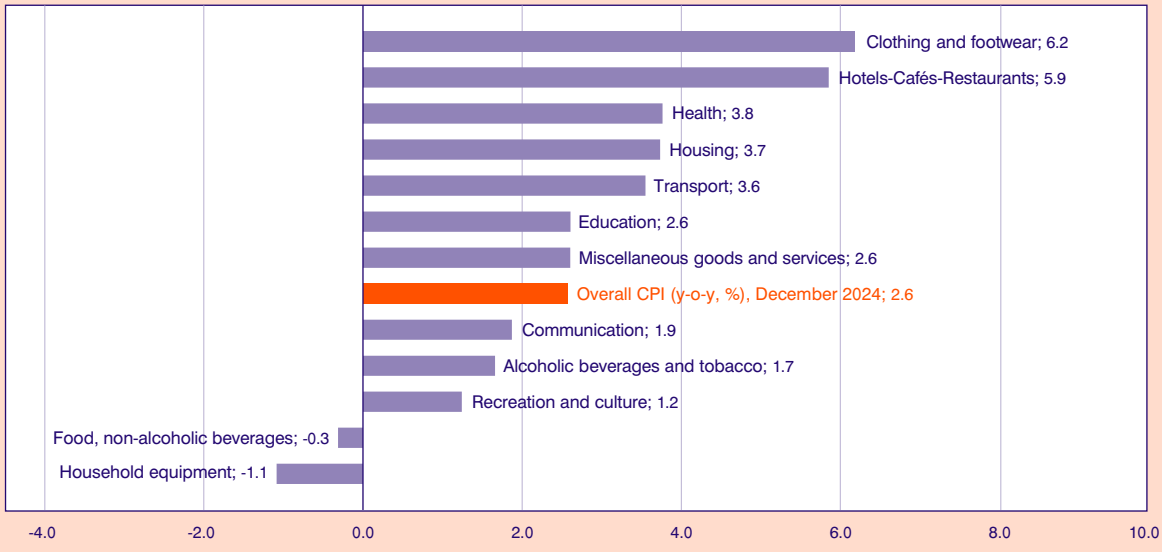
- +1.7% in the Alcoholic Beverages and Tobacco group, primarily due to an increase in the prices of non-served alcoholic beverages (3.3%).
- +6.2% in the Clothing and Footwear group, due to an increase in the prices of clothing and footwear (6.2%).
- +3.7% in the Housing group. This increase, which is primarily attributed to the rise in prices for residential rents (8.5%), housing repair and maintenance (4.3%), electricity (7.6%), and natural gas (8.7%), was partially offset by the decrease in prices, mainly for heating oil (-7.6%) and solid fuels (-3.4%).
- +3.8% in the Health group. This increase is primarily due to the rise in prices of pharmaceutical products (4.7%), medical products (4.7%), medical, dental, and paramedical services (2.0%), and hospital care (4.0%).
- +3.6% in the Transportation group. This increase, which is primarily attributed to the rise in prices of new cars (2.8%), maintenance and repair of personal transport equipment (3.3%), and airline passenger tickets (47.7%), was partially offset by the decrease mainly in the prices of used cars (-4.8%) and fuels and lubricants (-2.0%).

TABLE 1.2.1 Inflation in Greece (%)

	National CPI	CPI (m-o-m, %)	Headline inflation CPI (y-o-y, %)	Core inflation (y-o-y, %)	Harmonized inflation (y-o-y, %)	Core HICP (y-o-y, %)
2024M01	115.5	-0.8	3.1	3.2	3.2	3.1
2024M02	115.6	0.1	2.9	2.7	3.1	3.0
2024M03	117.4	1.5	3.2	3.2	3.4	3.4
2024M04	118.0	0.5	3.1	2.9	3.2	3.1
2024M05	117.7	-0.3	2.4	2.7	2.4	2.8
2024M06	118.2	0.5	2.3	3.0	2.5	3.4
2024M07	117.4	-0.7	2.7	3.1	3.0	3.8
2024M08	117.7	0.3	3.0	3.5	3.2	3.7
2024M09	119.8	1.8	2.9	3.7	3.1	3.6
2024M10	119.8	0.0	2.4	3.7	3.1	4.3
2024M11	119.3	-0.4	2.4	4.0	3.0	4.5
2024M12	119.5	0.1	2.6	4.1	2.9	4.4
2025M01	-	-	-	-	-	4.4

Sources: ELSTAT, Eurostat.

FIGURE 1.2.1
Annual % changes in National CPI sub-categories (December 2024)



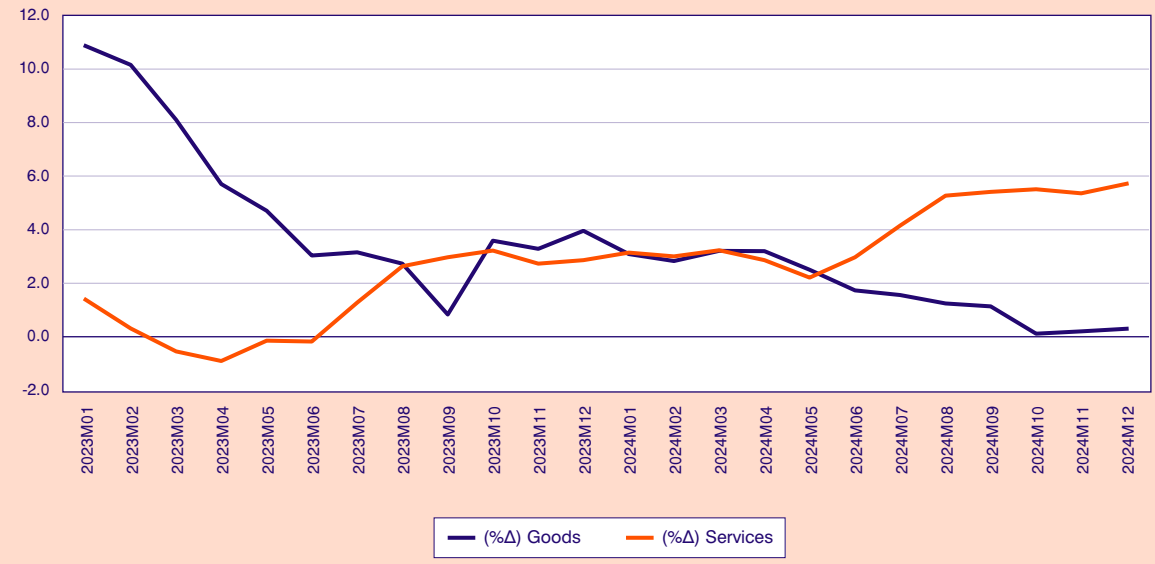
Source: ELSTAT.

TABLE 1.2.2 Annual % changes in National CPI sub-categories, January 2024-December 2024

Groups of goods and services	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1 Food and non-alcoholic beverages	8.3	6.7	5.3	5.4	3.1	2.1	2.4	2.8	3.2	1.5	0.6	-0.3
2 Alcoholic goods and tobacco	2.6	2.4	1.8	2.6	1.6	1.8	0.8	0.7	1.7	1.2	1.0	1.7
3 Clothing and footwear	3.5	1.3	5.8	4.0	6.4	4.6	4.3	6.2	4.4	5.0	7.2	6.2
4 Housing	-2.7	-0.3	0.6	-0.5	-1.6	-0.4	2.4	5.5	5.9	3.0	2.1	3.7
5 Household equipment	1.9	1.6	0.0	0.1	-0.3	-0.4	-0.2	-0.9	-0.6	-0.4	-0.1	-1.1
6 Health	5.7	3.5	4.4	3.6	2.2	2.2	1.9	3.1	3.7	3.6	3.6	3.8
7 Transport	0.2	0.5	2.0	3.2	4.0	3.2	3.5	1.5	-1.1	0.4	1.7	3.6
8 Communication	-2.2	-1.9	-1.8	-1.3	-1.2	-0.7	-0.3	0.4	0.6	1.3	1.6	1.9
9 Recreation and culture	2.6	2.9	3.3	2.1	2.2	1.8	1.7	1.4	1.2	1.5	1.4	1.2
10 Education	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.8	2.6	2.6
11 Hotel-Cafés-Restaurants	6.4	6.5	6.4	5.2	5.0	5.3	6.7	6.6	5.5	6.1	6.0	5.9
12 Miscellaneous goods and services	1.7	1.7	1.3	2.3	1.1	2.2	2.0	1.9	3.6	2.3	2.2	2.6
General Index	3.1	2.9	3.2	3.1	2.4	2.3	2.7	3.0	2.9	2.4	2.4	2.6

Source: ELSTAT.

FIGURE 1.2.2
Goods and Services price indices, monthly data, annual % change



Source: ELSTAT.

- +1.9% in the Communications group, primarily due to an increase in the prices of telephone services (2.2%).
- +1.2% in the Recreation and Cultural Activities group. This increase, which is primarily due to the rise in prices of information processing equipment (4.9%), small recreational items, flowers, and pets (1.8%), recreational services (2.3%), newspapers, books, and stationery (3.4%), and holiday packages (8.3%), was partially offset by the decrease mainly in the prices of equipment for the reception, recording and reproduction of sound and picture (-8.6%) and major durables for recreation and culture (-2.9%).
- +2.6% in the Education group. This increase is primarily due to the rise in prices of fees of pre-primary and primary education (2.1%) and secondary education fees (3.1%).
- +5.9% in the Hotels, Cafés, and Restaurants group. This increase is primarily due to the rise in prices of restaurants-confectioneries-cafés-buffets (5.7%) and hotels, motels, and inns (8.8%).
- +2.6% in the Miscellaneous Goods and Services group. This increase, which is primarily due to the rise in prices of hairdressing salons and personal grooming establishments (4.9%), other personal items (5.5%), social protection services (5.9%), private insurance connected with health (14.0%), and motor vehicle insurance (5.6%), was partially offset by the decrease mainly in the prices of other appliances and articles for personal care (-3.0%).

On the other hand, prices decreased in the following Goods and Services groups:

- -0.3% in the Food and Non-Alcoholic Beverages group. This decrease, which is primarily attributed to the decline in prices of other bakery products (-2.6%), pizzas and quiche (-4.8%), pasta products and couscous (-5.0%), poultry (-3.7%), frozen seafood (-10.1%), milk, cheese and eggs (-3.3%), oils and fats (-1.0%), fresh fruits (-3.5%), and other food products (-4.0%), was partially offset by the increase mainly in the prices of bread (0.9%), breakfast cereals (4.5%), beef (4.4%), pork (2.2%), fresh fish (2.3%), dried fruits and nuts (5.3%), sugar, chocolates, sweets, and ice cream (2.9%), and mineral water, refreshments, and fruit juices (4.2%).
- -1.1% in the Household equipment group. This decrease, which is primarily due to the decline in prices of non-durable household articles (-6.3%), was partially offset by the increase mainly in the prices of furniture and furnishing (2.5%) and domestic services (5.0%).

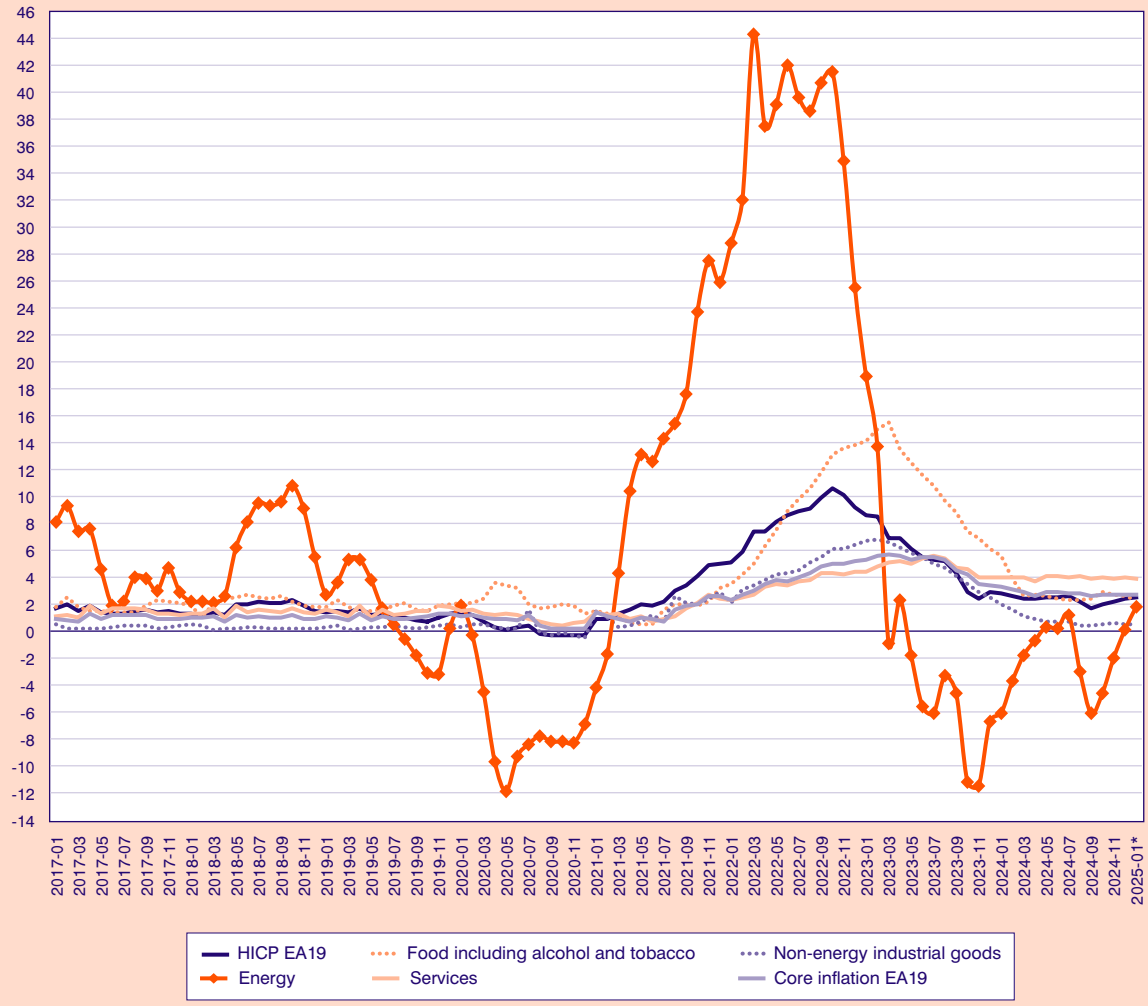
1.2.2. The euro area

According to preliminary estimates from Eurostat, inflation in the euro area is expected to reach 2.5% in January 2025, compared to 2.4% in December 2024. Core inflation is expected to remain at 2.7%, maintaining the same level for the fourth consecutive month.

Among the sub-groups of Goods and Services in the euro area HICP, the highest rate of price increase is expected in the Services group (3.9%, compared to 4.0% in December), followed by the Food, Alcohol, and Tobacco group (2.3%, compared to 2.6% in December), Energy (1.8%, compared to 0.1% in December), and Non-Energy Industrial Goods (0.5%, the same rate as in December).

Among the euro area countries, the highest inflation was recorded in Croatia (5.0%), Belgium (4.4%), and Slovakia (4.1%), while the lowest inflation was recorded in Malta (1.7%), Finland (1.6%), and Ireland (1.5%).

FIGURE 1.2.3
HICP in the euro area, monthly data, annual % change



Source: Eurostat. (*flash estimates).

1.3. Factor model forecasts for the short-term prospects in GDP

Macroeconomics Forecasting Unit
Ersi Athanassiou, Aristotelis Koutroulis, Emilia Marsellou, Theodore Tsekeris

The current section presents the forecasts of KEPE concerning the evolution of the rate of change of real GDP in Greece from the fourth quarter of 2024 up to the second quarter of 2025.[1] The forecast is conducted using KEPE's dynamic structural factor model.[2] The underlying time series database used to estimate the model and produce the forecasts includes 126 variables,[3] covering the main aspects of economic activity in the country on a quarterly basis and spanning the period from the first quarter of 2000 up to the third quarter of 2024.

According to the revised provisional data of the *Quarterly National Accounts,* in the nine-months period from January to September 2024, the Greek economy presented a steady upward momentum, significantly higher than the average growth rate of the European economy. Specifically, in the first, second and third quarters of the year, the rate of change of Greece's GDP reached 2.2%, 2.3% and 2.4%, respectively, on an annual basis, while the average growth rate in the EU stood at 0.6%, 0.8% and 1.0%, respectively. The conditions that prevented a more dynamic recovery of the European economy in 2024, such as, for example, the increased cost of living, high energy prices, the limited impetus from the side of international demand and inflated production and borrowing costs, clearly did not leave the Greek economy unaffected. However, in the case of Greece, the country's resilience to these challenges was significantly strengthened by the prevalence of other key offsetting factors, such as the increase in employment and wages and the resulting enhancement of household incomes, the favorable course of demand for the products and services of key sectors of the economy (industry, tourism, construction) and the significant boost from the inflow of financial resources into the economy through the Recovery and Resilience Facility and other European programs.

The growth prospects of the European economy in 2025 appear slightly improved compared to the previous year, although still remaining subdued amid ongoing geopolitical tensions, the unstable political situation in major Eurozone countries, and the conditions that continue to negatively affect the core of the European industrial sector (intense competition from third countries, high energy and input costs, obstacles to the smooth operation of value chains, etc.). At the same time, the challenges faced by EU countries are constantly changing, with evolving international trade disputes and the possibility of the imposition of tariffs on EU exports creating new uncertainties for the course of Europe's external sector.

Amidst this environment, the Greek economy is expected, for yet another year, to grow at a rate higher than the European average. This outlook stems mainly from the presence of favourable conditions for domestic demand growth, both with respect to consumption, given the prospects for further improvement in incomes, and in the area of fixed capital investment, with the help of the significant boost from the utilisation of the Recovery Fund resources. Furthermore, the gradual acceleration of the EU growth rate is foreseen to provide support to the demand for Greek exports of goods and services, although, at the same time, the expected increase in investment is bound to have a direct impact on imports, thus affecting the overall contribution of the external balance to the rate of change of GDP. The successful achievement of the country's fiscal targets for 2024, combined with a positive outlook for GDP growth in 2025, provide scope for a less restrictive fiscal stance that will mitigate the burden of fiscal adjustment on the growth rate compared to the previous year. A factor of uncertainty affecting short-term GDP growth prospects relates to the course of inventories, as their rapid accumulation and significant

1. The date of the forecast is January 24, 2025.

2. A detailed description of the model can be found in Issue 15 (June 2011, pp. 19-20) of KEPE's scientific journal entitled *Greek Economic Outlook*. See https://www.kepe.gr/images/oikonomikes_ekselikseis/issue_15enb.pdf.

3. The database incorporates both real economy and nominal variables, as well as a considerable number of variables reflecting expectations and assessments of economic agents. The seasonal adjustment of the time series is carried out by use of the Demetra+ software, using the TRAMO/SEATS filter.

TABLE 1.3.1 Real GDP rate of change (%, y-o-y)

	2024	2025	
Quarters	**2024Q4**	**2025Q1**	**2025Q2**
Quarterly rate of change	2.38 [2.27 , 2.49]	2.61 [2.39 , 2.83]	1.60 [1.27 , 1.93]
Mean rate of change, 1st half*	-	2.10 [1.83 , 2.38]	
Mean rate of change, 2nd half**	2.41 [2.35 , 2.46]	-	
Mean annual rate of change***	2.34 [2.31 , 2.37]	-	

Note: Values in brackets indicate the lower and upper boundaries of the 95% confidence interval of the forecasts. * The mean rate of change is not reported for the 1st half of 2024, since it does not incorporate a forecast. ** The mean rate of change for the 2nd half of 2024 incorporates the officially available (provisional) data for the 3rd quarter of 2024, on a seasonally adjusted basis. *** The mean annual rate of change for 2024 incorporates the officially available (provisional) data for the first three quarters of 2024, on a seasonally adjusted basis.

positive contribution to growth recorded in 2024 may be followed by a normalisation, with corresponding effects on the growth rate in 2025.

In the above context, Table 1.3.1 presents the econometric estimates of KEPE for the rate of change of real GDP in Greece up to the second quarter of 2025. According to the estimates, in the fourth quarter of 2024, the Greek economy is expected to grow at a rate of 2.4% compared to the corresponding quarter of 2023, with the estimate for the average growth rate of the economy for the whole of 2024 amounting to 2.3%. The revised estimate for the full year is slightly higher than the corresponding immediately preceding forecast of KEPE for 2024 (2.1%), given that the provisional ELSTAT data for the growth rate in the first half of the year showed a slight upward revision, while the growth rate in the third quarter of 2024 was slightly higher than the previous model forecast (at 2.4% versus 2.2%).

Regarding the outlook for 2025, the estimates for the first half of the year point to a continuation of a stable growth path with satisfactory GDP growth rates. According to the forecast, the average rate of change in real GDP for the first half of the year is estimated at 2.1% y-o-y. This estimate stems from the favorable development of several of the economic figures incorporated in the forecast.

More specifically, for the third quarter of 2024, the quarterly data of the *National Accounts* at constant prices compared to the corresponding quarter of 2023 show a continuing significant rise in private consumption, a large increase in inventories, as well as a marginal strengthening of fixed capital investment, driven mainly by an increase in investment expenditure on construction and machinery and equipment. In the external sector, exports of services continued to rise, driven by an increase in receipts from maritime transport and other services, while the rate of change of goods exports remained positive for a second consecutive quarter. On the other hand, general government consumption expenditure continued to decline, in the context of the adjustments required to achieve fiscal targets.

Regarding the course of indicators reflecting the activity of key sectors of the economy, developments recorded in the third quarter of 2024 compared to the corresponding quarter of the previous year were mostly positive. First, in the industry sector, the overall industrial production index registered an increase, with index prices appearing stronger in almost all key subcategories, and particularly in intermediate and non-durable consumer goods. At the same time, the turnover index in industry also followed an upward trend, with the exception of the energy and consumer durables subcategories. In the trade sector, the volume index in retail trade declined overall and in six of the eight relevant subcategories, with increases recorded only in the cases of *supermarkets* and *pharmaceutical products-cosmetics*. In the tourism and construction sectors, a decline was recorded in travel receipts, while developments in private construction activity and

the production index in construction were favourable. Concerning the course of the domestic labor market, in the third quarter of 2024, a further improvement in conditions was observed, as the number of persons employed increased by 1.6% compared to the third quarter of the previous year and the number of unemployed persons decreased by 16.8%, respectively.

With respect to price data for the third quarter of 2024, developments were mixed with regard to energy costs, as the Brent oil price index declined and the European harmonized energy price index for Greece increased compared to the immediately preceding quarter. In addition, a small increase was recorded in relation to average inflation, with inflationary pressures, however, easing further in the key consumer goods categories referring to food and beverages. In terms of the yield of Greece's ten-year government bond, which is linked to the levels of uncertainty in the economy, a slight decrease was observed relative to the second quarter of 2024, alongside a marginal decline in the relative spread against the corresponding German bond. With regard to indicators reflecting the expectations and assessments of economic activity participants on the course of the economy, developments in the third quarter of 2024, compared to the second quarter of the year, were indicative of a decline in economic sentiment in Greece and a marginal improvement in Europe, while business expectations in Greece strengthened in the retail trade sector and subsided in the industrial and construction sectors.

From the preceding discussion on the prospects and the challenges facing the European and Greek economies in the present conjuncture, and taking into account the most recent economic data for Greece, the uncertainties and risks related to, mainly, external factors remain quite significant, without, however, the presence of widespread trends compromising the steady upward path of the Greek economy in the short term. While it is clear that, progressively, the sustainability of Greece's economic growth will depend on a substantial enhancement of the contribution of fixed capital investment and exports to GDP, this year the strengthening of these components can be promoted significantly by taking advantage of Recovery Fund resources and export opportunities in Europe and third countries.

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 24-29

1.4. 2024 was a year of positive returns for the Greek stock market

Fotini Economou

1.4.1. Introduction

The Greek stock market ended 2024 on a positive note, having positive returns and increased capitalization and transactions value. The Athex Composite Share Price Index recorded a positive return for the fourth consecutive year. The large-cap index recorded a higher return compared to the Athex Composite Share Price Index, while the mid- and small-cap indices recorded positive, but smaller returns. The majority of sectoral indices recorded positive returns, with specific sectors having impressive performance.

In June 2024, the European Central Bank (ECB) began to cut interest rates, following a period of consecutive increases, with interest rates recording a total of four reductions in 2024. In parallel with the gradual de-escalation of interest rates, the upgrades of credit ratings for Greece, having returned to investment grade since 2023, led to increased investment interest in Greek securities, sending a positive message to the markets, and reduced borrowing costs for the Greek government. At the same time, corporate bonds witnessed a notable increase in transactions value, and corporate bond indices recorded positive returns.

The year also ended positively for the Greek institutional management sector, recording positive returns and increased assets and capital inflows, with individual categories of equity UCITS standing out in terms of return.

Following the upgrade of the outlook of the Greek economy by Moody's from "stable" to "positive" in September 2024, the Greek economy is close to regaining investment grade from Moody's, the only rating agency that has not yet given investment grade to Greece, which would have positive implications for the stock market in terms of increased investment interest. Note that in December 2024, the first upgrade within the investment grade, from BBB- to BBB with a stable outlook, was carried out by the international rating agency Scope Ratings (Table 1.4.1), which was the first agency to upgrade Greece to investment grade in 2023. This is a positive signal that confirms the progress made by the Greek economy. These positive developments are of crucial importance for achieving the next important goal, which is the upgrading of the Athens Stock Exchange to developed markets.

This article presents a brief overview of the course of the Greek stock market during the year 2024, focusing on key stock market indices and data. The course of the bond market and the institutional management sector are also presented for the year 2024. The final section of the article summarizes and concludes.

1.4.2. The course of the stock market in 2024

The year 2024 ended with positive returns for the Greek stock market. More specifically, according to

TABLE 1.4.1 Greece's credit rating

Rating Agency	Rating	Outlook	Date of last review
Standard & Poor's	BBB-	Positive	18/10/2024
Moody's	Ba1	Positive	13/9/2024
Fitch	BBB-	Stable	22/11/2024
DBRS Morningstar	BBBL	Positive	6/9/2024
Rating and Investment (R&I)	BBB-	Stable	9/9/2024
Scope Ratings GmbH	BBB	Stable	6/12/2024

Source: Public Debt Management Agency (PDMA)-January 2025.

ATHEX data (Table 1.4.2), the Athex Composite Share Price Index recorded a positive return of 13.65%, reaching 1,469.67 points on 31/12/2024 from 1,293.14 points on 29/12/2023. Note that the Athex Composite Share Price Index recorded positive returns for the 4th consecutive year (2023: 39.08%, 2022: 4.08%, 2021: 10.43%). Even though there was a significant increase in volatility and losses in international markets in August 2024 due to announcements indicating a slowdown in the U.S. economy, the Greek stock market soon recovered, ending the year on a positive note. The FTSE/Athex Large Cap Index and the Athex ESG Index also recorded high returns in 2024 of 14.34% and 14.02%, respectively, while the mid- and small-cap indices, were lower, but with a positive sign, with the Hellenic Mid & Small Cap Index recording a return of 9.74% and the FTSE/Athex Mid Cap Index a return of 3.70%.

The majority of ATHEX sectoral indices also recorded positive returns, with the indices FTSE/ATHEX INDUSTRIALS, FTSE/ATHEX CONSUMER STAPLES, FTSE/Athex Banks and FTSE/ATHEX FINANCIAL SERVICES standing out with impressively high returns (40.86%, 31.45%, 21.14%, and 20.35%, respectively). It is worth noting the performance of the banking sector, as it outperformed the Athex Composite Share Price Index in terms of return; this development is attributed, among other things, to the credit rating upgrades of the banks that occurred during the period under examination (BoG, 2024). On the other hand, the FTSE/ATHEX ENERGY & UTILITIES index as well as the FTSE/ATHEX REAL ESTATE index ended 2024 with small losses (-0.17% and -1.64%, respectively).

According to ATHEX (2024) data, the market capitalization of the ATHEX (assets under custody of domestic and foreign investors in total listed equities with the participation of the Financial Stability Fund) reached €93.22 billion at the end of December 2024 from €80.77 billion at the end of December 2023, recording an increase of 15.4%. The participation of foreign investors (with the participation of the Financial Stability Fund) remains high, reaching 65.37% at the end of December 2024, with foreign investors recording

TABLE 1.4.2 Prices and returns for selected indices of the ATHEX (31/12/2024)

	31/12/2024	Year min	Year max	Year change (%)
FTSE/Athex Large Cap	3,570.47	3,122.79	3,665.50	14.34%
Athex ESG Index	1,678.09	1,471.77	1,722.97	14.02%
Athex Composite Share Price Index	1,469.67	1,293.14	1,505.35	13.65%
Athex All Share Index	339.46	304.60	367.53	12.40%
Hellenic Mid & Small Cap Index	2,116.80	1,881.89	2,157.15	9.74%
FTSE/Athex Mid Cap Index	2,334.00	2,054.77	2,459.55	3.70%
FTSE/ATHEX INDUSTRIALS	7,157.46	5,044.08	7,196.29	40.86%
FTSE/ATHEX CONSUMER STAPLES	6,688.96	5,069.68	6,815.28	31.45%
FTSE/Athex Banks	1,286.02	1,057.67	1,354.57	21.14%
FTSE/ATHEX FINANCIAL SERVICES	6,034.53	4,996.31	6,357.41	20.35%
FTSE/ATHEX TECHNOLOGY & TELECOMMUNICATIONS	5,669.37	4,915.95	5,868.21	11.77%
FTSE/ATHEX BASIC MATERIALS	5,017.37	4,369.10	5,876.05	3.03%
FTSE/ATHEX CONSUMER DISCRETIONARY	5,035.20	4,663.68	5,557.48	0.39%
FTSE/ATHEX ENERGY & UTILITIES	4,979.04	4,536.38	5,474.06	-0.17%
FTSE/ATHEX REAL ESTATE	4,879.39	4,507.00	5,120.52	-1.64%

Source: Daily official list of trading activity of the ATHEX 31/12/2024.

outflows of €176.40 million and 57.9% of total transactions in December 2024. The cash value of settled transactions of December 2024 reached €2,707.23 million, recording a significant increase of 42.5% compared to December 2023, which was at €1,899.19 million. Moreover, the cash value of settled transactions of equities increased in December 2024, reaching €2,657.97 million, compared to December 2023, which was at €1,865.44 million, also recording an increase for the whole year 2024 compared to 2023, reaching €33,908.72 million from €27,265.77 million, respectively.

Examining the uncertainty about the short-term course of the market with the help of the KEPE GRIV Implied Volatility Index, the so-called "fear" index, a decrease in uncertainty was observed at the end of 2024 compared to the end of 2023, with fluctuations within the year. The KEPE GRIV index reflects the uncertainty of the derivatives market participants about the expected short-term course of the Greek market and is calculated on the basis of the FTSE/Athex Large Cap options prices. The KEPE GRIV index decreased in December 2024, reaching 20.51% on 31/12/2024, from 22.31% on 29/11/2024 and 23.86% on 29/12/2023. Moreover, the average daily value of the index decreased, reaching 24.88% in December 2024, from 26.62% in November 2024. The index remained below its historical average level (since January 2004) for the Greek market, which stands at 32.03%. The evolution of the index indicates a decrease in uncertainty for the expected short-term course of the Greek market compared to the end of 2023, with fluctuations within the year 2024.

1.4.3. Greek Government T-bills, Greek Government bonds and corporate bonds in 2024

The gradual easing of interest rates by the ECB affected the cost of borrowing and the course of the bond market. More specifically, in 2024, the ECB Governing Council decided the first interest rate cut since 2019, after ten consecutive increases in key interest rates by the ECB from July 2022 until September 2023,[1] when the last increase was recorded, with the aim of the timely return of inflation to the ECB's medium-term target of 2%.[2] There were four interest rate cuts in 2024 (at the June,[3] September,[4] October,[5] and December[6] 2024 meetings), taking into account the course and the outlook of inflation, with the interest rates on the deposit facility, the main refinancing operations and the marginal lending facility being decreased to 3.00%, 3.15%, and 3.40%, respectively, at the end of the year.

This development was also reflected in the course of the yields of Greek Government T-bills issues in 2024 (Table 1.4.3). More specifically, the yields of 13-, 26- and 52-week T-bills issues were significantly lower compared to the respective ones at the end of 2023, with the largest decrease recorded for the 52-week T-bills. Moreover, looking at the interest rates of the Greek government benchmark bonds, according to Bank of Greece data for the year 2024 (Figure 1.4.1), we notice that the average monthly yield of the Greek government bonds was clearly lower for all maturities in December 2024 compared to June 2024, when the ECB started the de-escalation of interest rates, with the largest decrease recorded for the 5-year bond. Moreover, the average monthly Greek government bond yield was also lower in December 2024 compared to December 2023 for 3-, 5-, 7-, 10-, 15- and 20-year bonds, with the 5-year bond recording the largest decrease, while the 30-year bond yield was the same compared to December 2023.

Alongside the de-escalation of interest rates, the upgrades of credit ratings for Greece, having returned to investment grade from 2023, have resulted in increased investment interest in Greek securities, sending a positive signal to the markets. An indicative example was the successful new 10-year bond issue of 30/1/2024, of which €4 billion were raised with a coupon of 3.375% and a re-offer yield of 3.478%. According to the Public Debt Management Agency,[7] this was the highest amount raised after 2010, with the final orderbook being in excess of €35 billion, the largest orderbook for any syndicated Greek government issue since 2010, surpassing the previous record of €30 billion achieved in June 2021, while the bond pricing recorded the tight-

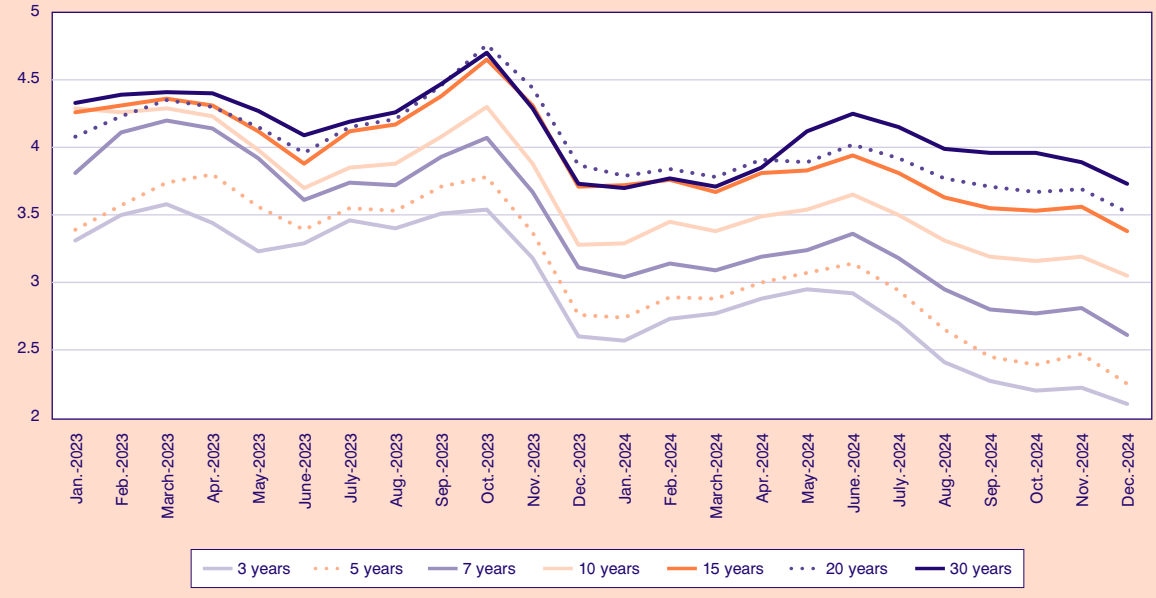
1. See Information about the ECB interest rates, Bank of Greece.
2. See ECB Press Release of the 14th September 2023.
3. See ECB Press Release of the 6th June 2024.
4. See ECB Press Release of the 12th September 2024.
5. See ECB Press Release of the 17th October 2024.
6. See ECB Press Release of the 12th December 2024.
7. See Public Debt Management Agency announcement of 30/1/2024.

TABLE 1.4.3 Greek Government T-bills yields (issues from the end of 2023 to the end of 2024)

Auction date	13 weeks	Auction date	26 weeks	Auction date	52 weeks
31/12/2024	2.82%	23/12/2024	2.61%	4/12/2024	2.27%
30/10/2024	2.63%	27/11/2024	2.46%	4/9/2024	2.82%
2/10/2024	2.84%	23/10/2024	2.71%	5/6/2024	3.34%
31/7/2024	3.23%	25/9/2024	2.85%	6/3/2024	3.73%
3/7/2024	3.42%	21/8/2024	3.09%	6/12/2023	3.70%
30/4/2024	3.67%	24/7/2024	3.30%		
3/4/2024	3.75%	26/6/2024	3.44%		
31/1/2024	3.83%	29/5/2024	3.55%		
3/1/2024	3.84%	24/4/2024	3.69%		
1/11/2023	3.88%	27/3/2024	3.75%		
		21/2/2024	3.83%		
		24/1/2024	3.77%		
		27/12/2023	3.87%		

Source: Ministry of Economy and Finance.

FIGURE 1.4.1
Monthly average yield (%) of Greek government benchmark bonds (Jan. 2023 – Dec. 2024) for maturities of 3, 5, 7, 10, 15, 20 and 30 years



Source: Bank of Greece.

est spread for new 10-year Greek Government Bonds since 2010. Successful issues continued throughout the year, recording an increased raising of medium-long-term funds from international capital markets and reduced weighted new funding cost.[8]

The corporate bond indices of the Athens Stock Exchange also completed 2024 with positive returns. According to ATHEX data, the Hellenic Corporate Bond Price Index[9] recorded a return of 3.59% and the Hellenic Corporate Bond Index[10] a return of 7.23% for the year 2024.[11] Moreover, the cash value of settled transactions of corporate bonds increased in December 2024 compared to December 2023, reaching €25.28 million from €20.34 million, respectively, recording a remarkable increase of 45.5% for the year 2024 compared to 2023, at €321.81 million from €221.11 million, respectively.

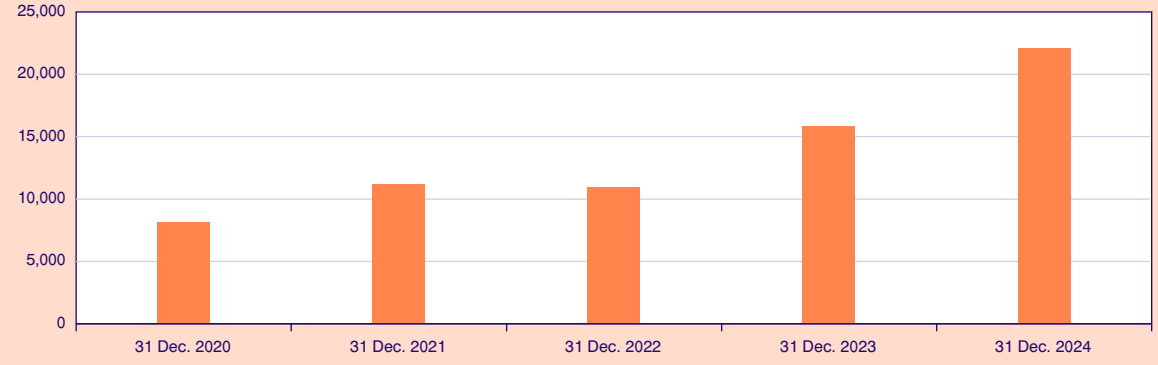
1.4.4. The course of the institutional management sector in 2024

According to the Hellenic Fund and Asset Management Association (HFAMA) (2025) data, the year 2024 ended in a positive way for the Greek institutional management sector. More specifically, the total amount of funds under management amounted to €38.87 billion at the end of 2024, recording a notable increase of 30.55% compared to the end of 2023. The composition of these funds on 31/12/2024 concerned 56.9% in Undertakings for Collective Investment in Transferable Securities (UCITS), 27% in the Asset Management sector, 14.2% in Real Estate Investment Companies (REICs)[12] and 1.9% in Alternative Investment Funds (AIFs).

Focusing on UCITS, there was a remarkable increase in the total assets of UCITS managed by Greek Mutual Fund Management Companies, by 40%, since the beginning of 2024 (Figure 1.4.2) reaching €22.11 billion on 31/12/2024 (€17.89 billion in UCITS Law 4099/12 and €4.21 billion in EU UCITS). Of these assets, 52% are bond funds, 16% balanced, 13% equity, 11% Funds of Funds, 5% money market, and 3% specialist. Furthermore, there were €4.9 billion in total inflows of funds to UCITS in 2024.

Looking at the returns for 2024, all UCITs categories recorded positive returns with equity UCITS standing out. According to HFAMA (2025) data, the highest returns were recorded for the categories of Equity

FIGURE 1.4.2
Total Assets of UCITS, in million € (31/12/2020-31/12/2024)



Source: Hellenic Fund and Asset Management Association.

8. See the latest available, at the time of writing the article, *Public Debt Management Agency Quarterly Bulletins* No111, No112, and No 115, for the period Jan. - Sep. 2023, Jan. - Dec. 2023, and Jan. – Sep. 2024, respectively, regarding the composition of new borrowing by initial maturity and the weighted average funding cost.

9. Based on the net price of each bond.

10. Based on the net price, accrued interest and the value of the payments of each bond.

11. Returns on 27/12/2024 according to the daily official list of trading activity of the ATHEX of 31/12/2024.

12. On 30/6/2024 (latest published data), see Hellenic Fund and Asset Management Association (2025).

Funds–North America (30.37%), Equity Funds–Developed markets (18.83%), Equity Funds–Global (17.48%), Equity Funds of Funds (14.74%), and Equity Funds–Greece (13.50%).[13]

1.4.5. Conclusions

The Greek stock market completed 2024 with an excellent performance, recording positive returns and increased capitalization and transactions value. The large-cap index recorded a higher return compared to the Athex Composite Share Price Index, while the mid- and small-cap indices recorded positive, but smaller returns. The majority of sectoral indices recorded positive returns, with the industrials, consumer staples, banks and financial services sectors recording impressive returns. In parallel with the gradual de-escalation of key interest rates by the ECB, the upgrades of credit ratings for Greece, which has returned to investment grade since 2023, led to increased investment interest and reduced borrowing costs. The corporate bond market also performed positively, recording significantly increased transactions value and positive returns for corporate bond indices. The Greek institutional management sector complements the picture, completing 2024 with positive returns, increased total assets and capital inflows, with equity UCITS standing out in terms of returns.

Greece is now close to the goal of regaining investment grade from the rating agency Moody's. The recent upgrade within the investment grade by the international rating agency Scope Ratings also sends positive messages for achieving the next important goal, which is the upgrade of the Athens Stock Exchange to developed markets, a development that would strengthen investment interest and access to new investment funds that would promote growth for businesses and, by extension, for the Greek economy.

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13. Annual average return of the UCITs category excluding UCITs activated within the year 2024.

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 30-35

1.5. Recent developments and prospects of global economic activity: Global economic growth is set to stabilize at 2024 levels

Aristotelis Koutroulis

The continued disinflation in combination with the gradual normalisation of monetary policy in most economies have played a key role in improving economic sentiment and stabilising the global economic recovery. However, ongoing geopolitical tensions and the fragile balances that have emerged in international trade relations threaten to divert the global economy from its growth trajectory.

1.5.1. Recent developments and short-run prospects of the global economy

In 2024, the global economy remained resilient against major geopolitical and economic uncertainties (e.g., ongoing conflicts in Ukraine and the Middle East, increasing protectionism in international trade, and short-term disruptions in international financial markets) (EC, 2024; UN, 2025). The good performance of the US economy and the unexpectedly large GDP increases recorded in some emerging economies, notably in Brazil and Russia, were among the major contributors to global GDP growth (EC, 2024).

Over the next two years, the average annual growth rate of global GDP is expected to remain close to the 2024 level, as the upturn in the recovery rates in three major advanced economies (e.g., Japan, the euro area, and the UK) is expected to offset the potential losses from the looming slowdown in the recovery rates of the US and China (see Table 1.5.1). In addition, the ongoing deceleration of inflation and the gradual easing of monetary policy in the advanced world are expected to boost aggregate demand and global GDP (UN, 2025 and WB, 2025).

Despite the stabilisation of the global recovery and the emergence of positive trends –falling inflation, the gradual normalisation of monetary policy, and rising international trade– the annual rate of GDP growth over the coming two years will remain almost 2.5 percentage points below the annual average of the decade preceding the pandemic (IMF, 2025 and UN, 2025). This is due to several structural problems that tend to become chronic (e.g., anaemic productive investment, low productivity growth rates, ballooning public and private debt, and demographic pressures) (UN, 2025). Moreover, the balance of risks that characterises the current economic situation remains negative. Key sources of risk and uncertainty are the ongoing geopolitical tensions and the fragile balances that have emerged in international diplomacy. In particular, there is widespread concern that developments in the geopolitical and diplomatic arena, combined with electoral turnovers, may lead to rapid changes in economic policy and an increase in protectionist measures (OECD, 2024; IMF, 2025; UN, 2025; and WB, 2025).

1.5.2. Inflation, employment, and investment

In 2025, global inflation will remain on a downward path, with national indices approaching central bank target levels in many economies (see Table 1.5.2). Easing labour market conditions in advanced economies, moderate international energy and food commodity prices, and the lagged effects of the tight monetary policy represent key factors to this development. As regards the pace of disinflation, inflation deceleration will be faster in advanced economies. On the contrary, inflation will remain at double-digit levels in several developing economies (UN, 2025).

While headline inflation is on a downward trend, core inflation persists at higher-than-desirable levels in many countries. Moreover, the risk of renewed inflationary pressures remains elevated. In particular, upward price pressures could be triggered by potential disruptions in product supply due to (a) ongoing geopolitical tensions, (b) increased protectionism and/or export restrictions, and (c) the re-emergence of extreme weather phenomena.

Regarding employment, labour market conditions in advanced economies remained favourable throughout 2024, with employment in several economies exceeding pre-pandemic levels. Increased demand combined with falling inflation contributed to rising real wages. However, this development does not apply to all advanced economies as, in several of them, real wages are still below 2019 levels.

Cooling labour market conditions (OECD, 2024 and IMF, 2025) and employment growth deceleration (UN,

TABLE 1.5.1 Real Gross Domestic Product[1,2]

(annual percentage changes)

	2024*					2025**					2026**				
	IMF	**EC**	**OECD**	**WB**	**UN**	**IMF**	**EC**	**OECD**	**WB**	**UN**	**IMF**	**EC**	**OECD**	**WB**	**UN**
World economy	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.2	3.2	3.3	3.3	3.3	3.2	3.2
Advanced economies	1.7	1.8	:	1.7	1.7	1.9	1.9	:	1.7	1.6	1.8	2.1	:	1.8	1.8
USA	2.8	2.7	2.8	2.8	2.8	2.7	2.1	2.4	2.3	1.9	2.1	2.2	2.1	2	2.1
Euro area	0.8	0.8	0.8	0.7	0.7	1	1.3	1.3	1	1.1	1.4	1.6	1.5	1.2	1.3
Japan	-0.2	0.2	-0.3	0	-0.2	1.1	1.2	1.5	1.2	1	0.8	1	0.6	0.9	1.2
United Kingdom	0.9	1	0.9	:	0.8	1.6	1.4	1.7	:	1.2	1.5	1.4	1.3	:	1.4
Developing economies	4.2	4.3	:	4.1	4.1	4.2	4.4	:	4.1	4.3	4.3	4.3	:	4	4.2
Brazil	3.7	3.1	3.2	3.2	3	2.2	2.3	2.3	2.2	2.3	2.2	2.4	1.9	2.3	1.9
Russia	3.8	3.5	:	3.4	3.8	1.4	1.8	:	1.6	1.5	1.2	1.6	:	1.1	1.5
India	6.5	7.2	6.8	6.5	6.9	6.5	6.9	6.9	6.7	6.6	6.5	6.7	6.8	6.7	6.7
China	4.8	4.9	4.9	4.9	4.9	4.6	4.8	4.7	4.5	4.8	4.5	4.6	4.4	4	4.5

Sources: IMF (2025); European Commission (2024); OECD (2024); United Nations (2025); and World Bank (2025).

* Estimations, ** Projections.

Notes: 1. The observed differences between the available macroeconomic projections partly reflect the differences between the macro-econometric models and the data used by each international organization.

2. The sub-group of emerging economies is included in the group of developing economies.

TABLE 1.5.2 Inflation[1]
(annual percentage changes)

	2024*				2025**				2026**			
	IMF	EC	OECD	UN	IMF	EC	OECD	UN	IMF	EC	OECD	UN
World economy	5.7	:	:	4	4.2	:	:	3.4	3.5	:	:	3.4
Advanced economies	2.6	:	:	2.6	2.1	:	:	2.2	2	:	:	2
USA	:	2.9	2.5	2.9	2	2	2.1	2.3	2.1	2	2	2.2
Euro area	:	2.4	2.4	2.3	2.1	2.1	2.1	2	2	1.9	2	1.9
Japan	:	2.5	2.6	2.6	2	1.9	1.9	2.2	2	1.6	2.1	1.8
United Kingdom	:	3.1	2.6	2.5	:	2.4	2.7	2.2	:	2	2.3	1.8
Developing economies	7.8	:	:	6	5.6	:	:	5.1	4.5	:	:	4
Brazil	:	:	4.5	4.2	:	:	4.2	3.7	:	:	3.6	3.4
Russia	:	8.1	:	8.3	:	5.7	:	5.2	:	4	:	4.5
India	:	:	4.8	4.8	:	:	4.2	4.3	:	:	4	3.9
China	:	:	0.4	0.3	:	:	1.1	1.1	:	:	1.4	1.2

Sources: IMF (2025); European Commission (2024); OECD (2024); and United Nations (2025).

* Estimations, ** Projections.

Note: 1. The sub-group of emerging economies is included in the group of developing economies.

TABLE 1.5.3 Annual unemployment rates (advanced economies)

	2024*			2025**			2026**		
	IMF	EC	OECD	IMF	EC	OECD	IMF	EC	OECD
USA	4.1	4.1	4	4.4	4.4	4.1	:	4.3	4.1
Euro area	6.5	6.5	6.4	6.4	6.3	6.3	:	6.3	6.2
Japan	2.5	2.6	2.5	2.5	2.5	2.4	:	2.5	2.3
United Kingdom	4.3	4.3	4.2	4.1	4.2	4	:	4.2	4

Sources: IMF (2024); European Commission (2024); and OECD (2024).

* Estimations, ** Projections.

2025) imply that unemployment rates in advanced economies will remain close to 2024 levels (see Table 1.5.3).

Labour market trends in developing economies vary depending on the economic policy framework and the economic conditions that prevail in each country. For example, while India has experienced rapid employment growth and Brazil has recorded the lowest unemployment rates in decades, in many developing economies, employment growth is mainly confined to the informal sector (UN, 2025).

After two years of sluggish investment activity, global investment increased by 3.4% in 2024 (UN, 2025). This recovery, however, was not evenly distributed across countries, as it was concentrated in the US, China, and India. In contrast, investment remained sluggish, at least for the first half of the year, in Japan and Europe. Investment activity also remained subdued in many developing economies due to high public debt and limited financial resources (UN, 2025).

The ongoing tensions at the level of international diplomacy and geopolitical instability are certainly not conducive to international investment activity. On the other hand, the gradual easing of monetary policy, the lower borrowing costs, and the increasing confidence of international investors in the prospects of the global economy have improved the climate in domestic and international money and capital markets. So far, the increased flows of capital from advanced economies to developing ones imply that investors' improved sentiment counterbalances the negative effects of geopolitical uncertainties (WB, 2025). In this respect, global investment activity is expected to maintain its momentum.

1.5.3. Regional developments

Advanced economies

In 2024, the growth rate in advanced economies was maintained at 1.7%, reflecting the very good performance of the US economy. Under the assumption that trade and fiscal policy will not change dramatically in major economies, GDP growth is likely to increase marginally over the next two years as the stronger economic recovery in Europe and Japan is expected to offset the projected moderation of the US economy (see Table 1.5.1) (WB, 2025). The gradual easing of monetary policy and rising real household income will play an important role in the growth of economic activity in the advanced world (UN, 2025).

Driven by private and public consumption and strong investment activity, GDP growth in the US reached 2.8% in 2024. However, the forthcoming decline in public spending, along with easing labour market conditions, is expected to slow down the growth process in 2025. In the euro area, lower inflation and borrowing costs are projected to boost private consumption and investment. Nevertheless, the continued geopolitical instability in Eastern Europe and the combination of tight fiscal margins with chronic structural problems (e.g., ageing population, anaemic productivity growth) are expected to hold back the recovery (see Table 1.5.1) (UN, 2025). In Japan, growth will be supported by the strong investment activity and the gradual recovery of consumption. Finally, economic performance in the United Kingdom is forecast to improve in 2025 thanks to the rising real household incomes and the increased public spending (OECD, 2024).

Emerging and developing economies

In the developing world, average annual economic growth in 2025 is expected to remain at the previous year's level (see Table 1.5.1). Although there is considerable variation across countries, 60 per cent of developing countries will record an increase in GDP growth (WB, 2025). Among the factors estimated to have a positive impact on economic growth in 2025, the main ones are (a) the easing of global monetary policy, (b) the recovery of real incomes, (c) the improvement in domestic demand, (d) the gradual expansion of international trade, and (e) the revival of global manufacturing production (WB, 2025).

According to the latest forecasts, China's growth rates will continue to fall short of the high levels of the recent past (see Table 1.5.1). In the current conjuncture, the slowdown in GDP growth is linked to sluggish consumption and the adverse conditions that prevail in the real estate sector. In this context, the interventions of the country's economic authorities are aimed at strengthening the real estate market, stimulating domestic demand, and reducing the high debt accumulated by the regional administration. However, the most serious problem facing the country concerns its relations with its main trading partners. As long as this problem persists, there is the possibility of a gradual slowdown in economic growth rates over a long period of time (UN, 2025). By contrast, growth in India is set to remain strong, driven by steadily rising private consumption and investment (UN, 2025). As for Russia, labour shortages combined with tight economic policy are expected to bring the economy back to lower growth rates. Obviously, the boost to economic activity of high defense spending fails to compensate for the economic losses caused by the war with Ukraine (UN, 2025). Finally, in Brazil, the gradual decline in investment due to a slowdown in external demand and a decline in agricultural production due to less favourable weather conditions are expected to moderate the country's economic expansion (OECD, 2024).

1.5.4. World trade and commodity prices

In 2024, the rate of expansion of international trade (goods and services) accelerated by about 3 percentage points (see Table 1.5.4), thanks to an improvement in trade in raw materials, food and manufacturing products (UN, 2025 and WB, 2025). Large increases in exports of goods, mainly machinery and electronics, were recorded in the US and China. In contrast, Europe's exports of most types of goods declined significantly.

Trade in services increased by 6.4% in 2024, accounting for 25% of total international trade volume. Meanwhile, international arrivals –a variable barometer of international trade in services– reached 1.4 billion last year, marking a return to pre-pandemic levels (UN, 2025).

In 2025, the rate of expansion of international trade is set to remain close to the 2024 levels (see Table 1.5.4). However, this forecast is subject to significant risks. The biggest threat comes from the new approach of several national governments to international trade and the trend towards increased protectionist measures. A clear indication of this new approach is the fact

TABLE 1.5.4 World trade volume

(annual percentage changes, goods and services)[1]

	2023*	2024**	2025**	2026**
IMF	0.7	3.4	3.2	3.3
EC	0.6	2.9	3.1	3.3
OECD	1	3.5	3.6	3.5
WB	0.8	2.7	3.1	3.2
UN	0.9	3.4	3.2	3.5

Sources: IMF (2025); European Commission (2024); OECD (2024); United Nations (2025); and World Bank (2025).

* Estimations, ** Projections.

that the number of protectionist measures adopted on a global level in 2024 was five times the average of the 2000-2019 period (WB, 2025).

In 2024, international commodity prices fell by 3% thanks to the improving production conditions of energy products and basic foodstuffs (WB, 2025). A further decline in international prices is expected over the course of 2025. In particular, the average price of crude oil is projected to fall by 11.7% as softer demand is combined with increased production (IMF, 2025). Base metal prices will remain stable due to marginal changes in demand. However, increased demand for fossil metals used in clean energy technologies – copper, cobalt, lithium and nickel–, combined with the concentration of production of these metals in a limited number of countries, is expected to lead to an increase in their international prices (UN, 2025). Finally, to the extent that agricultural production will continue to be favoured by the weather conditions prevailing in key producing countries, it is estimated that international prices of food products will fall by 5% (WB, 2025).

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2. Fiscal developments

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State Budget, public debt, fiscal outlook

Elisavet I. Nitsi,
Yiorgos Ioannidis

2.1. Execution of the State Budget 2024

The 2024 State Budget (SB), based on the latest data of the General Accounting Office of the State,[1] on a modified cash basis for the period January-December 2024, has a surplus of €369 million (0.2% of GDP) against the initial estimated deficit of €2,999 million (-1.3% of GDP), according to the 2024 Budget, and an updated estimation of a deficit of EUR 3,601 million (-1.5% of GDP), according to the 2025 Budget (Table 2.1.1). Similarly, the primary balance was positive at €8,698 million (3.7% of GDP) against an initial estimate (Budget 2024) of a surplus of €4,703 million (2% of GDP) and an updated estimate (Budget 2025) of a surplus of €4,635 million (1.9% of GDP).

Part of the improved outturn (by €3,970 million) is due to budget-neutral operations, accounting for up to €3,259 million. These include increased revenues of the Public Investment Program (€612 million), postponement of payment of military equipment expenditures to 2025 (€740 million) and lower transfers to Social Security Institutions (€1,907 million) mainly due to increased revenues of the e-EFKA. As a result, the actual positive difference in the primary surplus against the target remains significant. It amounts to €804 million, of which €411 million is due to increased tax revenues (net of refunds).

Net revenues amounted to €74,110 million from January to December 2024, an increase of €1,221 million compared to the 2025 target.[2] The excess is mainly due to increased revenue from the Public Investment Program (€612 million), increased tax revenue (€411 million) and the extraordinary levy on electricity suppliers (€206 million). In particular, the revenue of the "Taxes" category –after deducting €1,569.6 million from the new contract of the Attiki Odos highway– amounted to €67,217 million, i.e., €315.4 million higher than the target.

As regards the individual categories, the most significant positive changes compared to the target concern the additional VAT revenue (€241.2 million after deducting the corresponding to the VAT of Attiki Odos), the additional revenue from "Income tax" (€270 million) mainly due to increased revenues from corporations (+€221 million), and "Other income taxes" (+€70 million). On the contrary, revenues from "Personal income tax" were marginally below target (-€21 million). Regarding the other revenue categories (Social contributions, goods and services sales, and Fixed asset sales), revenues were very close to the target.

Regarding expenditure, in the January-December 2024 period, it amounted to €73,742 million, i.e., €2,749 million lower than the target (2025 Draft Budget Report) but €2,977 million higher than in the corresponding period of 2023. The lower-than-targeted expenditure is mainly due to the postponement of military equipment expenditure (€740 million), lower transfers to EFKA (€1,907 million) and zero execution of the category "Appropriations under allocation" (€746 million). In summary, deviations from the updated targets were insignificant. Finally, on the Investment expenditure, the Public Investment Programme (PDE), which includes the NSRF, shows an increased expenditure of €1,363 million compared to the 2024 Budget target, while the

1. Monthly State Budget Execution Bulletin, December (2024). Ministry of Finance, January 2025.

2. In October, €3,241 million was received as consideration for the new Attiki Odos concession contract. This amount appeared under the category "Sales of goods and services", although it included VAT (EUR 784.8 million), which should have appeared under the category "Taxes". In December, accounting corrections were incorporated, which include: (a) reduced (784,8 million) revenue in the category "Sales of goods and services", (b) increased (1.569,6 million) in the category "Taxes", (c) increased (784,8 million) refunds of revenue. The above accounting transactions are budget-neutral and should not be considered in the analysis of changes in the key figures of the Budget.

TABLE 2.1.1 State Budget figures, € million on a modified cash basis

	2023	2024		
	Outcome[1]	Outcome[1]	Budget forecasts 2024[2]	Budget estimates 2025[3]
State Budget				
Net Income	**66,007**	**74,110**	**72,738**	**72,889**
Taxes	61,627	68,787	62,889	**66,902**
of which:				
VAT	23,385	26,346	24,391	25,317
Excise taxes	7,018	7,252	7,065	7,225
Property taxes	2,491	2,467	2,487	2,433
Income tax	20,884	23,992	21,669	23,722
Social contributions	58	61	56	60
Transfers	7,530	5,738	7,960	5,043
Sales of goods & services	848	3,448	5,559	4,234
Other current revenue	3,930	4,048	2,828	3,936
Sales of fixed assets	6	40	23	36
Revenue refunds	6,993	8,011	6,588	7,322
Expenditure[4]	**70,756**	**73,742**	**75,736**	**76,490**
Compensation of employees	14,039	14,869	14,850	14,939
Social benefits	417	340	411	346
Transfers	33,399	32,598	33,229	33,789
Purchases of goods and services	2,145	2,199	1,792	2,306
Subsidies	118	73	81	76
Interest payments (gross basis)	7,706	8,373	7,701	8,281
Other expenditure	49	117	111	141
Non-allocated expenditure (without PIP and DRF)	0	0	2,668	746
Purchaseof fixed assets	1,691	1,857	2,727	2,635
Public Investment Program (PIP)[5]				
Revenue	3,507	4,427	4,024	3,815
Expenditure	9,112	9,913	8,550	9,850
Recovery and Resilience Fund[6]				
Revenue	3,405	1,157	3,727	1,158
Expenditure	2,089	3,401	3,617	3,300

TABLE 2.1.1 (continued)

	2023	2024		
	Outcome[1]	Outcome[1]	Budget forecasts 2024[2]	Budget estimates 2025[3]
Primary Balance of the State Budget[7]	**3,920**	**8,698**	**4,703**	**4,635**
% *GDP*	1.7%	3.7%	2%	1.9%
State Budget Balance[7]	**-3,760**	**369**	**-2,999**	**-3,601**
% *GDP*	-1.2%	0.2%	-1.3%	-1.5%
GDP[8]	225,197	236,965	233,775	236,965

Source: Budget Introductory Report 2024 and 2025, Ministry of Finance.
2024 State Budget Execution, General Accounting Office, Ministry of Finance, January 2025.

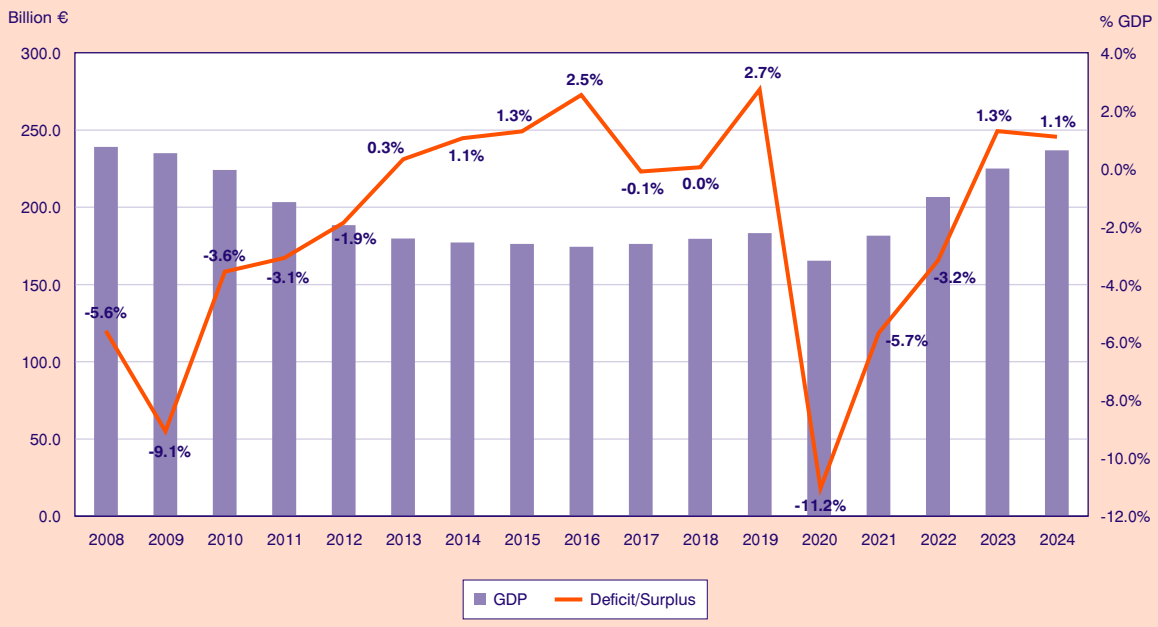
Notes:
1. The state budget revenue and expenditure figures for 2023 and 2024 are provisional and will be finalized upon the ratification of the State Revenue and Expenditure Account for the financial years 2023 and 2024.
2. 2024 Budget forecasts, adjusted to aggregate figures as depicted in the 2024 Budget Introductory Report.
3. 2024 Budget estimates, adjusted to aggregate figures as depicted in the 2025 Budget Introductory Report.
4. Data is presented according to the new economic classification (Presidential Decree 54/2018).
5. Public Investment Program revenues are included in lines “Transfers” and “Other current revenues”, while expenditures are included in “Non-allocated expenditure”.
6. Recovery and Resilience Fund revenues are included in lines “Transfers”, while expenditures are included in “Non-allocated expenditure”.
7. deficit (-)/surplus (+)
8. The GDP estimate for 2024 as reflected in the estimates of the Introductory Report of the 2025 Budget.

RRF shows a decrease of €216 million compared to the 2024 Budget target.

Overall, the increased revenues improved the balance of the State Budget. Figure 2.1.1 shows the evolution of the primary deficit/surplus over 2008-2024, together with the evolution of GDP. As we can see, the GDP growth in 2023 and 2024 resulted in recovering the losses, in nominal terms, of the COVID-19 crisis but still falls marginally short of the 2008 GDP (the last year before the financial crisis). In 2023, the SB balance was positive by 1.3% of GDP, a feature that is maintained –slightly reduced– in 2024 (the SB balance is expected to be 1.1% of GDP).

Figure 2.1.2 shows the trend in revenue and expenditure over the same period. From 2008 to 2019, revenue fluctuated around €50-55 billion. Similarly, after a significant initial decrease in 2008-2014, due to the fiscal adjustment program, expenditure stabilized at around €55 billion/year. The COVID-19 recession pushed revenues and expenditures in the opposite direction. Expenditure increased from €55 billion to €70 billion, while revenue fell from €55 billion to €47 billion. Since then, spending has continued to hover between €70 and €73 billion, but the significant year-on-year increase in revenues has closed the gap so that by 2024, revenues and expenditures would be in balance. Examining revenues and expenditure as a percentage of GDP highlights some additional elements. During the first phase of the economic crisis (2008-2011), expenditure as a percentage of GDP continued to increase despite the budgetary cuts due to higher GDP contraction. From 2011 onwards, the combination of substantial fiscal cuts and the slowdown of the recession resulted in stabilizing expenditure around 30%-31% of GDP. At the same time, government revenues increased significantly, and by 2015, stabilized around 31%. The COVID-19 crisis increased public spending, but the gradual withdrawal of the support measures combined with the restart of economic activity resulted in revenues and spending being almost balanced by 2023.

FIGURE 2.1.1
Gross Domestic Product (GDP) and Primary Deficit/Surplus of the State Budget 2008-2024 (in % of GDP and € billion)



Source: Budget Introductory Report, various issues.
2024 State Budget Execution, General Accounting Office, Ministry of Finance, January 2025.

Note: 2024 is an estimate of the 2025 State Budget.

2.2. The evolution of public debt in the third quarter of 2024

According to the latest available data from the Public Debt Management Agency,[3] on 30/9/2024 the General Government's debt stood at €370.5 billion, down by €1 billion (0.3%) compared to the previous quarter and the end of 2023. Most of the debt is at a fixed rate, and the weighted average maturity is 18.93 years. The average repricing duration is 18.44 years, while the cash service cost on a cash basis including Swaps is 1.33%. The net debt results of the General Government, net of cash (which amounted to €39.3 billion), reached €331.2 billion in the period under review. The General Government's net debt decreased by €4.3 billion (1.3%) compared to the previous quarter and the end of 2023.

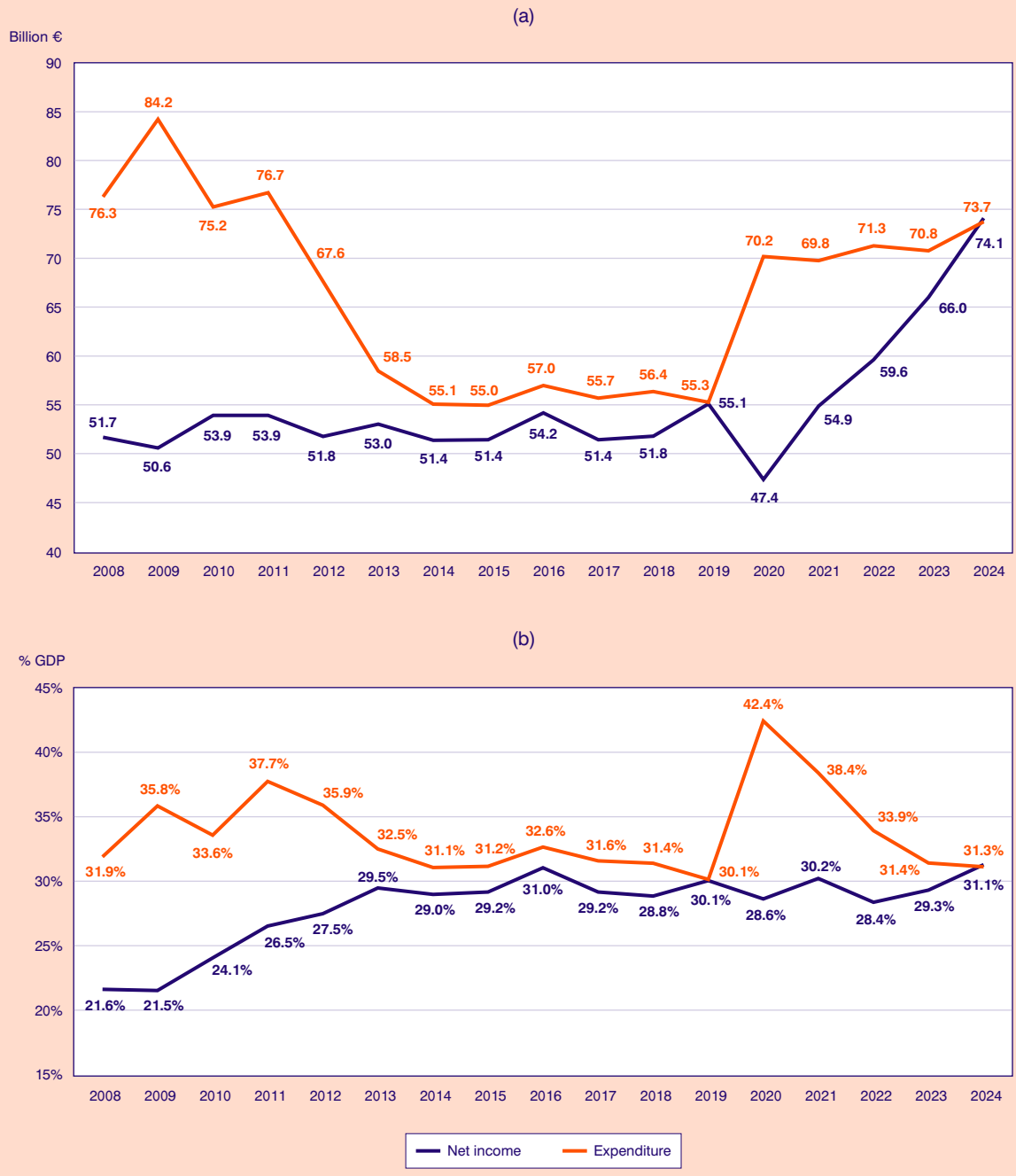
The Central Government debt, in the Q3/2024, was €404.3 billion, decreased by €2.8 billion (0.7%) compared to the previous quarter and €2.2 billion (0.6%) compared to the end of 2023. In addition, cash deposits increased by €285.2 million (0.1%) compared to the previous quarter, decreased by €1.8 billion (0.5%) compared to the end of 2023 and €641 million (0.2%) compared to the corresponding quarter of 2023.

Table 2.2.1 presents the composition of the Central Government's debt in Q3/2024 (also converted in total into fixed-rate and euro debt). The change of its composition in favor of non-negotiable debt, compared to negotiable debt, was 26% and 74%, respectively, over the period under review. Moreover, the guarantees granted by the Greek State continue to decrease, reaching €27.3 billion.

The distribution of debt, based on its remaining maturity in Q3/2024, is shown in Table 2.2.2. Short-term Greek Government securities (maturing in less than one year) account for 15.5% of the total, compared to 12.8% by medium-term securities (maturing in 1 to

3. *Public Debt Bulletin,* September 2024, Public Debt Management Agency.

FIGURE 2.1.2
Net revenue and expenditure 2008-2024 (in € billion and in % of GDP)



Source: Budget Introductory Report, several issues.
2024 State Budget Execution, General Accounting Office, Ministry of Finance, January 2025.

Note: The 2024 GDP is an estimate from the 2025 State Budget.

TABLE 2.2.1 Central Government debt[1] (amounts in € million)*

Period	2023 (Q3)	2023 (Q4)	2024 (Q2)	2024 (Q3)
Outstanding Central Government debt	**402,877.43**	**406,522.91**	**407,059.67**	**404,285.64**
Debt by type of interest rate				
Fixed[2]	402,877.43	406,522.91	407,059.67	404,285.64
Floating[2,3]	0.00	0.00	0.00	0.00
Debt by way of trading				
Negotiable	101,525.11	102,443.77	105,835.51	105,114.27
Non-negotiable	301,352,32	304,079.14	301,224.16	299,171.37
Debt by currency				
In euro, €	402,877.43	406,522.91	407,059.67	404,285.64
In a currency outside the euro area	0.00	0.00	0.00	0.00
Cash Deposits of the H.R.[4]	**20,102.7**	**21,272.80**	**19,176.50**	**19,461.70**
Debt guaranteed by the Central Government	**29,384.90**	**28,697.90**	**28,258.33**	**27,310.18**

Source: Public Debt Bulletin, General Accounting Office of the State, Ministry of Finance.

Notes:
1. Central Government debt differs from General Government debt (Maastricht definition) by the amount of intra-sectoral debt holdings and other ESA '95 adjustments.
2. Fixed/floating ratio is calculated taking into account i) interest rate swap transactions, ii) the use of funding instruments by the ESM regarding the loans that have been granted to the Hellenic Republic and iii) the incorporation of the risk metrics of the EFSF's liability portfolio into the Greek debt portfolio.
3. Index-linked bonds are classified as floating rate bonds.
4. Included balance of dedicated cash buffer account, 15,697.3 million euros on 30/6/2024 and 30/9/2024.
* Estimates

5 years) and 71.7% by long-term securities (maturing after five years), up from 16.7%, 12.1% and 71.2%, respectively, in the previous quarter of 2024. Compared to the same quarter of 2023, there is a decrease in the share of short-term securities with a reduction in long-term securities.

The weighted average of remaining natural maturity of the Central Government's total debt was 16.85 years, down from 17.18 years in the corresponding quarter of 2023. New borrowing for the Q3/2024 was 43.6% from the issuance of treasury bills, 45.2% from fixed-rate bonds, 11.6% from NGEU loans, and 0.2% from European Development Bank (EDB) bonds (Figure 2.2.1).

Figure 2.2.2 shows the maturity schedule of Central Government debt based on the latest published data. The plot shows that, excluding the remainder of the year (2024), the dispersion of the debt repayment is smooth, at levels below €15 billion/year until 2070.

In conclusion, the debt decreased compared to the previous quarter of 2024, which shows that the financing needs of the Greek economy in this period were covered in a fiscally neutral way.

2.3. Fiscal outlook

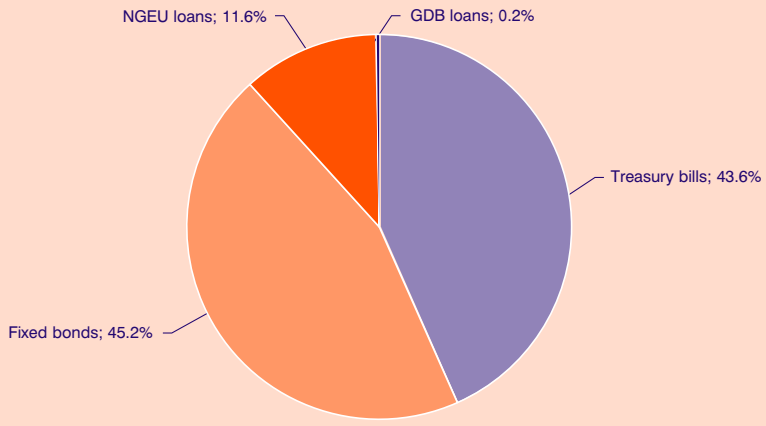
The Greek economy has, in recent years, shown higher growth rates compared to the Eurozone, mainly due to the improved performance of tourism and the

TABLE 2.2.2 Central Government debt by remaining natural maturity (amounts in € million)

Period	2023 (Q3)	2023 (Q4)	2024 (Q2)	2024 (Q3)
Total volume	**402,877.43**	**406,522.91**	**407,059.67**	**404,285.64**
Short-term (up to 1 year)	67,518.65	71,986.49	67,783.96	62,755.92
Medium-term (1 to 5 years)	47,523.54	45,536.20	49,429.50	51,734.96
Long-term (over 5 years)	287,835.24	289,000.22	289,846.21	289,794.76

Source: Public Debt Bulletin, General Accounting Office of the State, Ministry of Finance.

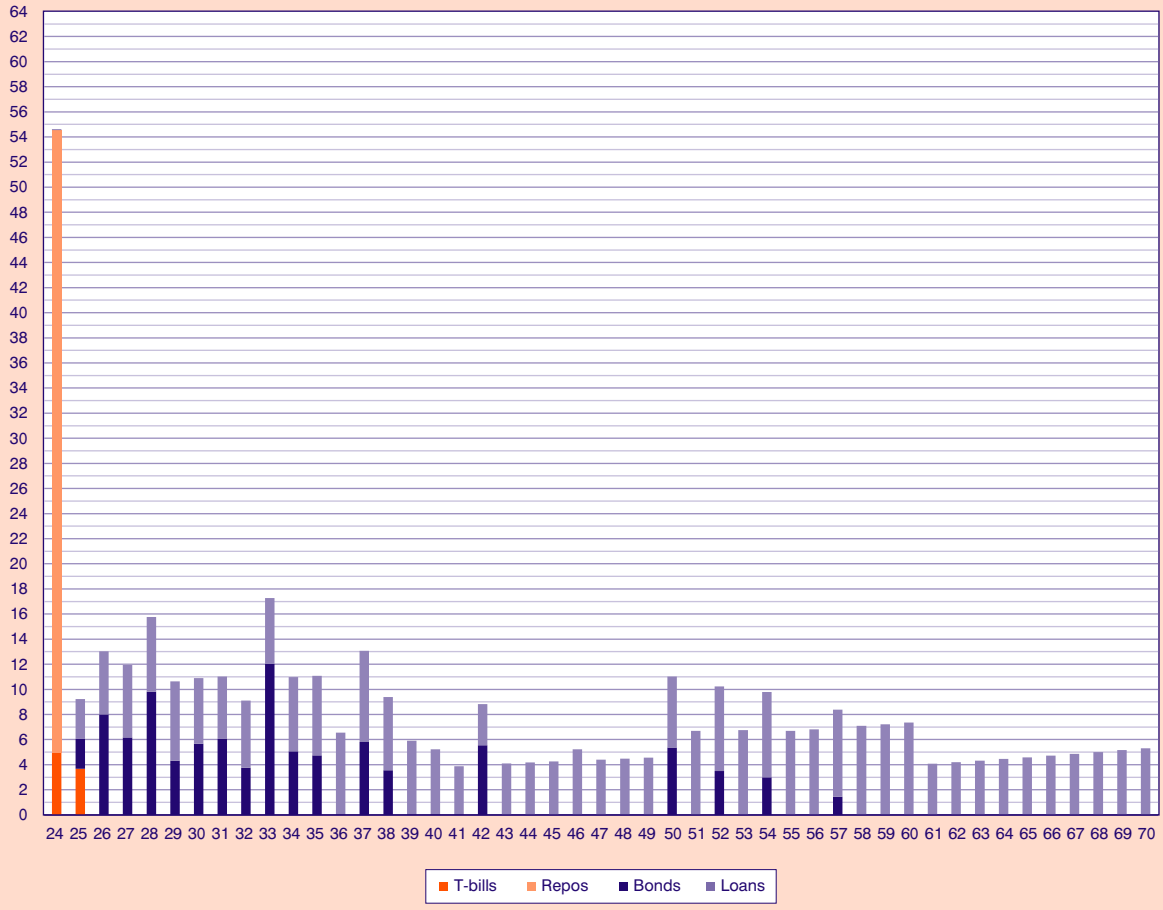
GRAPH 2.2.1
New borrowing distribution, 2024 Q3



Source: Public Debt Bulletin, General Accounting Office of the State, Ministry of Finance.

RRF funds. The easing of inflationary pressures and the expected reduction in ECB interest rates, the decline of the debt-to-GDP ratio and the upgrade of the credit rating have positively impacted the economy and, hence, the fiscal outcomes. On the other hand, the state of the European economy does not create optimism, given that Europe's largest economies (Germany, France, Italy) face significant challenges. The threatened trade/tariff "war" following the election of the new US president is expected to have adverse effects on the global economy, which will be more pronounced in those regions where economic growth is anemic (including the Eurozone). In that sense, the short-term outlook for the Greek economy remains positive, but it is difficult to sustain in a volatile European environment exposed to recessionary risks. In this context, the medium-term prospects of the Greek economy, on the one hand, will be influenced by the characteristics of the new international competition and the ability of the euro area to respond to the increased challenges. On the other hand, medium-term economic prospects will be influenced by the degree of success in addressing the well-known Greek "pathologies", most notably the institutional strengthening and enhancement as well as tackling immediate challenges, i.e., the low savings rate and the persistent current account deficits.

FIGURE 2.2.2
Schedule of Central Government debt maturity on 30/9/2024 (amounts in billion euros)



Source: Public Debt Bulletin, General Accounting Office of the State, Ministry of Finance.

Notes: Securities' maturities are smoothed with debt repurchases and management operations. Including extension of EFSF loans agreed upon at the Eurogroup of 22-6-2018.

3. Human resources and social policies

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 44-50

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

The Greek labour market continued the upward path of recent quarters, with the differences between population groups remaining. The population decreased on an annual basis, as did the labour force. Two things are worth mentioning: first, the decrease in the latter is slower than that of the population, and second, the labour force participation rate remained almost constant at a high level, by Greek standards. On the other hand, the presence of foreigners expanded, which to some extent is expected due to the labour force shortages that various sectors are experiencing. However, to cover the excess demand in some industries, the participation rate must increase further, especially amongst population groups with a low rate, like women.

The decline in the number of employed people in the third quarter of 2024 (2024Q3) –although worrying, as it moves against the usual path– was offset on a year-on-year basis, so compared to the corresponding quarter of 2023, employment appears to have continued its upward trend. The new jobs created concerned primarily full-time job contracts and employees, while the conversions of full-time contracts to work-in-shift contracts without the employee's consent decreased drastically. Most new jobs were occupied by high school graduates and, secondarily, by university graduates. Labour demand originated mainly from the trade and construction sectors, while a strong decrease in employment was recorded in the agricultural sector. Most regions recorded an increase in the number of employed people on an annual basis.

In line with the above, the unemployment rate has further declined to 9%, but the disparities between population groups have remained, although less acute. Substantial disparities are still recorded between regions, while the proportion of the long-term unemployed is unacceptably high. Finally, despite unemployment, which is still high by European standards, job vacancies have decreased and are estimated at approximately 50 thousand. Some sectors have a greater problem than others, while they also exhibit strong seasonality. In general, the problem seems to be getting worse over time, although it is still less serious than in many other European countries. In any case, actions are required to prevent its worsening.

3.1.2. Population and labour force participation

The percentage of the population over 15 years of age continued its downward trend. Between the second and third quarters of 2024, the decrease reached 5.1 thousand people, while on an annual basis, the decrease exceeded 20 thousand. It is worrying that the largest decrease came from the group aged 30-44, the group of the population most active in the labour market. It should be noted that the labour force participation rate of the group aged 30-44 is typically the highest and in the third quarter of 2024 exceeded 86%. In one quarter, the population of this group decreased by 22.7 thousand, and on an annual basis, the decrease approached 69 thousand people. In contrast, three age groups recorded an increase. In the over 65 group, the increase exceeded 31 thousand on an annual basis, reflecting the aging of the population. It is comforting that the second largest contribution came from the group aged 15-19, which reached 21 thousand people on a yearly basis. On a quarterly basis, the population decline was proportionally fuelled by men and women, but on a yearly basis, women decreased more (12.6 thousand compared to 7.4 thousand). Also, there was an increase in the number of young people aged 15-29 (9.1 thousand between quarters and 14.3 thousand over the year), while the number of people over 30 years old decreased (22.2 thousand and 65.7 thousand, respectively). Finally, the increase in the number of foreigners on a quarterly (43.4 thousand) and yearly basis (11.5 thousand) is surprising, when the number of those with Greek citizenship decreased (48.4 thousand in the quarter and 31.6 thousand in the year). The largest increase in the number of foreigners between quarters compared to the increase over the year shows the seasonal nature of their presence.

The decrease in the labour force was slightly smaller than that of the population. On an annual basis, the decrease reached 18.5 thousand people and on a quarterly basis 43.1 thousand people. A large outflow from the labour force was noted in the age group 30-44 years (67.1 thousand compared to 2023Q3) and was followed by the groups 15-19 (8.9 thousand) and 20-24 (13.7 thousand). In contrast, strong increases were recorded on an annual basis in the groups aged 45-64 years (54.2 thousand) and in the group 65+ (12.4 thousand). The majority of those who left the labour force in the quarter were economically inactive, as evidenced by their increase of 38.1 thousand, while some may have left the country. In addition, the number of women participating in the labour force decreased approximately four times faster than men. Finally, the increase in the foreign population was accompanied by a similar increase in the labour force. Between consecutive quarters, the increase reached 42.2 thousand people and on an annual basis 6.8 thousand people. On the contrary, a decrease was recorded in both cases in the labour force with people of Greek citizenship.

The result of the above changes is an almost stable participation rate of close to 70% for people aged 15-64. Specifically, the participation rate decreased on a quarterly basis by 0.5 percentage points but increased on an annual basis by 0.1 percentage point. Note that if we want to keep the size of the labour force at least stable, the population decline must be offset by an increase in the participation rate. Regarding gender differences, 78.4% of men aged 15-64 participate in the labour market. The corresponding rate for women is 62.6%, i.e., approximately 16 percentage points lower. Therefore, women are a population group with room for increased participation in the labour market. The same applies to young people aged 15-24. However, as the data shows, this did not happen in any group in the last year. The participation rate of women remained stable in the last year, but their number decreased, while the size of the age groups of young people (15-19 and 20-24) and their participation rate decreased accordingly.

3.1.3. Employment

The total number of employed persons in Greece in the third quarter of 2024 (2024Q3) reached 4.324 million people: 2.460 million were men, a figure corresponding to 56.9% of the total, while 49% were people in the 45-64 age group and 33.8% were people aged 30-44. These are typically the two most populous age groups. The number of employed persons increased compared to the corresponding quarter of 2023 but decreased compared to 2024Q2. This decrease is unusual, as due to seasonality, employment typically increases in the third quarter. The annual increase reached 1.6% for people over 15 years old and 1.3% for people 15-64 years old. The percentage changes correspond to 67.7 thousand and 54.5 thousand new employees, respectively. As a result, the employment rate reached 48% for people over 15 years old and 64.1% for people aged 15-64. On an annual basis, this represents an increase of 0.9 and 1.3 percentage points for those employed over 15 years old and 15-64 years old, respectively.

The annual increase in the number of employed people was mainly driven by women (43.5 thousand more). The increase in the number of employed men was almost half, reaching 24.1 thousand. Even in relative terms, the annual increase in the number of employed women reached 2.4%, while that of men was limited to 1%. Of course, men continued to have a higher employment rate than women regardless of age. In terms of age, the increase in the number of employed people was dominated by the age groups 45-64 (65.6 thousand) and 25-29 (21.8 thousand). These increases are also significant in relative terms (3.2% and 5.7%, respectively). Based on this criterion, the largest increase was seen in the 65+ group, which exceeded 11%. Part of this increase is due to measures to encourage the employment of retirees. On the contrary, the number of employed people aged 30-44 decreased by 37.7 thousand people in the last year and is the only group that showed such behaviour, which, in fact, characterized both genders, with women contributing more to the decrease than men (decrease of 22.3 thousand compared to 15.3 thousand). The employment rate for men aged 15-64 increased to 72.9% and for women to 55.4%. The annual increase was higher for women, slightly narrowing the gender gap. The employment rate for men is close to the European average (75.7%), but for women, it is significantly lower (11 percentage points lower).

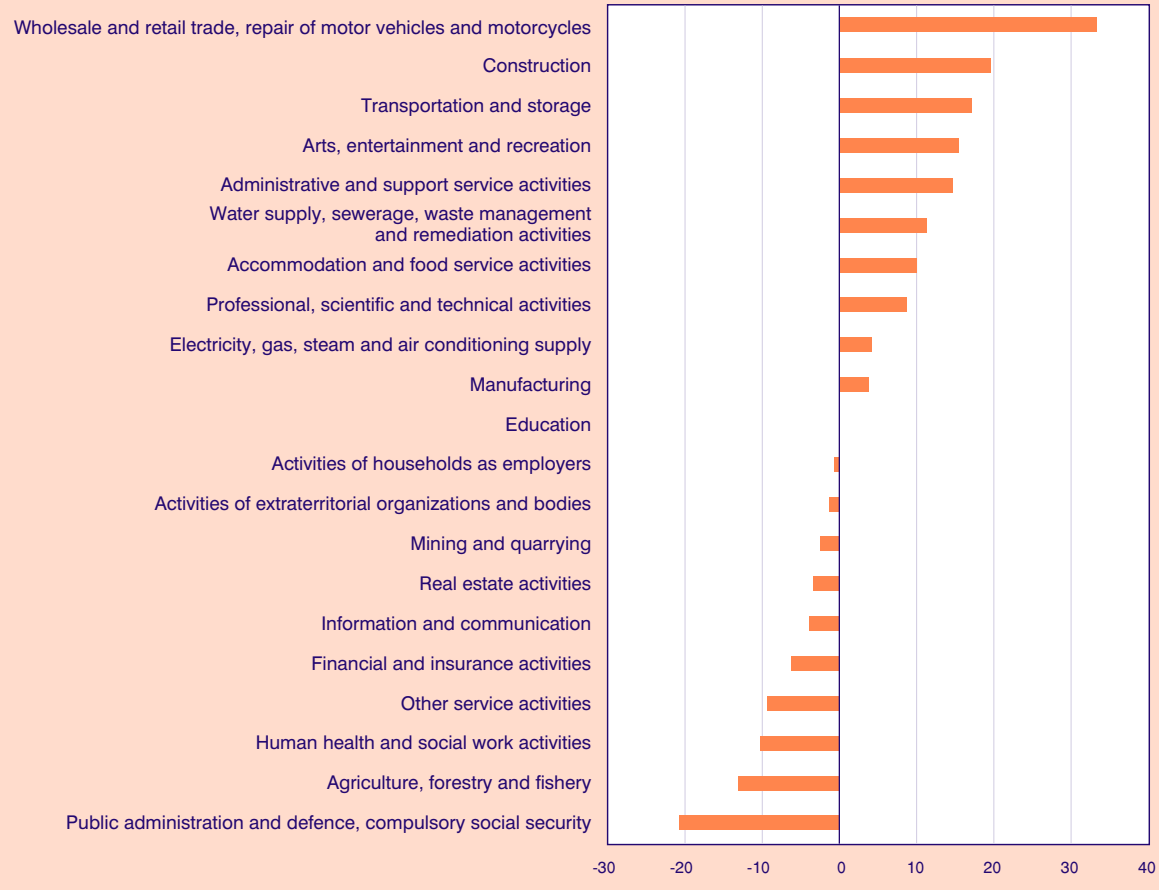
It is interesting to examine the characteristics of new jobs in the period 2023Q3-2024Q3. First, the new jobs concern full-time jobs, since these jobs increased by 75.7 thousand, in contrast to part-time jobs, which decreased by 8.1 thousand in the same period. This means a further decline in part-time employment to 6.3% in 2024Q3. At the same time, the share of those working part-time because they could not find a full-time job decreased to 32%. This is a positive development. On the other hand, the reduction in part-time workers may mean a reduction in employment opportunities for some who do not wish to work full-time for various reasons, such as students or people with fam-

ily obligations. Obviously, this is not a positive development anymore.

A significant qualitative difference in the new jobs created is the shift towards paid employment. This is a trend that has been highlighted in previous issues of the *Greek Economic Outlook* and is observed once again. Specifically, in the period 2023Q3-2024Q3, an increase in paid employment was recorded, which translated into 77.8 thousand new dependent employment positions. Thus, the number of employees in 2024Q3 reached 3.021 million people, the maximum of the period 2008-2024. At the same time, the self-employed without staff decreased by 12.6 thousand people, reaching 19.4% of the total, a share that is very close to the minimum of 19.1% recorded in 2022Q3. On the other hand, a small increase was seen in self-employed workers with staff (1.8 thousand) and assistants in family businesses (0.7 thousand). The increase in paid employment, the decrease in self-employed workers without staff and the small increase in self-employed with staff are convincing indications of a change in the composition of employment, converging to the composition of most other European countries, where self-employment is less common compared to our country.

A few other characteristics of the new jobs are interesting. The first is the level of education. The fastest growing group of employees were those with a high school diploma, as 53.8 thousand people were added in the last year. Therefore, the new positions that were created required candidates with a high school diploma. The group with the second largest increase was university graduates, as they increased by 49.7 thousand. In contrast, there was a decrease in employees with a Master's and/or doctoral degree by 8 thousand people. The decrease in the most educated employees is not a positive sign, especially when it is also accompanied by a decrease in the labour force.

GRAPH 3.1.1
Change in the number of the employed by sector, 2023Q3-2024Q3 (in thousands)



Source: Labour Force Survey, ELSTAT, KEPE processing.

However, even more disheartening is the decrease in the number of employed graduates of higher technical vocational education by 12.2 thousand people, with a parallel decrease in the labour force by 22.5 thousand. A possible explanation for the decline in the workforce of these two categories is immigration. However, this does not seem to be directly supported by the change in the population with specific educational characteristics, as these groups have increased in the last year. Finally, the number of employed people with a high school diploma or less has also decreased, which is not surprising given that they are usually older and close to retirement.

The second characteristic is the employment sector, presented in Figure 3.1.1. Ten sectors recorded an increase in employment. These sectors can be characterized as dynamic, in the sense that they are expanding in terms of employment. Most new jobs were created in the wholesale and retail trade, repair of motor vehicles and motorcycles sector (33.4 thousand), which is also the most populous sector of the Greek economy. The construction sector followed, where employment increased by 19.6 thousand people. This is a remarkable increase, as in relative terms it exceeded 11%, an element that shows that *ceteris paribus* the sector has the potential to continue creating jobs. The education sector showed almost zero growth, while a negative sign was recorded in ten sectors. The greatest losses (20.7 thousand) are found in the public administration and defence, mandatory social security sector. The second worst performance was in the agriculture, forestry and fishing sector (13.1 thousand lost jobs), which is the second largest sector in terms of employment in the country. The third largest sector, accommodation and food service activities, showed an expansion of 10 thousand people, which corresponds to a 2.3% increase, the ninth largest. Another large sector (fourth largest), manufacturing, showed an increase, albeit small: 3.8 thousand or 0.9%. Given the need to shift to manufacturing, based on the argument that it produces products of higher added value and is characterized by higher labour productivity, the recorded increase is not consistent with the aim of transforming the production base of the Greek economy.

The third characteristic is occupation, with the relevant changes presented in Graph 3.1.2. Six of the ten

GRAPH 3.1.2
Change in the number of the employed by occupation, 2023Q3-2024Q3 (in thousands)

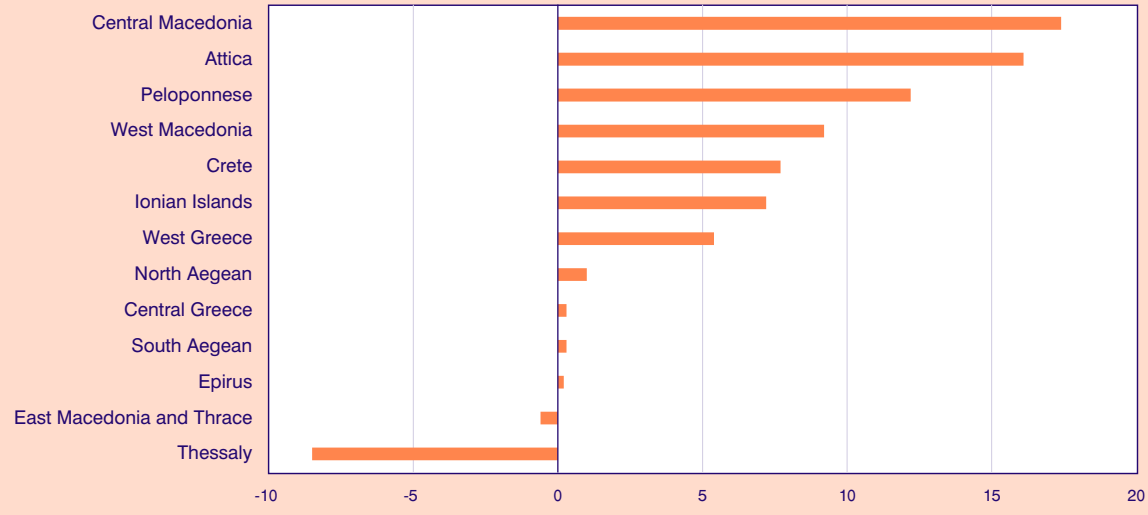
Source: Labour Force Survey, ELSTAT, KEPE processing.

one-digit occupational categories showed an increase in employment in the last year, and four showed a decrease. The most populous occupational category, service workers and salespersons (5), is the one that created the most new jobs, adding 43.5 thousand new employees, an increase corresponding to 4.5%. Office workers and related workers (4), the third largest category, increased by adding 20.8 thousand new employees, while the second largest category, scientific, artistic and related workers (2), increased by 12.5 thousand. On the other hand, among the occupational groups that shrank in 2023Q3-2024Q3, only skilled farmers, livestock breeders, foresters and fishermen (6) can be classified as a relatively large group, with a share reaching 10% of the total. Finally, most losses were recorded in the category of technologists, technical assistants and practitioners of related professions (3), without, however, exceeding 16.6 thousand people and 5.7% of those employed in this profession. It is noted that changes in occupations are not independent of changes in sectors because some sectors show a high concentration of specific occupational groups. Therefore, their course affects, to a certain extent, the employment of some occupational groups.

The fourth characteristic is the region in which jobs were created or lost in the period 2023Q3-2024Q3 (see Graph 3.1.3). Regardless of the region, however, it should be noted that the employment rate does not exceed 48% at the national level in 2024Q3. That is low by any standard. The highest employment rate is found in the South Aegean (56.9%), followed by the Ionian Islands (55.5%) and Crete (53.9%). On the contrary, residents of Thessaly (41.5%), Epirus (42.4%) and Western Macedonia (44.3%) are less frequently employed. The employment rate in Attica, the most populous region, is 49.5%, i.e., higher than the national rate. This means that in the best-case scenario, about half of those over 15 years of age are employed and support the other half.

Regarding changes in employment by region, the sign is positive in eleven of the thirteen regions of the country. Central Macedonia created the most new jobs, adding 17.4 thousand new employed people. It was followed by Attica, the largest region of the country, with 16.1 thousand new jobs. Interestingly, new jobs in Attica reflect an increase of only 1%, while in Central Macedonia, the relative increase reaches 2.5%. Western Macedonia stands out with an increase in employment of almost 10%, although it added only 9.2 thousand new employees in total, as did the Ionian Islands with an increase of 8.3%, corresponding to 7.2 thousand new employed people. Three regions are marginally positive, Central Greece, the South Aegean and Epirus, and one region is marginally negative, Eastern Macedonia and Thrace. Finally, Thessaly holds the record in job losses with 8.5 thousand fewer jobs in one year (or 3.2%).

GRAPH 3.1.3
Change in the number of the employed by region, 2023Q3-2024Q3 (in thousands)



Source: Labour Force Survey, ELSTAT, KEPE processing.

The differences in employment and development between regions can be attributed to various factors. In any case, the opposite trend from most regions, e.g., in Thessaly, should be a cause for concern. On the other hand, an in-depth analysis of the characteristics of the new jobs created, in regions with a broadly positive sign, can provide guidance for the implementation of employment support policies in other regions that did not fare so well. Specifically for Thessaly, a closer look reveals that it falls short of the high employment levels of 2008Q3 more than any other region: 15.3% lower compared to 6.8% of employment at the national level. Attica is second, with losses equal to 11.2%. Therefore, perhaps more attention should be paid to the reasons that create such a divergent picture.

3.1.4. Developments in paid employment

Wage employment also increased in 2024. Data for the first ten months of the year (January-October) from the reports of the ERGANI information system show the creation of 171,253 new wage employment positions. This performance is approximately 8.5 thousand smaller compared to the corresponding period of 2023 and 43.5 thousand smaller than that of 2021, but it surpasses all previous years. Of the ten months, the balance was positive in six. Thus, despite the large contraction recorded in October, by 131,491 positions, approximately the same as in October 2023, the overall result was positive. The increase in paid employment is an indication that economic activity is strengthening.

Most new hires were full-time, representing 52.5% (1,505,256) of the total (2,866,295). Hires in part-time positions reached 38.2%, a percentage corresponding to 1,095,010 new hires. Regarding this criterion, no substantial deviations from 2023 are observed. Moreover, in the ten-month period, 38,345 conversions of full-time contracts into flexible employment contracts were made. Most of those concerned new part-time contracts (75.7%). The remaining conversions were into work-in-shift employment contracts either with the employee's consent (22.5%), or without it (1.9%). The latter is the lowest percentage in recent years and is a very encouraging indication.

3.1.5. Unemployment

The unemployment rate continued its downward trend in 2024. The third quarter stood at 9% for the total population (9.1% for the 15-64 age group), with the total number of unemployed people standing at 428.4 thousand people. The decrease compared to the same quarter of 2023 reached 86.2 thousand people. Approximately 73% of the decrease came from women and 34.1% from the 30-44 age group. The unemployment rate continued to be higher for women (11.5% versus 7% for men), young people aged 15-29 (15.9% versus 7.8% for people 30+), foreigners (12.4% versus 8.9% for those with Greek citizenship), and those with a secondary education diploma (9.9%). This heterogeneity has been highlighted many times in the past and is a well-known characteristic of the Greek labour market. However, it seems clear that it is the effectiveness of interventions that needs to be strengthened.

Since we are referring to heterogeneity, the differences in the unemployment rate between regions is also interesting. A total of five regions faced an unemployment rate above the national rate and eight faced an unemployment rate lower than the national rate. In 2024Q3 the highest rate was found in Eastern Macedonia and Thrace, reaching 12.7%, and the second highest in Central Macedonia (12.3%). Correspondingly, the lowest unemployment rate was found in the South Aegean (3.1%) and the second lowest in Crete (5.3%). The difference between the maximum and minimum reached 9.6 percentage points and was reduced compared to previous quarters, except for 2024Q2. The unemployment rate in Attica in 2024Q3 stood at 8.4%.

Another point of concern is that despite the improvement in employment prospects, the share of the long-term unemployed remained high. In 2024Q3 it fell to 56.5%, almost five points lower than the corresponding quarter of 2023, but higher than the second quarter of 2024 (53.2%). This means that more must be done to facilitate the access of these people to jobs, possibly of a different form than those implemented so far. An example would be to focus interventions on psychological support for the long-term unemployed and not only on enriching their skills, although there is also room for improvement in the latter through the redesign and evaluation of the results of vocational education and training (VET) programs. Given the shortage of labour in various sectors and professions, the long-term unemployed could constitute an escape route for the market, while benefiting the unemployed themselves.

3.1.6. Job vacancies

ELSTAT estimates that in the third quarter of 2024 there were 48,813 job vacancies. Most appear in the education sector (11,642) and then in the wholesale and retail trade, repair of motor vehicles and motorcycles sector (8,447), which is the largest sector in terms of employment. If one calculates the vacancies in each

sector as a share of those employed in this sector, then the vacancy rate is obtained. Based on the published data from the Labour Force Survey for 2024Q3, the education sector exhibited the most vacancies with an index of 3.72%, followed by the administrative and support activities sector (2.01%) and public administration and defence, compulsory social security sector (1.95%).

Two observations are in order. The first is that the number of vacancies decreased significantly, by approximately 10 thousand, compared to the second quarter of the year and by approximately 22 thousand compared to the first quarter of the year, when vacancies reached 70,826. Therefore, there is strong seasonality, especially in some sectors, such as accommodation and food service activities (25.4 thousand vacancies in 2024Q1 compared to 6.3 thousand in 2024Q3). The second observation is that, compared to the same quarter of 2023, vacancies have increased in five sectors. In sectors where vacancies have decreased, the largest decrease marginally exceeded 1,000 posts. However, where vacancies have increased, the smallest increase exceeded 2 thousand (in trade) and the largest approached 9 thousand (in education). Therefore, there is a feeling that, although vacancies are not a serious problem for the Greek economy, for some sectors they are, and additionally, they seem to increase over time. Therefore, the issue must be examined in depth to prevent unpleasant developments.

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 51-54

3.2. Gender pay gap of non-manual workers across the EU countries (2022)

Vlassis Missos

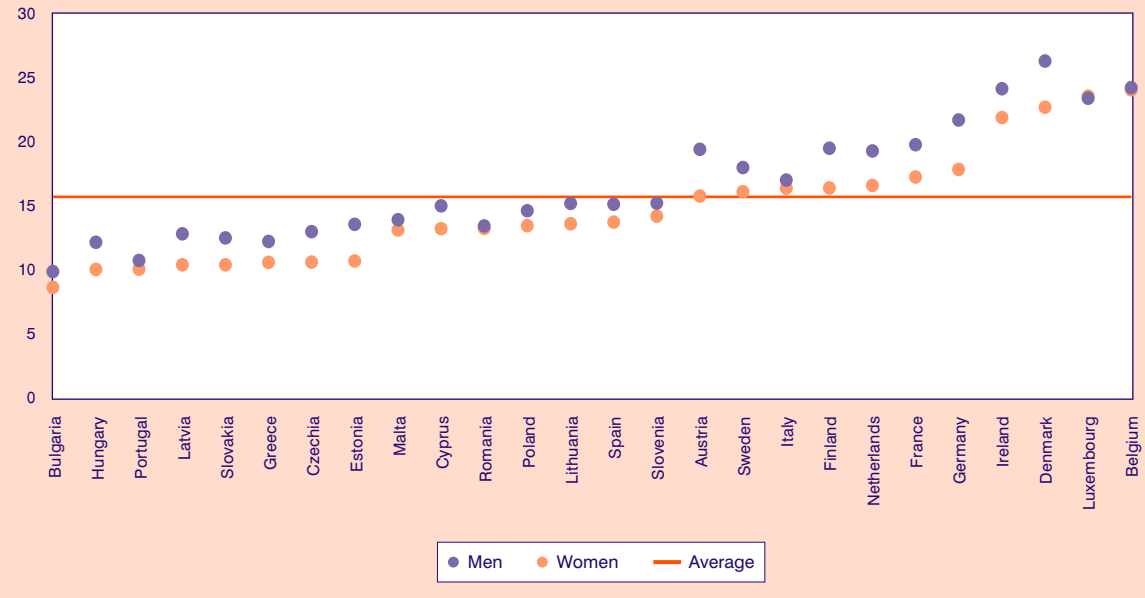
3.2.1. Key statistics on gender pay gaps in the EU

The gender pay gap remains a critical issue as it reflects persistent inequalities in labor markets, impacting economic security and career progression for women. Policies for bridging the gap are essential for promoting fairness, enhancing productivity, and fostering inclusive growth. In what follows, data on the gender pay gap refers to enterprises with 10 or more employees, which account for approximately 7.5% of all enterprises operating within the EU and employ over 70.5% of private-sector workers.

Figures 3.2.1 to 3.2.4 present data on mean hourly earnings (measured in purchasing power standards, PPS) for private-sector employees, for 2022 (last year available). Earnings are broken down between men and women and are compared against the EU average of 15.7 (in PPS). The analysis highlights the persistent challenge of closing the gender pay gap across the EU. While some countries have made strides toward greater wage parity, significant disparities persist, especially in high-paying countries with substantial trade surpluses. These findings offer an essential basis for further examination of gender pay equality.

In many countries, male earnings significantly surpass female earnings, highlighting a notable gender pay gap. For example, in Germany, the former earn an average hourly rate of 21.7 compared to 17.8 for the latter. Similarly, in Austria, male employees earn 19.4 per hour, while female employees earn 15.7. Finland and France also show substantial disparities, with men earning 19.5 and 19.7 per hour, respectively, compared to women earning 16.4 and 17.2. Conversely, some countries exhibit narrower gender pay gaps, where female earnings approach or occasionally exceed those

FIGURE 3.2.1
Mean hourly gross earnings by sex (in PPS) for employees in enterprises with 10 or more employees, 2022



Source: Eurostat, Structure of Earnings Survey and author's calculations.

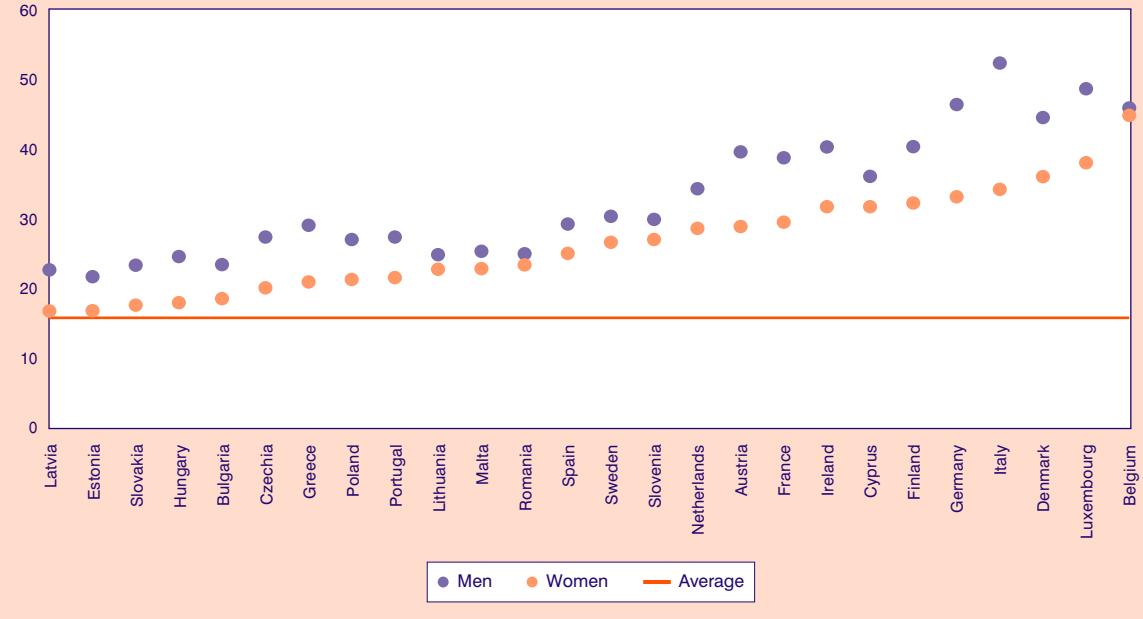
of males. In Belgium, for instance, females earn 24.0, nearly matching males' 24.2. In Luxembourg, women slightly surpass men, earning 23.5 compared to 23.4. Slovenia also demonstrates a small gap, with females earning 14.2 versus males' 15.2. In lower-wage countries, gender disparities tend to be less pronounced in nominal terms. For example, in Portugal, males earn 10.7 per hour compared to females' 10.0. Similarly, in Romania, males earn 13.4 per hour, while females earn 13.2. Malta also shows a narrow gap, with males earning 13.9 compared to females' 13.1.

Countries with higher average wages, such as Denmark, Ireland, and Belgium, tend to have smaller gender pay gaps. However, this trend is not universal. For example, Germany, despite having one of the highest average male earnings, exhibits a significant gender disparity. On the other hand, lower-wage economies, such as Bulgaria, Hungary, and Latvia, display smaller gaps in nominal terms, although these gaps may still reflect deeper structural inequalities when considering relative income distribution. High-skill industries and services often contribute disproportionately to wage disparities, particularly in economies with robust financial or manufacturing sectors.

Further disparities are evident among managerial positions (Figure 3.2.2), where male managers generally earn more than female managers across all EU countries. The size of the gender pay gap in management varies widely. For instance, Italy, Luxembourg, and Belgium rank among the highest for managerial earnings, but Belgium stands out for having the narrowest gender pay gap, with female managers earning almost on par with their male counterparts (44.8 vs. 45.9). Conversely, countries such as Germany and Italy exhibit larger gaps, with male managers earning significantly more than their female peers.

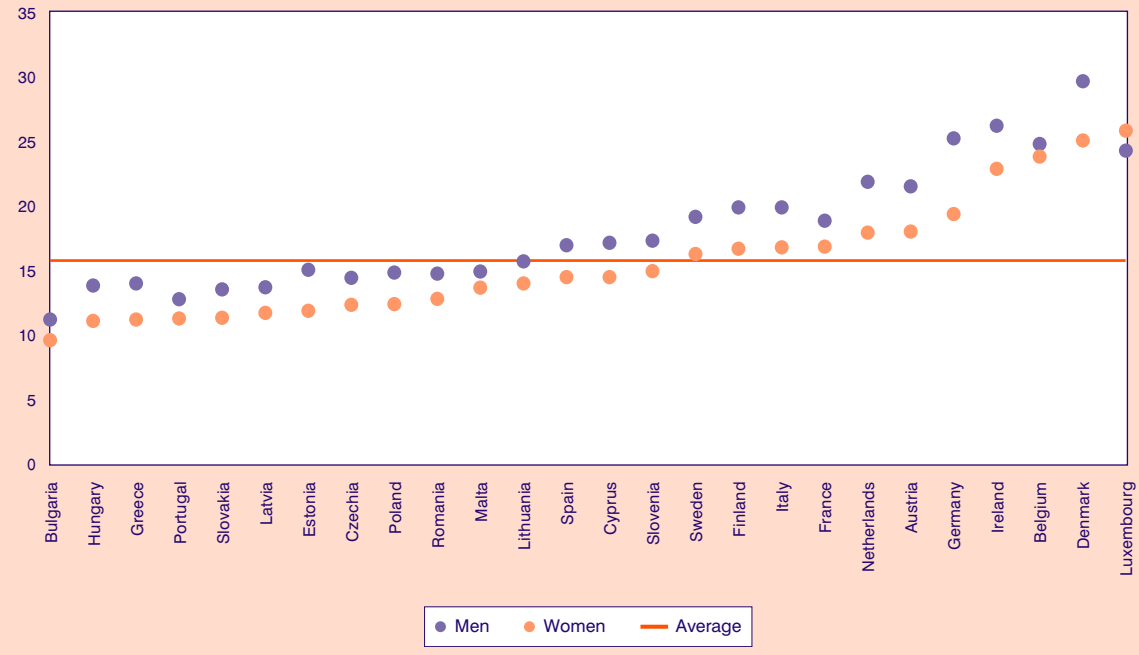
Similar patterns are observed among technicians and associate professionals (Figure 3.2.3), with all countries reporting higher average earnings for men than women. However, the magnitude of the gap differs. Eastern European countries such as Bulgaria, Hungary, and Latvia tend to exhibit smaller nominal gaps, while wealthier nations like Germany, Ireland, and the Netherlands show larger disparities in absolute terms. Notably, Luxembourg and Denmark are among the few countries where women's earnings approach or exceed those of men in this category, highlighting examples of better gender pay parity.

FIGURE 3.2.2
Mean hourly gross earnings by sex (in PPS) for managers in enterprises with 10 or more employees, 2022



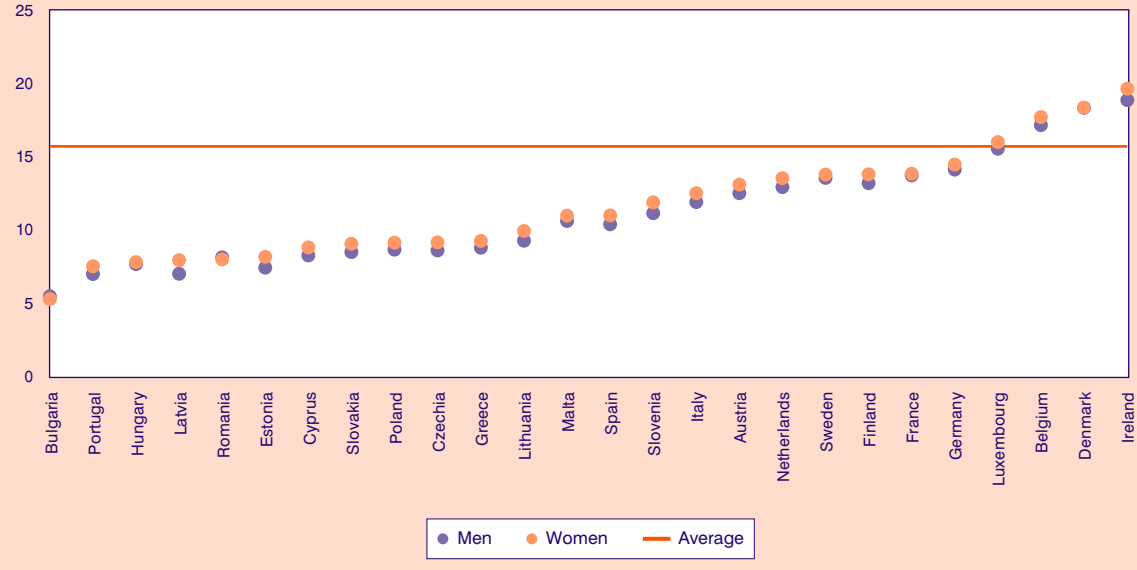
Source: Eurostat, Structure of Earnings Survey and author's calculations.

FIGURE 3.2.3
Mean hourly gross earnings by sex (in PPS) for technicians and associate professionals, in enterprises with 10 or more employees, 2022



Source: Eurostat, Structure of Earnings Survey and author's calculations.

FIGURE 3.2.4
Mean hourly gross earnings by sex (in PPS) for service and sales workers, in enterprises with 10 or more employees, 2022



Source: Eurostat, Structure of Earnings Survey and author's calculations.

Service and sales workers, among the lowest-paid occupational groups in the EU (Figure 3.2.4), also show varied gender pay gaps. Interestingly, in some countries, women earn slightly more than men. For example, in Portugal, Latvia, and Estonia, women's earnings surpass men's, albeit by small margins. Conversely, in most countries, men out-earn women. The highest absolute earnings for service and sales workers are seen in Ireland and Denmark, where the gender pay gap is negligible. However, countries like Bulgaria and Hungary highlight the stark contrast in earnings across the EU, with both genders earning far below the European average of 15.7 per hour.

3.2.2. Gender disparities persist in the EU

The gender pay gap underlines a broader range of systemic inequalities beyond simple pay discrimination. It encompasses various barriers that women face in accessing work, advancing their careers, and receiving equitable compensation. These barriers manifest in ways that highlight the complex nature of gender disparities in the workplace. One significant contributor to the gender pay gap is sectoral segregation (Bettio, 2002). Around 24% of the gap can be attributed to the overrepresentation of women in lower-paying sectors, such as care, health, and education. Occupations in these highly feminized fields are often systematically undervalued, further perpetuating income disparities. This structural undervaluation of work in female-dominated sectors underscores the need for a shift in societal perceptions and policies that promote equitable recognition of all professions.

Another factor influencing the gender pay gap is the unequal distribution of paid and unpaid work (OECD, 2017). Women, on average, work more hours per week than men but dedicate significantly more time to unpaid responsibilities, such as caregiving and household duties. This imbalance not only affects their career choices, but also limits their opportunities for advancement. To address this issue, the European Union advocates for initiatives such as equal sharing of parental leave, accessible public childcare services, and company policies that support flexible working arrangements. These measures aim to alleviate the disproportionate burden of unpaid work on women and create a more equitable work-life balance.

The "glass ceiling" further exacerbates the gender pay gap by limiting women's access to top leadership positions (Arulampalam et al., 2007). Hierarchical position plays a critical role in determining pay levels, yet fewer than one in ten CEOs of leading companies are women. A recent report by McKinsey (2024) showed that only 29% of C-suite positions are held by women. This underrepresentation is accompanied by stark pay disparities in managerial roles, where women in the EU earn, on average, 23% less per hour than their male counterparts. Breaking down these barriers requires targeted efforts to support women in reaching higher-level positions and ensuring fair compensation for their contributions at all levels.

Pay discrimination (Peruzzi, 2015), although explicitly prohibited under EU law since 1957 (Article 157 of the Treaty on the Functioning of the European Union), persists in some cases. Women may earn less than men for performing the same work or work of equal value. Despite legal protections, the lack of transparency in pay practices often makes it difficult to identify and address such instances of unequal treatment. Ensuring that employers adopt transparent pay systems is essential to exposing unjustified gender-based disparities and enabling individuals to seek redress.

A significant portion of the gender pay gap in the EU remains unexplained by observable factors such as education, occupation, working hours, or the economic sector. This highlights the presence of deeper structural and cultural biases that contribute to inequality. Increasing pay transparency is a critical step toward uncovering these hidden disparities (OECD, 2021). Transparent pay practices not only reveal unjustified differences in compensation but also empower individuals to demand fairness and hold employers accountable. By addressing the underlying causes of the gender pay gap, society can move closer to achieving true equality in the workplace, fostering a more inclusive and prosperous future for all.

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4. Reforms-Economic development

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 55-60

4.1. Digital competitiveness of the Greek economy

Athanasios Chymis

4.1.1. Introduction

The issue of competitiveness, not only at the national level, but also at the European level, has been intense in the public debate recently. Digital competitiveness is an important part of overall competitiveness and is monitored and measured by various organizations such as the IMD. The IMD traditionally publishes the annual competitiveness report. Eight years ago, it started publishing the Digital Competitiveness Index. This signifies the importance of digital competitiveness, which is taken into consideration by major potential investors in high technology. This column presents the IMD index as well as the DESI (Digital Economy and Society Index) compiled by the European Commission. The data show an improvement in the performance of the Greek economy, but not at the rate required to converge to the European average within a reasonable time frame.

4.1.2. The IMD World Digital Competitiveness Index

The IMD compiles the Digital Competitiveness Index, which includes 67 economies. The IMD considers that digital transformation takes place primarily at the level of business (private or state-owned) but also at the level of state (government) and society. The index measures the ability and readiness of states to adopt digital technologies helpful for their necessary economic and social transformation. The index is defined by three factors: a) Knowledge, which measures the intangible infrastructure necessary for learning and discovering technology, b) Technology, which captures the development of digital technologies and c) Future Readiness, which measures the level of preparation of an economy to undertake its digital transformation (IMD, 2024).

Each of these factors is divided into three sub-factors. The nine total sub-factors include 59 criteria (not evenly distributed) and have the same weighting in the overall index. About 2/3 of the criteria are calculated based on objective data (e.g., internet bandwidth speed) while the remaining 1/3 is based on (subjective) answers to the relevant questionnaire analyzing competitiveness as perceived by the respondents. The Association of Greek Industries (SBE) and IOBE are the two organizations responsible for administering the questionnaires and collecting the answers in Greece (IMD, 2024).

Table 4.1.1 presents the evolution (for the period 2020-2024) of the IMD Digital Competitiveness Index, its three factors, and the nine sub-factors constructing the index. The IMD Competitiveness Index is also included for comparison. It seems that while in overall competitiveness there is an improving trend (from 49th place in 2020, to 47th in 2024), in digital competitiveness the trend is downward (from 46th in 2020, 49th in 2024). The biggest drop is in Future Readiness (down 10 places from 2020), followed by Technology (down 5 places) and Knowledge (down 3 places).

Table 4.1.2 presents some selected criteria that, due to the low ranking, need immediate improvement. The Greek economy needs to become attractive not only to Greeks who have migrated and work abroad, but also to highly skilled foreign workers as well as foreign students. The ratio of students to teachers in higher education must be reduced, while Greek businesses should intensify their efforts to train and educate their employees.

Moreover, Greek businesses should increase the use and analytics of big data as well as increase knowledge transfer. The Greek state should immediately address the issues of contract enforcement and software piracy, while the banking and financial system should improve the ability to finance high-tech businesses.

TABLE 4.1.1 Evolution of the ranking of the Greek economy according to the IMD World Digital Competitiveness ranking (total number of countries: 67)

Factor ranking	2020	2021	2022	2023	2024
IMD World Competitiveness Index	49	46	47	49	47
IMD Digital Competitiveness Index	**46**	**44**	**50**	**52**	**49**
Knowledge	*48*	*45*	*47*	*51*	*50*
Talent	50	42	49	53	54
Training and Education	56	55	59	59	58
Scientific concentration	36	35	33	31	35
Technology	*43*	*46*	*47*	*47*	*48*
Regulatory framework	41	43	42	46	50
Capital	49	52	46	37	51
Technological framework	46	50	50	52	48
Future readiness	*46*	*43*	*60*	*57*	*56*
Adaptive attitudes	44	43	60	61	57
Business agility	55	51	61	60	60
IT integration	45	41	41	43	44

Source: IMD World Digital Competitiveness Ranking 2024.

4.1.3. The European Commission Digital Economy and Society Index (DESI)

The DESI index has changed since 2023. It no longer provides a ranking in either the total index or in its 4 dimensions, but only in the individual sub-indices. Consequently, all sub-indicators are presented here as well as the 2023 ranking for comparison (EC, 2024). As the relevant methodological note of the European Commission (2024) explains, the decision on the Digital Decade Policy Program adopted by the Commission and the European Parliament in December 2022 gives the indicator its new role of monitoring the progress of the EU-27 regarding the objectives of the Digital Decade.

DESI is now included in the report on the Digital Decade and is used by the Commission to monitor the progress of the Union and the member states in various dimensions and a multitude of variables (indicators) related to digital transformation (EC, 2024).

Tables 4.1.3 a, b, c and d present the score and ranking of Greece in the various DESI sub-indicators of each of the four dimensions included in the DESI (digital skills, digital infrastructures, digital business transformation and digitization of public services).

Digital skills refer to the population of each state and include 5 sub-indicators. Data show that there is an increase in the percentage of the Greek population that uses the internet, but there is no increase in the percentage of the population with digital skills (basic and above basic). Most importantly, there is a slight decrease in ICT specialists as a percentage of employees, while the slight increase of ICT graduates is less than the average EU27 increase.

Regarding digital infrastructure, the Greek economy has made significant progress vis-à-vis the development of the 5G network. It has risen to 11th place in 5G coverage and 5G coverage in the 3.4 and 3.8 GHz band; in the 5G spectrum, as a percentage of the assigned harmonized spectrum, it is in 8th place, above the European average. On the contrary, it lags relatively behind in household internet penetration, and far behind in internet speed, while some progress appears to be taking place in fiber optic deployment.

TABLE 4.1.2 Selected criteria in need of rapid improvement according to the IMD 2024

Factor	Sub-factor	Criterion	Rank
Knowledge	Talent	Foreign highly skilled personnel	57
		Net flow of international students	54
	Training and Education	Pupil-teacher ratio	62
		Employee training	64
	Scientific concentration	High-tech patent grants	50
Technology	Regulatory framework	Enforcing contracts	62
	Capital	Banking and financial services	61
	Technological framework	Communications technology	56
		Internet bandwidth speed	57
Future Readiness	Business agility	Use of big data and analytics	58
		Knowledge transfer	58
	IT integration	Software piracy	54

Source: IMD World Digital Competitiveness Ranking 2024.

As far as the dimension of the digital transformation of businesses, a clear improvement is observed in the score of most indicators. However, an improvement in score does not always mean a rise in ranking. The reason is that the rest of the member states are making better progress than the Greek economy. Specifically, in data analytics, while there is almost a doubling of the percentage of Greek businesses that apply it (from 12.9% to 24.5%), there is a significant drop in the ranking, from 12th to 20th place. This is due to the much larger increase in the average percentage of European companies, from 14.2% to 32%.

TABLE 4.1.3a DESI, Digital skills

Digital skills	DESI 2023			DESI 2024		
	Greece	EU-27	Rank	Greece	EU-27	Rank
Internet use (% of individuals)	81.9	88.6	25	84.2	90.3	23
At least basic digital skills (% of individuals)	52.5	53.9	17	52.4	55.6	18
Above basic digital skills (% of individuals)	21.7	26.5	19	20.0	27.3	22
ICT specialists (% of employment)	2.5	4.6	27	2.4	4.8	27
ICT graduates (% of graduates)	3.5	4.2	23	3.6	4.5	23

TABLE 4.1.3b DESI, Digital infrastructure

Digital infrastructure	DESI 2023			DESI 2024		
	Greece	EU-27	Rank	Greece	EU-27	Rank
Overall internet take-up (% of households)	85.5	92.4	27	86.9	93.1	27
Share of fixed broadband subscriptions >=100Mbps (% of fixed broadband subscriptions)	23.8	59.6%	27	29.5	65.9	27
Share of fixed broadband subscriptions >= 1Gbps (% of fixed broadband subscriptions)	0.0	14.9	27	0.0	18.5	27
Fixed Very High-Capacity Network (VHCN) (% of households)	27.9	73.4	27	38.4	78.8	27
Fiber to the Premises (FTTP) coverage (% of households)	27.9	56.4	25	38.4	64.0	24
Mobile broadband take-up (% of individuals)	76.5	86.5	26	83.5	89.9	25
5G coverage (% of households)	85.7	81.3	12	98.1	89.3	11
5G coverage in the 3.4-3.8 GHz band (% of households)	36.8	40.5	14	58.8	50.6	11
5G spectrum (% of harmonized spectrum assigned)	99.2	68.2	5	99.2	73.4	8
5G SIM cards share of population (% of total population)	-	-	-	-	24.6	-

TABLE 4.1.3c DESI, Digital transformation of businesses

Digital transformation of businesses	DESI 2023			DESI 2024		
	Greece	EU-27	Rank	Greece	EU-27	Rank
SMEs with at least a basic level of digital intensity (% of enterprises)	41.2	69.1	27	43.3	57.7	24
Electronic information sharing (% of enterprises)	31.9	36.7	19	44.8	42.0	10
Social media (% of enterprises)	27.7	28.4	14	33.0	30.6	11
Data analytics (% of enterprises)	12.9	14.2	12	24.5	32.0	20
Cloud (% of enterprises)	15.2	34.0	25	18.1	38.9	25
Artificial intelligence (% of enterprises)	2.6	7.6	26	4.0	8.0	23
e-Invoices (% of enterprises)	-	32.2	-	19.2	38.6	24
e-Commerce turnover (% of turnover)	7.3	11.5	25	5.0	11.9	27
SMEs selling online (% of enterprises)	16.9	19.2	19	18.2	19.1	16

TABLE 4.1.3d DESI, Digitalization of public services

Digitalization of public services	DESI 2023			DESI 2024		
	Greece	EU-27	Rank	Greece	EU-27	Rank
e-Government users (% of internet users, last 12 months)	80.5%	74.2%	19	79.7	75.0	17
Digital public services for citizens (0-100)	64.6	77.0	23	75.9	79.4	17
Digital public services for enterprises (0-100)	73.7	83.7	24	86.2	85.4	14
Pre-filled forms (0-100)	54.4	67.6	20	79.0	70.8	12
Transparency of service delivery, design and personal data (0-100)	52.4	64.7	21	52.7	67.0	22
User support (0-100)	74.1	83.6	22	85.2	86.4	15
Mobile friendliness (0-100)	84.6	93.3	24	98.3	95.3	8
Access to e-health records (0-100)	60.7	71.5	22	73.8	79.1	21

Source: DESI 2024.

Greek businesses have high rankings in the use of social media and the electronic exchange of information, as well as the percentage of small and medium enterprises (SMEs) selling online. But they are lagging behind in the use of cloud, artificial intelligence (although both score and ranking improved), e-commerce turnover and e-invoices. The ranking of Greek SMEs with at least a basic level of digital intensity improved despite the small improvement in the score. This is the result of the decrease in the corresponding European average.

Finally, regarding the dimension of the digitalization of public services, the Greek economy shows clear progress and a rise in the rankings. The only exception is the indicator of transparency of service delivery, design and personal data, which marginally improved its score (from 52.4 to 52.7), but due to the larger increase of the other member states, the Greek economy fell to 22nd place. It is quite encouraging that all the other indicators of the digitalization of public services have some improvement, either small such as in access to e-health records, from 22nd to 21st place, or large such as in digital services for businesses, from 24th to 14th place.

4.1.4. Conclusion

It is important that DESI shows some degree of convergence of the Greek economy with the European average. However, this convergence is more visible in the dimension of the digitalization of public services. This convergence is much smaller in the dimension of the digital transformation of businesses and digital infrastructures, while a divergence is the case in the dimension of digital skills.

According to DESI, the Greek economy should accelerate its digital transformation. It should place special emphasis on the progress of digital infrastructures, particularly internet connection speeds, which are significantly behind those of other member states. Moreover, Greek enterprises should invest considerably more in employee education and training, while the Greek education system should place more emphasis on increasing the number of ICT graduates, which would, consequently, increase the number of ICT specialists. ICT specialists are crucial in assisting the digital transformation of businesses, such as increasing the use of cloud and artificial intelligence.

The IMD uses different sub-indicators, several of which relate to the general competitiveness of the economy. However, the improvement of the Greek economy according to DESI is corroborated by the improvement the IMD index shows. The IMD also stresses that the Greek economy should improve at an accelerated rate the education and training of employees from businesses. Moreover, it emphasizes the improvement of

the financial system, so that it can finance businesses for their digital transformation.

Last but not least, the legal system is in dire need of both improvement and digitalization for the implementation of contracts, which is a chronic thorny issue of the Greek economy. Finally, according to the IMD, it is necessary to attract foreign high-tech companies which will transfer knowledge as well as attract Greek and foreign specialized workers, thus, not only limiting brain drain but turning it into brain gain.

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KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 61-65

4.2. Net Foreign Direct Investment in Greece

Georgios Bertsatos,
Christos Chrysanthakopoulos

4.2.1. Introduction

Greece, following a prolonged period of economic crisis that left a significant impact on both consumers and businesses in the country, has demonstrated remarkable recovery in recent years. Notably, since 2018, (except for the year 2020, which was hit by COVID-19) the Greek economy has achieved growth rates of real GDP exceeding the average of EU member states.[1] A pivotal role in this positive trajectory has been played, on the one hand, by efforts to rationalize public finances through the fiscal adjustments of the previous decade and, on the other hand, by the effective utilization of substantial resources from the Recovery and Resilience Facility (RRF) for investments that strengthen the country's productivity, among other factors. At the same time, increased foreign direct investment (FDI) has been of particular significance, further boosting economic activity and creating the necessary conditions for sustainable development.

4.2.2. The role of Foreign Direct Investment

Greece's geopolitically strategic location, which facilitates access to European, Asian, and African markets, renders it a highly attractive destination for investment activity, offering significant advantages to foreign investors. FDIs constitute one of the key instruments for enhancing economic activity, as it involves the inflow of capital, expertise, and resources from foreign enterprises, with the aim of establishing long-term economic relationships and exerting a significant degree of influence on businesses in the host country. FDIs often include the establishment of new businesses, the creation of production facilities, or the acquisition and upgrading of existing companies. It is also accompanied by significant benefits, such as the transfer of knowledge, the strengthening of employment, and the expansion of the country's productive base.

In recent years, FDIs in Greece have contributed to stimulating the economy and enhancing its outward orientation. Following the country's exit from the bailout programs and the restoration of market confidence, the stabilization of the economic environment and the institutional reforms aimed at improving the investment climate, have strengthened investment flows. Despite the existing challenges, such as bureaucracy, inefficiencies in public administration, and delays in the judicial system (see Greek National Productivity Board, Annual Report 2024),[2] increased activity has been observed in the sectors of energy, tourism, technology, and infrastructure. FDIs can contribute not only to job creation, but also to the dissemination of expertise within existing enterprises. However, fully harnessing its potential requires continuous efforts to ensure a stable, predictable, and investment-friendly framework.

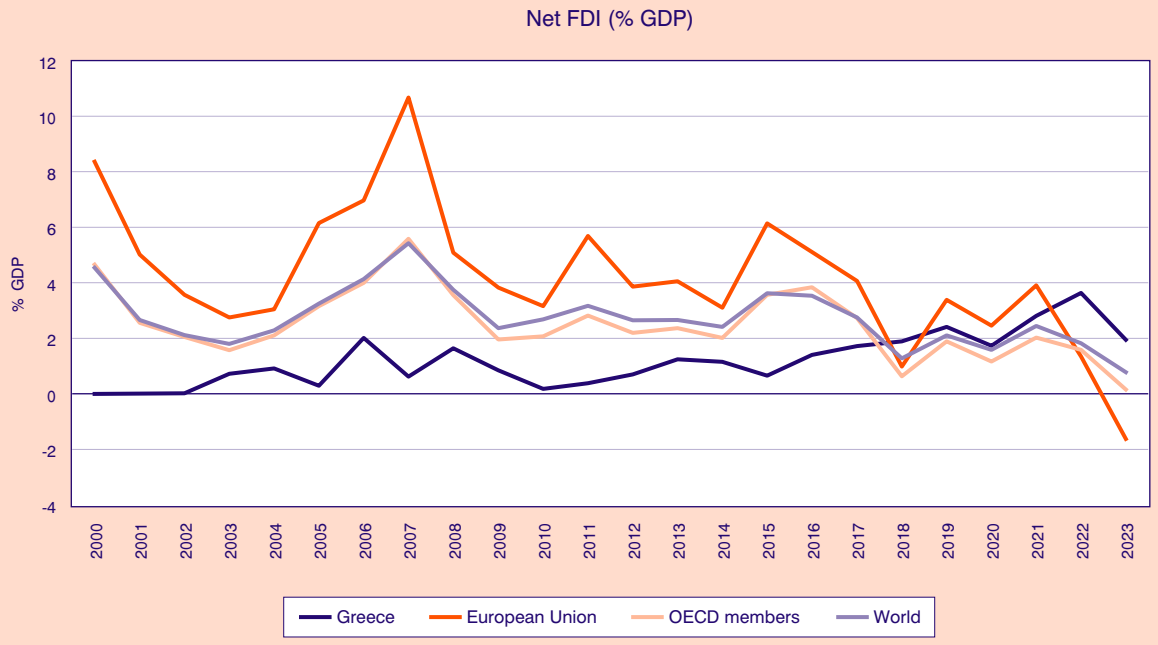
4.2.3. Comparative analysis between Greece, the European Union, OECD members, and the world average

Figure 4.2.1 presents the evolution of net FDI inflows as a percentage of Gross Domestic Product (GDP) over the period 2000–2023, providing a comparative depiction of Greece, the European Union (EU), the Organization for Economic Co-operation and Development (OECD) countries, and the world average, based on the available data from the World Bank. In 2000, net FDI in Greece, as a percentage of GDP, was marginally negative, -0.006%, while the ratio remained slightly positive until 2005. During the same period, a significant divergence was observed compared to the

1. More specifically, Greece's real GDP per capita increased by 2.3% in 2018, 2.4% in 2019, 9.2% in 2021, 6.4% in 2022, and 2.6% in 2023, while in 2020, it recorded a decline of 9.0%. The corresponding real growth rates for the EU-27 were 1.9% in 2018, 1.7% in 2019, -5.5% in 2020, 6.4% in 2021, 2.8% in 2022, and -0.1% in 2023. Similar growth patterns were observed in the Eurozone. Furthermore, during the period 2018-2023, real GDP per capita (in chain-linked volumes) increased cumulatively by 11.11% in Greece, compared to 5.07% in the EU-27 and 3.85% in the Eurozone.
Source: Eurostat: <https://ec.europa.eu/eurostat/databrowser/view/nama_10_pc__custom_15048522/default/table?lang=en>.

2. Source: <https://www.kepe.gr/wp-content/uploads/2024/11/NPB_Annual-Report_2024_LOW.pdf>.

FIGURE 4.2.1
Net Foreign Direct Investment (FDI) as a % of GDP



Source: World Bank.

average levels of the EU, OECD countries, and the world average. In the following years, Greece's net FDI-to-GDP ratio exhibited an upward trend, which was, however, interrupted by the 2008-2009 global financial crisis, with the gap between Greece and the other countries remaining substantial.

Since 2015, the first signs of convergence have been recorded between Greece and both the EU and world averages, as the share of net FDI as a percentage of GDP in the country has followed an upward trajectory, whilst a downward trend has been observed in the other country groups, thus narrowing the gap. Notably, in 2018, Greece's net FDI-to-GDP ratio (1.88%) surpassed the corresponding ratios of the European Union (0.97%), the OECD (0.62%), and the world average (1.27%). Subsequently, from 2019 onwards, Greece's net FDI-to-GDP ratio remained higher than the OECD and the world average, while it slightly declined relative to the EU average until 2021.

In 2022, which was a record year for net FDI in Greece, net FDI exceeded €8 billion, demonstrating the increased preference of international investors for the country. Finally, in 2022, the net FDI-to-GDP ratio (3.63%) remained significantly higher compared to other countries, while in 2023, despite a decline to 1.93%, it continues to surpass both the EU average (-1.63%) and the OECD average (0.78%).

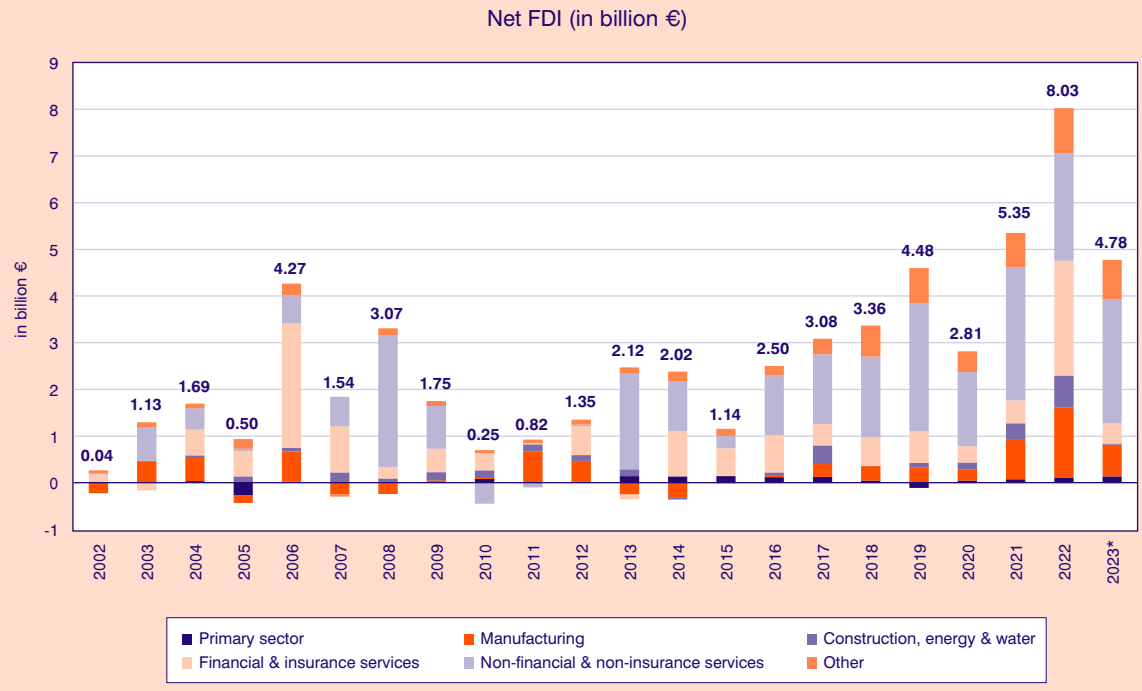
4.2.4. Focusing on Greece

This section analyzes net FDI inflows by sector of economic activity. Specifically, it covers the primary sector, manufacturing, construction, energy and water, financial and insurance services, non-financial and non-insurance services (or, alternatively, all other services), and other categories.[3]

Figure 4.2.2 illustrates that, over time, non-financial and non-insurance services have dominated net FDI

3. The category "Construction, Energy & Water" includes construction, electricity supply, natural gas, steam, and air conditioning, as well as water supply, wastewater treatment, waste management, and remediation activities. In addition, the category "Non-Financial & Non-Insurance Services" encompasses all services except for financial and insurance activities. Finally, "Other Categories" refer to net FDI that is unallocated, as well as transactions related to private purchases and sales of real estate.

FIGURE 4.2.2
Net Foreign Direct Investments in Greece



Source: Bank of Greece.

* Data for 2023 are provisional.

for most of the years examined, followed by the financial and insurance services. In other words, it is evident that the services sector leads the way in net FDI in Greece. Over the past five years (2019-2023), net FDI in services have exceeded €3 billion on an annual basis, except for 2020, when it amounted to €1.9 billion. Notably, 2019 marked a historic record of €3.4 billion in services, which was later surpassed in 2022 with a new peak of €4.8 billion.[4]

Regarding the total volume of net FDI in Greece, the historical record of €4.27 billion in 2006 was surpassed 13 years later, in 2019, with a new peak of €4.48 billion. Since then, two additional records have been recorded: in 2021, when net FDI reached €5.35 billion, and in 2022, when net FDI surged past €8 billion (a 50% increase compared to 2021). Finally, based on the available data for 2023, net FDI is estimated to be below €5 billion (€4.8 billion approximately).

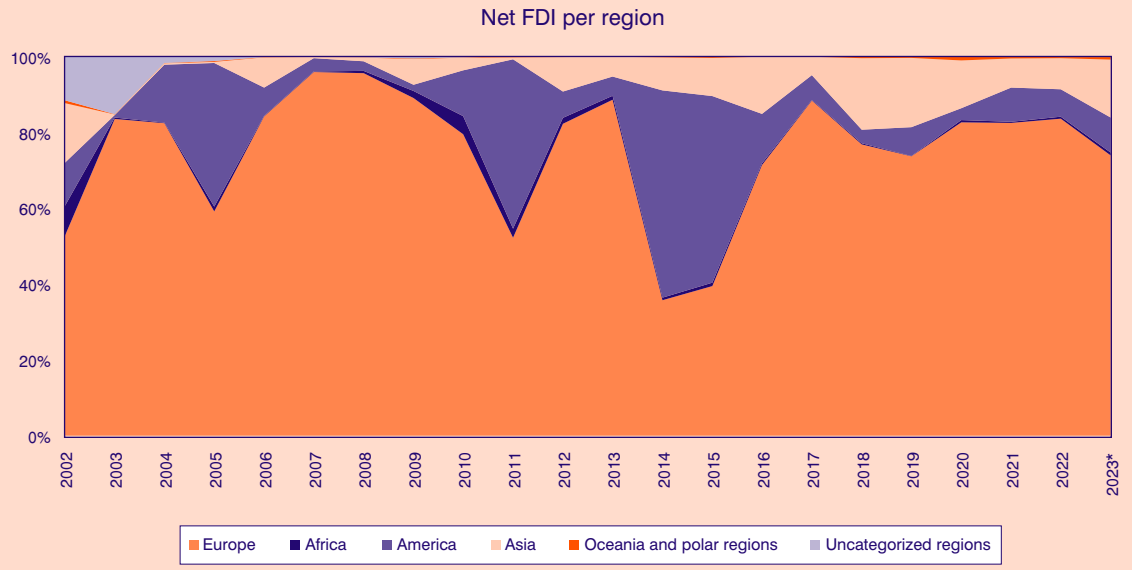
Focusing on net FDI by country of origin (see Figure 4.2.3), 75.2% of net FDI in Greece has historically originated from the EU, primarily from Germany, France, Cyprus, Luxembourg, Switzerland, the Netherlands, and the United Kingdom. Net FDI from the United States of America follows, with an average annual share of 14.2%, with the US contributing nearly twice as much as Canada. Asia ranks third, with an average annual share of 7.7%, led by Hong Kong, and followed by China and the United Arab Emirates. Finally, Oceania and the polar regions contributed 0.3% over time, Africa 1.2%, and unallocated regions 1.4%.

4.2.4.1. Net Foreign Direct Investment in real estate

Regarding net FDI in real estate in Greece, Figure 4.2.4 reveals the share of net FDI as a percentage of total net FDI during the period 2013-2023.

4. It is worth noting that greenfield FDI, i.e., when a company initiates projects from scratch in a foreign country, was about 23% of total net FDI in the biennium 2022-2023 in Greece, or almost €1.8 billion in 2022 and €1.12 billion in 2023.
Source: United Nations Trade and Development (UNCTAD), Annex Table 14, authors' calculations.

FIGURE 4.2.3
Net Foreign Direct Investment in Greece by country of origin

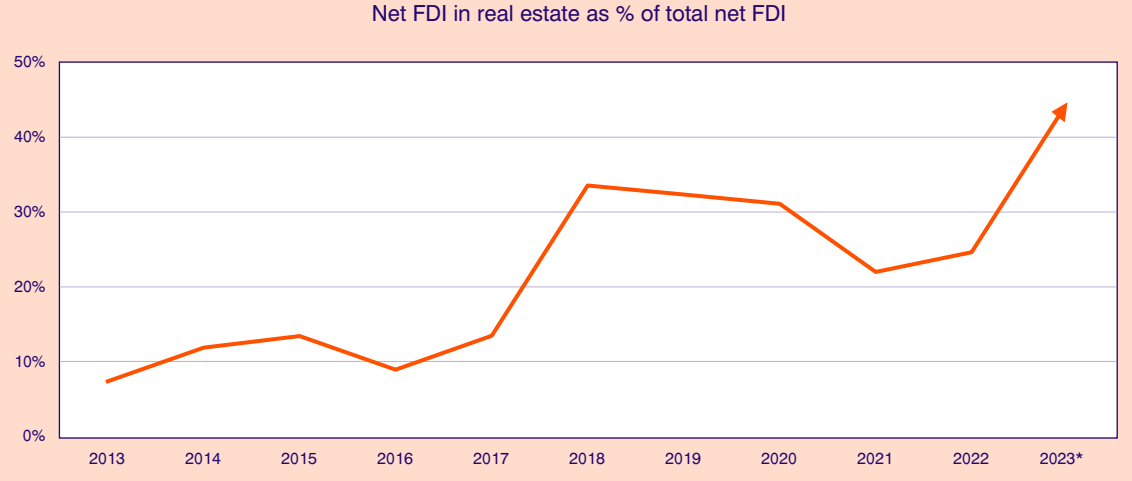


Source: Bank of Greece, authors' calculations.

Notes: Since net foreign direct investment is defined as the difference between inflows and outflows, it can be negative when outflows exceed inflows, or it can exceed 100% due to excessive investments. Therefore, in Figure 4.2.3, we calculate the adjusted shares to ensure they range between 0% and 100%. Initially, we calculate the share for each region, and then the adjusted share for each region is computed as the absolute value of its share relative to the sum of the absolute values of all shares.

* Data for 2023 are provisional.

FIGURE 4.2.4
Net FDI in real estate as a % of total net FDI



Source: Bank of Greece, authors' calculations.

* Data for 2023 are provisional.

In general, there is an increasing trend, as the share of net FDI in real estate grew from 7.4% in 2013 to 33.5% in 2018 and remained above 30% during 2019-2020. This is possible due to the introduction of the "golden visa" program, which boosted investment interest in Greece from third-country nationals.[5] A decline occurred in 2021, with the share dropping to 22%, followed by an increase in 2022 to 24.6%, and a new historical record of 44.7% was hit in 2023 (provisional data). Furthermore, in 2022, a record was set in absolute terms, as net FDI in real estate reached €1.98 billion, and in 2023, a new historic high was recorded at €2.1 billion.

5. In 2013, Law 4146 (Article 6) was introduced for the "golden visa", under which third-country nationals purchasing real estate worth at least €250,000 would be granted a residence permit, along with permits for their family members.

KEPE, *Greek Economic Outlook,* issue 56, 2025, pp. 66-81

Investigation of the persistence of Harmonised Inflation and its components in Greece and the euro area

Alexandros Karakitsios*[1],
Evangelia Kasimati*[1],
Euripides Kondelis*[1],
Zacharias Bragoudakis*[1]

Abstract

The purpose of this article is to investigate the degree of inflation persistence in Greece and the euro area. To estimate inflation persistence, the Harmonised Index of Consumer Prices (HICP) and its five main components are used. The data are derived from official sources such as Eurostat and the SDW, covering the period from 1996 to 2024. Concerning the methodological approach, the degree of persistence is calculated as the sum of the autoregressive coefficients derived from the estimation of a univariate model. The empirical findings indicate that inflation persistence will not be a temporary phenomenon merely reflecting the aftermath of the pandemic. The results highlight significant heterogeneity in the degree of persistence among indices in Greece and the euro area across different time periods. Despite differences between Greece and the euro area among the HICP components, inflation in its various forms tends to return to its long-term average after a shock, whether supply- or demand-driven, albeit with a time lag. Additionally, it is observed that, in recent years, persistence levels have followed an upward trend, especially towards the end of the examined period. The degree of persistence in overall inflation is higher in the euro area, primarily due to non-energy industrial goods and energy.

Keywords: *Inflation persistence, Harmonised Inflation, main HICP components, Greek economy, euro area*

JEL Classification: *C12, C22, E31, E52*

1. Introduction

The rate at which the prices of goods and services change, the factors that determine the drivers of inflation dynamics, and the phenomenon of inflation persistence are current and important topics in inflation research. Inflation of goods and services, that is, the continuous increase in prices beyond the 2.0% target set by the ECB for price stability in the euro area, raises significant economic and social concerns.

The examination of the persistence of overall inflation, as well as its components in Greece and the euro area, has attracted growing interest in recent years. In 2023, for example, food inflation in Greece and most Eurozone countries was more than double the overall inflation rate. While general inflation has shown signs of decreasing, food inflation remains more persistent, also declining but at a much slower pace. The persistence of food inflation particularly burdens low-income groups, who allocate a larger share of their disposable income to food, exacerbating inequalities between households and disrupting social cohesion.

Inflation persistence can be defined as the tendency of inflation to slowly converge to its long-term average or a specific target after any stochastic disturbances that may occur in the economy (Gadzinski and Orlandi, 2004). The persistence of inflation in Greece and the

* Bank of Greece, Economic Analysis and Research Directorate. E-mail: EKasimati@bankofgreece.gr

1. The views expressed in this article are personal and do not necessarily reflect the views of the Bank of Greece. Any errors or omissions are the sole responsibility of the authors. We thank the two anonymous reviewers for their valuable comments and observations.

– Opinions or value judgments expressed in this article are the authors' own and do not necessarily reflect those of the Centre of Planning and Economic Research.

euro area presents challenges for economic stability, social welfare, and policy formulation.

In general, the persistence of high inflation is related to whether prices are rigid, remain stable for long periods, or continuously increase. Schwartzman (2023) distinguishes the sources of strong inflation persistence into endogenous and exogenous.

One of the endogenous sources is competition among businesses to increase prices. Typically, businesses respond similarly to changes in the economic environment, resulting in successive price hikes, which, in turn, lead to high inflation. The continuous increase in prices also motivates workers to demand higher wages, which raises the cost of labour per unit of product/unit labour costs (Gali and Gertler, 1999), ultimately resulting in even higher prices for final goods.

Additionally, expectations regarding future inflation and the credibility of the central bank play a significant role in shaping inflation. If the central bank lacks credibility regarding its long-term inflation target, businesses will expect a higher inflation rate, which will immediately lead to higher price increases and greater inflation persistence. Successive or persistent supply and demand shocks can also contribute to the maintenance of high inflation rates and, consequently, greater inflation persistence. For example, in the period after the pandemic and the supply disruptions it caused, the faster recovery of demand compared to supply led to price increases. This period was followed by the war in Ukraine, resulting in another supply shock due to rising raw material and fuel prices. The overall result was that the upward trend in prices was reinforced, thereby strengthening inflation persistence.

On the other hand, Schwartzman (2023) identifies two exogenous causes of the persistence of high inflation. The first concerns the fiscal policy pursued by a government. If the fiscal policy is expansionary, total demand increases, thereby raising prices and inflationary pressures. Moreover, labour market conditions can lead to a persistent rise in prices. A tight labour market exerts upward pressure on wages, mainly due to insufficient labour supply, ultimately leading to high inflation for a protracted period.

Regarding the consequences of inflation persistence, persistent inflation reduces the purchasing power of households, and this reduction disproportionately affects lower-income households, who allocate a larger share of their income to essential goods such as food. Secondly, inflation persistence can lead to social dissatisfaction and disrupt social cohesion, especially if wage increases do not keep pace with the rising cost of living. Persistently high prices of goods and services may cause social unrest and anti-government sentiments, adding to political instability and increasing economic uncertainty. Thirdly, persistent inflation requires higher government spending on social welfare programmes, and governments may face pressure to increase subsidies and support low-income households to mitigate the impact of high prices, policies that may undermine/affect fiscal stability.

The main objective of this article is to investigate the persistence of harmonised inflation and its components in Greece and the Eurozone. Data is sourced from official platforms such as Eurostat and the SDW (Statistical Data Warehouse, ECB), covering the period from 1996 to 2024. Regarding the methodological approach, the degree of persistence is calculated as the sum of the autoregressive coefficients obtained from the estimation of a univariate model. One of the key findings is the significant heterogeneity in persistence levels between the indicators in Greece and the Eurozone across different time periods. It is also found that inflation persistence is observed not only in Greece, but also in the Eurozone. This article does not focus on inflation forecasting but aims to provide empirical evidence that inflation persistence will not be a temporary phenomenon, reflecting the aftermath/legacy of the pandemic. Furthermore, the estimation results should be interpreted with caution, as they refer solely to the persistence of inflation and not to its determining factors.

Against this background, this article is structured as follows: Section 2 describes the evolution of the harmonised inflation and its components in Greece and the Eurozone, providing a comparative analysis. Section 3 estimates an empirical model for evaluating the persistence of inflation and its components in Greece and the Eurozone, presents the results and discusses the empirical findings. Finally, Section 4 summarises the conclusions and offers some policy recommendations for addressing the persistence of inflation in its components.

2. Evolution of Harmonised Inflation and its components in Greece and the euro area

The HICP consists of five major components: unprocessed food (UNPROC), processed food (PROC), non-energy industrial goods (NEIG), energy (HEG), and services (SERV). Since the mid-1990s, when the index was first constructed, a systematic harmonisation effort has been made so as to ensure that the five major components include the same items across all Member States and that their annual rates of change are comparable.

In Table 1 as well as in Figure 1, a comparison is made between the HICP and its components for Greece and those in the euro area. The period under examination is from 1996 to 2024, divided into four subperiods: the time before entry into the euro area (1996-2001); the time after euro area entry and before the debt crisis (2002-2009); the debt crisis period (2010-2018); and the time after the debt crisis (2019-2024).

According to Table 1, long-term headline inflation in Greece is higher than the respective average in the euro area for the entire period under consideration (2.6% in Greece versus 2.0% in the euro area). The corresponding figures for the five main components confirm this divergence, as for all five components their average long-term inflation rates in Greece exceed those of the euro area counterparts.

Looking at the subperiods, as regards headline inflation, it is clear that Greece registered higher inflation rates in comparison with the euro area during the first two subperiods (1996-2001 and 2002-2009) and lower ones in the last two subperiods (2010-2018 and 2019-2024).

During the subperiod before entry into the euro area (1996-2001), Greece, using the drachma as its national currency, made intensive efforts to reduce high inflation in order to qualify for joining the euro area. Average harmonised inflation during that period in Greece (4.4%) was more than twice that of the euro area (1.7%). A similar picture is also obvious in the main components of the HICP. This is clearly illustrated in Figure 1, showing the strong HICP disinflation achieved in Greece during that period, from a starting level of about 8% in 1996, in the context of policies to ensure convergence of the macroeconomic indices of Greece with those of the rest of Europe, as a prerequisite for joining the euro area. Although the inflation differential at the end of that subperiod (2001) was not very significant, the average for the years 1996 to 2001 was affected by the fact that inflation in Greece had started off from a high level.

For the subperiod before the debt crisis (2002-2009), the expansionary economic policy of Greece is also reflected in a still positive, albeit smaller than in the previous subperiod, HICP inflation differential vis-à-vis the euro area (Greece: 3.2%, euro area: 2.1%).

During the debt crisis period (2010-2018), the highly restrictive economic policies and the economic crisis that the country experienced drove the harmonised inflation of Greece (0.8%) to lower levels than those of the euro area (1.4%). A notable exception for this period is energy inflation, which surged to 6.8% in Greece, while it was only 2.8% in the euro area. This large deviation is attributed to high indirect taxation.

In the post-bailout period (2019-2024), Greece recorded a considerably lower average inflation rate (2.7%, compared with 3.4% in the euro area), with the only exception being unprocessed food inflation (5.7% in Greece versus 4.8% in the euro area). Referring back to Figure 1, the Greek average is positively influenced by the first half of the period (2019-2021), during which the country's HICP remained consistently lower than that of the euro area due to lingering economic stagnation from the bailout years. Additionally, a noteworthy trend during this period is the sharp decline in inflation indicators in 2020, both in Greece and the euro area, due to the pandemic, followed by a sharp increase in 2021-2023, driven by the impact of the war in Ukraine on energy prices and supply chain disruptions caused by the pandemic.

Hence, the divergence at the harmonised headline inflation level was large during the 1999-2009 period (average inflation in Greece: 3.7%, average inflation in the euro area: 1.9%) but was reversed in the 2010-2024 period (average inflation in Greece: 1.6%, average inflation in the euro area: 2.2%), contributing thus to a partial convergence. This convergence was achieved in part by the difficult situation that befell the country due to the consecutive memoranda of understanding and the internal devaluation.

The main characteristic of the desired convergence is the systematic and persistent downward trend of a component that over time tends toward the corresponding euro area component. As regards the HICP components of Greece, such downward trends have followed the components of services, non-energy industrial goods and processed food. Systematic and persistent convergence is not easy to be traced in the components of energy and unprocessed food as both components are quite volatile.

In accordance with the above, inflation in Greece in 2022 surged to 9.3% from 0.6% in 2021. Despite the intense disinflation of harmonised inflation in 2023 (4.2%), there has been and continues to be a strong persistence of inflation.

In the past, it was anticipated that the sharp decline of energy prices would drag along or rather influence in the same direction the inflation rates of the individual HICP components. In the high inflation phase in which we find ourselves, it is obvious that this relation does not hold. The high energy inflation in 2022 turned to negative inflation in 2023 and continued in 2024 to post slowing but mainly negative annual

TABLE 1 Comparison of the overall harmonised inflation and its components between Greece and the euro area

Time period	Overall harmonised inflation		Unprocessed food		Processed food		Non–energy industrial goods		Energy		Services	
	Greece	Euro area	Greece	Euro area	Greece	Euro area	Greece	Euro area	Greece	Euro area	Greece	Euro area
1996-2001	4.4	1.7	4.8	2.3	4.5	1.6	3.5	0.8	2.7	3.5	6.0	2.0
2002-2009	3.2	2.1	2.7	2.0	4.1	3.0	2.0	0.7	4.8	3.8	3.7	2.5
2010-2018	0.8	1.4	0.6	1.8	2.0	1.7	-0.9	0.5	6.8	2.8	0.4	1.5
2019-2024*	2.7	3.4	5.7	4.8	3.6	4.8	2.0	2.1	5.3	6.9	2.0	2.7
Long-term average	**2.6**	**2.0**	**3.1**	**2.6**	**3.4**	**2.7**	**1.4**	**1.0**	**5.1**	**4.1**	**2.8**	**2.1**

Source: ELSTAT (2024), Eurostat (2024), authors' calculations.

* First eleven months.

FIGURE 1
HICP and its components in Greece and the euro area, 1996-2024

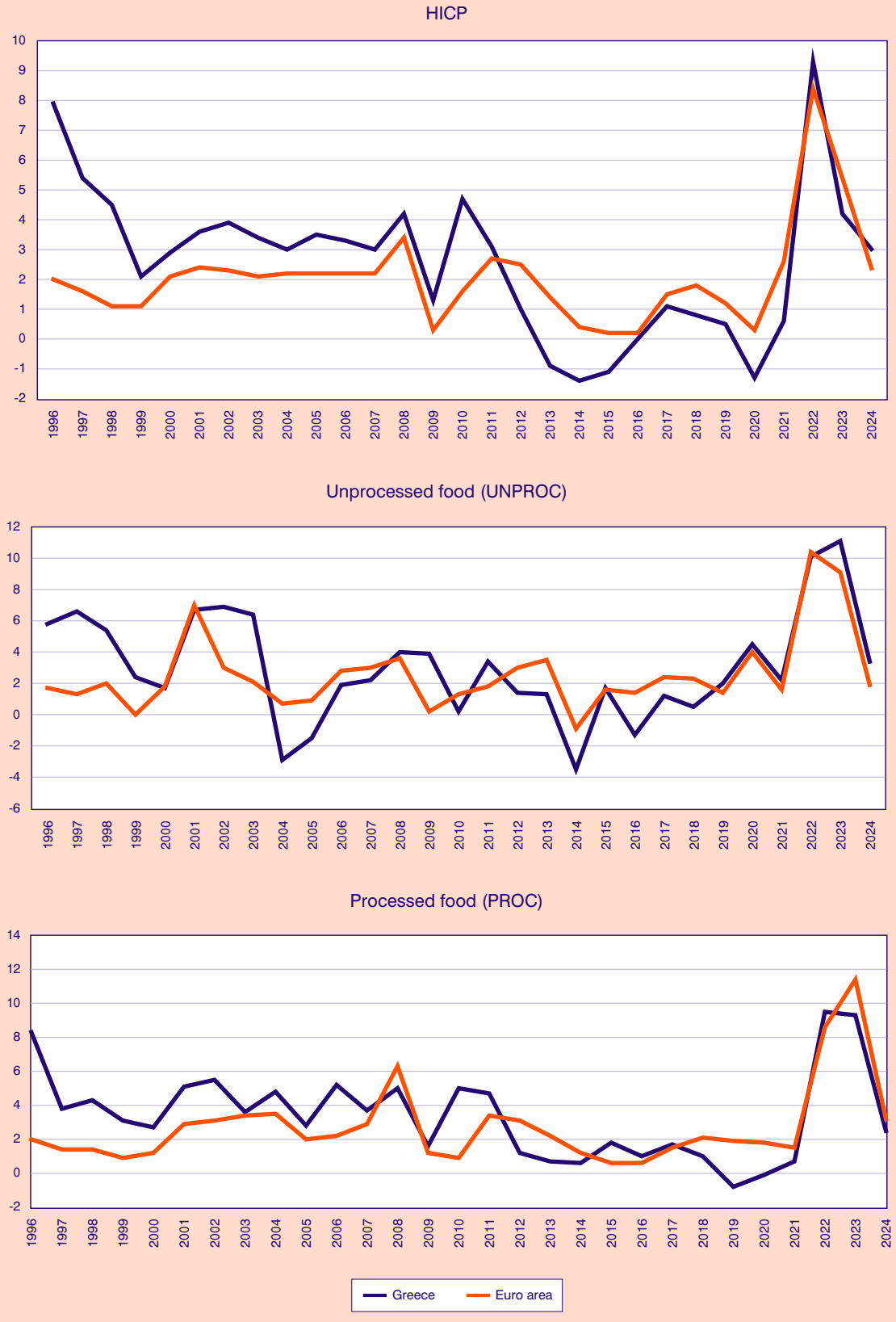
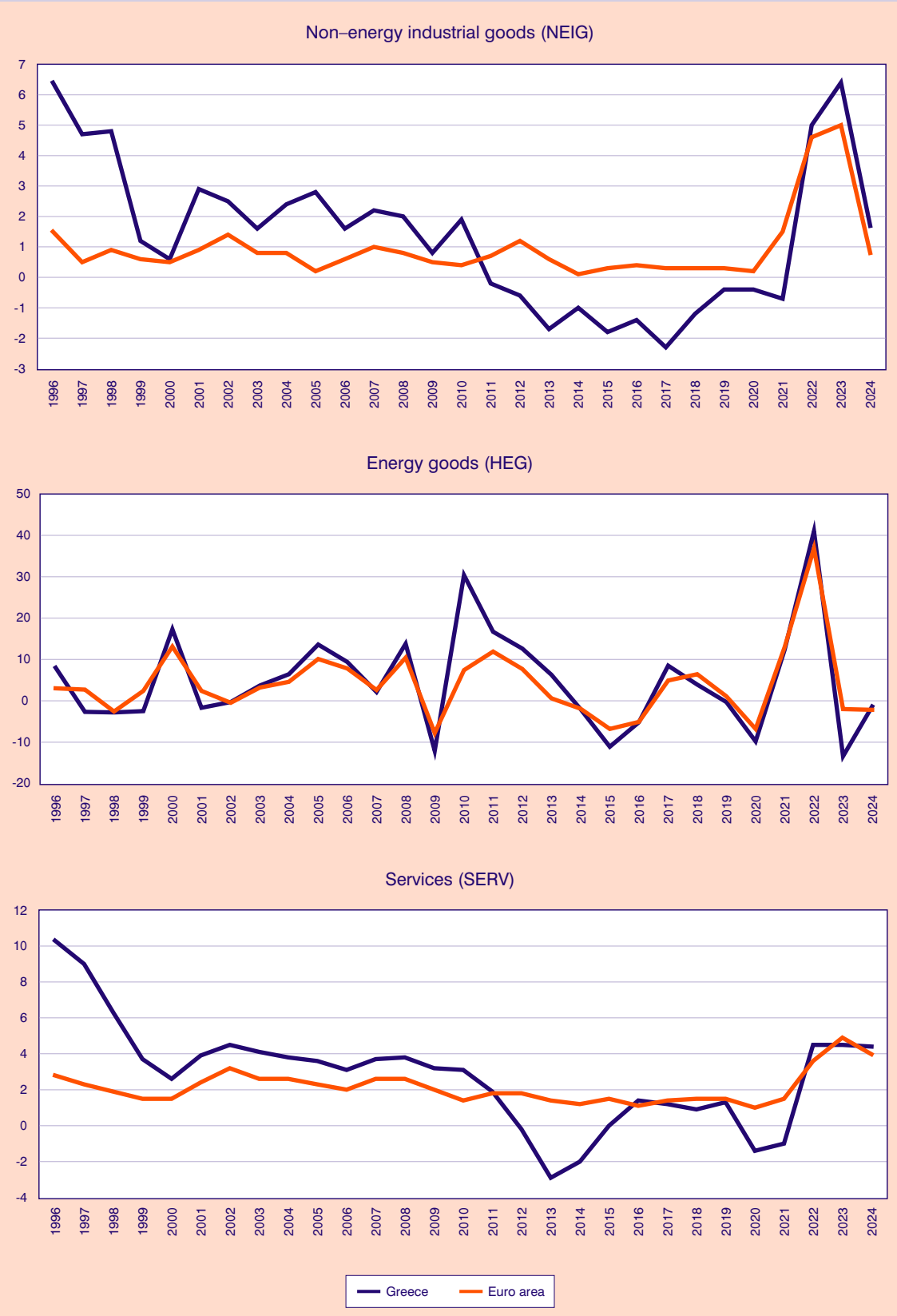


FIGURE 1 (continued)



Source: Eurostat (2024), SDW (2024), authors' calculations.

rates. The other four main components of harmonised inflation, in essence, peaked in 2023 and continued to record high annual rates of change of their prices during 2024.

The whole issue is attributed to a large number of factors. Beyond the initial energy shock, other external factors have helped form the whole situation: the wars in Ukraine and in the Middle East, the extreme weather conditions, the problems with the supply chains, the increased commodity prices, etc. All these disruptions during and after the pandemic came in succession and fueled the dynamics of inflation. As a result, they had, and they continue to have, the slow and bumpy disinflation process as core inflation (i.e., overall inflation excluding energy and food) and especially the component of services has incorporated, secondarily, all the related burdens.

It is worth noting that since the start of the upward inflation trajectory for food products, which can be traced back to June 2021, significant increases have been recorded in all components of the HICP in both Greece and the euro area. Cumulatively, unprocessed food items in Greece have risen by 31.0% (compared to 23.6% in the euro area), processed food items by 23.2% (compared to 26.3% in the euro area), non-energy industrial goods by 16.3% (compared to 11.4% in the euro area), energy goods by 26.0% (compared to 34.7% in the euro area), and services by 14.9% (compared to 13.4% in the euro area).

While inflation in various sectors affects purchasing power and economic stability, food inflation has a particularly widespread impact due to the fundamental necessity of food consumption (Bragoudakis, 2018). Food inflation in the euro area has remained relatively high, driven by factors such as rising production costs, supply chain disruptions, climate change, and geopolitical factors (Kuik et al., 2024).

The persistence of food inflation (both processed and unprocessed) impacts not only Greece, but also the euro area, as it complicates the European Central Bank's (ECB) monetary policy goals. Although food inflation is only one part of the HICP that the ECB monitors, its substantial impact on consumer welfare makes it a significant element of the overall inflation picture.

This article does not focus on inflation forecasts but attempts to provide empirical evidence that inflation persistence will not be a transient phenomenon reflective of the aftermath of the pandemic. Geopolitical risks have increased, extreme weather events are recurring with severity, and decisions made to accelerate the green transition bring new and higher burdens, primarily in the energy component and secondarily in the other components of the harmonised inflation, to which these burdens are passed on.

3. Methodology and econometric results

Methodologically, following Lünnemann and Mathä (2004), Levin and Piger (2004), Gadzinski and Orlandi (2004), and Micallef and Ellul (2020, 2013), the persistence of a variable is equal to the sum of the autocorrelation coefficients derived from the estimation of a univariate model. Persistence is typically measured as the sum of the autocorrelation coefficients. To estimate the persistence of both headline inflation (based on the HICP) and its components, the following econometric model is used:

$$\pi_{i,t} = c_{i,t} + \sum_{k=1}^{K^*} \beta_{i,k} \pi_{i,t-k} + \varepsilon_{i,t} \quad (1)$$

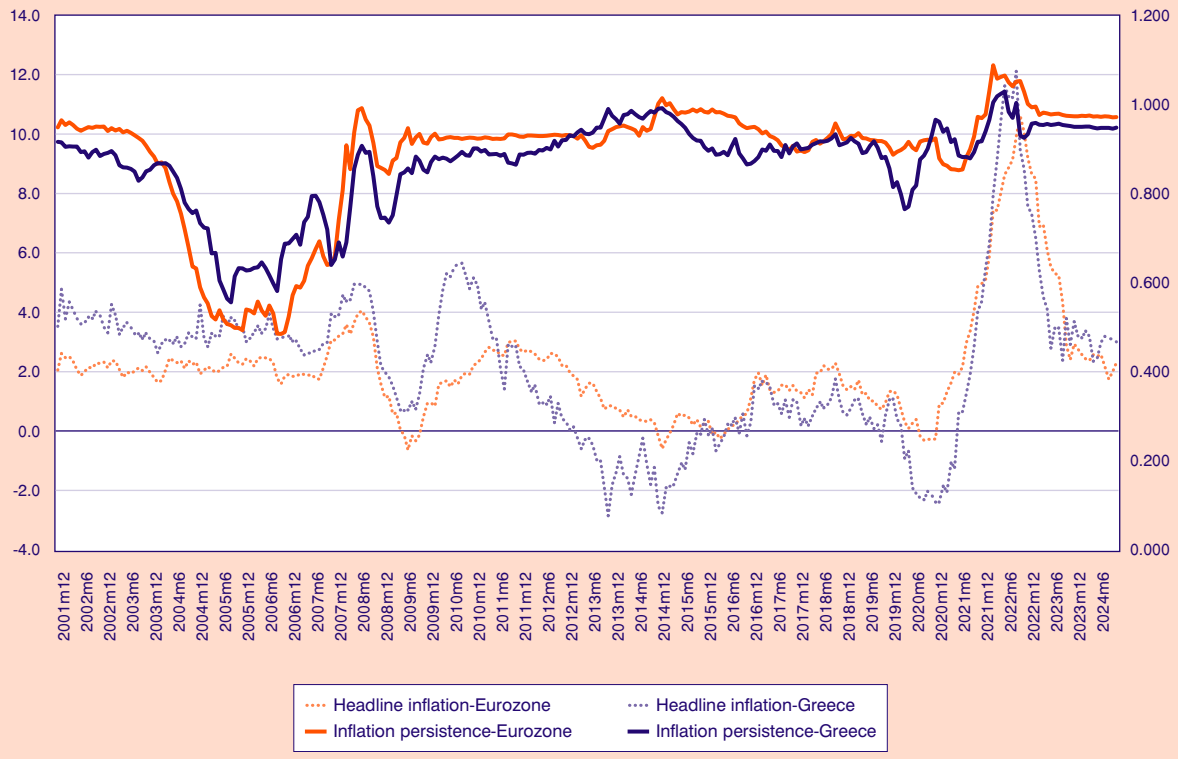
where $\rho_i = \sum_{k=1}^{K^*} \beta_{i,k}$ is the parameter measuring the degree of inflation persistence, $\pi_{i,t}$ is the annual inflation rate on a monthly basis, $c_{i,t}$ is the constant term of the equation and $\varepsilon_{i,t}$ are the residuals, where $\varepsilon_{i,t} \sim N(O,\sigma^2)$. The parameter K^* represents the optimal lag length, which is determined based on the Akaike Information Criterion. The optimal lag length is determined separately for both headline inflation and its components.

The higher the parameter ρ_i, the greater the degree of inflation persistence, as high values of the parameter mean that inflation will return to the long-term average at a slower pace, and vice versa. Inflation will tend to return to the long-term average when the parameter ρ_i takes values within the range of $0 < |\rho_i| < 1$. However, if the parameter ρ_i equals (in absolute terms) one or takes values greater than one, then inflation will not return to the long-term average following a stochastic exogenous shock. Consequently, lower values of parameter ρ_i indicate lower persistence, leading to a faster return to the long-term average, while higher values indicate higher persistence and a slower return to the long-term average.

It should be noted that the estimated model is not a structural model for inflation forecasting, but a statistical model for testing inflation persistence (Lünnemann and Mathä, 2004). Therefore, the results of the estimations should be interpreted with caution, as they relate only to inflation persistence and not to the estimation of its determinants.

For the aforementioned estimation, monthly data are used for both headline inflation and its components (non-energy industrial goods, energy, services, unprocessed and processed food) for the period January

FIGURE 2
Annual rate and persistence of headline inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

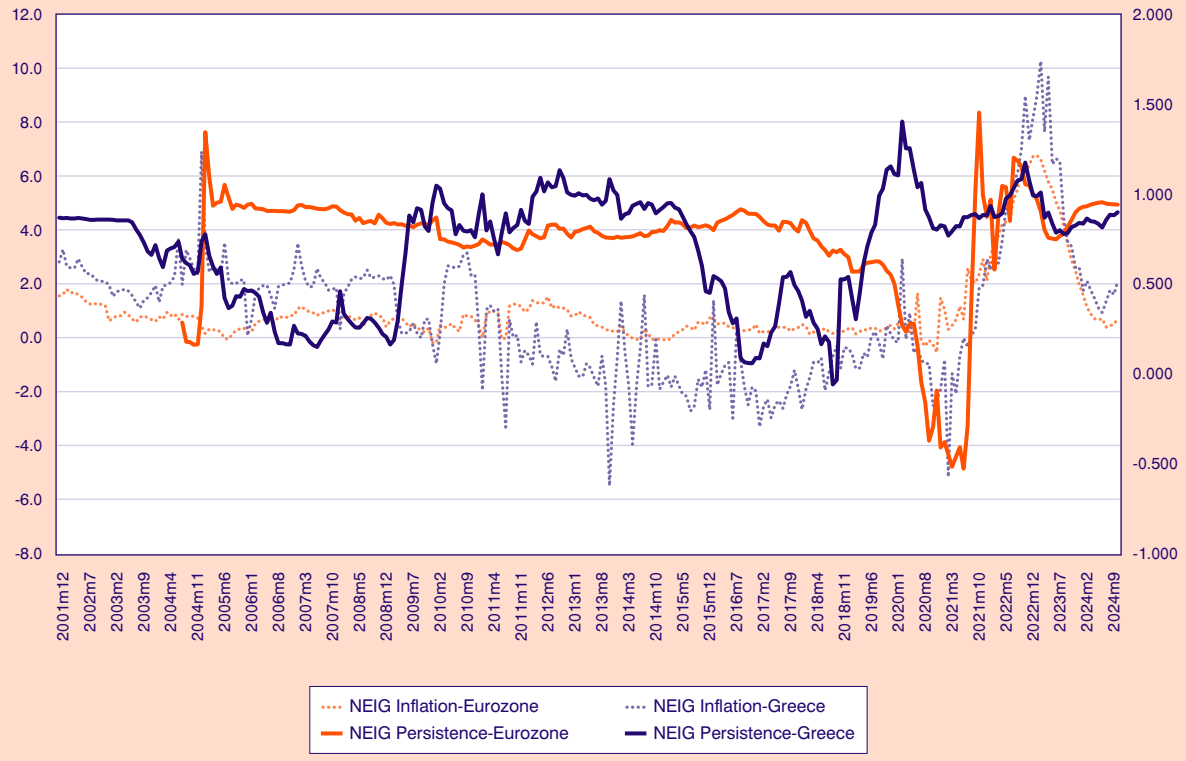
1997–November 2024 in Greece and the Eurozone. The estimation is repeated in rolling intervals of 60 months, and sensitivity analysis has also been conducted for different rolling windows (36 and 48 months), with no significant differences in the results.

The results are presented separately for headline inflation and its components, making a comparison of the persistence parameter between Greece and the Eurozone. In Figure 2, annual headline inflation rates and the respective persistence parameters for both Greece and the Eurozone are presented. The results highlight that after a period of a significant reduction in the persistence parameter (both in Greece and the Eurozone) from mid-2003 to the end of 2004, the parameter increased and remained at high levels until the end of 2019. During this period of time, the high persistence parameter is related to a period when inflation remained at low levels for an extended period until the pandemic outbreak. The restrictive fiscal policy adopted during this period and the consequent recession and low growth rates that followed are possible reasons why inflation remained at low levels (Schwartzman, 2023).

One of the pandemic consequences was the fall in prices, mainly due to the rapid decrease in demand, followed by disruptions in the supply chain, which, combined with the faster recovery of demand in the post-pandemic period, led to price increases (Bank of Greece, 2024). These disturbances temporarily led to a reduction in inflation persistence, which, however, returned to levels close to one, where it has remained since 2022. The high persistence of headline inflation is observed during periods of either sustained low or high inflation, highlighting that disruptions on the supply and demand side have a strong and lasting effect.

Focusing on the comparison between Greece and the Eurozone, a similar behavior of the persistence param-

FIGURE 3
Annual rate and persistence of non-energy industrial goods (NEIG) inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

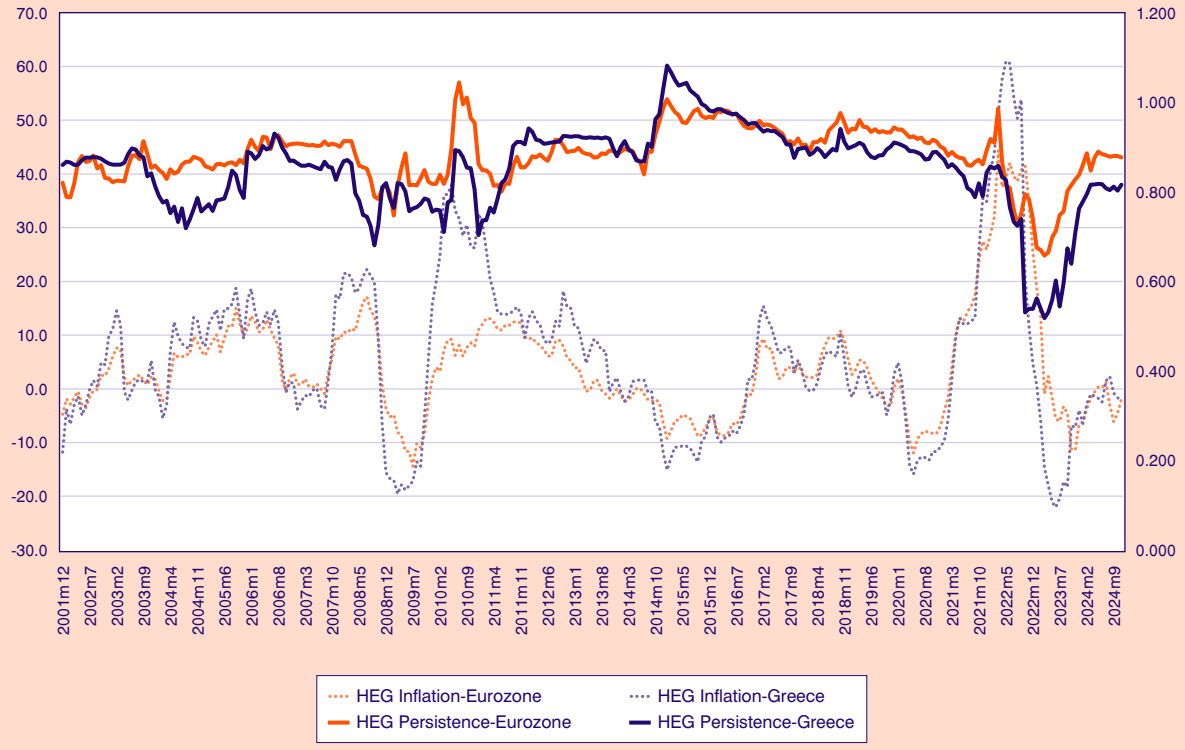
Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

eter is observed in both cases, as the headline inflation persistence is not always observed to be higher in Greece. Based on the above, regarding the impact of various disruptions on inflation persistence, a possible explanation for the above finding can be traced to the fact that many disruptions occurred simultaneously in both Greece and the Eurozone, such as the coronavirus pandemic, as well as other international developments, which affected –not necessarily to the same extent– both the Greek and the European economy.

As far as non-energy industrial goods (Figure 3), a significant difference between inflation rates in Greece and the Eurozone is observed, as in Greece inflation notes higher fluctuations during the entire period under analysis. This finding is confirmed by the estimations of the persistence parameter. Consequently, up to the end of 2008, the persistence of non-energy industrial goods inflation is lower in Greece. During the crisis period in Greece, persistence increased to higher levels than those of the Eurozone, but gradually fell back below these levels. However, since 2021, the persistence of inflation for non-energy industrial goods has shown convergence in Greece and the Eurozone, approaching the level of one. This result indicated that the inflation of this category also tends to become more persistent, returning to low (pre-inflationary crisis) levels, that is, to its long-term average level. The persistence of inflation for non-energy industrial goods is likely due to the increased prices of raw materials, which are mainly related to international prices of non-energy commodities, as well as the increased labor costs.

Figure 4 illustrates the annual inflation rates and the corresponding persistence coefficients for energy goods in Greece and the Eurozone. In general, the inflation rates for energy show high volatility, mainly due to the impact of international prices of energy commodities (oil, natural gas, etc.). Similarly, the persistence parameters of energy inflation show high short-

FIGURE 4
Annual rate and persistence of energy goods (HEG) inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

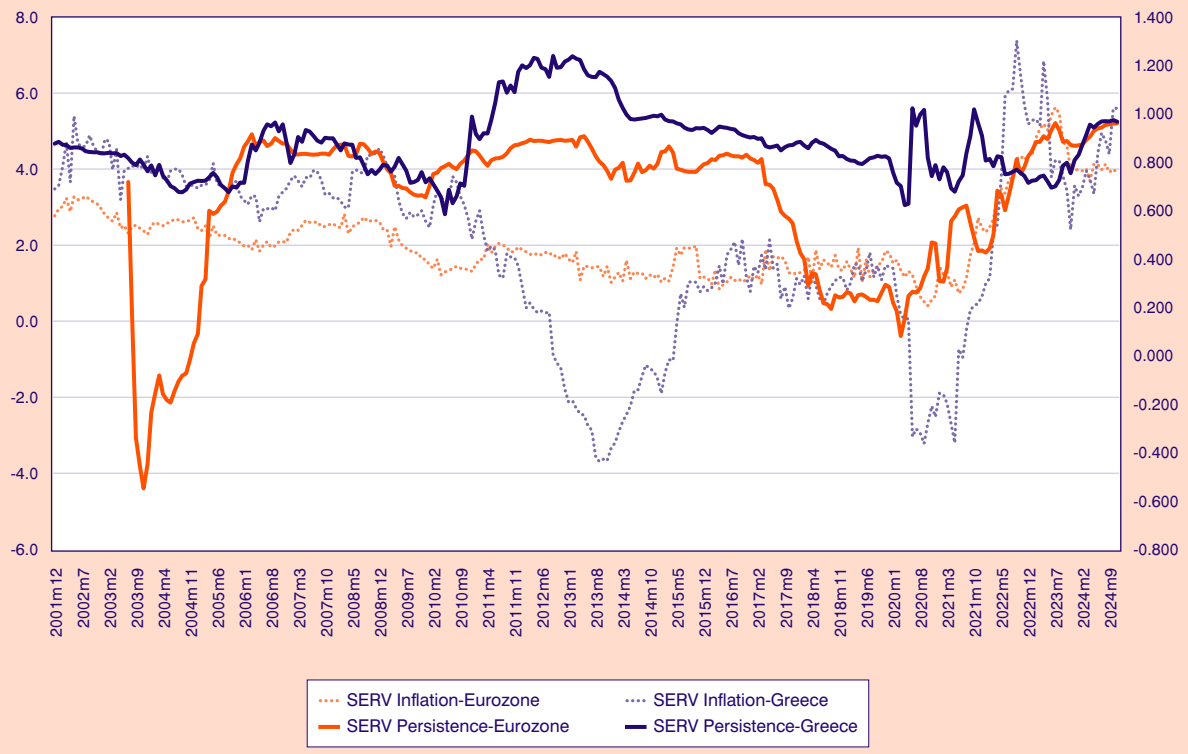
term fluctuations but follow a similar pattern in both Greece and the Eurozone. During the recent inflationary crisis, the persistence parameters fell to the lowest levels in the last 23 years, as inflation rates skyrocketed to unprecedented levels (in the Eurozone, the inflation rate for energy commodities exceeded 44% in March 2022, and in Greece, it reached 61% in May of the same year).

However, energy goods inflation rates soon followed a downward trend, and at the same time, there was an increase in persistence parameters, a result which highlights that energy inflation tends to return to its average value in the long term, after the disruption of 2021 and 2022.

The evolution of inflation rates in the services sector and the respective persistence coefficients in Greece and the Eurozone are presented in Figure 5. During the period under analysis, services inflation followed a declining trend both in Greece and in the Eurozone until 2011 and remained at low levels –with greater reductions in Greece– until the end of 2021. With the increase in energy costs and wages, services inflation followed an upward trend, exceeding 7% in Greece and approaching 6% in the Eurozone.

Regarding the persistence parameters, the persistence of services inflation in Greece seems to be higher until the outbreak of the inflationary crisis in 2021. However, the increase in the persistence of services inflation is remarkable also in the Eurozone since 2020. The high persistence parameters in both Greece and the Eurozone can be attributed to disruptions in the supply chain and, primarily, to the tightness in the labor market. These factors can drive prices and service inflation to higher levels, with the key determinant being the wage increases in recent years aimed at restoring the purchasing power of households (Schwartzman, 2023).

FIGURE 5
Annual rate and persistence of services (SERV) inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

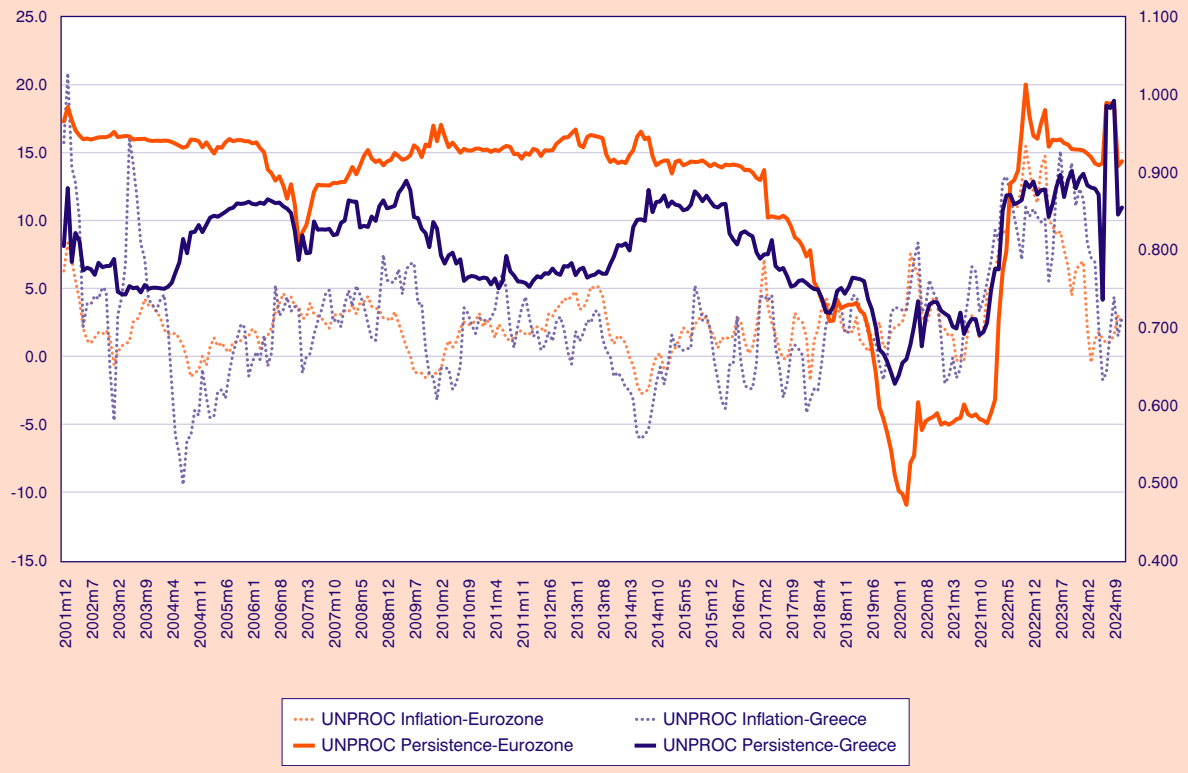
The convergence of the persistence parameters towards one indicates that services inflation is expected to remain at the 4% levels observed in the last two years, a fact that is also confirmed by the consistently high contribution of services inflation to overall inflation (Bank of Greece, 2024).

One of the inflation components that shows significant volatility and, consequently, great difficulty in forecasting its evolution is that of unprocessed food items (Figure 6). This volatility is mainly due to the high variability in the prices of fresh fruits and vegetables, which are directly related to weather and climatic conditions. The uncertainty on the evolution of these factors also affects the prices of unprocessed food items and is significantly exacerbated by the climate crisis, as extreme weather conditions and natural disasters are now happening more frequently. Such phenomena cause severe disruptions in the supply chain and lead to sharp price increases.

The high volatility of unprocessed food prices, particularly in recent years, is also confirmed by the findings of the persistence coefficients' estimates. The persistence of unprocessed food inflation in the Eurozone significantly decreased, mainly due to the reduced consumption caused by the coronavirus pandemic. However, both in Greece and in the Eurozone, an increase in the persistence of inflation for unprocessed food items was observed from the end of 2021, as the recent decline in inflation for this category shows that inflation tends to return to its long-term average. This is also supported by the recent studies of Bragoudakis, et al. (2024a, 2024b).

Contrary to unprocessed food, processed food inflation shows smaller fluctuations. Hence, processed food inflation is considered to be more persistent compared to that of unprocessed food (Figure 7). According to the results of the estimates for the persistence parameters, until 2021 and the outbreak of the infla-

FIGURE 6
Annual rate and persistence of unprocessed food (UNPROC) inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

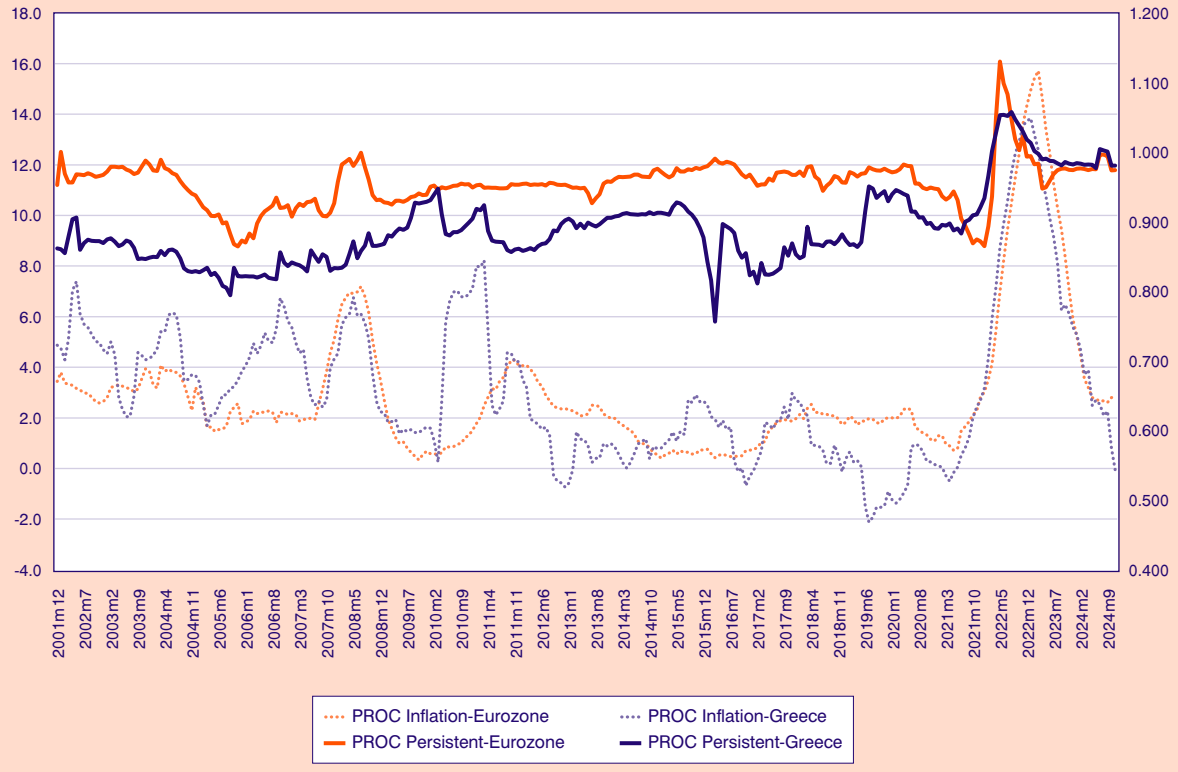
Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

tionary crisis, inflation for processed food items was more persistent in the Eurozone than in Greece. Since then, the persistence of processed food inflation in Greece has increased mainly due to successive disruptions (pandemic, climate crisis and extreme weather conditions) that occurred and significantly increased energy and food commodity prices (Arndt et al., 2023; Vos et al., 2022). Similar findings are mentioned in the studies of Bragoudakis, et al. (2024a, 2024b). Notably, at the beginning of 2023, inflation for processed food items reached 13.8% in Greece, while in the Eurozone, it reached 15.7%.

Summarizing the results above, it is found that inflation persistence is not only observed in Greece, but also in the Eurozone. As a result, the analysis leads to the conclusion that after a disruption (either on the supply or demand side), inflation –both headline and its components– tends to return to the long-term average but with a time lag. Additionally, it is observed that persistence levels follow an upward trend. This fact is due to successive supply and demand disruptions that have occurred, especially since 2020, which continuously fuel inflationary pressures.

Comparing the persistence coefficients of the inflation components and initially focusing on Greece (Figure 8), the findings show that there are significant differences between the various components in terms of their persistence. Non-energy industrial goods exhibit high volatility in terms of inflation persistence, which can likely be attributed to the large fluctuations in their prices, which depend on international prices to some extent. The same cause can explain the finding that energy inflation also has a lower persistence parameter compared to other components, since energy prices increased but also deescalated very quickly, as demonstrated by the recent inflationary crisis.

FIGURE 7
Annual rate and persistence of processed food (PROC) inflation in Greece and the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

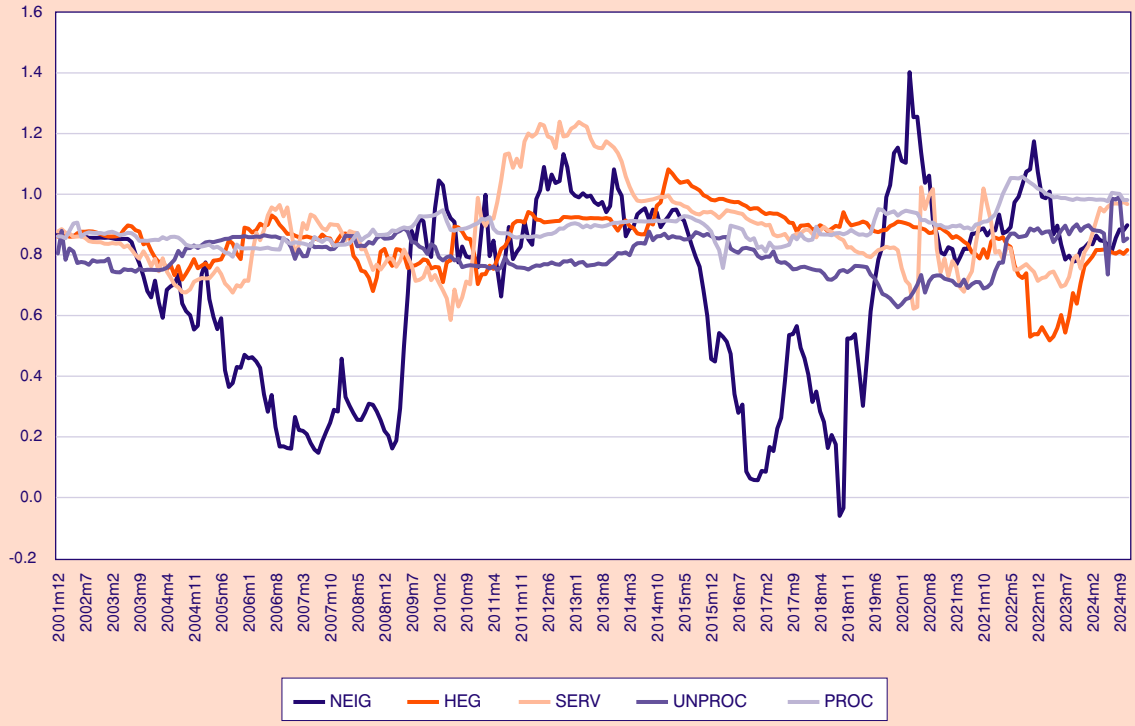
Note: The right axis refers to headline annual inflation rates, and the left axis refers to the headline inflation persistence parameter.

Services exhibit high persistence in specific time periods and focusing on this component is of particular interest both from a research and a policy-making perspective, as this category includes a series of services that depend on many factors, such as wage costs, rent costs, transportation costs, etc. Finally, despite any fluctuations, there is an upward trend in the persistence of food inflation (both processed and unprocessed). This finding is linked to both the determining factors of food prices and to factors associated with the climate crisis and the uncertainty it entails, particularly regarding the supply of food items.

The results for persistence parameters of the inflation components are quite different in the Eurozone (O'Reilly and Whelan, 2004), as the estimated coefficients show lower volatility, mainly until the end of 2016, compared to Greece. From 2017 to 2021, the persistence parameters of inflation for services, non-energy industrial goods, and unprocessed food items show a significant decrease, and then increase again with the outbreak of the inflationary crisis in 2021. In contrast, energy inflation and processed food inflation show consistently high persistence.

The larger fluctuations in persistence observed in Greece are mainly related to the greater fluctuations in inflation itself, both at the headline level and at the component level. Price fluctuations, and therefore inflation, are directly linked to the greater sensitivity of the Greek economy to international disruptions and its ability to absorb their consequences, as well as likely to the conditions prevailing in the domestic market. Therefore, investigating the pass-through of external disruptions to domestic market prices is of particular interest.

FIGURE 8
Persistence coefficients for inflation components in Greece, December 2001-November 2024



Source: Eurostat, authors' calculations.

4. Conclusions

Examining the HICP and its five main components in Greece and the Eurozone for the period 1996-2024, it is observed that the average long-term general inflation in Greece, as well as the corresponding figures for its main components, exceeded those of the Eurozone for the entire period. The analysis focuses on four subperiods, showing that at the level of the HICP, Greece recorded higher inflation compared to the Eurozone in the first two periods (1996-2001 and 2002-2009) and lower inflation in the last two (2010-2018 and 2019-2024), with significant fluctuations and variations observed across components.

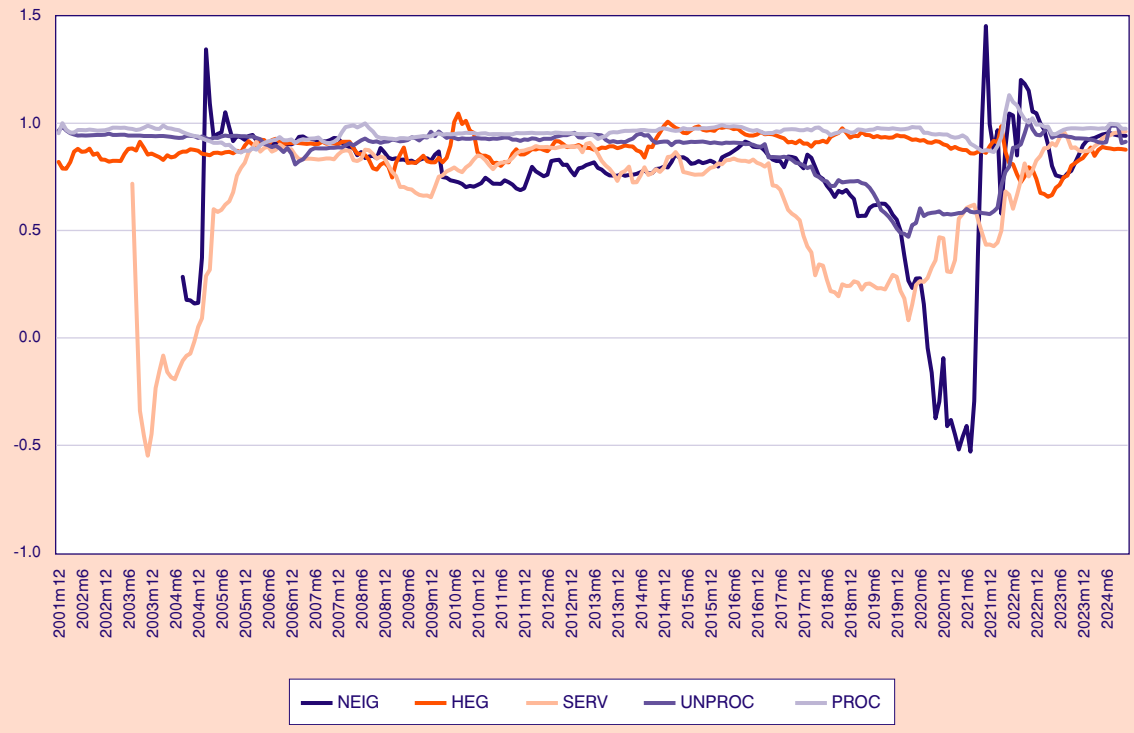
Furthermore, this article attempts to investigate the degree of persistence of general harmonised inflation and its components in Greece and the Eurozone. Inflation persistence can be defined as the tendency of inflation to slowly converge to its long-term average or a specific target after any stochastic disturbances that may occur in the economy.

The results regarding the persistence parameters of the inflation components are quite different in the Eurozone, as the estimated parameters show less volatility mainly until the end of 2016, compared to Greece. From 2017 to 2021, the persistence parameters for inflation in services, non-energy industrial goods, and unprocessed food items showed a significant decrease and then increased again with the onset of the inflation crisis in 2021. In contrast, energy and processed food inflation showed consistently high persistence.

The largest fluctuations in persistence observed in Greece are mainly linked to the greater fluctuations in inflation itself, both in general terms and at the component level. Price fluctuations, and therefore inflation, are connected to the greater sensitivity of the Greek economy to international disruptions and the ability to absorb their consequences, but also potentially to the conditions prevailing in the domestic market.

Moreover, this article suggests that despite the differences between Greece and the Eurozone and between the components of the HICP, after a distur-

FIGURE 9
Persistence coefficients for inflation components in the Eurozone, December 2001-November 2024



Source: Eurostat, authors' calculations.

bance –whether from the supply side or the demand side– inflation in its various forms returns to its long-term average, but with a time lag.

Empirical investigation provides evidence that after a period of significant reduction in the degree of inflation persistence in both Greece and the Eurozone from mid-2003 to the end of 2004, the degree of persistence increased and remained high until the end of 2019. This period corresponds to a time when inflation remained at low levels for an extended period, until the outbreak of the pandemic.

It is observed that inflation persistence is present not only in Greece, but also in the Eurozone. Consequently, the empirical investigation leads to the conclusion that, in recent years, the levels of persistence have followed an upward trend, and by the end of the period under review, the persistence of overall inflation is higher in the Eurozone, due to non-energy industrial goods and energy. This is due to successive supply and demand shocks that have occurred, especially since 2020, which have continuously fueled inflationary pressures. One of the consequences of the pandemic was initially the fall in prices, mainly due to the sharp reduction in demand, followed by disruptions in the supply chain, which, combined with the faster recovery of demand in the post-pandemic period, led to increases in price levels (Bank of Greece, 2024). These disturbances temporarily led to a reduction in inflation persistence, but it returned to levels close to one, where it has remained since 2022. The high persistence of overall inflation is observed in periods of either consistently low or consistently high inflation, highlighting that supply and demand disruptions have a strong and lasting impact.

To address inflation persistence, coordinated policy measures must be taken across the Eurozone. First, the countries of the Eurozone should aim to strengthen the resilience of food supply chains. This could include diversifying trading partners, increasing investments in domestic production, and improving transport and storage infrastructure, i.e., policies that help minimize supply-side disruptions and ensure a steady

supply of essential goods. Second, increasing investments in sustainable agricultural practices can help mitigate the effects of climate change on food production. For example, Eurozone countries, especially Greece, could benefit from EU funding for sustainable farming practices that enhance productivity while reducing the vulnerability of food production to climate variability. Coordinated macroeconomic policies in the economies of the Eurozone are essential to stabilize food inflation (Sami and Makun, 2024). The ECB could explore measures specifically targeting the management of food inflation without jeopardizing growth (Bhattacharya and Jain, 2020). Moreover, the governments of Eurozone countries can consider collective funding mechanisms to support the agricultural sector and vulnerable populations.

It is also important to implement measures to enhance productivity through investments in innovation and infrastructure, as well as to promote policies that reduce production costs, such as market liberalization and reducing bureaucracy. Finally, strengthening preventive price control mechanisms can limit price increases in sectors showing excessive price hikes, helping to balance markets.

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Public health, multidimensional child poverty, Social Security and Demographic issues

Eirini Leriou*

Abstract

In this article, a new tool for multidimensional child poverty is employed, and the key research findings on child health poverty (a) in the region of Attica (Greece) during the period 2018–2023 and (b) in the entire country of Greece during the period 2022–2024 are presented. A strong focus of the analytical framework is on investigating and identifying the multidimensional characteristics of children living in health poverty.

Findings reveal that Greece's repeated crises have affected the unrestricted access of children to free, high-quality healthcare services. Scientific results are viewed in the light of both the asphyxiating pressures placed on the insurance sector due to these shocks and the persistent Demographic issue. The fact that an alarmingly high percentage of children living in health poverty belong to large families is crucial to the Demographic. The fact that health child poverty is proportional to an expansion in the number of children in the family is also highly concerning. More specifically, children who report living in health poverty share specified characteristics: (a) living in distant island, rural or mountainous areas, (b) and/or in one-parent households with a mother, (c) and/or in large families, (d) and/or with a refugee/migrant background. In addition, health poverty is more evident in children who also suffer from other forms of poverty. Such children also come mostly from the regions of (a) the South Aegean, (b) Thessaly, (c) the Ionian Islands and (d) Western Macedonia.

Based on the above, a set of public policy proposals for the Social Security system is presented, targeting the mitigation of child health poverty, in the light of the European Child Guarantee.

Keywords: *Health, poverty, human resources, Demographic issues, Social Security, policies*

JEL Classification: *I13, I14, I31, I32, O15, J13, J18*

1. Introduction

According to Article 24 of the United Nations International Convention on the Rights of the Child, it is an absolute right of every child to enjoy the highest attainable standard of health and to benefit from the appropriate, healthcare services. In this regard, States Parties are called upon to fully comply with this legal requirement and aim to ensure that no child is excluded from the right of access to healthcare services.

In the context of the above Article, free, unrestricted access to healthcare services for all children is linked to the achievement of their well-being, while the deprivation of it indicates child poverty. This is why the different child poverty indexes developed in different countries (Abbas and Iqbal, 2024; Kofinti et al., 2023; Xu et al., 2024) and a recently developed index of multidimensional child poverty [Leriou, 2016, 2024a,b,c (in Greek); Leriou, 2019, 2022, 2023a] for Greece, include and consider unrestricted access to free, high-quality healthcare services as a key pillar of child poverty.

The European Commission, in the context of the *European Child Guarantee*, taking into account all these indexes, calls on Member States to, inter alia, ensure unrestricted access to free healthcare for all children.

Greece has for many years adopted measures to ensure that all children enjoy unrestricted access to free healthcare services. However, problems always arise in times of crisis in all countries. These problems are mainly related to the catastrophic consequences that crises cause on any Social Security system. From this perspective, this article examines how the repeated crises of debt, the global pandemic of COVID-19 and energy have affected the multidimensional, child poverty in Greece, from the aspect of public healthcare.

More specifically, the aforementioned multiple index of multidimensional child poverty for Greece consists

* Research Fellow, Centre of Planning and Economic Research (KEPE) and Scientific Coordinator of KEPE's Observatory of Well-being and Child Poverty. E-mail: eirinileriou@kepe.gr

– Opinions or value judgments expressed in this article are the author's own and do not necessarily reflect those of the Centre of Planning and Economic Research.

of six dimensions (Leriou 2022, 2023a): home conditions (D.1), nutrition (D.2), unemployment of guardians (D.3), free healthcare (D.4), moral education (D.5), and leisure (D.6). The first three dimensions concern children's economic poverty, while the latter three dimensions determine children's non-economic poverty [Leriou, 2016 (in Greek); Leriou, 2019, 2022, 2023a]. In this article, Dimension 4 (free healthcare) is isolated and the scientific findings from the longitudinal research during the school period 2018–2023 in Attica and during the school period 2022–2024 in the entire country of Greece are presented. Findings focus strongly on the characteristics of children living in health poverty to facilitate design and implementation of targeted policies in the context of the *European Child Guarantee* in Greece. In addition, the results are being interpreted in the light of the challenges regarding the Social Security system arising from the repeated crises in Greece. In this context, attention is also focused on the Demographic issue. Policy proposals for the Social Security system follow.

2. The theoretical and methodological framework

The theoretical framework of this paper is based on the Welfare Economics and specifically on the economists Pigou (1920) and Edgeworth (1881). More specifically, child well-being[1] (Aymerich et al., 2021; Borualogo & Casas, 2021; Caqueo-Urízar et al., 2022; Casas et al., 2013; Casas & González-Carrasco, 2021; Dinisman et al., 2012; Gierczyk et al., 2022; Goldan et al., 2022; Gross-Manos & Bradshaw, 2022; Guhn et al., 2012; Herd, 2022; Huebner & Furlong, 2016; Jiang et al., 2021; Leto, 2021; Llosada-Gistau et al., 2015; Montserrat, Casas & Moore, 2015; Montersat et al., 2015; Moreira et al., 2021, 2022; Rodriguez de la Vega, 2014; Savahl et al., 2017, 2021; Schonert-Reichl et al., 2011, 2013; Schutz et al., 2022; Tonon & Mikkelsen, 2022; Viñas et al., 2019) is a society's chief end (Aristotle, 1926, 1932,1934, 1952), manifested as the overall (potential) pleasure (Plato, 1925, 1926) that children enjoy, originating from specific economic and non-economic factors (Lianos, 2012; Zolotas, 1982; Little, 1949, 1950; Michalos, 2015; Michalos et al., 2012; Scitovsky, 1941, 1951; Sen, 1987; Skidelsky, 2010; Smith, 1759) that determine this chief end [Leriou, 2016 (in Greek); Leriou, 2015, 2019, 2022, 2023; Leriou and Tasopoulos 2015-2016; Leriou & Tasopoulos, 2016; Leriou et al., 2021, 2022a, 2022b; Tasopoulos and Leriou 2014]. These factors can be the targets of public policy (Michalos, 1978, 2017). Based on this, total, or general, child well-being consists of economic and non-economic child well-being (Leriou, 2022).

Child poverty is defined in the same way. More specifically, the theoretical and methodological framework of this article is the same as the one on the multiple index of multidimensional child well-being and poverty of Leriou [2016, pp. 55, 109 & 153 (in Greek)] and Leriou (2022, Sect. 2, p.1970 & Sect.3, Fig. 3), that child poverty is defined as "*Child poverty is the deviation from the chief end of a society, expressed as the (potential) sad feelings that children experience, originating from the deprivation of some economic or/and non-economic factors that determine this chief end, with the most important being an education that instills in children what kind of persons they ought to be."* More specifically, the sum of Economic and Non-Economic Child Poverty constitutes the General (total) Child Poverty. Economic Child Poverty consists of three dimensions: Home Conditions (D.1), Nutrition (D.2), and Unemployment of the Guardians (D.3). Non-Economic Child Poverty also consists of three Dimensions: Free Healthcare (D.4), Moral Education (D.5), and Leisure (D.6). Each of these Dimensions consists of Simple Indicators [Leriou, 2016 (in Greek), 2019; Leriou et al., 2021; Tasopoulos & Leriou, 2014; Leriou, 2022, Sect.2, p.1970, Fig.1 and 2; Leriou, 2023a, Sect.2, p.1938]. In this way, the multiple index of multidimensional child poverty is composed.

The quantitative research in the region of Attica[2] (Greece) during the school period 2018–2023 is based on the application of the multiple index of multidimensional child poverty [Leriou, 2016 (in Greek), 2019, 2022, 2023; Leriou et al., 2021, 2022a, 2022b]. The municipalities of Attica were grouped into seven Clusters, covering seven socio-economically homogeneous groups of municipalities in Attica. The total sample from all rounds of the research (covering the school year 2018–2019 to the school year 2022–2023) is 6,502 children and in every round fully covered all Clusters of

1. For detailed context of the definition of child well-being, kindly refer to: (a) Leriou, E. (2016). *Analysis of the factors that determine social welfare by implementing an integrated decision-making framework* (in Greek). Panteion University. https://doi.org/10.12681/eadd/39270. (b) Leriou, E. (2022). Understanding and measuring child well-being in the region of Attica, Greece: round four. *Child Indicators Research, 15,* 1967-2011. https://doi.org/10.1007/s12187-022-09957-x

2. Attica is the metropolitan region of Greece that also includes the capital (Athens).

the Municipalities of Attica and all school categories.[3] The questionnaires along with the appropriate permission letters addressed to the parents were examined by specialists and approved by the Ethics and Conduct Committee of a Greek university; they were also accepted by the Ministry of Education, which issued two licenses for carrying out the survey in the schools: one for primary and one for secondary institutions (Leriou et al., 2021). The questionnaires addressing junior high and high school students are identical, while elementary school students were asked fewer questions since the questionnaire addressing children at a younger age had to be simpler (Leriou et al., 2021). In terms of statistical analysis, a threshold is set, and via this, it is possible to implement a measurement in order to determine a certain value of poverty. More specifically, thresholds are established in order to measure the variables included in the model. Consequently, the statistical analysis in this paper is similar to the 1st round of the research that the multiple index was applied for the first time (Leriou et al., 2021).

Similarly, the above also applies to the quantitative survey in Greece in the school period 2022–2024. Correspondingly, the above also applies to the quantitative research to be conducted in Greece during the school period 2022–2024. In addition, a multi-stage sampling was adopted. At the first stage, the sampling is by clusters according to the geographical boundaries of the regions, thus each region constitutes a cluster. In total, there are thirteen regions in Greece. In the second stage, the sampling is systematic, as two municipalities were selected from each region, one very large (urban area) and one very small (rural, mountainous or island area). In the third stage, at least one elementary school, one junior high school and one high school were randomly selected from a list of public schools of the Ministry of Education from each municipality. The representativeness of the sample is reinforced by the fact that each geographical region has different characteristics and by the fact that each school in each large or small municipality was randomly selected. In the fourth stage, questionnaires were completed by students attending the older grades of elementary, junior high and high school. More specifically, in the quantitative research during the school period 2022–2024, fully covered all regions (clusters) and their municipalities. At the national level, the total sample from all research rounds is 4,334 children.

In this article, the emphasis is on Free Healthcare (D.4) of Non-Economic Well-Being, concerning the ability of all children to have unrestricted access to free, high-quality public healthcare services.

3. Empirical findings on multidimensional child poverty in the light of public health (2018–2024)

This section presents the key research findings on child health poverty in Attica during the school period 2018–2023 as well as in Greece during the school period 2022–2024. In this context, the multidimensional characteristics of children living in public health poverty are thoroughly examined and depicted.

3.1. Longitudinal and geographical distribution of multidimensional child poverty in the region of Attica (Greece) in terms of public health (2018–2023)

Data processing (via the SPSS Statistical Software Package) for region of Attica (Greece), based on the multiple index of child poverty [Leriou, 2016 (in Greek); Leriou, 2019, 2022, 2023] for the school period 2018–2023, provides the empirical findings of multidimensional child poverty, which also include the pillar of public health. Total findings regarding all pillars are detailed in KEPE's *Current Issues Bulletin*.[4]

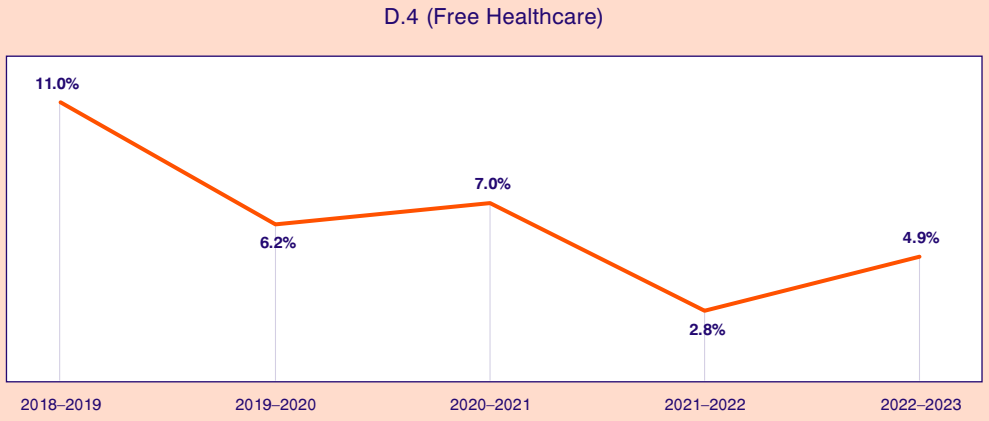
More specifically, with regard to Free Healthcare (D.4) of Non-Economic Child Poverty ($\chi^2_{[4,\ N=5,019]} = 51.632$, $p < 0.001$), a higher share of elementary, junior-high and high school children (11.0%) experienced the lack of unrestricted, free, high-quality healthcare services in the 2018–2019 school year [Leriou, 2024a,b (in Greek)]. In the most recent school year, the percentage of children increased by 2.2% as compared to the corresponding percentage of the previous school year.

Moreover, as depicted in Figure 1, during the 2018–2019 school year, 11.0% of children were classified as poor in terms of free, unrestricted access to healthcare services. During the 2019–2020 school year, this percentage reduced by 4.8%, and 6.2% of children report poverty in terms of public health. During 2020–2021, the percentage increased slightly by 0.8%, and 7.0%

3. For more details kindly refer to: Leriou, 2022, 2023 and Leriou et al., 2021, 2022a, 2022b.

4. Leriou, E. (2024a), Did welfare benefits maintain child poverty at a stable level? (in Greek), *Current Issues Bulletin* (KEPE), 2/2024.

FIGURE 1
Longitudinal child poverty in the region of Attica (Greece) in terms of public health, during the school period 2018–2023 (N = 5,109, $p < 0.001$)



Source: Leriou, 2024 a, Table 2.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

of children report living in poverty in terms of unrestricted access to high-quality and free healthcare services. For the school year 2021–2022, the same percentage decreased by 4.3%, and only 2.8% of children report living in poverty with regard to the public health pillar. By the final school year, 2022–2023, the rate increased by 2.2%, and 4.9% of children live in poverty because of hard access to free healthcare services.

The worst child health poverty in the region of Attica (Map 1) regarding the school period 2018–2023 ($\chi^2_{[6,\ N=5,667]} = 50.053$, $p < 0.001$) is observed in Clusters 3 (10.4%), 4 (7.7%) and 1 (6.6%). And the lowest in Cluster 7 (3.3%).

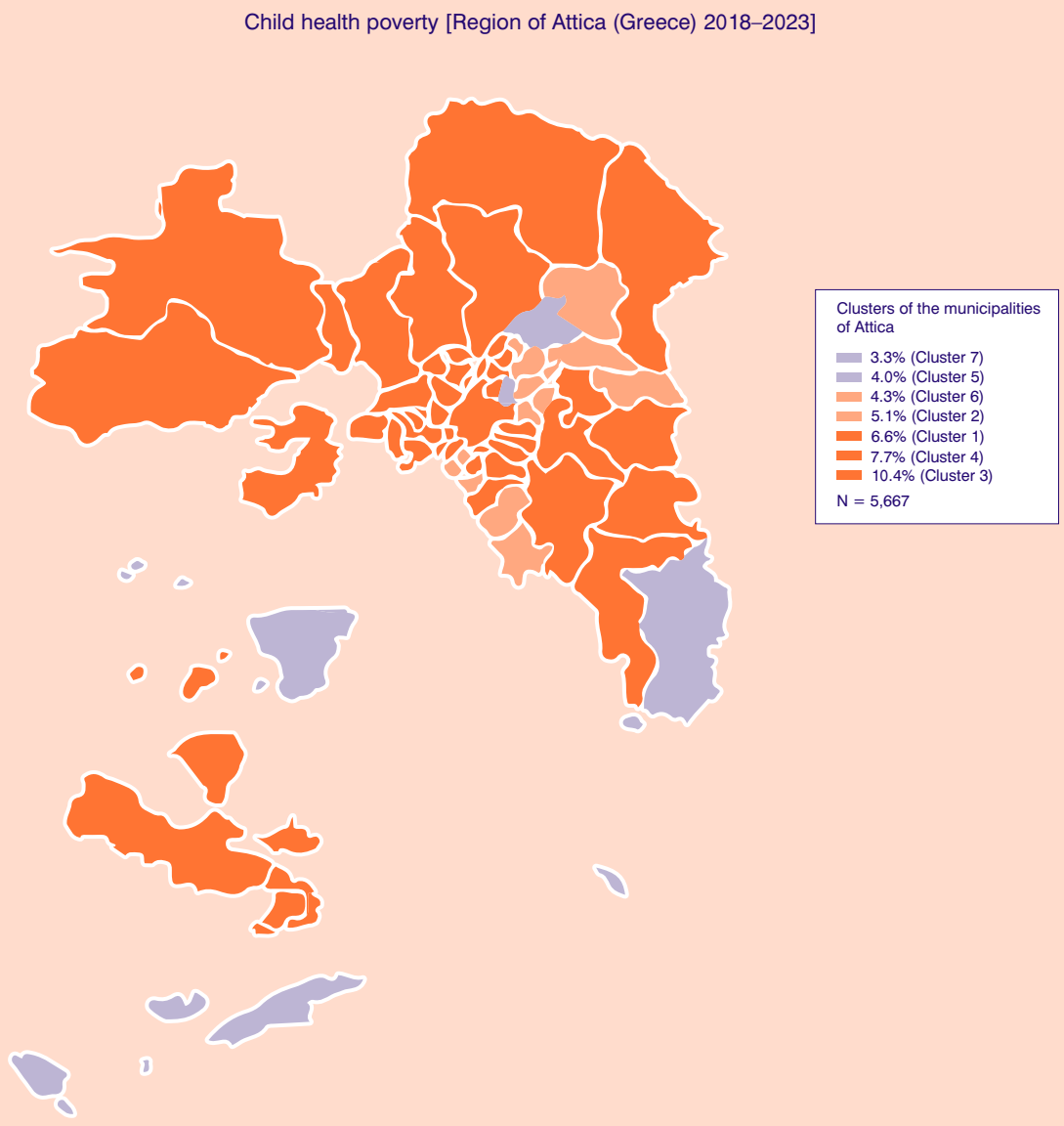
More specifically, Cluster 3 consists of the municipalities: Agios Dimitrios, Agioi Anargyroi-Kamatero, Agistri, Aigaleo, Acharnes, Galatsi, Dafni-Ymittos, Eleusis, Ilion, Kallithea, Keratsini-Drapetsona, Korydallos, Kropia, Mandra-Eidyllia, Metamorfosi, Moschato-Tavros, Nea Ionia, Nikaia-Agios Ioannis Rentis, Piraeus, Peristeri, Petroupoli, Spata-Artemida, Troizinia-Methana, Filadelfeia-Chalkidona, and Haidari. Cluster 4 consists of the municipalities: Athens, Vyronas, Elliniko-Argyroupoli, Zografou, Ilioupoli, Irakleio, Kaisariani, Kythira, Marathon, Markopoulo Mesogaias, Paiania, Pallini, Poros, Saronikos, and Oropos. Cluster 1 consists of the municipalities: Agia Varvara, Aspropyrgos, Megara, Perama, Salamis Island, and Fyli. Cluster 7 consists of the municipalities: Kifissia and Filothei-Psychiko (Map 1).

3.2. Longitudinal distribution and characteristics of multidimensional child poverty in Greece in terms of public health (2022–2024)

Data processing (via the SPSS Statistical Software Package) for the entire country of Greece, based on the multiple index of child poverty [Leriou, 2016 (in Greek); Leriou, 2019, 2022, 2023] for the school period 2022–2024, provides the empirical findings of multidimensional child poverty, which also include the pillar of public health. Total findings regarding all pillars are detailed in KEPE's *Current Issues Bulletin,* 2/2024.

More specifically, during the period 2022–2024, in Greece (Figure 2), Free Healthcare (D.4) of Non-Economic Child Poverty depends on the school year ($\chi^2_{[1,\ N=3,481]} = 5.687$, $p = 0.017$). A higher share of elementary, junior-high and high school children (4.8%) experienced the lack of unrestricted, free, high-quali-

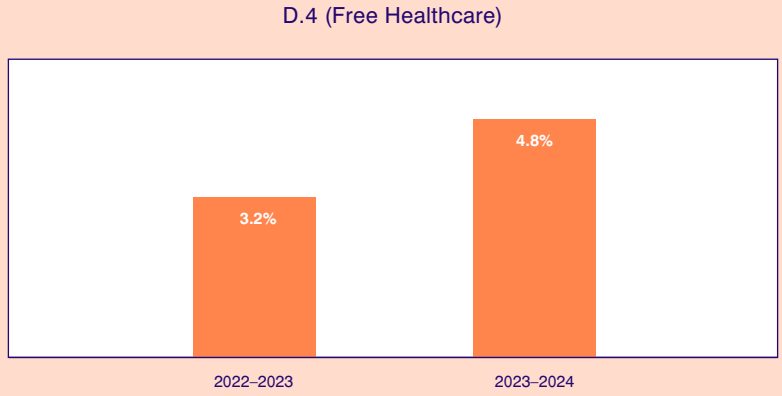
MAP 1
The geographical distribution of child health poverty in the region of Attica (Greece) during the school period 2018–2023 (N= 5,667, $p < 0.001$)



Source: Original data/information processed in QGIS software program retrieved from the following: Leriou, 2016, 2023, 2024a, b (in Greek); Leriou, 2019, 2022, 2023a,d,f,g; Leriou et al., 2021, 2022a,b, 2024c.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

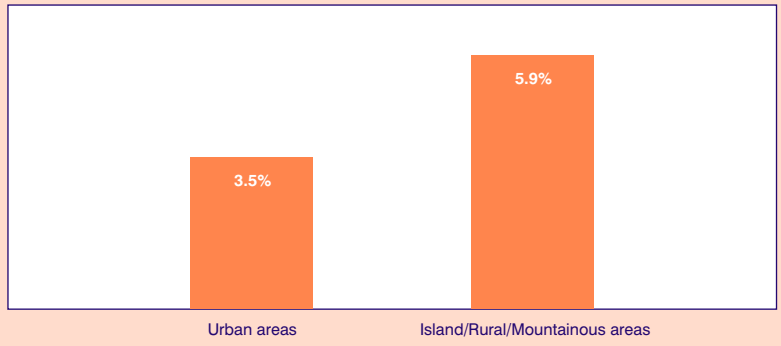
FIGURE 2
Child poverty in the entire country of Greece in terms of public health, during the school period 2022–2024 (N = 3,481, *p* = 0.017)



Source: Leriou, 2024a (in Greek), Table 3.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

FIGURE 3
Child poverty in Greece in terms of public health, per area characteristics, during the school year 2023–2024 (N = 1,647, *p* = 0.026)



Source: Original data/information retrieved from the following: Leriou, 2016, 2024a (in Greek); Yannopoulos & Leriou, 2023; Smile of the Child, 2024a,b; Leriou, 2019, 2022, 2023a,b,c,e, 2024a,b.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

ty healthcare services in the latest school year 2023–2024 (Figure 2). In the most recent school year (2023–2024), the percentage of children increased by 1.6 % (Figure 2) as compared to the corresponding percentage (3.2%) of the previous school year (2022-2023).

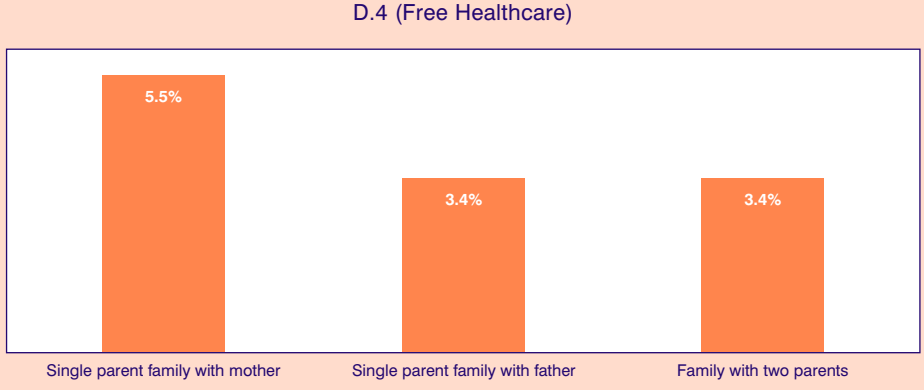
According to Figure 3, during the school year 2023–2024, in the entire country of Greece, more children (5.9%) were poor in terms of public health in island/rural/mountainous areas and fewer (3.5%) in urban areas ($\chi^2_{[1,\ N=1,647]} = 4.989$, $p = 0.026$).

Moreover, children of one-parent households with a mother (5.5%) experienced marginally higher obstacles to unrestricted access to free healthcare services ($\chi^2_{[2,\ N=3,389]} = 5.661$, $p = 0.026$), in the entire country of Greece, during the school period 2022–2024 (Figure 4). Similarly, as shown in Figure 5, children from large families with four or more children (6.3%) are deprived more than children from smaller families regarding their well-being in terms of public health ($\chi^2_{[3,\ N=3,302]} = 9.181$, $p = 0.027$). Furthermore, children with refugee or immigrant background (5.2%) are marginally poorer ($\chi^2_{[1,\ N=3,480]} = 3.041$, $p = 0.055$) in terms of the public health pillar, in the entire country of Greece, during the school period 2022–2024 (Figure 6). Health poverty affects the school performance of both younger and older students in Greece during 2022–2024 (Figure 7). More specifically, children living in health poverty (6.7%) performed the worst in school, according to Figure 7 ($\chi^2_{[2,\ N=3,311]} = 10.523$, $p = 0.005$).

3.3. More characteristics of multidimensional child poverty in Greece in terms of public health (2023–2024)

To further explore the characteristics of children living in health poverty, a multiple correspondence analysis (MCA) was performed in the overall child poverty model, regarding the entire country of Greece, during the school year 2023–2024 (Figure 8). More specifically, to explore if a group of children in poverty is created regarding the "Free Healthcare" indicator of the overall model and to further explore the characteristics of this group a MCA was performed. The performance of the MCA can confirm if the model used in KEPE's *Current Issues Bulletin*, 2/2024, is the most appropriate or not to measure child health poverty. More specifically, if no child group is created

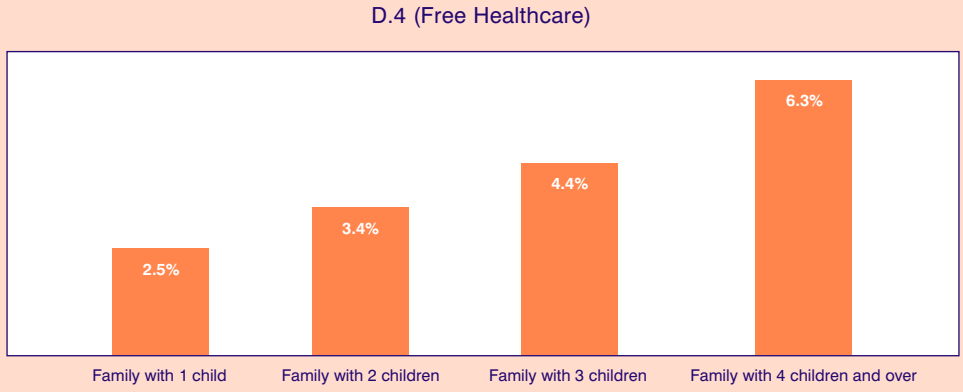
FIGURE 4
Longitudinal child poverty in the entire country of Greece, in terms of public health, by family structure category, during the school period 2022–2024 (N = 3,389, $p = 0.059$)



Source: Original data/information retrieved from the following: Leriou, 2016, 2024a (in Greek); Yannopoulos & Leriou, 2023; Smile of the Child, 2024a,b; Leriou, 2019, 2022, 2023a,b,c,e, 2024a,b.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

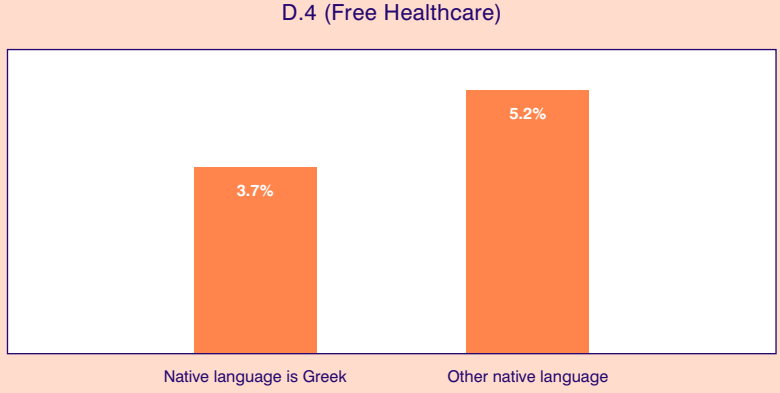
FIGURE 5
Longitudinal child poverty in the entire country of Greece, in terms of public health, by family size category, during the school period 2022–2024 (N = 3,302, *p* = 0.027)



Source: Original data/information retrieved from the following: Leriou, 2016, 2024a (in Greek); Yannopoulos & Leriou, 2023; Smile of the Child, 2024a,b; Leriou, 2019, 2022, 2023a,b,c,e, 2024a,b.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

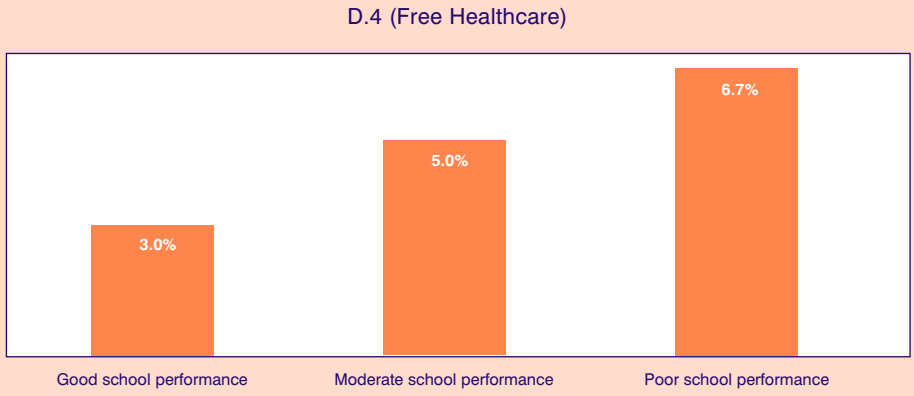
FIGURE 6
Longitudinal child poverty in the entire country of Greece, in terms of public health, by native language, during the school period 2022–2024 (N = 3,480, *p* = 0.055)



Source: Original data/information retrieved from the following: Leriou, 2016, 2024a (in Greek); Yannopoulos & Leriou, 2023; Smile of the Child, 2024a,b; Leriou, 2019, 2022, 2023a,b,c,e, 2024a,b.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

FIGURE 7
Longitudinal child poverty in the entire country of Greece, in terms of public health, by school performance category, during the school period 2022–2024 (N= 3,311, *p* = 0.005)



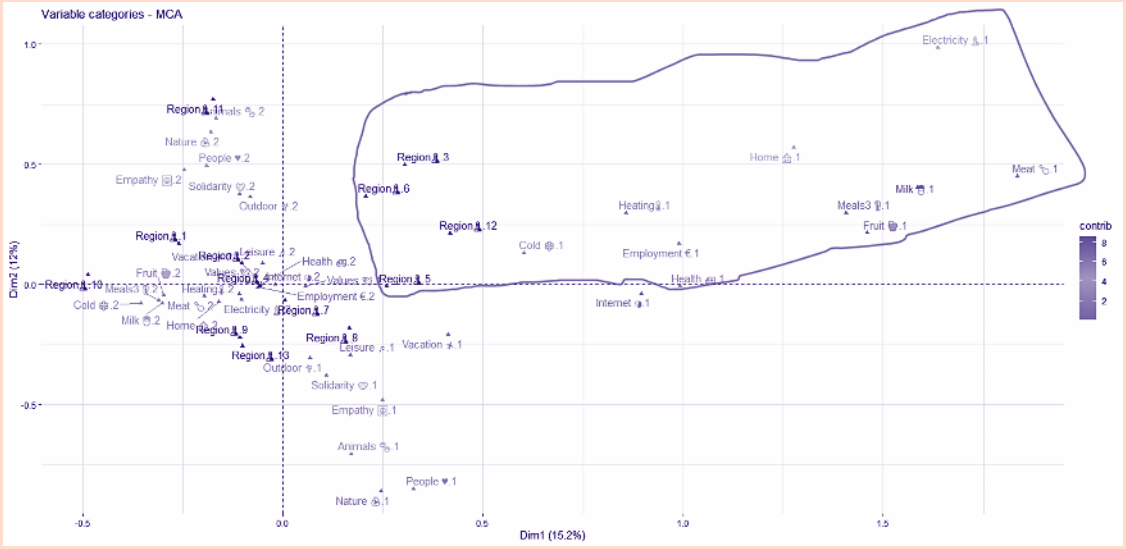
Source: Original data/information retrieved from the following: Leriou, 2016, 2024a (in Greek); Yannopoulos & Leriou, 2023; Smile of the Child, 2024a,b; Leriou, 2019, 2022, 2023a,b,c,e, 2024a,b.

Note: Data collected via child well-being research in public schools conducted from school year 2018–2019 to school year 2023–2024. Totally, eight Waves of Research were conducted in the region of Attica (Greece) and two National Waves. All Research Waves were conducted via licenses issued by the Ministry of Education, in favor of the author (Eirini Leriou) to carry out the research. More specifically, every school year, the Ministry issued two licenses to the author, for primary and secondary education. In summary, all the research and consequently all the data collected were carried out in the context of the licenses issued to the author.

regarding the "Free Healthcare" indicator, a new and different model should be considered. In this light, a MCA is performed using the programming language R, to explore any patterns of children living in health poverty and to examine if the model provided in the aforementioned KEPE's *Current Issues Bulletin* is appropriate, both methodologically and theoretically, for the measurement of child health poverty. The MCA confirms via the results that the model used to measure child health poverty in Greece is extremely valid and, consequently, the most appropriate one. That is, the validity of the theoretical and methodological framework, as well as the broader context of analysis of this article, is verified. The factorial model that was adopted has four main axes that explains 39.8% of the total inertia (the 1st axis explains 15.2% of the inertia, eigenvalue $\lambda_1 = 0.139$; the 2nd – 12.0%, $\lambda_2 = 0.109$; the 3rd – 6.8%, $\lambda_3 = 0.061$; and the 4th – 5.8%, $\lambda_4 = 0.053$). The first two axes explain 27.2% of the total inertia, revealing significant patterns between the categories and reflecting the complexity and multidimensional nature of poverty. All the categories used in the analysis (active and supplementary) are statistically significant according to their v. test calculations. There is a strong contribution of specific variables to the axes that strengthens the validity of the model.

More specifically, the MCA reveals the specific pattern of children (Figure 8) living in poverty in terms of free healthcare and strongly confirms the validity of the model of the aforementioned KEPE's *Current Issues Bulletin* as the most appropriate one for measuring child health poverty. According to Figure 8, grouped above axis one (the horizontal axis) are children (in the outlined grey area) who tend to lack unrestricted access to free and high-quality healthcare services, appropriate nutrition in qualitative and quantitative terms (three meals, fruit, milk, meat), also live in a cold house with dangerous or no heating, have experienced prolonged periods without electricity in their home, been accommodated for long periods away from their homes for serious reasons, and their guardians have experienced unemployment. These children also mainly live in the regions of the South Aegean, Thessaly, the Ionian Islands and Western Macedonia. Essentially, this profile of children (Figure 8) reflects that health poverty follows children with harsh living conditions, specifically children living under conditions of extended child poverty and unemployment of their

FIGURE 8
Multiple Correspondence Analysis (MCA), regarding the school year 2023–2024 (axes 1 and 2)



Source: Original data, using open source and specifically the R Programming Language, retrieved from the following: Leriou, 2024a (in Greek).

Note for the active variables: **1** Poverty, **2** Well-being.

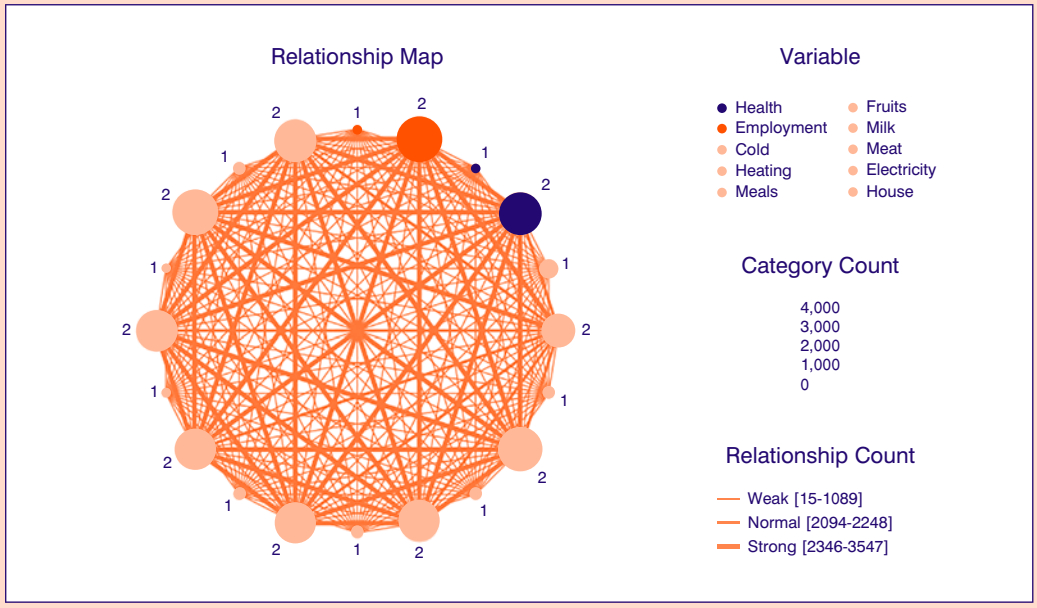
Note for the supplementary variable "Region": **1** Eastern Macedonia and Thrace, **2** Central Macedonia, **3** Western Macedonia, **4** Epirus, **5** Thessaly, **6** Ionian Islands, **7** Western Greece, **8** Central Greece, **9** Attica, **10** Peloponnese, **11** North Aegean, **12** South Aegean, **13** Crete.

guardians and often in areas either damaged by natural disasters (fires or floods) or in areas characterized as island or mountainous.

Also, grouped below axis one (the horizontal axis) are children who tend to benefit in terms of unrestricted access to free and high-quality healthcare services, appropriate nutrition in qualitative and quantitative terms (three meals, fruit, milk, meat), also don't live in a cold house with dangerous or no heating, have not experienced prolonged periods without electricity in their home, not been accommodated for long periods away from their homes for serious reasons, and their guardians have not experienced unemployment. On the basis of this child profile, the relationships among the variables that compose it are further explored.

Further processing of the above variables (using the SPSS Statistical Package) results in the Relationship Map (Figure 9) that depicts the relationships among the variables that look like a network. The larger the circle, the greater the influence of the variable, and the thicker the lines, the stronger the relationships they depict. It is observed that the greatest influence appears in the variable indicating well-being in terms of guardians' employment. Moreover, large circles appeared more in the variables indicating well-being than poverty. Considering the variable indicating well-being in terms of free healthcare, it is observed that it has strong relationships with all other variables indicating well-being. More specifically, children who tend to benefit in terms of unrestricted access to free and high-quality healthcare services, appropriate nutrition in qualitative and quantitative terms (three meals, fruit, milk, meat), also don't live in a cold house with dangerous or no heating, have not experienced prolonged periods without electricity in their home, nor have they been accommodated for long periods away from their homes for serious reasons, and their guardians have not experienced unemployment. Consequently, Figure 9 depicts relationships that look like a network and clearly reveal a pattern of children who benefit in terms of public health mainly because their guardians have a job.

FIGURE 9
Relationship map regarding the school year 2023–2024



Source: Original data processed in the SPSS Statistical Package retrieved from the following: Leriou, 2024a (in Greek).
Note for variables: **1** Poverty, **2** Well-being.

4. Interpretation of the empirical findings and policy proposals for the Social Security system

4.1. Interpretation of the longitudinal distribution of child health poverty

The findings are fully interpreted in the light of the repeated crises that hit our country.

More specifically, the highest rate of child health poverty, according to the above referenced years, is observed in the school year 2018–2019 (Figure 1), as a result of the strong social footprint left by the debt crisis in Greece and the slow reaction to the creation of a strong safety net for the socially vulnerable, when the most important shocks of this crisis were overcome in the Social Security system. This finding is explained sufficiently by the fact that, for many years during the debt crisis, which has increased unemployment as many businesses have closed down, the children of jobless families did not always (under certain conditions) have unrestricted access to free, high-quality health services.

In the next school year (2019–2020), child poverty was significantly reduced in terms of public health, as all uninsured persons were able to access free healthcare services, largely due to the possibility of prescription in both private and public facilities (Figure 1).

In the school year 2020–2021, an increase in child health poverty is observed (Figure 1), as a result of the beginning of the global COVID-19 pandemic crisis in our country in February 2020, which resulted in the overcrowding of public hospitals with cases of this disease. During this period, because of the country's emergency situation, COVID-19 cases usually had immediate priority over other health cases. In this climate, many children reported that they were unable to benefit from high-quality free public health services because in their family circle they may have experienced, for example, the experience of a family member with a history of cancer who was delayed to undergo surgery or other similar examples. Consequently, the children felt that, although they officially had the possibility of free, public healthcare, due to the emergency conditions created by the pandemic in the country's hospitals, they could not use it and therefore it was as if they did not have it.

In the next school year (2021-2022), a decrease in child health poverty is observed as a result of the

emergency measures adopted in our country to stop the spread of the virus and the decongestion of the public hospitals in the country (Figure 1). Public health structures are starting to recover and more and more health cases can be treated in a timely and successful manner. Children feel that they are now able to make full use of their opportunity for free healthcare again and this is accurately reflected in the findings above. In addition, because of the global health crisis, as early as 2020, no insured person lost their insurance capacity even if they were a non-employee who could not pay contributions, and this is also reflected in the results.

In times of crisis, Social Security systems are always affected. The global, economic consequences of the COVID-19 crisis and the subsequent global energy crisis imposed suffocating pressures on Greece's Social Security system. In this light, a middle ground and a golden mean was sought to balance the countervailing forces generated by these crises. More specifically, on the one hand, the already overstressed, due to the Demographic problem, Social Security system is suffocating and cannot support the uninsured persons and, on the other hand, an urgent need for social protection of the uninsured persons arises. In order to find a balance between the above two, prescription for the uninsured persons from July 2022 is now possible only from public structures and not from private ones [article 38 of Law 4865/2021 (Government Gazette 238/A/04-12-2021)]. It is noteworthy to mention, however, that, according to the Ministerial Decision 30268/30-05-2022 (Government Gazette 2673, B, 31-05-2022), for all children (up to 18 years of age), the possibility of prescribing medicines, therapeutic procedures and diagnostic tests by all doctors certified in the Electronic Prescription System, that is also by private doctors, is provided. Consequently, it is notable that, via this middle solution, both prescriptions remain available for the uninsured and children are under a strong safety net, but also the Social Security system is protected from the shocks of the two most recent crises, making it more sustainable. However, as observed in the empirical findings above, the percentage of children who report that they do not enjoy unrestricted access to free, high-quality healthcare services increased in the 2022–2023 school year (Figure 1). This is adequately explained by the fact that the exclusion of prescribing for uninsured adults by private doctors created a wider sense of unsafety for those children who experienced the example of such an exclusion in their wider family environment, either from their parents, their uncles or anyone else close to them. The feeling of uncertainty for some children is further worsened when they are in the third year of high school and they know that in about a year they are in danger, under special, always extreme conditions, of being excluded from the possibility of prescribing in private facilities. Also, many children may feel that, although they are able to access free healthcare services, these are not sufficiently characterised as being of high-quality. In summary, the increase in this rate, during the school year 2022-2023, indicates that more and more children demand better, unrestricted access to free, high-quality healthcare services, not just for them, but for everyone.

The increasing tendency of the percentage of children who report that they do not enjoy unrestricted, free, high-quality healthcare services persists in the school year 2023–2024 (Figure 2), possibly as a result of the feeling of uncertainty generated among children due to the exclusion of uninsured adults from private facilities [article 38 of Law no. 4865/2021 (Government Gazette 238/A/04-12-2021)], in the context of the above-mentioned effort to protect the Social Security system from the consequences of crises, but also because fewer and fewer adult groups of the population are being granted the exceptional insurance capacity (victims of natural disasters, workers at the Skaramanga shipyards, etc.). This finding reveals that children may answer the question on free healthcare by considering not only their current well-being, but also their future as adults.

The rising percentage of children, during the school year 2023-2024, who report living in poverty in terms of public health reveals a broader social demand for better quality and more accessible free healthcare. This finding is supported by the OECD report (OECD/European Commission, 2024) according to which more than one in five Greeks (21%), for 2023, report unmet medical needs due to economic reasons, distance or waiting times, which increases to 23% for the AROPE population.[5] It is surprising that the main reason for unmet medical needs in Greece, and especially for dental care, is the cost, according to the same report (OECD/European Commission, 2024, Fig. 7.2). While it is highlighted that Greece has one of the lowest rates of public spending on health in relation to total public spending (OECD/European Commission, 2024, Fig. 5.6).

In public policy, it is generally true that when a policy is adopted to heal something, it also causes harm

5. Population at risk of poverty or social exclusion.

to something else, no matter how much action is taken to avoid or minimise any harm. This seems to be absolutely true, according to the aforementioned, in the context of the effort to anchor the Social Security system in a safe port, after sailing in the dangerous, wild seas that the recent crises have led it to. However, alternative policy proposals for the Social Security system could also be considered, which are set out below in this section.

4.2. Interpretation of the specific characteristics of child health poverty

Children who report living in health poverty, either in terms of unrestricted access to free healthcare services or in terms of high quality, free healthcare services, present specific characteristics: They live in remote island, rural or mountainous areas (Figure 3), and/or in single-parent households with a mother (Figure 4), and/or in large families (Figure 5), and/or have a refugee/immigrant background (Figure 6), and/or have unsatisfactory school performance (Figure 7). Of particular interest is the fact that child health poverty is proportional to an expansion in the number of children in the family. For up to three children in the family, health poverty increases by about 1% for each additional child and then increases more rapidly by 2% (Figure 5), similar to school performance. As we move into a worse school performance category, health child poverty increases by about 2% (Figure 7). The highest rates of health poverty are also observed in large families with four or more children (6.3%), and among children with poor school performance (6.7%). A relationship is presented here that should be of concern, as children living in health poverty are potentially driven to both poor school performance (Figure 7) and/or low academic performance (Kaya & Erdem 2021) and are consequently more likely to find themselves in either unemployment or precarious work in the future (OECD, 2024) and are therefore more likely to be perhaps, under certain conditions, driven into the category of uninsured citizens who are excluded from the possibility of prescribing in private facilities [Article 38 of Law No. 4865/2021 (Government Gazette 238/A/04-12-2021)].

The above characteristics of children who are poor in terms of public health bring to the surface the ongoing, multi-year (at least 50 years) social dialogue in our country on the need for more and higher quality public health structures on our islands and in our mountainous and rural areas. This dialogue is further strengthened by the fact that the repeated crises in Greece have seriously affected the quality of free healthcare. Both the large wage increase and the long-term hiring of doctors who are called upon to staff these areas, and the general expansion of motivation for more and more doctors to move to these areas, could perhaps help to improve public health care in areas of the country remote from Athens. It is considered necessary to attract funds in order to upgrade the regional healthcare facilities and healthcare centers to more organized public health structures, staffed with a sufficient number of doctors, all days of the week and all hours of the day, equipped with the appropriate, innovative and modern medical equipment and consumables in areas remote from Attica, in order to tackle child health poverty in mountainous, island and rural areas. This could possibly help to increase both tourism and the number of permanent residents in these areas, which are gradually becoming deserted. Ensuring that children access free, high-quality healthcare services in their own area and not in other close-by areas is considered to be straightforward and, consequently, appropriate and is considered necessary in the context of the *European Child Guarantee,* on the basis of which Greece submits biennial progress reports to the European Commission on the basis of the actions taken to reduce the various kinds of child poverty (income, health, energy, education, etc.).

The fact that health poverty is more prevalent among children living in single-parent households with a mother, in large families and among children with a migrant or refugee background (Figures 4-6), possibly reveals that, due to the general economic hardship in the family environment of these children, and consequently the inability to pay for and use private insurance, these children make more frequent use of public healthcare, with the result that they are more likely to identify any weaknesses in its quality than other children who could, for example, consider and benefit from the services of a private hospital. This finding reveals that the social need for higher quality public healthcare services is obvious on a wider scale and not only in remote areas. Consequently, in the light of the *European Child Guarantee,* coordinated actions should be taken to improve the quality of public health services in the whole country. In this sense, it would be beneficial again to attract funds for higher quality equipment and buildings, but also to increase the wages of the doctors who staff the public health structures. The search for donations and other similar funds (European, etc.) will be necessary so that Greece is not derailed in terms of public finances. Moreover, the above findings reveal that the debt crisis in our country may have resulted in the deterioration of the quality of services of public healthcare facilities, and any derailment of our public

finances, which may lead to a new debt crisis, will further deteriorate these services.

A very harsh reality is reinforced by the finding that health poverty seems to drive children to poor school performance (Figure 7), via which a vicious cycle is established. More specifically, as the findings in this article reveal, crises are likely to lead to unrestricted access to free public healthcare services, either directly via the strangling of public finances leading to poor quality public healthcare services, or indirectly via the suffocating pressures imposed on the Social Security system, making it unable to fully support the uninsured persons who fail to pay contributions. All these do not leave the well-being of children without impact, as child health poverty increases. But child health poverty in turn potentially drives poor school performance of affected children (Figure 7), which in turn potentially drives future adults who may face unemployment or find themselves in precarious jobs (OECD, 2024). In this context, the social security system may, in the future, face a new crisis and new pressures from the lost contributions, which will limit its sustainability. Consequently, the crises that Greece has experienced will potentially lead to new crises within the Social Security system in the future, because of the "mechanism" developed based on school performance regarding children who are now living in health poverty. This is a vicious circle in which crises drive the Social Security system to new crises in the future. However, here another cycle can be observed, again centered on inadequate school performance. The children who are living in health poverty today are likely to live with it in the future as adults, as they are likely to become uninsured and lose part of the privileges of the insured in terms of free healthcare [Article 38 of Law 4865/2021 (Government Gazette 238/A/04-12-2021)]. Consequently, two concentric vicious circles centered on school performance are created here: the start of one is crises and again closes at crises and the start of the other concentric circle is health poverty and again closes at health poverty.

A further, different vicious circle is emerging with regard to Demography. It is a well-known fact that a serious problem with regard to the Social Security issue that the whole of Europe, and especially our country, has had to deal with in recent decades is the decline in numbers of births. This does not leave the free health care sector and the main Social Security organization in Greece (from the aspect of healthcare), which is the National Organization For Health Care Services (EOPYY), a legal entity under public law, unaffected. More specifically, EOPYY receives contributions by the current and even retired employees in order to cover the costs of medical procedures of a group of patients (insured employees, pensioners, children, etc.). By nature, this kind of organization is more sustainable the more young workers there are, who contribute to it, without, at the same time, burdening it with the costs of their medical operations, because of their young age, which usually implies good health. Consequently, as long as the Demographic problem is solved, new births increase and the human, labor force is continuously enriched with people of a younger age, the sustainability of the Social Security system in Greece increases. The more we deviate from such a situation because of the failure to solve the Demographic problem, the more the sustainability of an organization such as this one is reduced. The fact that an alarmingly high percentage of children (6.3 %) who live in health poverty belong to large families with four or more children (Figure 5) reveals that this in itself is an obstacle to solving the Demographic problem, which would regenerate the sustainability of the Social Security system. Young people may not be motivated to start families with many children, as these children are likely to face, among other things, health poverty. On the other hand, the under-birth rate worsens, as revealed above, the problems of the Social Security system, as it restricts its sustainability, making it difficult to fully support uninsured citizens [article 38 of Law 4865/2021 (Government Gazette 238/A/04-12-2021)], increasing the health poverty of adults. Increasing adult health poverty potentially leads to a further decrease in births and an increasing Demographic problem, as these adults may not be motivated to start a family with many children, as they are already in poverty in terms of free healthcare and this, in any case, makes their daily life and survival more difficult. The new possible worsening of the Demographic problem drives new pressures on the Social Security system and a vicious circle is established between the Demographic problem, and the sustainability of the Social Security system, with health poverty as the common denominator. This further reinforces the need for coordinated action to improve public health services, both in remote areas and beyond. Providing better free health services would reduce child health poverty. This reduction would probably encourage young people to start families with many children, as they would feel safe that the children they bring into the world will not suffer from health poverty. Furthermore, it is widely accepted that when a state can provide its citizens with the "good life" in terms of health, education, wages, nutrition, leisure, culture, etc., then births increase and vice versa (Benassi & Salvati, 2019; Glass & Waldrep, 2023; McDonald, 2006; Sobot, 2023; Wang & Dong, 2024). More births would solve the Demographic

problem and the solving of the Demographic problem would lead to an enhancement of the sustainability of the Social Security system. Of course, the repeated crises that our country experienced didn't favor the situation, so that the state could fully guarantee the "good life" to its citizens unhindered. Consequently, these crises also contributed to the worsening of the Demographic problem, which in turn imposed further suffocating pressures on the Social Security system.

In addition, child health poverty appears in children who suffer from other deprivations at the same time (Figure 8). More specifically, children who report public health poverty are also deprived of appropriate nutrition in qualitative and quantitative terms (three meals, fruit, milk, meat), they also live in cold houses, with dangerous or no heating, have experienced prolonged periods without electricity in their homes, have been accommodated for long periods away from home for serious reasons and their guardians have experienced unemployment. The unemployment factor plays an important role in shaping these children's pattern (Figures 8 and 9). It is revealed as in the above categories that here too these children may feel poor in terms of public health due to the inadequate quality of public healthcare services. Beyond this, as this pattern of children reveals a general economic hardship due to the unemployment of their guardians, it is possible that even the participation in medicines and examinations via the EOPYY may be forbidden for these children. Consequently, this group of children not only expresses the social demand for a higher quality of healthcare services but also the demand for purely free healthcare. Of course, even the aforementioned categories of children who report health poverty may be voicing the need for completely free healthcare.

4.3. Policy proposals for the Social Security and Demographic issues

All the above findings reveal that the recent crises that hit Greece have affected the quality of the free healthcare services, while in addition, both these crises and the Demographic problem, which was further worsened by them, have led the Social Security system between Symplegades.[6] In this extreme situation, a golden mean was sought to save the Social Security system and social protection at the same time [article 38 of Law No. 4865/2021 (Government Gazette 238/A/04-12-2021) and Ministerial Decision 30268/30-05-2022 (Government Gazette 2673, B, 31-05-2022)], however, other alternatives such as the following could possibly be considered [Leriou, 2024c (in Greek); Leriou, 2024a,b]:

1. All medical procedures for children in the above categories who face health poverty to be fully funded by the EOPYY. More specifically, the participation of their guardians in them should be purely zero. Consequently, it is proposed that purely free healthcare could be considered:
   i. for children from mountain/insular/rural areas,
   ii. for children living in single-parent families,
   iii. for children living in large families,
   iv. for children with a refugee or migrant background,
   v. for children where both guardians are unemployed,
   vi. for children living in the regions of the South Aegean, Thessaly, the Ionian Islands and Western Macedonia,
   vii. and for those children who may be affected by natural disasters (floods, fires, etc.) in the future.

   To ensure that the Social Security system would not become in deficit due to this additional cost, the proposals in Leriou (2024c, in Greek) could be considered as possible solutions. The possible adoption of such a policy is expected to have positive impacts on the school performance of students in the above-mentioned groups, as, according to Kofinti et al. (2023), it could reduce household health expenditure and, consequently, increase educational expenditure for improving children's school performance. This improvement implies greater sustainability of the Social Security system in the future.
2. In addition, the preventative (and obviously not repressive) application of a compliance and ethics program within the EOPYY could be considered. A compliance and ethics program is defined as a program designed to prevent and detect illegal behavior and can be implemented in pension funds and social security institutions in general [Leriou, 2011, 2016 (in Greek); OIG, 2020]. The implementation of compliance and ethics programs in Social Security institutions has been

6. Like Jason in Greek mythology, navigating between the Symplegades — the Clashing Rocks that threatened to crush his ship — as told in Apollonius of Rhodes' *Argonautica.*

associated with strengthening the sustainability of Social Security systems (Bovens, 2007; OIG, 2020; OECD, 2020).

3. In addition, it could be considered that the Government Decision 30268/30-05-2022 (Government Gazette 2673, B, 31-05-2022), through which the possibility of prescribing medicines, treatments and diagnostic tests by all doctors certified in the Electronic Prescription System for all children (up to 18 years of age) is provided, could be extended to include all young people up to a certain age.

4. In order for the Social Security system to "breathe", the Demographic problem must be addressed first and foremost. It is shown above that improving the quality of public healthcare services will not only reduce child health poverty, but also address the Demographic problem. Coordinated efforts in this regard, such as those described above, are considered useful in order to address the demographic issue and via this to rehabilitate the Social Security system.

In summary, the social need for better unrestricted access to free, high-quality healthcare services has always, over the years, been present in Greece. Nowadays this need is becoming more urgent because of the new responsibility of Greece in the context of the *European Child Guarantee.* The above policy proposals for the Social Security system (from the perspective of healthcare provision) are suggested in this obligatory framework to tackle child health poverty.

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