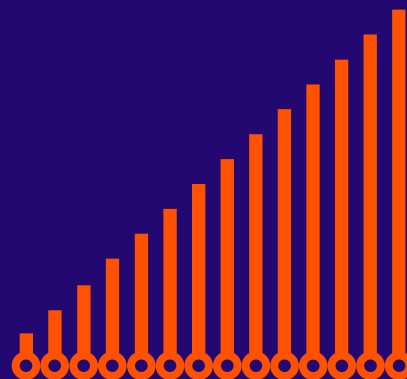
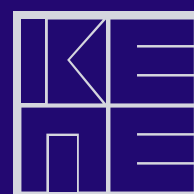


GREEK ECONOMIC OUTLOOK



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



GREEK

Economic Outlook

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The global economy is entering a period in which growth prospects are being shaped within a renewed environment of heightened uncertainty. Following a prolonged phase of intense volatility associated with the pandemic, disruptions in energy and food markets, and broader geopolitical tensions, recent developments in the international geopolitical landscape underscore the continued fragility of global economic conditions. At the same time, developments in monetary policy, the persistence of inflationary pressures in specific sectors, and the slowdown of activity in certain major economies together form an environment in which growth prospects remain open, yet are accompanied by elevated risks and significant challenges.

Within this international context, the Greek economy continues to record positive performance, maintaining growth rates that exceed the average of the Eurozone. At the same time, however, issues related to the structure of production, the dynamics of demand, inflationary pressures in key sectors, and long-term challenges concerning productivity, governance, and institutional functioning are becoming increasingly apparent. Understanding these developments is crucial for shaping effective public policies and for assessing the prospects of the Greek economy in a rapidly changing environment.

This issue of the journal seeks to contribute to this discussion by providing a comprehensive overview of the main economic developments and structural changes shaping the trajectory of the Greek economy.

The first section examines current economic developments and changes in the economic environment at both national and international levels. Particular emphasis is placed on governance and on how institutional structures and social expectations influence the productive model of the Greek economy. At the same time, the evolution of the main components of demand during the first nine months of 2025 is analyzed, offering insights into the sources of economic growth and the changing contributions of private consumption, investment, and the external sector. Special attention is also given to inflation developments in Greece and the Eurozone. Although headline inflation indicators show signs of deceleration compared to the period of intense inflationary pressures, significant price increases continue to be recorded in specific categories of goods and services, such as food,

housing, and accommodation and food services. The same section also presents short-term GDP forecasts based on modern quantitative methods that utilize a large number of economic indicators. In addition, developments in the Greek stock market are examined, which in 2025 appears to be entering a phase of increased momentum, reflecting both improved economic prospects and heightened investor interest. The section concludes with an overview of global economic developments. Despite the heightened uncertainty that continues to characterize the international environment, estimates converge towards a relative stabilization of global GDP growth. However, the persistence of geopolitical tensions, changes in global production chains, and differing growth rates among major economies render the international economic environment particularly complex.

The second section focuses on fiscal developments, which continue to constitute one of the most important factors of macroeconomic stability. It examines the course of the state budget, the evolution of public debt, and the outlook for key fiscal aggregates, during a period when fiscal policy must balance the need for stability and the need to support economic activity. At the same time, the relationship between fiscal policy, public debt, and the economic cycle in the Greek economy is analyzed, highlighting the interactions that shape the country's fiscal dynamics.

The third section addresses issues related to human resources and social policies. Developments in the labor market constitute a key indicator of economic activity and social well-being. In this context, recent changes in key labor market indicators, such as employment and unemployment, are presented, along with emerging trends in the structure of employment. At the same time, the evolution of indicators of poverty, social exclusion, and material deprivation over the period 2010–2023 is examined, providing a comprehensive picture of the social impacts of the economic crisis and the subsequent recovery period.

The fourth section focuses on issues related to reforms and the dynamics of growth. It examines developments in the effectiveness of governance in the Greek economy, as well as the role of institutional changes in improving the functioning of public policies and economic institutions. In parallel, structural changes in employment in the agricultural sector are

analyzed, a sector which continues to play an important role in regional development and in shaping the country's productive structure.

The issue concludes with a section on special topics that explore the relationship between education and the labor market in Greece. These analyses investigate both the returns to education and the changes observed over recent decades, providing empirical

evidence on the importance of human capital in shaping incomes and career prospects. At the same time, the issue of vacant positions in Greek universities and the role of the minimum admission requirement are examined through the analysis of applicants' preferences and the choices that shape the structure of higher education.

1. Recent economic developments

KEPE, *Greek Economic Outlook*, issue 59, 2026, pp. 5-17

1.1. Governance and development strategy in the Greek Economy: Global trends, subjective expectations, and the productive model¹

Panagiotis E. Petrakis*,

Pantelis C. Kostis**

This article analyzes three key dimensions of the governance of the Greek economy:

1. the relationship between governance and global economic, technological, and social developments,
2. the interaction between subjective perceptions of the future and objective economic prospects, and
3. the role of governance in transforming the production model.

The aim is not merely to describe aspects of governance in an economy attempting to return to a “difficult normality,” but to highlight how global tectonic shifts, the collective “trauma” of the crisis, and idiosyncratic institutional and productive structures are currently shaping the margins and limits of economic policy in Greece.

More specifically, the article poses three questions:

- how the current phase of long waves of development and geopolitical realignment translates into challenges and opportunities for the economy,
- how subjective expectations and memories of the crisis influence the acceptance and effectiveness of policies, and
- how the Growth Constraint Model operates in the Greek economy and what are the key pathways to overcoming it in order to achieve more dynamic and sustainable growth.

The Growth Constraint Model attempts to explain why certain economies—and the Greek economy in particular—manage to achieve positive growth rates but fail to generate consistently high and long-term growth. Rather than attributing this inability to isolated policy errors, the model focuses on a self-reinforcing homeostatic system, within which institutions, market structures, and social norms co-evolve and reproduce a low but stable growth equilibrium. Its contribution lies in shifting the focus of the discussion from the technical improvement of individual policies to a systemic understanding of the constraints that prevent reforms from succeeding. In this context, the Greek economy is used as a prime example of a country with real potential for overcoming these constraints, which, however, can only be realized if the deeper structural interactions that maintain the current equilibrium are addressed.

1.1.1. Governance and global economic, technological, and social development

Governance has always been difficult, but it has become even more so. This is reflected in the fragmentation of political representation and the difficulty of forming collective social agreements, as well as in the structural trade-offs inherent in nearly all policy decisions.

This increased difficulty is related to three factors: a) the current stage of long-term economic and technological development, b) geostrategic shifts, and c) the role of personality in politics. Leaving aside this last important factor, we focus on the long-term economic and technological evolution of the global development of social and political systems.

The world has experienced and is currently experiencing the lowest phase of the so-called fifth major wave of growth (1980s–2020s) in the global economy (over the 250 years of developed capitalism) and, possibly, the dawn of the sixth major wave (Petrakis, forthcoming [c]). This fact, as one would naturally expect, has technological, economic, social, and political implica-

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1. The authors would like to extend their warmest thanks to Professor Antigone Lyberaki of the Department of Economics and Regional Development at Panteion University and Professor Elias Caragiannis of George Washington University for their constructive comments on the text.

tions and a strongly negative impact on the position of the middle class (Rodrik, 2025).

The nature of the technology developed during the fifth wave of development (Brynjolfsson & McAfee, 2014; Castells, 1996; Petrakis, forthcoming [c]) was characterized by a series of technological changes that brought about significant and profound shifts in the production patterns of economies worldwide as well as in social balances.

First, the technological changes of the fifth wave—microelectronics, digitization, the internet, ICT, and the knowledge economy—created a productive environment where automation, networking, and the rapid dissemination of information are reshaping the forms of production organization. At the same time, the rise of sixth-wave technologies (AI, biotechnology, green energy, personalized medicine) (see, e.g., Aghion et al., 2016; Ashley, 2016; Petrakis, forthcoming [d], forthcoming [c]; Schwab, 2017; Tylecote, 2018; Uctu et al., 2024; Carayannis and Zota, 2025a) is accelerating structural changes even further.

At the same time, demographic trends such as the aging of societies (Petrakis, forthcoming [h]; United Nations, 2019), combined with increased international population mobility (United Nations, 2025), are altering the way in which productive resources, labor, and the demand for public policies are distributed. The globalization of trade and technological networks has strengthened interdependencies and accelerated the shifts in capital, production, and skills.

These developments have led to four key consequences:

- a) the decline of the traditional industrial base (Bergner & Frey, 2016), which underpinned traditional labor relations (and class organization),
- b) the growth of the service sector and, consequently, the prevalence of greater social fluidity (Petrakis, forthcoming [e]),
- c) the concentration of technology ownership—Big Tech companies that have reached the point of competing with national sovereignty and state capitalism (Bollerman, 2025; Chatzistavrou & Chardas, forthcoming; Garcva, 2024; Petrakis, forthcoming [a])—and
- d) the transformation of media standards and platforms (Kotsakas, forthcoming; Papathanasopoulos, forthcoming).

Consequently, greater social fluidity creates the need to form new identities, resulting in a constantly reshaping political landscape (Petrakis, forthcoming [e]; Petrakis et al., 2024).

Furthermore, the decline in the previous phase of development and the rise in the new one are characterized by an intensification of creative destruction (Acemoglu, 2024; Kurz et al., 2018; Petrakis, forthcoming [d], forthcoming [i]) and the emergence of new equilibria at all levels of human activity.

At the same time, a new geostrategic landscape is taking shape, characterized by a multipolar power struggle, with the global institutions established in the post-war period facing pressures to discredit them (Cohn, 2016; Leonard, 2023). However, when global institutions are replaced by power politics until new ones are created (if and when), the international environment changes, and the question arises as to whether this change takes a positive or negative direction with regard to prosperity. This is a global situation that bears a stronger resemblance to the pre-World War I era and certainly bears no relation to the post-World War II era.

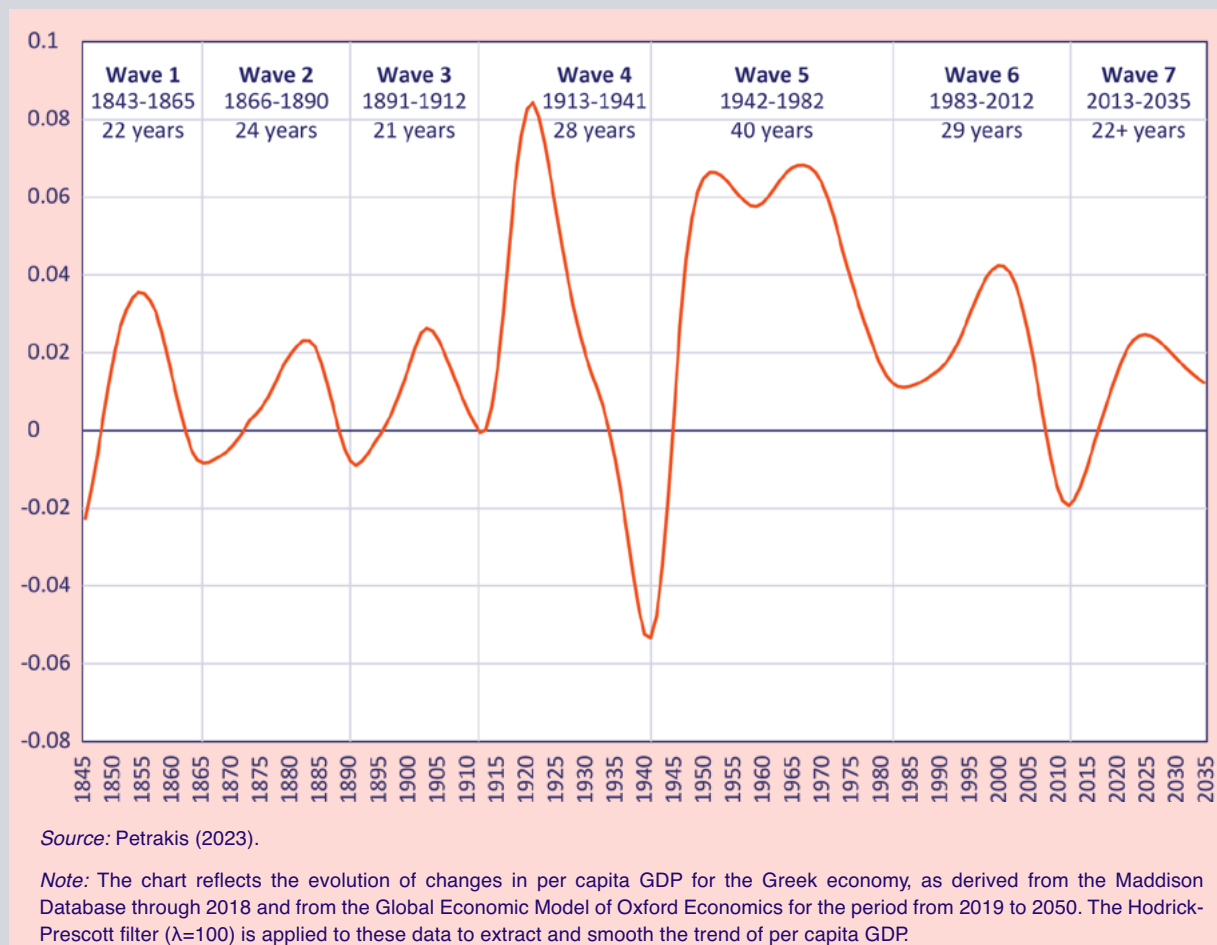
However, the weakening of international communication channels and the rise of new players seeking to reposition themselves in the future international order are shaping international relations in a fragmented new world. At the same time, the intensification of creative destruction, the saturation of existing technologies, the overaccumulation of capital, the decline in returns on investment (the desertification of industrial areas in the U.S., the readjustment of the business model in Germany [cheap energy, exports] and China [excessive investment]), along with tensions arising from migration flows from the Global South to the North, are creating in the West the “cultural backlash syndrome” (cultural backlash, see Norris & Inglehart, 2019), which fuels internal, social, and political populism and subsequently fiscal imbalance (debt expansion) as well as economic nationalism (Guriev & Papaioannou, 2022) and the rise of borders around the world, and thus the potential for the use of violence as a means of advancing particular interests.

At the same time, the importance of concepts such as “economic security” (see Yuzue & Sekiyama, 2025) and the “weaponization of interdependence” (see Farrell & Newman, 2019) is increased, as they become tools for shaping the terms of economic exchange in international economic relations.

One of the points of particular interest is the stage of development we find ourselves in today: are we in the decline of the fifth wave or the rise of the sixth wave? The issue is of particular importance because it is during the rise (five previous waves) that the most intense military conflicts occur and significant episodes of inflation are observed, as old and new protagonists use every available means to position themselves within the new global *status quo*. The whole issue requires

FIGURE 1.1.1

Long-term real fluctuations based on the evolution of per capita GDP in the recent history of the Greek economy and forecasts for the future



considerable analysis (justification, reliability of observation), but according to several indications—which mainly concern the faster adoption of AI technology (McKinsey & Company, 2025)—we are in the ascending phase of the next cycle, with all that this may entail.

In this context, the possibility that we are already moving toward the rise of the sixth wave of development is of particular importance for Greece. Historically, the rise of a new technological paradigm creates “windows of opportunity” for economies that did not play a leading role in the previous wave, allowing for a realignment of positions in the global production hierarchy.

All of the above factors (the international context, domestic balances) are also reflected in Greece and complicate national policy choices, creating both positive and negative opportunities.

Greece has a production model of limited technological and capital intensity (Petrakis, forthcoming [i]) that does not suffer particularly from the turbulence of the transitional phases of global development. Thus, Greece did not participate significantly in the previous major wave of growth (Petrakis, forthcoming [f]), mainly due to the low technological and capital intensity of its production model. This same characteristic, however, served as a “shield” against the high cost of creative destruction suffered by economies with a more complex industrial structure. As the new wave rises, this fact could become a springboard for a “leap forward,” provided that Greece capitalizes on the advantages emerging in the current situation.

However, it has a significant opportunity (given the nature of economic developments) to participate from now on in global economic development centered

on: (a) capitalizing on the energy transition and the country's role as a producer and transit hub for green energy (Petrakis, forthcoming [h]), (b) the potential for a technological leap through the startup ecosystem, and (c) strategic investments in digital and network infrastructure that reduce the structural constraints of the production model. In other words, the upswing phase creates a window of opportunity that, under conditions of effective governance, can transform weaknesses into advantages of rapid adaptation.

We are at the same structural juncture that historically produced major economic and social realignments, which, this time, however, also carry the character of a developmental opportunity.

1.1.2. Governance, subjective perception of the future, and objective perspective

During the period 2009–2013 (2013 marked the lowest point of the recession), real GDP declined by 23.9% (Table 1.1.1). To date, 14.1% has been recovered, leaving a shortfall of 9.8%, which is expected to be recovered by 2031.

From an economic analysis perspective, comparing with 2009 is not the best idea, as 2009 was the peak year of “debt recklessness.” But even today, if there were those willing to lend to us, we could reach the prosperity levels of 2009 within two to three years with a “lending dividend.” However, obviously, that was not and is not the goal. What matters is that we return to previous levels of prosperity and achieve new levels of prosperity in a “financially sound” way: through investment and (the key objective) increased productivity, while, of course, improving consumption.

However, during the period 2010–2017, citizens have in a sense experienced a “trauma” equivalent to a collective loss with several elements akin to the so-called “grief cycle,” which has not yet been completed for everyone: denial, anger, bargaining, depression, and acceptance. Different social groups pass through these stages in an asynchronous manner.² Generally speaking, those who are the most privileged (eco-

nomically) and informed (cognitively) are in the more advanced stages, or have even left them behind, while the less privileged are still in the early stages. Thus, those who were of working age in 2010 (30, 40, and 50 years old) experienced a sharp decline in their financial situation and, most importantly, their prospects for future development became clouded. Furthermore, population groups such as retirees, public sector employees, and qualified university graduates all experienced a prolonged period of continuous (three) austerity memoranda. Obviously, the discussion also refers to the “mechanics” of the “bailout,” but this is not the subject of the present article, although it could contribute significantly to the economic literature.

Analysts understand the concept of “trauma” primarily through the “subjective perception of poverty” indicator compiled by Eurostat, as an indicator reflecting the socioeconomic situation in Europe.³ This indicator for Greece in 2024 stands at 66.8% (see Eurostat, 2025d); in other words, 66.8% of respondents believe they are (currently) at risk of falling into poverty, while the EU-27 average stands at 17.4%! It should be noted that in 2013 this indicator stood at 78.3% for Greece and at 30% for the EU-27 (which was also in crisis at the time).

The trend in the subjective perception of poverty, however, is slightly downward. From 76.8% in 2013, it stands today at 66.8%. In fact, the greatest improvement has occurred in recent years. This explains why there are now also subjective signs of optimism for the future, albeit to a limited extent (see GPO Barometer 2025; Papargyris, 2025).

In fact (based on data from ELSTAT and Eurostat), it appears that those at risk of poverty (income below 60% of the median income)—that is, those suffering from severe material and social deprivation and living in households with very low work intensity—account for 26.9% of the population in Greece, while in the EU-27 the figure is 21% (Eurostat, 2025c). This demonstrates that the problem is real, but it does not correspond to the extent of the subjective perception of poverty. In fact, even the issue of income distribution does not justify the rates of subjective perception

2. To understand social reactions during the period 2010–2017, the classic Kubler–Ross model (1969) (denial, anger, bargaining, depression, acceptance) is useful. Greek society did not move uniformly through these stages: the economically stronger and cognitively more adaptable groups moved more quickly toward “acceptance,” while more vulnerable groups—such as public sector employees, retirees, and working-age individuals who saw their professional careers interrupted—remain in intermediate phases. This asynchronous evolution explains part of the current institutional and political fluidity.

3. Subjective poverty is an indicator developed to complement more traditional poverty indicators (e.g., at-risk-of-poverty), and is based on households’ *subjective assessment* of their financial situation (Eurostat). The measurement is conducted through surveys in which households answer a question about their ability to make ends meet based on their own experiences. Specifically, households are asked in the survey how easily or difficultly they can “make ends meet.” There are 6 response options: 1) with great difficulty, 2) with difficulty, 3) with some difficulty, 4) fairly easily, 5) easily, and 6) very easily. A household is considered to be in subjective poverty when it responds that it makes ends meet “with great difficulty” or “with difficulty.”

TABLE 1.1.1 Key income figures in Greece: 2009–2030

Greece	2009	2013	2014	2015	2016	2017	2022	2023	2024	2025	2026	2027	2028	2029	2030	2009- 2025	2013- 2025	2017- 2025	2025- 2030
1) Nominal GDP (bn euros)	234.49	178.16	176.18	175.29	174.62	177.25	207.08	224.39	236.85	250.83	264.67	274.69	284.57	294.44	304.27	7.0%	40.8%	41.5%	21.3%
2) Real GDP (bn euros)	227.57	173.23	174.75	174.32	174.24	176.72	192.15	196.62	201.10	205.21	209.55	212.56	215.53	218.59	221.52	-9.8%	18.5%	16.1%	7.9%
3) Disposable income (euros)	-	15,032	16,321	16,617	16,778	17,564	21,230	23,552	-	-	-	-	-	-	-	-	56.7% (2013- 2023)	34.1% (2017- 2023)	-
4) Monthly disposable income (euros)	-	1,253	1,360	1,385	1,398	1,464	1,769	1,963	-	-	-	-	-	-	-	-	56.7% (2013- 2023)	34.1% (2017- 2023)	-
5) Minimum wage in euros	881.5	740	771	773	780	787	919	1,016	1,093	1,161	-	-	-	-	-	31.7%	56.9% (2018- 2022)	47.5%	-
6) Real Salary Oxford (euros)	14,291	13,844	14,026	13,619	13,622	13,109	12,667	14,066	14,937	15,775	16,430	17,013	17,707	18,387	19,094	10.4%	13.9%	20.3%	21.0%
7) Gini coefficient	-	-	34.5	34.2	34.3	33.4	31.4	31.8	31.8	-	-	-	-	-	-	-	-7.8% (2014- 2024)	-4.8%	-
8) Income quintile share ratio (S80/S20)	5.76	6.6	6.5	6.5	6.6	6.1	5.2	5.3	5.3	-	-	-	-	-	-	-8.0% (2009- 2024)	-19.7% (2013- 2024)	-13.1%	-
9) Household disposable income per capita	105.6	67.6	71.1	71.4	71.5	72.8	82.7	85.9	86.9	84.9 (estimate)	-	-	-	-	-	-19.6%	25.6%	16.6%	-
10) Subjective poverty	-	78.3	78.1	77.7	76.8	77.2	68.4	67.0	66.8	-	-	-	-	-	-	-	-14.7% (2013- 2024)	-13.5% (2017- 2024)	-

Notes:

1, 2) Oxford Economics – Global Economic Model.

3) Per capita adjusted gross disposable household income (conversion from PPS to euros) based on Purchasing Power Parities (PPP), price level indices, and actual expenditures for the ESA 2010 aggregate figures [prc_ppp_ind] from Eurostat.

4) Monthly adjusted gross disposable household income per capita [Eurostat - tec00113].

5) Monthly minimum wages – semi-annual data [Eurostat - earn_mw_cur].

6) Oxford Economics – Global Economic Model.

7) Eurostat - The Gini coefficient is defined as the ratio between the cumulative shares of the population, ranked according to their level of equivalized disposable income, and the cumulative share of total equivalized disposable income they receive. Values of 100 indicate perfect inequality, while values of 0 indicate perfect equality.

8) Eurostat - The ratio of the total income received by the 20% of the population with the highest income (top quintile) to the income received by the 20% of the population with the lowest income (lowest quintile). Income should be considered as equivalised disposable income. The indicator is based on EU-SILC (statistics on income, social inclusion, and living conditions).

9) OECD - Real (inflation-adjusted) disposable income per person per household, index, 2007-Q1 = 100, seasonally adjusted. Households include non-profit organizations serving households, such as non-profit member sports clubs, as these cannot be identified separately in all countries.

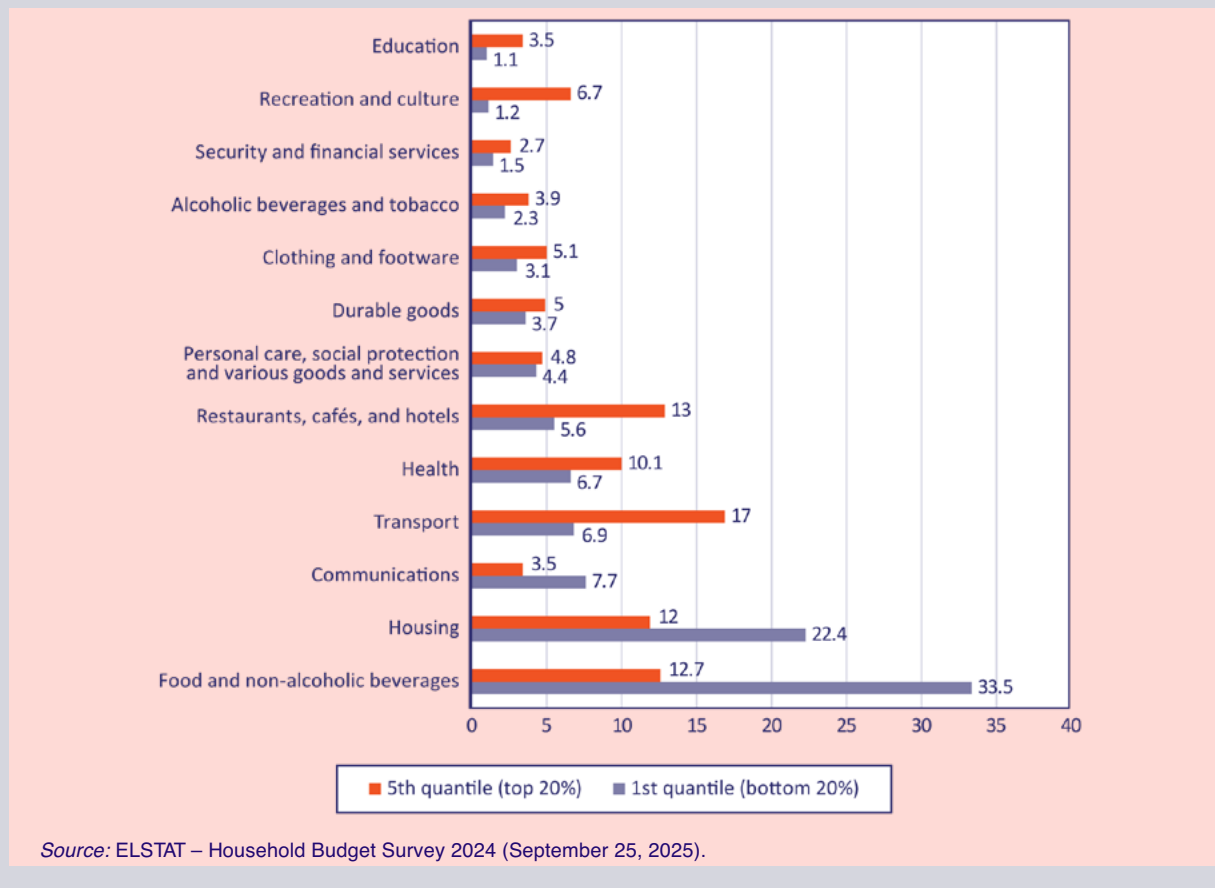
10) Eurostat - Unlike the measure of relative poverty, the at-risk-of-poverty rate indicator (calculated based on the ranking of household income at the national level), the objective of subjective poverty is to assess respondents' perceptions of the difficulties their household faces in making ends meet. The assessment takes into account the material well-being of households, including income, expenditure, debt, and wealth.

11) The relevant estimates by Oxford Economics have remained roughly stable in recent years with a high degree of accuracy, and the main part has been published.

12) It is worth noting that the upward trend in real wages through 2025 had already been highlighted in our analysis published in *Oikonomikos Tachydromos* on February 8, 2023, in the article titled "Wages and Inflation: The Triple Greek Problem: Political and Economic." The convergence of those estimates with current data highlights the stability of the production model we are examining.

FIGURE 1.1.2

Percentage (%) distribution of expenditures by quintiles of equivalent expenditure by category of goods and services



of poverty. The GINI coefficient (income distribution) in Greece for 2024 is 31.8%, and in the EU-27, it is 29.4% (Eurostat, 2025b). Again, this indicates an unequal situation in Greece, but not to the extent of the subjective perception of poverty. Perhaps the issue of social mobility (Petrakis, forthcoming [b]) concerning young people, which has an international dimension, deserves greater attention. It is noteworthy that the average (annual) real wage (PPP prices, data from Oxford Economics) in 2009 was 14,291 euros, in 2013 it was 13,844 euros, in 2021 it was €13,707, in 2022 it fell to €12,667, but in 2025 it was €15,775 and in 2030 it will be €19,094, i.e., 33.6% higher than 2009 levels!

The gap between subjective and objective poverty is, of course, not a new phenomenon for Greece. Previous studies (e.g., EU-SILC) show that, over time, Greeks have tended to overestimate certain aspects of material deprivation or living conditions compared to other European countries, a trend linked to low levels of financial literacy. The crisis of the past decade, however, added a strong “traumatic” element to this

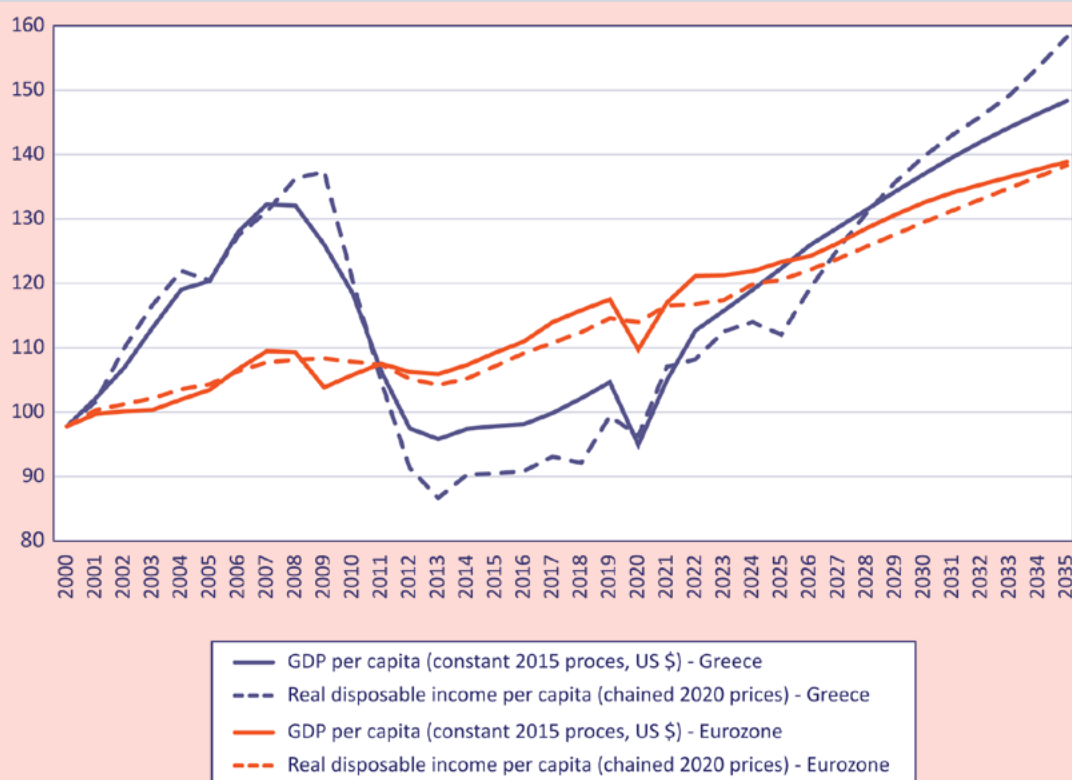
long-standing trend, which reshaped expectations for the future and reinforced the current asymmetry between actual figures and subjective assessments of the economic situation.

However, part of the subjective poverty in Greece appears to be linked to changes in the prices of basic goods, especially food and housing. This is due to two main reasons: first, these specific expenses disproportionately burden lower-income groups, and second, in recent years prices in these sectors have risen much more sharply compared to the pre-pandemic period (ECB Economic Bulletin, Issue 8/2025).

Data from the 2024 Household Budget Survey (HBS) show that for the average household, the largest categories of expenditure are food (20.7%) and housing (14.4%). For the poorest 20% of the population, the combined share of food and housing reaches 55.9% (33.5% for food and non-alcoholic beverages and 22.4% for housing), whereas for the wealthiest 20% it is just 24.7% (12.7% for food and non-alcoholic be-

FIGURE 1.1.3

Evolution of real GDP per capita and real disposable income per capita (2000=100): 2000–2035



Source: Oxford Economics – Global Economic Model.

Notes: 1) The relevant estimates have remained roughly stable in recent years with a high degree of accuracy.

2) The figures are presented as indices (2000=100) to ensure the comparability of the time series despite different price bases and deflators. Note: The analysis focuses on the relative dynamics of the figures rather than on a comparison of absolute levels.

3) The projected upward trajectory of disposable income is confirmed by ELSTAT data for the third quarter of 2025 (ELSTAT announcement January 26, 2026 – Quarterly Non-Financial Accounts of Institutional Sectors –3rd Quarter 2025), which show a 1.9% increase compared to the previous year.

erages and 12% for housing) (see Figure 1.1.2). This means that even relatively modest increases in food or housing prices immediately translate into a sense of significant financial strain.

Thus, subjective poverty could be on the rise even when relative income poverty or other macroeconomic indicators appear to be improving. This occurs because lower-income groups are far more exposed to the cost of basic goods, while the general CPI does not accurately reflect the “basket” of the poorest households, and increases in housing costs disproportionately affect those with low disposable income. Thus, the perceived cost of living may be higher than what overall inflation indicates.

The “trauma” mentioned above is also influenced by “depression memories” (Petrakis, forthcoming [f]) as

well as “inflation memories” (Ehrmann & Tzamourani, 2009) from the past three years. It is telling that when Greeks were asked what inflation they expect in 2026—based on the latest data from November 2025—they answered 7.2%! (ECB 2025). In contrast, Europeans responded realistically, expecting inflation of around 2.8%! To some extent, higher expected inflation in Greece would be justified due to lower income, a larger proportion of which is spent on food (Eurostat, 2023), but not three times as much!

Essentially, the figure shows that following the inflationary shock of 2022, real disposable income began to rise quite sharply, but after 2025 it will rise even more sharply.

This “trauma,” then, is present and is perpetuated by a number of factors: a) the (European and international) trend in food and housing prices, b) the way people

who tend toward negative news think (an evolutionarily shaped psychological predisposition, see Vaish et al., 2008), which also has implications for economic behavior (De Neve et al., 2018), c) the ongoing and intensifying global uncertainty (Davis, 2016), d) stemming from the “austerity-era” presence of recession and inflation, e) the role of social media, and, finally, f) the level of financial literacy among citizens.

Furthermore, the benefits of wage increases are slow to trickle down to household income, possibly because, by 2024, an estimated approximately 400,000 people who are able to work but are neither in the labor force nor in education. This is reflected in the low employment rate in the economy (69.3% compared to 75.8% in the European Union, see Eurostat, 2025a).

As for the reasons why a significant increase in disposable income is on the horizon, we should turn our attention to the labor market. The ongoing economic improvement has “exhausted” the labor market’s capacity, significantly reducing the unemployment rate to 8.1%, the lowest level in 17 years. Thus, it is to be expected that companies will be forced to offer higher wages to retain their workforce. Furthermore, the unemployment rate likely overestimates the availability of the labor force, given that a) there are fewer people who are actually able and willing to work, and b) there are skills mismatch issues. In short, the “natural rate” of unemployment is higher.⁴

This “trauma,” however, does not imply an unhappy society, nor, of course, a happy one, and is compatible with a functional society. It does, however, have the capacity to create “conditions” for a negative influence on the perception of the future and to lead to a preference for “survival” in the present. Furthermore, the persistence of this mindset, combined with the deep demographic crisis and shifts in the age structure, creates low future investment expectations due to lower market size projections.

However, when a significant portion of the population thinks this way, the lack of institutional trust remains high, resulting in increased governance difficulties and social instability.

It should be noted that the two concepts—depression and inflation memories—have been studied in the international literature but not sufficiently in the case of Greece, which remains a unique case (regarding the bailout model and its long-term effects).

Economic policy must pay close attention from here on out, as the issue of comparison with European partners remains, but more importantly, citizens must also “perceive” the improvement (Ministry of Finance). The observed increase in disposable private income is clearly linked to rising wages and consequently raises competitiveness issues, creating new dynamics, including pressures on the balance of payments. This perspective should lead to an economic policy aimed at reducing the non-wage burden on businesses, which will be achieved by maintaining fiscal balance so as to improve the economy’s competitiveness.

However, the most effective way to address the issue of rising labor costs is to improve productivity. This brings us closer to upgrading workforce capabilities and, of course, to increased investment activity. This last point relates not only to infrastructure investments but primarily to investments in technology, with a key focus on stimulating the startup sector, where a strong resurgence is underway.

Consequently, over the next five years, *ceteris paribus*, there must be a shift in the focus of economic policy toward improving the competitiveness and productivity of the production system.

The above also implies a useful socio-political conclusion: provided that the current trajectory of economic development is maintained over the next four years (after 2026), there will also be a particularly positive and favorable governance environment in terms of improving welfare levels, “all other things being equal” (Figure 1.1.3 above). This will not be due solely to the gradual improvement in wages but also to the fact that the gradual improvement in wages mitigates the impact of factors such as changes in food and housing prices. In any case, the new government will face particularly difficult tasks in improving the economy’s efficiency (see next section).

1.1.3. Governance and the transformation of the production model

Certain conventional economic and political systems (including the Greek model) struggle to generate sustainable, dynamic growth. The emphasis is on the “dynamic” nature of these systems, in the sense of sustaining high growth rates over a long period of time. Using Greece as a case study, we introduce the concept of the Growth Constraint Model (Petrakis,

4. This approach is supported by the theory of “efficient unemployment.” According to recent studies (Agiomirgianakis et al., 2023; Liargovas et al., 2024; Liargovas et al., 2025), if job vacancies in Greece are taken into account, efficient unemployment has remained consistently below 10% for at least 15 years. Furthermore, despite the fact that the Greek labor market remains historically “loose,” a marked trend toward “tightness” has been observed since 2021, with the ratio of job vacancies to unemployed reaching historic highs in 2024, surpassing even the levels of 2009.

forthcoming [a]), which views the inability to achieve dynamic economic growth not as the sum of individual policy errors, but as a self-reinforcing, homeostatic system.⁵ Within this system, political, economic, and cultural structures co-evolve in a way that reproduces the absence of growth dynamism, thereby leading to a lower level of growth.

It should be emphasized that we contrast the “model with growth constraints” with a “stagnated model” or a “trapped growth model,” in the sense that the latter refer to economic systems that are unable to evolve, whereas here we are referring to an economic system that can generate positive growth rates but not, over the long term, rates high enough to radically change levels of prosperity in a way that is sustainable in the future and compatible with major technological changes and new geostrategic conditions (Petrakis, forthcoming [a]).

Essentially, the Growth Constraint Model approaches the lack of dynamism as a stable equilibrium point in which political institutions, market structures, and social norms reinforce one another, preventing innovation and reform. Standard policy evaluation frameworks—such as the European Union’s “Better Regulation” agenda (European Commission, 2022)—assume the existence of institutions capable of being optimized. However, in economic environments dominated by institutional weakness, these tools prove to have limited effectiveness. They improve individual policies within dysfunctional systems without addressing the deeper causes of stagnation. Consequently, we find, on the one hand, an idiosyncratic economic system and, on the other, an evaluation model incapable of diagnosing or transforming it. This observation necessitates a fundamental epistemological shift. Evaluation must evolve from a technocratic exercise in measuring efficiency into a dynamic mechanism for navigating complex, path-dependent tools (Mahoney & Schensul, 2006; Petrakis, forthcoming [e], forthcoming [f]; Petrakis et al., 2024a).

In other words, a central tenet is that the situation described by the Limited Growth Model constitutes an emergent state, which arises from the coexistence and synergy of four distinct yet deeply interconnected pillars. From this perspective, limited growth is not the result of a single institutional or policy failure, but the outcome of a complex system of negative feedback loops. The four pillars that constitute and expand the Growth Constraint Model (Petrakis, forthcoming [a]) are as follows:

1. **High systemic risk:** A macroeconomic and political environment characterized by high uncertainty, volatility, and institutional fragility. This risk is not merely an exogenous condition but is generated endogenously by the system’s own institutional weaknesses. This is a long-standing historical characteristic (Petrakis, 2011, 2020, 2024; Petrakis & Kostis, 2020a).
2. **The middle-technology trap:** An economic structure that has mastered the adoption and application of existing technologies, but fails to develop domestic innovation and technological creation capabilities, resulting in being squeezed between low-cost competitors and high-value-added innovators (Petrakis, 2012; Petrakis & Kostis, 2020b). This has emerged as a result of long-term tariff protection and the “baptism” into the conditions of global competition.
3. **A unique cultural background:** A social fabric characterized by low levels of generalized trust, a strong preference for collectivism (family), and a perception of the state as a resource to be appropriated rather than as an impartial institutional guarantor of the public interest (Algan & Cahuc, 2013; Petrakis, 2012; Petrakis & Kostis, 2020b). It is a result of the two conditions mentioned above, but this pillar now possesses an independent capacity for reaction.
4. **Regulatory capitalism:** A form of capitalism in which political regulation takes precedence over market competition and the allocation of resources reflects political preferences rather than economic efficiency—a feature that in the Greek model is typically manifested through regulatory dominance. This pillar is a key outcome of the first two pillars mentioned above, as well as the third pillar of this productive model, but it now possesses its own dynamic, which is often confused with the state’s necessary regulatory role (Levi-Faur, 2005; Petrakis, forthcoming [f]).

It should be noted that there is economic-historical evidence confirming the presence of these characteristics throughout the history of the Greek economy (Alogoskoufis, 2019; Pavlou, forthcoming; Petrakis, 2011, 2012, 2020, 2024; Petrakis & Kostis, 2020a, 2020b; Pontis & Valsamis, forthcoming [b]; Ioannidis & Tsakanikas, 2008).

These four pillars undoubtedly have historical roots and are not merely transient characteristics of Greek society and the economy. However, their “stagnating” effect is

5. The term “homeostatic” does not simply describe a static interplay of institutions, markets, and social norms, but a dynamic process of self-stabilization, in which any external or internal pressure for reform tends to be absorbed and neutralized. In other words, the system has mechanisms that return it to the same low but stable level of growth, even when policy interventions explicitly aim to improve it.

not constant over time. Its intensity varies depending on the phase of technological and productive development. In the current context, the rise of new technologies—which no longer evolve linearly or cumulatively—creates the possibility of technological leaps (leap-frogging), altering the framework within which the pillars operate. Thus, the same structural characteristics can either act as a permanent barrier or, with appropriate governance choices, serve as a springboard for transcending the Growth Constraint Model.

Moving beyond this model requires a comprehensive shift in society and politics, as well as a corresponding redefinition of how the policies being implemented are evaluated. Evaluation can no longer function as an after-the-fact check, but must serve as the foundation of national strategy: a tool that validates systemic transformation, anticipates challenges, and measures progress toward an economy based on innovation and trust (OECD, 2025a; Petrakis et al., 2024b; Carayannis and Zota, 2025b).

The fundamental theoretical and practical question of economic policy concerns how such an economy can transition from the Growth Constraint Model to a Dynamic Growth Model. There are two paths to overcoming the Limited Growth Model: The first requires a broad social and political consensus capable of supporting a comprehensive, large-scale reform strategy. The second emphasizes targeted, incremental reforms which, when added together, can gradually improve the system's efficiency and transform its structural characteristics.

One path, therefore, involves a substantial, large-scale social and political consensus accompanied by a program of comprehensive reforms. This is not impossible. Even though there is a widespread impression to the contrary, let us remember that the overwhelming majority of the Greek Parliament now agrees on the country's basic political and social orientation, and this is particularly important—and it also entails responsibilities. In any case, it is a difficult process, but it is worth opening a discussion on the matter.

The second path has lower ambitions, as it focuses on specific policies that nevertheless improve the model's effectiveness. Here, individual reform measures play a much greater role. It aims, however, to capitalize on the positive gains achieved to date and to address the specific negative obstacles that exist to improving the economy's efficiency.

In both scenarios, the starting point is the same: a mix of positive and negative elements of the current situation, which both constrain and simultaneously create new opportunities for transformation.

The following is a summary of the key positive and negative elements of the current situation, which constitute the framework within which each of the two paths to overcoming the crisis must operate.

Among the fundamental positives, we must highlight two conditions that primarily concern the first critical pillar of shaping the productive model. These are:

- a. political stability, which is also linked to the establishment of the regulatory framework governing the functioning of society and the economy, and
- b. fiscal balance and stability.

Both factors reduce the systemic risk of the economy (increasing investment attractiveness). A characteristic example is the early repayment of public debt, which directly reduces the systemic risk of the economy. Additionally, the following are required:

- c. continued investment activity (infrastructure, private investment, and revitalization of the banking sector), and
- d. a geostrategic orientation that promotes the reduction of systemic risk.

It should be noted that in Greece, the view that investment activity will decline due to the “expiration” of the TAA fails to take into account the new framework emerging in the Greek and European economies and the revitalization of the banking sector (Bank of Greece, 2025), conditions that will generate new investment activity for a production-centered model (productivism) that enhances the economy's efficiency (Rodrik, 2025). This investment activity is valuable to the extent that it is supported by and has a positive impact on the second pillar of the production model (intermediate technology). However, this raises the problem of the external balance of payments. To transform the production model, imports are necessary, but the widening of the deficit hinders the rate of growth. In other words, there is a paradoxical relationship, since growth worsens the balance of payments, and the balance of payments deficit reduces the growth rate. The solution will primarily involve the energy revitalization of the Greek region (Hellenic Association for Energy Economics, 2025; Hellenic Republic Ministry of Environment and Energy, 2025), which will increase positive inflows into the balance of payments. However, this prospect, in the best-case scenario, will take 5 to 7 years to materialize (including green energy exports). Consequently, medium-term policy issues arise, and the country's geostrategic orientation is of particular importance (foreign policy organization, good neigh-

borly relations, etc.).

Among the negative aspects, we should also include the decline in trust in institutions (Petrakis, 2012), the negative memories of the income collapse caused by the bailout agreements and the inflation of 2022 (previous section), as well as the income gap separating us from Europeans (Pontis & Valsamis, forthcoming [a]). This is a social condition that contributes to the maintenance of “regulatory capitalism,” which is the fourth pillar of the Growth Constraint Model. In this context, policies such as restoring the proper functioning of the legislative and judicial systems are of decisive importance, as they also contribute to reducing systemic risk and improving the economy’s attractiveness (Petrakis, 2024). It should be noted that policies such as the development of a new, flexible form of state organization (a more effective state) (Petrakis, 2024), early debt write-offs, and the activation of collective bargaining for workers⁶ (Koutroukis, 2025) contribute to reducing systemic risk, improving social behaviors of worker participation, and structurally improving the operating conditions of the third and fourth pillars of the productive model. It should be noted that the Constitutional Revision is an opportunity to make the necessary changes (Petrakis, 2025).

Finally, an important question that arises is whether the second path—that of individual policies—also requires broader social and political consensus. Obviously, this would be more effective, but the real prerequisite for this is the preservation of the positive aspects of economic reality and the persistent reduction of its negative aspects.

The three dimensions examined above converge on a common conclusion. The governance of the Greek economy is becoming both more difficult and more critical. Governance shapes and is shaped by the dynamics of a system of limited growth.

These findings have direct implications for how public policies are designed and implemented. A strategic policy evaluation is needed that incorporates diagnostic tools to identify implementation barriers, social expectations, and the dynamics of the system itself. At the same time, strengthening dialogue—through independent authorities and scientific bodies—is critical for designing policies with a long-term perspective. In this context, constitutional revision can serve as a useful framework for stability and institutional coordination, though it should not be viewed as a panacea in an environment where the problems are systemic

rather than merely institutional.

The findings of this article do not conclude the discussion, but rather open it up. Three critical questions remain: How can governance be designed in conditions of technological acceleration, multipolarity, and demographic decline? Which institutions and which means are capable of building trust in a society with historically low social capital? And, finally, how can we measure whether Greece is indeed transitioning from a model of limited growth to one of dynamic growth? Systematic research, public dialogue, and the engagement of knowledge-producing institutions are prerequisites for providing convincing answers.

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1.2. The main demand components in the first nine months of 2025

1.2.1. Introduction - Domestic & foreign demand

Yannis Panagopoulos

In this section, utilizing the recorded macroeconomic data, we proceed with the analysis of the current developments of the first nine months of 2025. Specifically, based on the results of Table 1.2.1, during the first nine months of 2025, we observe the existence of positive rates of change in individual aggregate macroeconomic variables excluding imports of goods and services and gross fixed capital formation. There is also a stability in the growth of the economy compared to the corresponding nine months of 2024 (2.0%).

More specifically, for the first nine months of 2025, it should be noted that from the specific macroeconomic factors, the largest positive rates of change were displayed by private consumption (2.46%), public consumption (1.82%) and exports of goods and services (1.55%). Gross fixed capital formation (-6.58%) and, secondarily, imports of goods and services (-1.87) had a negative rate of change (Table 1.2.1.).

In quarterly terms—third quarter of 2025—we have a slightly different picture in terms of the order of importance of the individual macroeconomic factors in the recorded path of GDP growth. Specifically, and in order of size, private consumption (2.4%), exports of goods and services (1.7%) and public consumption (1.0%) had the largest percentage of positive contribution, while gross fixed capital formation (-9.0%) and imports of goods and services (-4.0%) had a negative contribution.

On the other hand, domestic demand continues to show a slightly positive picture (Figure 1.2.2). In fact, for Q32025, based on the existing sub-components (using seasonally adjusted data), the fixed capital investment component has the largest contribution (2.13), followed by private consumption (1.73) and public consumption (0.20).

As regards the participation of the domestic and external demand sectors (i.e., the balance of goods and services) in GDP, for the third quarter of 2025, things

show a positive balance due to the significant positive contribution of all individual macroeconomic factors (Figure 1.2.3). Specifically, based on the order of importance of these factors, the largest contribution came from inventories (6.79), followed by domestic demand (3.96) and the change in the balance of goods and services (2.36).

Regarding now the Economic Climate Index (ECI), as the future “proxy” of demand, Figure 1.2.4 records the expectations of households and businesses for the period 1/2025-11/2025. This index continues to demonstrate some volatility, which starts at 108.3 points in January 2025 and ends up back at 106 points in November 2025 (Figure 1.2.4). So, the expectations of households and businesses for 2025 were somewhat unstable and generally restrained.

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

Balance of goods and services

The contribution of the external sector (percentage change in exports minus imports) for the nine months of 2025 (Figure 1.2.3), is generally considered as quite positive (2.36). Below, we will refer to the rate of change of goods separately from the rate of change of services. Starting with exports, we should emphasize that services, which are the relatively smallest part of exports, showed a nine-month increase of 1.1%, while in contrast, goods, which were the largest part of exports, showed an increase of 1.7%. On the other hand, for the same nine months, imported services experienced a decrease of 0.8%, while imported goods experienced a decrease of 5.0% (Table 1.2.1).

As far as the contribution of the balance of goods and services to the rate of change of GDP for the 3rd quarter of 2025 is concerned, it should be noted that it stood at 2.36 points, in contrast to -1.18 points for the corresponding 3rd quarter of 2024 (Figure 1.2.5). More specifically, we had a positive contribution of total exports to GDP, estimated at 0.59 points, but more important here was the unexpected positive contribution of total imports to GDP, which was at 1.77 points. The general longitudinal picture, with the corresponding histograms of exports and imports, is presented in detail in Figure 1.2.5.

TABLE 1.2.1 Basic macroeconomic variables

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

	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025Q1	2025Q2	2025Q3	2024 (q1+q2+q3)	2025 (q1+q2+q3)
Private consumption	4.3	1.7	0.8	2.5	1.2	3.1	3.7	1.4	2.6	2.4	2.4	2.65	2.46
Public consumption	3.8	2.0	-0.9	5.7	-6.0	-2.9	0.8	-2.0	3.5	0.9	1.0	-2.68	1.82
Forced capital formation	-9.6	-4.7	-2.1	-6.0	20.3	16.2	17.1	16.7	-0.5	-10.3	-9.0	17.87	-6.58
Aggregate demand	5.6	2.5	1.5	2.5	0.2	2.4	2.9	1.5	2.1	3.0	3.8	1.83	2.96
Exports of goods & services	4.4	0.1	2.8	1.5	-0.4	2.0	1.0	1.3	1.7	1.3	1.7	0.85	1.55
Exports of goods	7.2	-2.4	0.1	-2.5	-7.1	2.5	-0.5	0.6	3.1	-0.7	1.7	-1.72	1.37
Exports of services	5.9	0.9	4.1	5.4	3.8	2.0	3.5	3.6	-0.4	2.7	1.1	3.09	1.15
Imports of goods & services	3.6	-2.0	2.2	-2.9	2.6	7.5	3.5	1.6	1.7	-3.3	-4.0	4.52	-1.87
Imports of goods	0.9	-5.3	1.5	-2.6	2.6	9.6	2.5	2.4	1.5	-4.5	-5.0	4.91	-2.66
Imports of services	13.2	8.2	2.6	-2.2	4.2	5.0	12.4	4.3	3.7	1.1	-0.8	7.20	1.32
Δ GDP	2.2	3.1	1.8	1.6	1.8	1.8	2.4	2.3	2.4	1.6	2.0	2.00	2.00

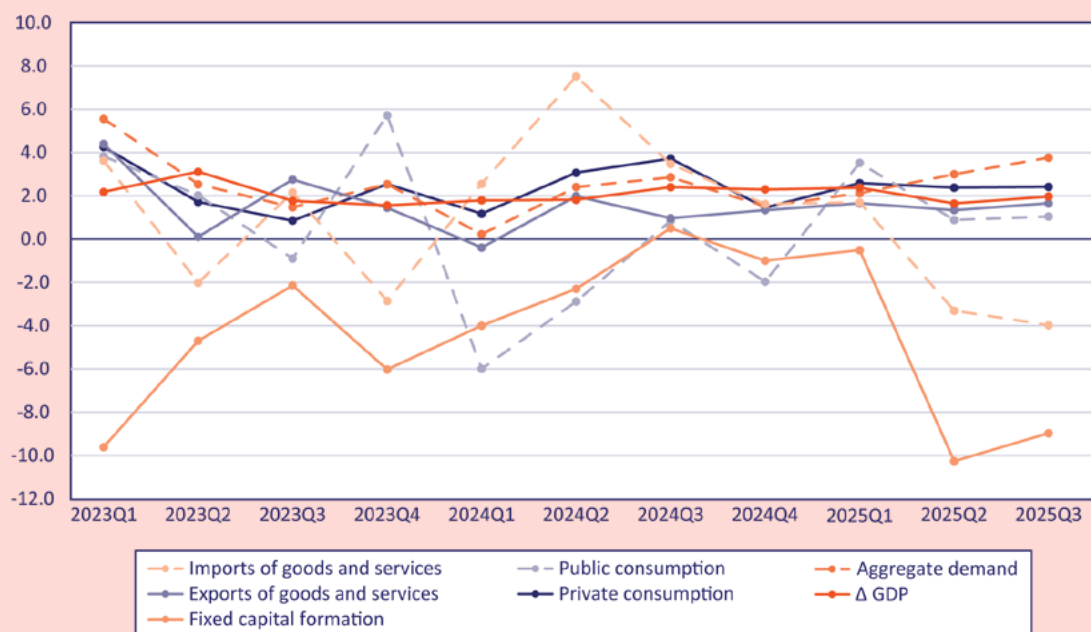
Source: Quarterly National Accounts.

*Without changes in inventories.

FIGURE 1.2.1

Basic macroeconomic variables

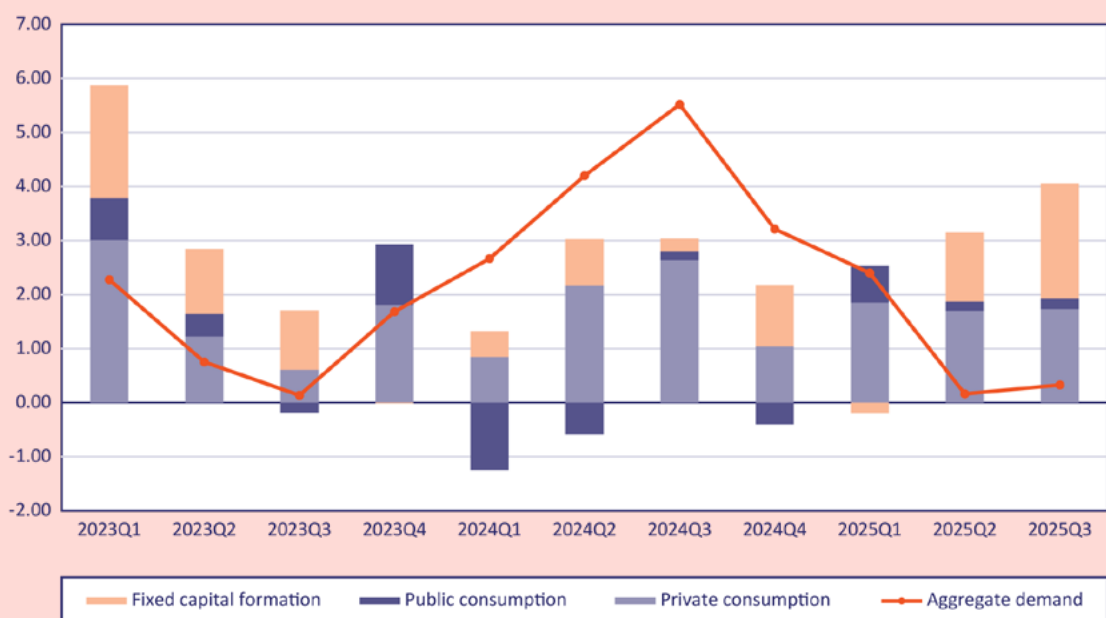
(% rates of change with seasonally adjusted data, at constant prices)



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

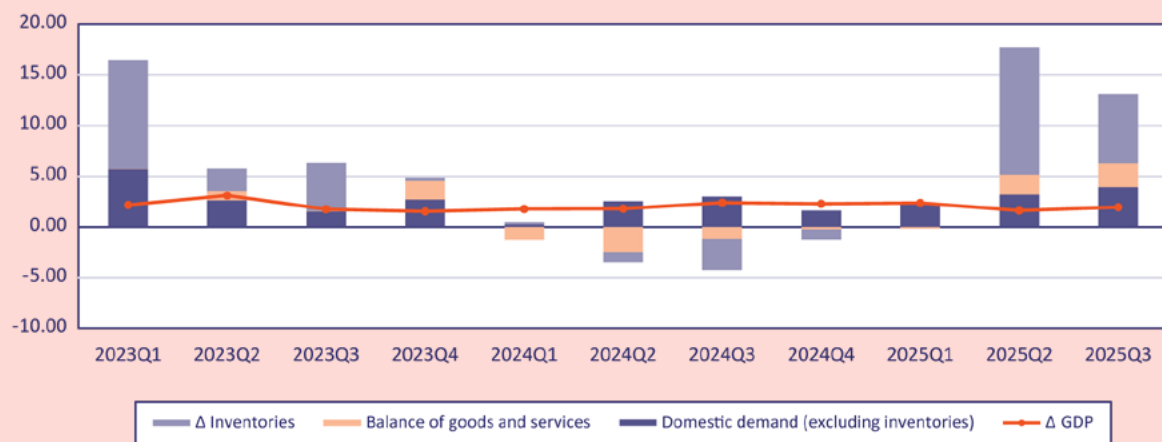
FIGURE 1.2.2

Sub-components of domestic demand



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

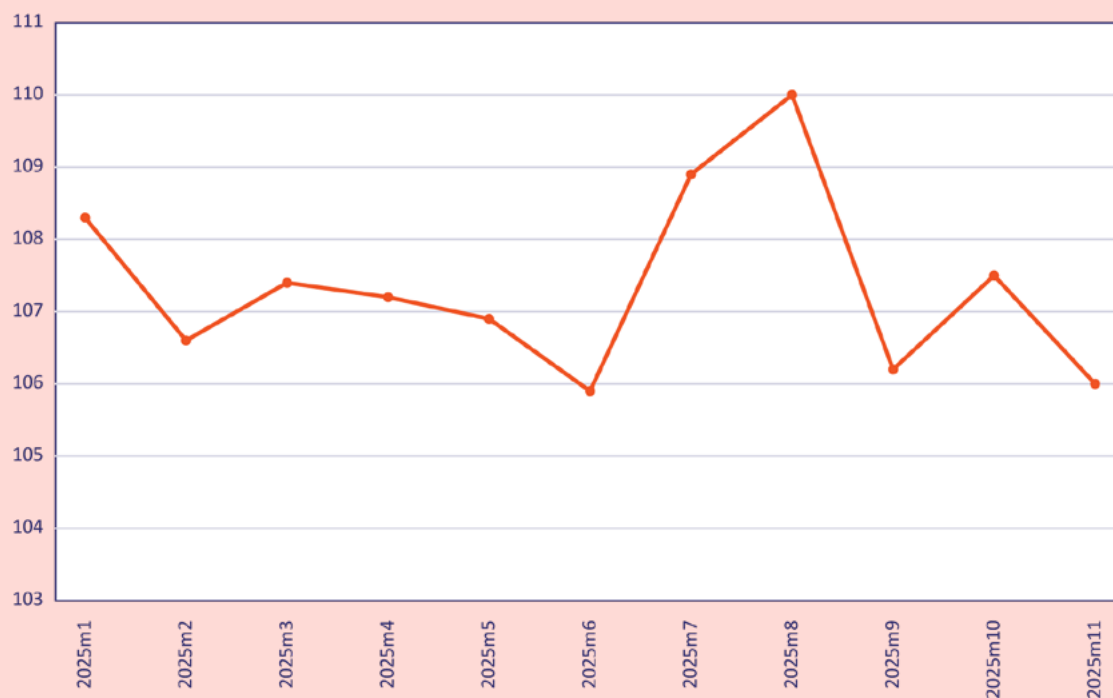
FIGURE 1.2.3
Domestic and net external demand*



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

*The change in inventories in 2024Q4 is the author's calculation.

FIGURE 1.2.4
Economic Sentiment Index (01/2025-11/2025)



Source: Eurostat.

FIGURE 1.2.5
Sub-components of external demand



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

1.2.2. Private consumption and investment

Konstantinos Loizos

1.2.2.1. Private consumption

Rise in private consumption expenditure in the first nine months of 2025

According to the quarterly seasonally adjusted *National Accounts*,¹ the private consumption of households and NPISH² rose from 42,394 million euros in current prices in the first quarter of 2025 to 42,585 million euros in the second quarter and 43,100 million euros in the third quarter of 2025. Likewise, in terms of chain-linked volumes in constant 2020 prices, private consumption increased from 36,351 million euros in the first quarter of 2025 to 36,620 million euros in the second quarter and 36,863 million euros in the third quarter of that year. On the contrary, in terms of percentage changes³ with respect to the preceding quarter,

based on seasonally adjusted chain-linked volumes, private consumption showed positive but decreasing rates of change, namely, 1.1% in the first quarter of 2025 and 0.7% in the second and third quarters of that year. The relevant rates of change with respect to the corresponding quarter of the previous year were equal to 2.6%, 2.4% and 2.4%, showing the same pattern.

Private consumption as a percentage of GDP was 68.82% on average in 2024, but it rose to 69.20% on average in the first nine months of 2025. On the contrary, public consumption as a percentage of GDP declined on average from 18.62% in 2024 to 18.39% of total expenditure in 2025. Equivalently, we observe a decline in gross capital formation in percentage terms with respect to GDP (fixed capital and changes in inventories), which in 2024 was 17.99% of GDP on average, while in the first nine months of 2025, it reached the level of 16.99% of GDP. Moreover, there was a fall on average in the trade deficit as a percentage of GDP from -5.43% in 2024 to -4.58% in the first nine months of 2025 (Figure 1.2.6). In conclusion, while

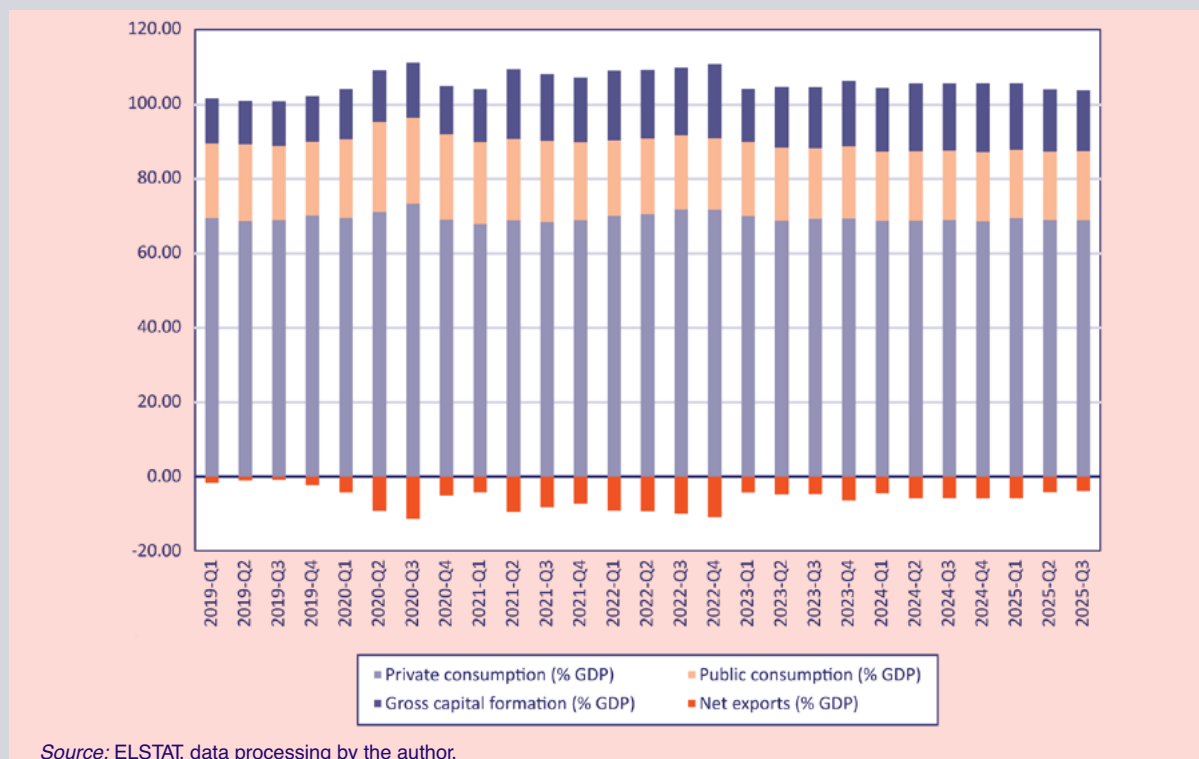
1. *Quarterly National Accounts*, Press release, ELSTAT, December 5, 2025.

2. Non-profit institutions serving households.

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

FIGURE 1.2.6

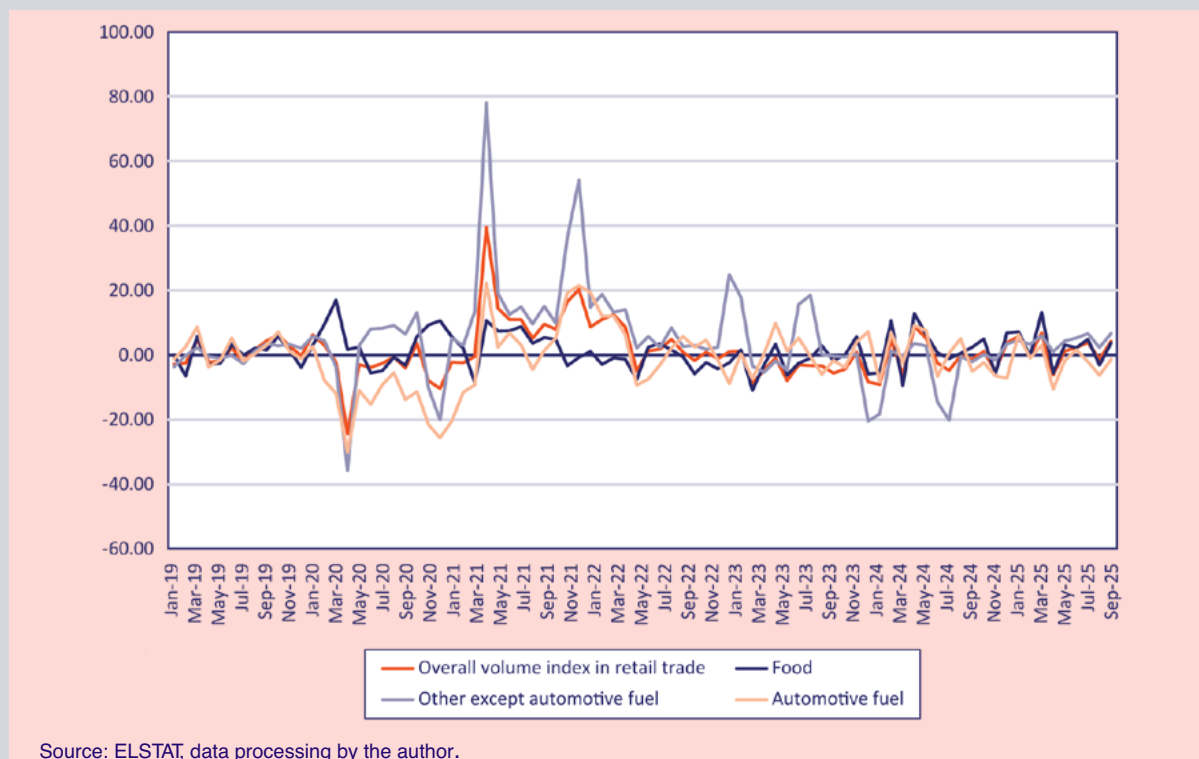
Evolution of private consumption and other components of demand as a percentage of GDP (expenditure approach) (seasonally adjusted data in current prices)



Source: ELSTAT, data processing by the author.

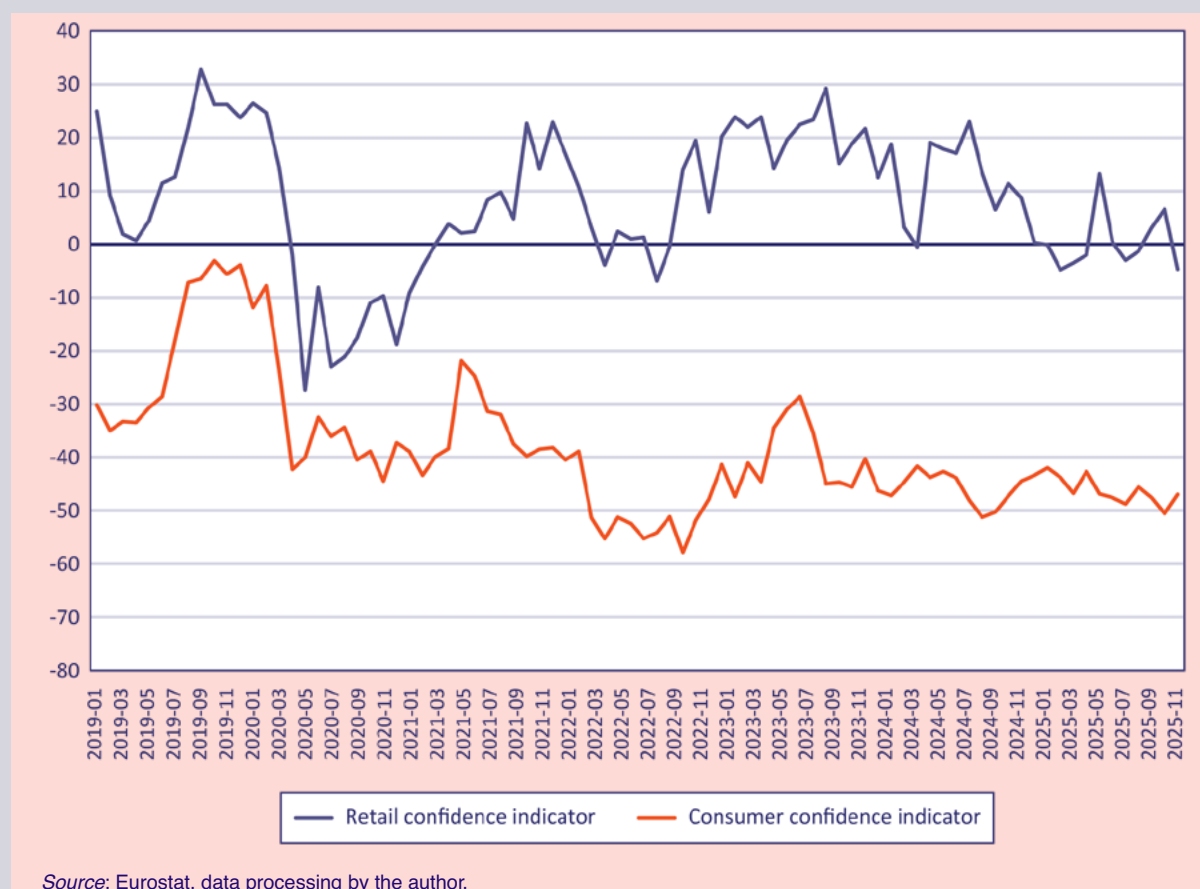
FIGURE 1.2.7

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



Source: ELSTAT, data processing by the author.

FIGURE 1.2.8
Confidence indicators in retail trade



private consumption increased both in current prices and in chain-linked volumes during the first nine months of 2025, it showed a decreasing trend in terms of percentage rates of change while gaining ground in terms of percentage share in total expenditure.

Positive outlook in retail trade in the first nine months of 2025, except automotive fuel

The evolution of retail trade in terms of percentage changes of the overall volume index remained positive on average during the first nine months of 2025 (2.03%), as opposed to the average negative rate of change of the previous year (-1.46%), based on ELSTAT monthly data (Figure 1.2.7). In food items, there was a small positive percentage rate of change on average in 2024 (0.90%) which evolved into a strong positive one in the first nine months of 2025 (3.20%). In other items except fuel, the negative average rate of change (-5.83%) in 2024 turned positive (4.35%) in the first nine months of 2025. Conversely, in automotive fuel, the small pos-

itive average percentage change of 0.44% in 2024 turned negative (-1.91%) in the first nine months of 2025. Therefore, the positive outlook for retail trade still holds true concerning this year with respect to the evolution of the overall volume index and most of its components.

Persistent uncertainty in expectations about retail trade

Despite the above positive developments, we observe from the confidence indicators published by Eurostat (Figure 1.2.8) that uncertainty in expectations about retail trade persists. Specifically, we observe that both indices fluctuate during the first nine months of 2025. However, the retail confidence indicator shows wider fluctuations at higher levels than the consumer confidence indicator. In terms of average values, the consumer confidence indicator shows a relative stability, as opposed to the retail confidence indicator which deteriorates significantly. Particularly, the consumer

confidence indicator fell from -45.98 in 2024 to -46.07 in 2025. The corresponding values for the retail confidence indicator were 12.59 in 2024 and 0.35 in 2025.

1.2.2.2. Investment

Rise in gross investment during the first nine months of 2025

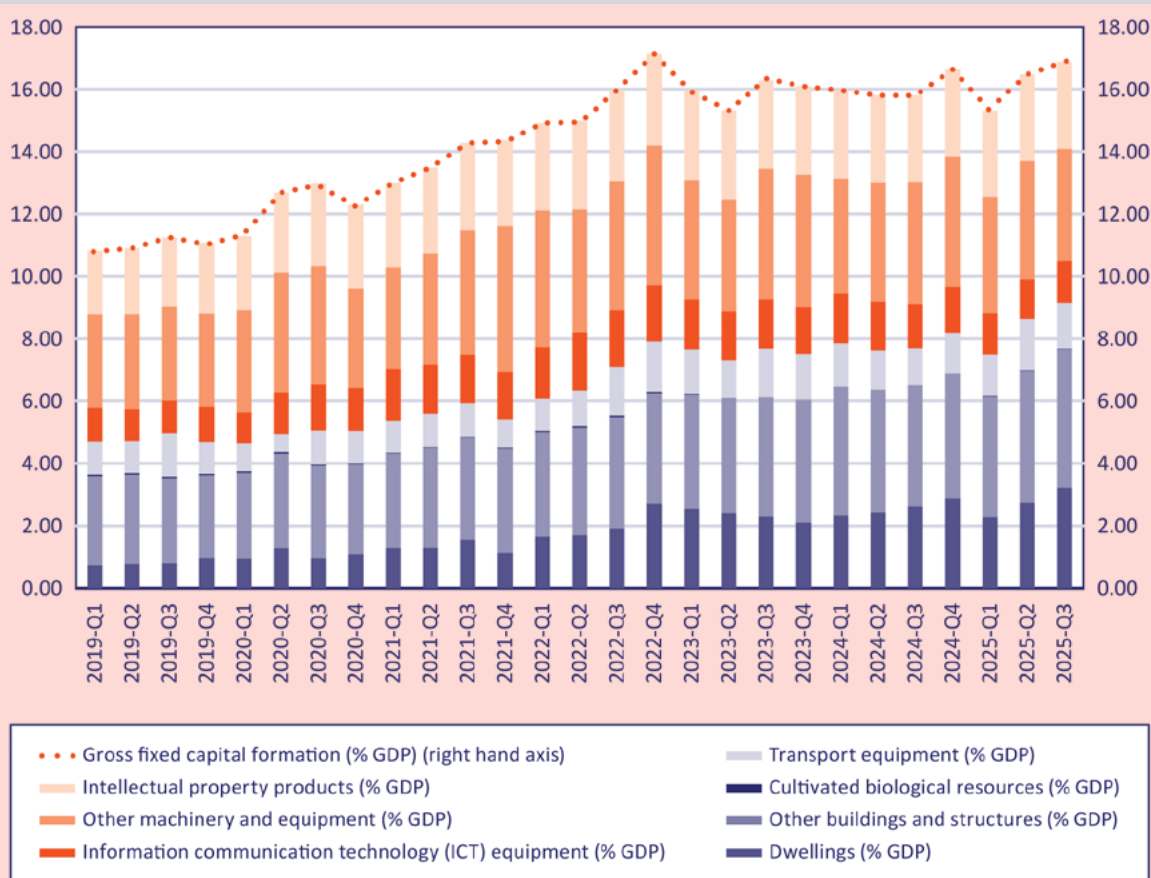
Gross fixed capital formation increased from 9,330 million euros in the first quarter of 2025 to 10,161 million euros in the second quarter in current prices, and to 10,544 million euros in the third quarter of the same year. Likewise, in terms of chain-linked volumes in constant 2020 prices, gross fixed capital formation increased from 8,352 million euros in the first quarter of 2025 to 9,081 million euros in the second quarter and to 9,400 million euros in the third quarter of 2025. The same rising trend is observed when we look at

the respective rates of change compared to the corresponding quarter of the previous year. The observed rates of change in gross investment were initially -1.1% in the first quarter of 2025 and thereafter reached the level of 7.6% in the second quarter and 12.8% in the third quarter of that year. However, there was a different trend concerning the rates of change with respect to the preceding quarter, with values equal to -3.9% in the first quarter of 2025, 8.7% in the second quarter and 3.5% in the third quarter of the year according to the seasonally adjusted chain-linked volumes.

In current prices as a percentage of GDP (Figure 1.2.9), the average rate of change of gross fixed capital formation with respect to the previous quarter was positive and equal to 0.87% on average in 2024 and to 0.70% in the first nine months of 2025. Concerning machinery and transport equipment as a percentage of GDP, a negative average percentage rate of change of -0.83%

FIGURE 1.2.9

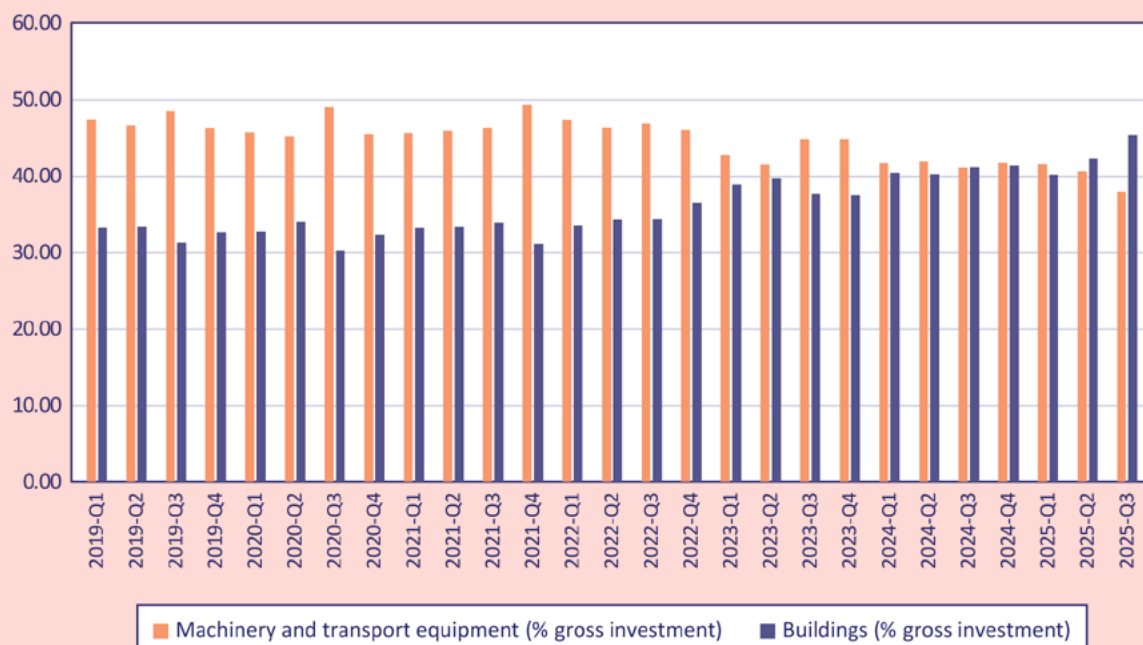
Gross fixed capital formation as a percentage of GDP (overall and by asset) (seasonally adjusted data in current prices)



Source: ELSTAT, data processing by the author.

FIGURE 1.2.10

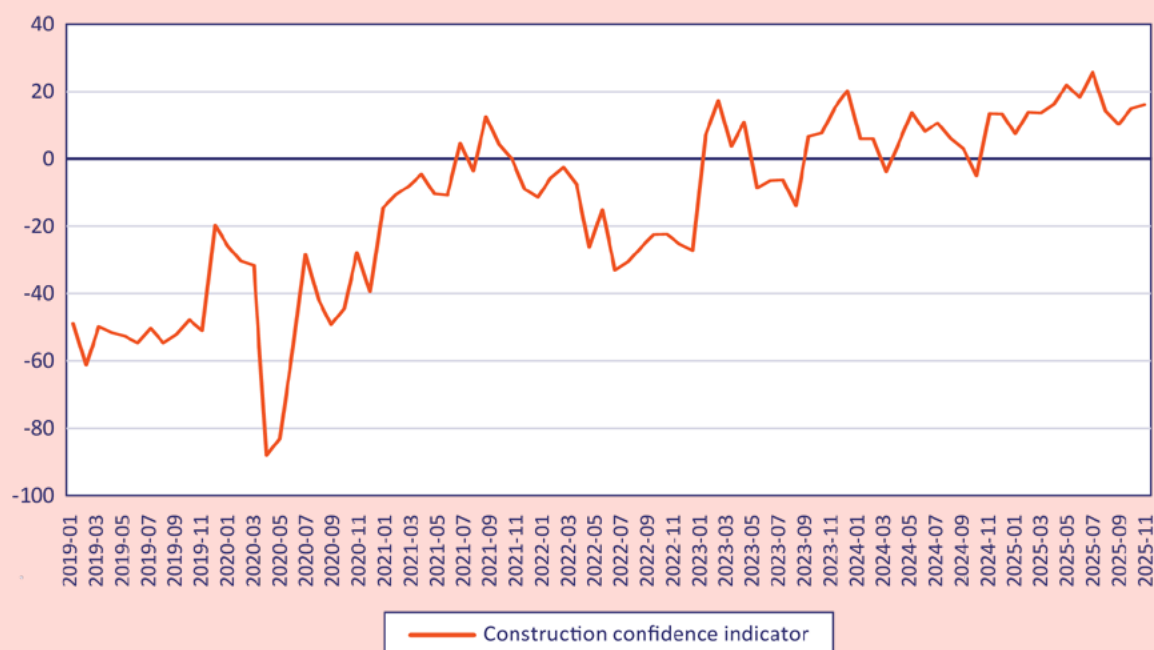
Machinery, transport equipment and buildings as a percentage of gross fixed capital formation



Source: ELSTAT, data processing by the author.

FIGURE 1.2.11

Construction confidence indicator



Source: Eurostat, data processing by the author.

in 2024 rose to -2.51% in the first nine months of 2025. Conversely, in buildings (dwellings and other buildings and structures) as a percentage of GDP, we observe a positive average rate of change of 3.41% in 2024 and 4.18% in the first nine months of 2025. The above indicate that the developments in investment during the first nine months of 2025 were positive although with a differentiation concerning their main components.

The share of buildings in gross investment rose, contrary to that of the machinery and transport equipment

Figure 1.2.10 above indicates that the share of buildings in total gross fixed capital formation increased on average from 40.86% in 2024 to 42.67% in the first nine months of 2025. We observe the reverse trend in machinery and transport equipment, with a decreasing share from 41.67% on average in 2024 to 40.09% of gross fixed capital formation in the first nine months of 2025. Therefore, this data confirms the traditional emphasis observed in the Greek economy of investment expenditure in buildings.

Improving expectations in the construction sector

Figure 1.2.11 above shows that business expectations in the construction sector follow a clear rising trend with a decreasing width of fluctuation. On average, the indicator presents a clear improvement, rising from an average value of 6.98 in 2024 to an average value of 15.55 in 2025. Therefore, optimism is maintained in the construction sector.

1.2.2.3. Conclusions

The above analysis demonstrates the positive developments in all parameters of expenditure, both in consumption and investment expenditure as well as in retail trade. However, two issues have become problematic: first, the continued uncertainty in retail trade, as this is recorded by the relevant confidence indicators, and second, the composition of gross investment, where buildings continue to gain ground at the expense of machinery and transport equipment. The uncertainty in retail trade is important because of the potential sensitivity of the economy to future turbulence to the degree that the Greek economy depends heavily on consumption. In addition, the rise in the share of buildings in gross fixed capital formation further increases the dependence of the economy on the developments in the real estate market, which is traditionally vulnerable to crises, while it does not signal the transition to a more resilient and productive development model for the Greek economy.

1.3. Inflation developments in Greece and the Eurozone: The largest increases in Hotels-café-restaurants, Food, and Housing

Emilia G. Marsellou

Introduction

Inflation in Greece stood at 2.6% in December 2025, while core inflation reached 3.1%, indicating that inflationary pressures in the domestic component of prices persist.

The percentage change in the average index for the twelve-month period of 2025 compared with the corresponding twelve-month period of 2024 amounted to 2.5%, slightly lower than the 2.7% recorded in the corresponding comparison between the twelve-month periods of 2024 and 2023.

Inflation based on the Harmonised Index of Consumer Prices (HICP) stood at a higher level, at 2.9%, while the corresponding core index reached 3.2%.

The CPI sub-categories recording the largest annual increases are Hotels, cafés, and restaurants (+6.9%), Food and non-alcoholic beverages (+3.6%), and Education and Housing (+2.8%). No decrease was recorded in any of the categories.

The gap between inflation in goods and services remains significant, with services prices increasing steadily and reaching 4.6% in December 2025, compared with 4.4% in November. Goods prices followed a more moderate path, rising by 1.0% from 0.9% in the previous month.

Inflation in the Eurozone declined marginally to 2.0% in December 2025, from 2.1% in November, with a corresponding easing in core inflation to 2.3% from 2.4%.

Services record the highest percentage increase in prices (3.4%), followed by Food, alcohol and tobacco (2.6%), while Non-energy industrial goods (0.4%) show lower growth, and Energy records a negative rate (-1.9%).

The highest inflation rates are observed in Estonia and Slovakia (4.1%), as well as in Austria (3.9%) and Croatia (3.8%), while the lowest are recorded in Cyprus (0.1%), France (0.7%), and Italy (1.2%).

1.3.1. Greece

Based on the monthly data published by ELSTAT, the National Consumer Price Index (CPI) recorded an annual rate of increase of 2.6% in December 2025, marking a slight rise compared with 2.4% in the previous month (Table 1.3.1). At the same time, core CPI—that is, the index excluding volatile components such as energy and food—recorded an annual increase of 3.1%, higher than the 2.8% observed in November 2025, indicating that inflationary pressures in the domestic component of prices persist.

According to Eurostat estimates, in December 2025 inflation based on the HICP stood at 2.9%, slightly higher than 2.8% in November, while the corresponding core index remained stable at 3.2%.

The CPI sub-indices for the groups of goods and services with the largest annual increases in December 2025 (Table 1.3.2) are Hotels, cafés and restaurants (+6.9% compared with 7.4% in November), Food and non-alcoholic beverages (+3.6% compared with 2.7% in November), and Education and Housing (+2.8% in Housing compared with 3.7% in November, while Education increased at the same rate). No category recorded a decrease.

The largest contribution to inflation in December 2025 came from the group Hotels–cafés–restaurants, contributing 0.81 pp, followed by Food and non-alcoholic beverages with 0.76 pp and Housing with 0.38 pp, while the smallest contribution was recorded by the Communications group, at 0.01 pp.

Inflation based on the National General CPI in December 2025 (2.6%) constitutes a combined result of the changes in the sub-indices in the following groups of goods and services. Specifically, the following increases were recorded:

- 3.6% in the Food and non-alcoholic beverages group. This increase, mainly due to the rise in prices of bread (2.5%), other bakery products (3.4%), meats (13.1%), fresh fish (4.0%), milk-cheese and eggs (4.4%), fruits (10.6%), chocolates-chocolate products (20.0%), confectionery products (6.9%), coffee (20.9%), and fruit juices (5.5%), was partly offset mainly by the decrease in prices of breakfast cereals (-5.3%), olive oil (-34.1%), and vegetables (-2.6%).
- 1.4% in the Alcoholic beverages and Tobacco group. This increase is mainly due to the rise in prices of (not-served) alcoholic beverages (1.5%) and cigarettes (1.7%).

TABLE 1.3.1 Inflation in Greece (%)

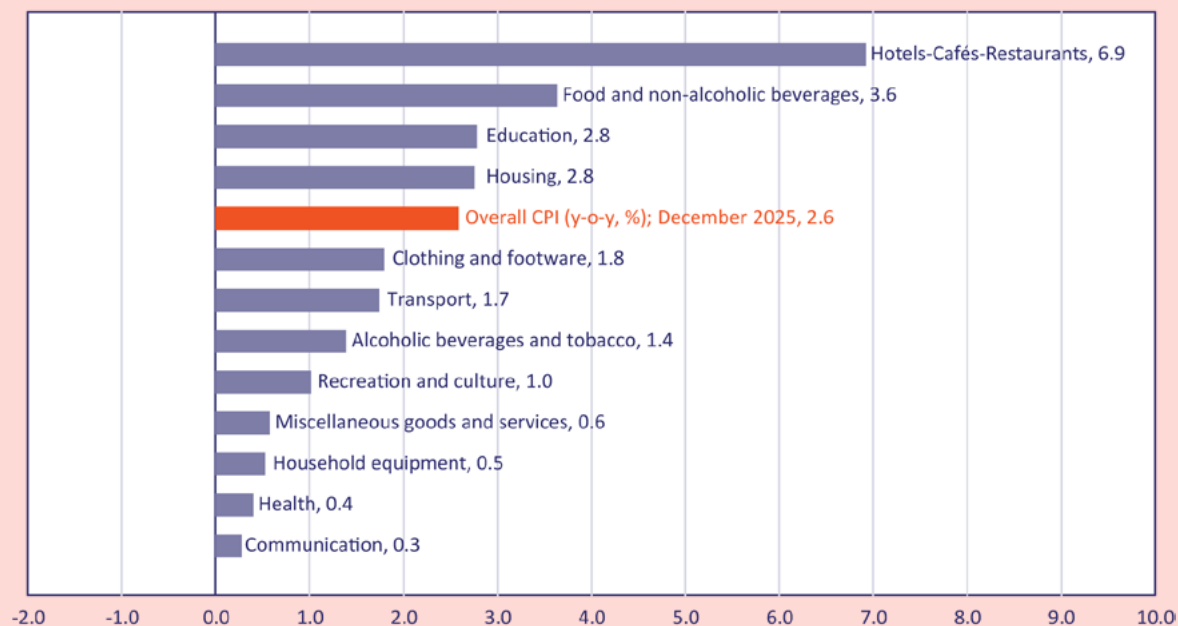
	National CPI	CPI (m-o-m, %)	Headline inflation CPI (y-o-y, %)	Core inflation (y-o-y, %)	Harmonized inflation (y-o-y, %)	Core HICP (y-o-y, %)
2025M01	118.7	-0.7	2.7	3.8	3.1	4.4
2025M02	118.6	-0.1	2.5	3.6	3.0	4.2
2025M03	120.2	1.4	2.4	3.2	3.1	3.8
2025M04	120.3	0.0	2.0	3.5	2.6	3.8
2025M05	120.6	0.2	2.5	3.6	3.3	4.0
2025M06	121.5	0.8	2.8	3.5	3.6	4.2
2025M07	121.0	-0.4	3.1	3.9	3.7	4.3
2025M08	121.1	0.1	2.9	4.2	3.1	3.9
2025M09	122.1	0.8	1.9	3.2	1.8	2.6
2025M10	122.2	0.1	2.0	2.8	1.6	2.0
2025M11	122.2	0.1	2.4	2.8	2.8	3.2
2025M12	122.6	0.3	2.6	3.1	2.9	3.2

Source: ELSTAT, Eurostat.

- 1.8% in the Clothing and Footwear group, due to the increase in clothing and footwear prices.
- 2.8% in the Housing group. This increase, mainly due to the rise in prices of rentals for dwellings (8.4%), services for the repair and maintenance of the dwelling (6.6%), Miscellaneous services relating to the dwelling (2.2%), and electricity (4.1%), was partly offset mainly by the decrease in prices of natural gas (-20.1%) and heating oil (-4.7%).
- 0.5% in the Durable goods – Household Items and Services group. This increase, mainly due to the rise in prices of domestic services (4.8%), was partly offset mainly by the decrease in prices of household appliances and repairs (-2.9%).
- 0.4% in the Health group. This increase, mainly due to the rise in prices of medical, dental, and paramedical services (2.2%) and hospital care (0.7%), was partly offset mainly by the decrease in prices of pharmaceutical products (-1.3%).
- 1.7% in the Transport group. This increase, mainly due to the rise in prices of new motorcars (2.6%), spare parts and accessories for motorcars (4.0%), Maintenance and repair of motorcars - motorcycles (6.0%), Other services for motorcars - motorcycles (4.6%), and Passenger transport by air (11.9%), was partly offset mainly by the decrease in prices of second hand motorcars (-3.5%) and fuels and lubricants (-1.9%).
- 0.3% in the Communications group, due to the rise mainly in the prices of telephone services (0.4%).
- 1.0% in the Recreation – Cultural Activities group. This increase, mainly due to the rise in prices of Major durables for recreation and culture (2.9%), small recreational items, flowers, pets (1.1%), cultural activities (5.7%), and holiday packages (7.2%), was partly offset mainly by the decrease in prices of Audiovisual and information processing equipment (-6.0%).
- 2.8% in the Education group. This increase is mainly due to the rise in prices of Pre-primary and primary education (3.2%) and secondary education (3.3%).
- 6.9% in the Hotels - cafés - restaurants group. This increase, mainly due to the rise in prices of Restaurants-confectioneries-café-buffets (7.4%), was partly offset mainly by the decrease in prices of hotels, motels, inns (-1.7%).
- 0.6% in the Other goods and Services group. This increase, mainly due to the rise in prices of hair-dressing salons and personal grooming establishments (3.9%), private insurance connected with

FIGURE 1.3.1

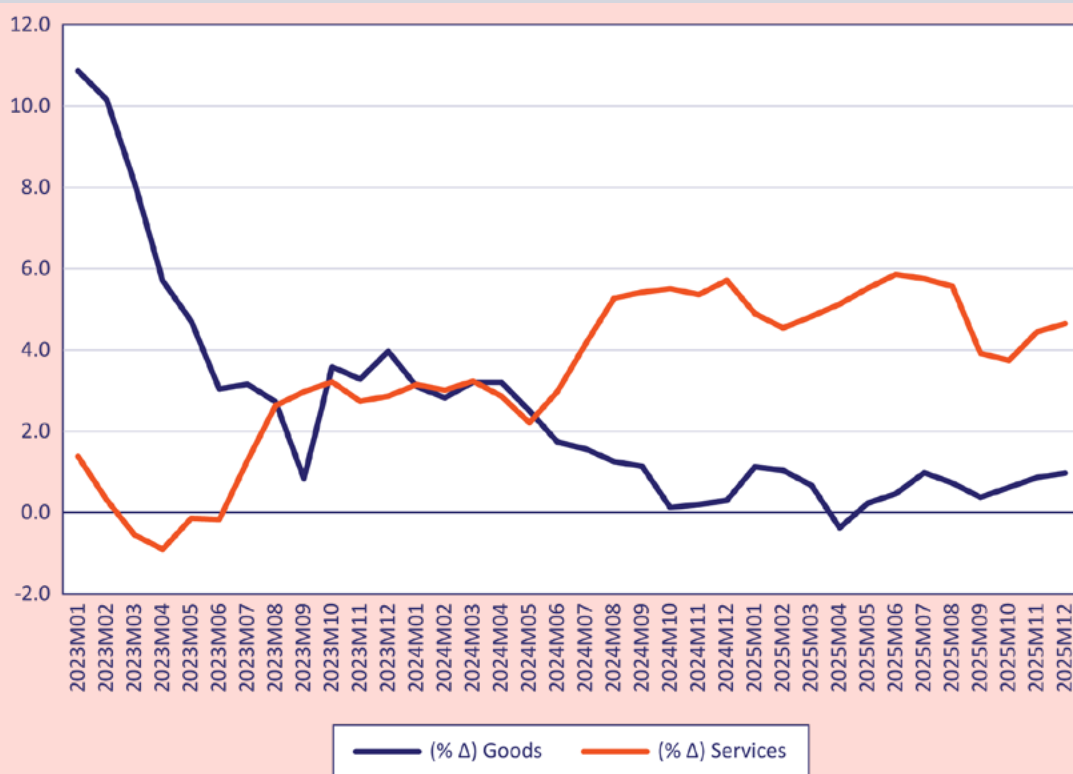
Annual % changes in National CPI sub-categories (December 2025)



Source: ELSTAT.

FIGURE 1.3.2

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



Source: ELSTAT.

TABLE 1.3.2 Annual % changes in National CPI sub-categories, January 2025 - December 2025

Groups of goods and services	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
1 Food and non-alcoholic beverages	0.1	0.2	2.2	2.0	2.6	2.3	2.8	2.2	1.4	2.3	2.7	3.6
2 Alcoholic goods and tobacco	0.8	2.0	1.2	0.0	1.7	1.4	1.8	1.2	1.0	1.8	1.7	1.4
3 Clothing and footwear	5.4	6.4	3.6	4.6	6.6	4.9	8.4	7.7	5.2	1.9	1.3	1.8
4 Housing	4.6	5.1	5.9	3.4	6.0	7.2	6.6	3.7	0.2	1.4	3.7	2.8
5 Household equipment	-0.2	-0.7	0.2	-0.6	0.1	0.5	0.0	0.6	0.4	0.7	0.5	0.5
6 Health	3.5	3.4	1.6	1.7	1.8	2.0	2.0	0.6	0.1	0.6	0.6	0.4
7 Transport	3.3	0.3	-1.6	-0.8	-2.8	-1.4	-1.1	1.6	2.7	0.7	0.7	1.7
8 Communication	1.2	1.7	2.1	1.6	2.0	2.2	2.1	1.7	1.6	0.8	0.5	0.3
9 Recreation and culture	1.3	0.9	0.9	0.8	1.2	1.2	0.8	1.2	1.0	1.0	0.7	1.0
10 Education	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.8	2.8	2.8
11 Hotels-Cafes-Restaurants	5.1	5.5	6.0	6.4	6.8	7.1	6.2	6.2	5.9	6.5	7.4	6.9
12 Miscellaneous goods and services	2.3	2.3	2.2	-0.4	0.9	1.0	0.6	0.2	-0.4	0.5	0.6	0.6
General Index	2.7	2.5	2.4	2.0	2.5	2.8	3.1	2.9	1.9	2.0	2.4	2.6

Source: ELSTAT.

health (7.0%), and other services (3.1%), was partly offset mainly by the decrease in prices of other appliances and articles for personal care (-2.2%) and motor vehicle insurance (-1.0%).

The gap between inflation in goods and services remains significant (Figure 1.3.2 above), with services inflation moving at clearly higher levels. Specifically, services prices recorded a strong upward trend, reaching 4.6% in December 2025, higher than the 4.4% recorded in November. By contrast, goods prices showed a more moderate development, increasing by 1.0% in December, compared with 0.9% in the previous month of November.

1.3.2. The euro area

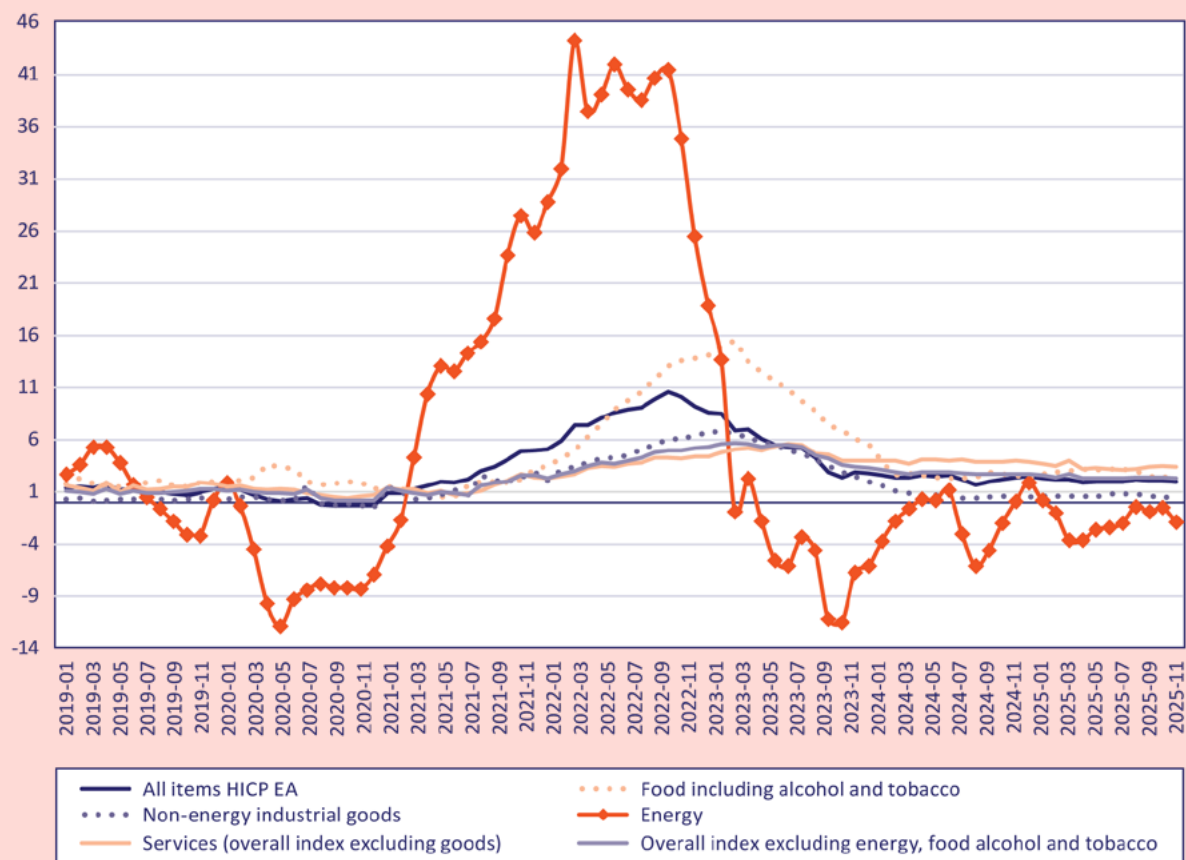
According to estimates by Eurostat, inflation in the Eurozone stood at 2.0% in December 2025, recording

a marginal decline compared with November (2.1%). A similar trend was observed in core inflation, which – excluding the volatile prices of energy and food – stood at 2.3%, down from 2.4% in the previous month.

With regard to the individual components of inflation in the Eurozone, the highest rate is estimated to have been recorded in Services (3.4% compared with 3.5% in November), followed by the category Food, alcohol and tobacco (2.6% compared with 2.4% in November). Inflation in Non-Energy Industrial Goods remained at lower levels (0.4% compared with 0.5% in November), while the Energy category remained in negative territory for the tenth consecutive month (-1.9% compared with -0.5% in November).

At the cross-country level, the highest inflation rates in December 2025 were recorded in Estonia and Slovakia (4.1%), followed by Austria (3.9%) and Croatia (3.8%). By contrast, the lowest inflation rates were observed in Cyprus (0.1%), France (0.7%) and Italy (1.2%).

FIGURE 1.3.3
HICP in the euro area, monthly data, annual % change.



Source: Eurostat.

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

Macroeconomics Forecasting Unit

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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 2025 up to the fourth quarter of 2026.¹ 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 2025.

According to revised provisional data of the quarterly *National Accounts*, the Greek economy remains on a stable growth path, with data for the nine-month period from January to September 2025 suggesting a positive impact on demand from all its key components. In the first, second, and third quarters of 2025, Greece's GDP growth rate stood at 2.4%, 1.6% and 2.0%, respectively, on an annual basis, a performance supported by the continued significant rise in private consumption, the recovery in public consumption, the considerable strengthening of fixed capital investment dynamics from the second quarter of the year onwards, and the positive contribution of the external balance. Factors contributing to these developments include the increase in employment and wages, the significant boost from the inflow of financial resources into the economy through the Recovery and Resilience Fund (RRF) and other European programmes, and the favorable course of demand for the products and services of key sectors of the economy (industry, tourism, construction). With regard to the role of the external environment, despite the many

challenges persisting in year 2025, the Greek economy was favoured by the noticeable improvement in economic performance at the EU level and the more stable climate associated with the EU-US agreement on tariffs.

The favourable picture emerging from recent economic data on Greece, the positive impact on domestic demand from key economic policy measures, and optimistic prospects at the start of the year with regard to EU growth and German economic recovery in particular have lent support to expectations for a stable growth path for Greece in 2026. In particular, short-term prospects appear positive for all major components of domestic demand, including public consumption, for which a modest increase is projected given the recent track record in achieving fiscal targets. Fixed capital investment is expected to increase, supported mainly by the enhanced public investment program and the acceleration of public interventions implementation, including projects funded by the RRF. In parallel, private investment is favoured by lower borrowing costs, in conjunction with sector-specific factors (in energy, construction, etc.). With regard to private consumption, policy measures to support wages and incomes and reduce the tax burden on households, combined with positive developments in employment, are helping to offset persistent inflationary pressures, leading to expectations of a continued rise in private consumer spending.

In the above context, Table 1.4.1 presents the updated econometric estimates for the rate of change of Greece's real GDP up to the fourth quarter of 2026. According to estimates, the average growth rate of the Greek economy is expected to reach 2.2% in 2026, a projection based on the favorable development of most of the economic indicators incorporated in the forecast.

More specifically, for the third quarter of 2025, the quarterly *National Accounts* data at constant prices, compared to the corresponding quarter of 2024, show a continued significant rise in private consumption, a strengthening of public consumption, as well as a large increase in fixed capital investment, driven mainly by the rise in investment expenditure on construction and transport equipment. In the external sector, there was an increase in services ex-

1. The date of the forecast is January 12th, 2026. Therefore, it does not take in to account the serious challenges that had developed by the time of publication, particularly with respect to the war in the Middle East.

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.

ports due to higher receipts from tourism, while the rate of change of goods exports also turned positive. At the same time, imports declined significantly for the second consecutive quarter, mainly due to the drop in fuel imports.

Regarding the course of indicators reflecting the activity of key sectors of the economy, developments recorded in the third quarter of 2025 compared to the corresponding quarter of the previous year were mostly positive. First, in the industry sector, the overall industrial production index and the turnover index in industry both increased, with index values showing gains across all major subcategories except for energy. In the trade sector, the volume index in retail trade increased overall and in six of the eight relevant subcategories, with decreases recorded in *automotive fuel* and *clothing and footwear*. In the tourism and construction sectors, there was an increase in travel receipts and favourable developments in private construction activity and the production index in construction. Concerning the course of the domestic labor market, in the third quarter of 2025 a further improvement in conditions was observed, as the number of persons employed increased by 1.8% compared to the third quarter of the previous year and the number of unemployed persons decreased by 8.2%, respectively.

With respect to price data for the third quarter of 2025, developments compared to the immediately preceding quarter indicate a rise in energy costs, a slight decline

in average inflation, and a persistence of significant inflationary pressures in key categories such as *housing, clothing and footwear*, and *hotels, cafés, and restaurants*. In terms of the yield of Greece's ten-year government bond, which is linked to the levels of uncertainty in the economy, stability was observed relative to the second quarter of 2025, alongside a slight narrowing of 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 2025 compared to the second quarter of the year indicated an improvement in the economic climate in both Greece and the EU.

The consistently positive growth outlook for the Greek economy in 2026, based on the forecasts derived from the above data, is subject to significant risks and uncertainties, primarily related to geopolitical developments and the instability of international trade policy. These conditions underscore the need to strengthen the resilience of the Greek economy, through measures to effectively implement the plan to boost investment, actions to upgrade skills, and targeted policies for industry and innovation, which will contribute to the strengthening of the productive base and the development of high-value-added sectors.

TABLE 1.4.1 Real GDP rate of change: 2025 and 2026 (% , y-o-y)

Quarters	2025		2026		
	2025Q4	2026Q1	2026Q2	2026Q3	2026Q4
Quarterly rate of change	3.34 [3.23 , 3.46]	3.00 [2.77 , 3.23]	2.70 [2.36 , 3.03]	2.33 [1.89 , 2.78]	0.62 [0.20 , 1.04]
Mean rate of change, 1 st half *	-	2.85 [2.57 , 3.13]		-	
Mean rate of change, 2 nd half **	2.66 [2.60 , 2.71]	-		1.48 [1.05 , 1.91]	
Mean annual rate of change ***	2.33 [2.30 , 2.36]		2.16 [1.81 , 2.52]		

Notes: 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 2025, since it does not incorporate a forecast.

** The mean rate of change for the 2nd half of 2025 incorporates the officially available (provisional) data for the 3rd quarter of 2025, on a seasonally adjusted basis.

*** The mean annual rate of change for 2025 incorporates the officially available (provisional) data for the first three quarters of 2025, on a seasonally adjusted basis.

1.5. 2025: A landmark year for the Greek stock exchange

Fotini Economou

1.5.1. Introduction

The year 2025 was a landmark year for the Greek stock market, characterized by significant positive developments reflected in stock market index returns. The year concluded with impressively high returns for the market, with the basic materials, banks, and financial services sectors standing out. At the same time, there was a substantial increase in market capitalization and transactions value as a result of a series of positive developments that attracted investor interest.

The Greek stock market is entering a new era as, during the second half of 2025, the goal of returning to developed market status was achieved, while the acquisition of the Athens Stock Exchange (ATHEX) by Euronext was also successfully completed. More specifically, as of July 2025, S&P Dow Jones Indices (S&P DJI) proposed the reclassification of the Greek capital market from “Emerging Market” to “Developed Market”, within the framework of the September 2026 index rebalancing.¹ Next, in October 2025, the global index provider FTSE Russell decided to upgrade the Greek capital market from “Advanced Emerging Market” status to “Developed Market” status, with this change taking effect as of Monday, September 21, 2026.² Furthermore, in November 2025, Euronext’s voluntary share exchange tender offer for the acquisition of the ordinary registered shares of Hellenic Exchanges – Athens Stock Exchange S.A. (ATHEX) was successfully completed.³

Also note that the Greek economy has now received investment-grade ratings from all credit rating agencies accepted under the Eurosystem framework (Fitch, Moody’s, Morningstar DBRS, Scope Ratings, and S&P) (BoG, 2025). Upgrades continued in 2025, with Morningstar DBRS upgrading the Greek economy to BBB from BBB (low) in early March 2025. A significant development and milestone for the Greek market was the

recovery of investment grade from Moody’s as well (the only agency that had not yet granted investment grade to Greece) in mid-March 2025, to Baa3 from Ba1. Next, in April 2025, S&P further upgraded the Greek economy to BBB from BBB-. In October 2025, Rating and Investment Information (R&I) upgraded the credit rating of the Greek economy to BBB from BBB-. More recently, in November 2025, Fitch upgraded the Greek economy to BBB from BBB-, while Scope Ratings revised the outlook for the Greek economy to positive from stable. The successive upgrades of the Greek economy act as a catalyst for the economy as a whole. These positive developments led to a series of consecutive upgrades for domestic banks and corporations, as well as reduced financing costs. At the same time, the attractiveness of Greek securities was enhanced, attracting significant inflows of foreign capital into bonds and equities (BoG, 2025).

The de-escalation of interest rates by the European Central Bank (ECB) continued until June 2025, with key interest rates remaining unchanged thereafter. As a result of the upgrades to the Greek economy and the easing of monetary policy, the Greek bond market moved positively, with successful issuances and a reduced weighted new funding cost. The corporate bond market also followed a positive course, characterized by significant issuance activity and lower financing costs compared to previous issuances (BoG, 2025). It is worth noting that among the most significant developments of the period under review was the enactment of Law 5193/2025, “Strengthening the Capital Market and Other Provisions”, in April 2025. This law introduced a series of reforms to modernize the domestic capital market, establishing, among other things, a reduction in the tax rate on interest from listed corporate bonds earned by natural persons who are tax residents of Greece.⁴

In this context, the present article provides a brief overview of the Greek stock market’s performance for the year 2025, focusing on key stock market indices and data. Additionally, the performance of the bond market for the same period is presented. The final section of the article summarizes and concludes.

1. See [ATHEX Press Release of 25/7/2025](#).

2. See [ATHEX Press Release of 7/10/2025](#).

3. See [ATHEX announcement of 19/11/2025](#).

4. See the relevant information note from the Ministry of Economy and Finance, available at <https://minfin.gov.gr/enimerotiko-simeio-ma-gia-to-nomoschedio-enischysi-tis-kefalaiagoras-kai-alles-diataxeis/>.

TABLE 1.5.1 Greece's credit rating

Rating Agency	Rating	Outlook	Date of last review
Standard & Poor's	BBB	Stable	17/10/2025
Moody's	Baa3	Stable	19/9/2025
Fitch	BBB	Stable	14/11/2025
DBRS Morningstar	BBB	Stable	5/9/2025
Rating and Investment (R&I)	BBB	Stable	6/10/2025
Scope Ratings GmbH	BBB	Positive	7/11/2025

Source: Public Debt Management Agency (PDMA)-January 2026.

1.5.2. The course of the stock market in 2025

The Greek stock market moved with impressive momentum during 2025, outperforming European and Global Developed Market indices (ATHEX, 2026). Despite the temporary destabilization of international capital markets in early April 2025, triggered by uncertainty regarding U.S. tariff policy, the Greek stock market soon recovered and returned to positive returns. Market activity in 2025 was characterized by increased trading volumes, a record high in international investor participation, significant equity placements and capital increases, as well as a record high in cash distributions to shareholders (ATHEX, 2026).

More specifically, according to ATHEX data (Table 1.5.2), the Athex Composite Share Price Index recorded a positive return for the fifth consecutive year, with an increase of 44.30% (2024: 13.65%, 2023: 39.08%, 2022: 4.08%, 2021: 10.43%), reaching 2,120.71 points on 31/12/2025, from 1,469.67 points on 31/12/2024. This performance ranks the Greek stock market among the top-performing stock markets worldwide, with the rise fueled not only by strong banking stocks but also by significant returns in sectors of the real economy. Of particular interest is the performance recorded for the five-year period 2021–2025, with the Athex Composite Share Price Index recording a cumulative return of 162% and the banking index recording a cumulative return of 342% (ATHEX, 2026).

The FTSE/Athex Large Cap and Athex ESG indices moved to even higher levels in 2025, recording returns of 49.87% and 49.11%, respectively. Mid and small-cap indices also moved in positive territory but at lower levels, with the Hellenic Mid & Small Cap Index and

the FTSE/Athex Mid Cap index recording returns of 36.78% and 21.04%, respectively.

The year 2025 ended with positive returns for all sectoral indices, with the FTSE/ATHEX BASIC MATERIALS, FTSE/ATHEX Banks, and FTSE/ATHEX FINANCIAL SERVICES indices recording impressively high returns (89.86%, 78.37%, and 77.76%, respectively). Note that the banking sector continues to record high returns that far exceed those of the ATHEX Composite Share Price Index, serving as a driver and catalyst for the overall market rise in 2025. The lowest returns were recorded by the FTSE/ATHEX TECHNOLOGY & TELECOMMUNICATIONS, FTSE/ATHEX CONSUMER DISCRETIONARY, and FTSE/ATHEX REAL ESTATE indices (19.49%, 16.00%, and 15.10%, respectively).

According to ATHEX (2025) data, the market capitalization of the ATHEX (assets under custody of domestic and foreign investors in total listed equities) reached €121.08 billion at the end of December 2025, significantly increased by 29.89% compared to the end of December 2024 (€93.22 billion). The participation of foreign investors remains high at 68.15% at the end of December 2025, with foreign investors recording outflows of €24.19 million and 69% of total transactions' value in December 2025. The cash value of settled transactions of December 2025 reached €4,409.73 million, recording a remarkable increase of 62.89% compared to December 2024, which was at €2,707.23 million. Furthermore, the cash value of settled transactions of equities was significantly higher in December 2025 at €4,357.78 million, recording an increase of 63.95% compared to December 2024, which was at €2,657.97 million. For the whole year 2025, a 58.07% increase was recorded in the cash value of settled

TABLE 1.5.2 Prices and returns for selected indices of the ATHEX (31/12/2025)

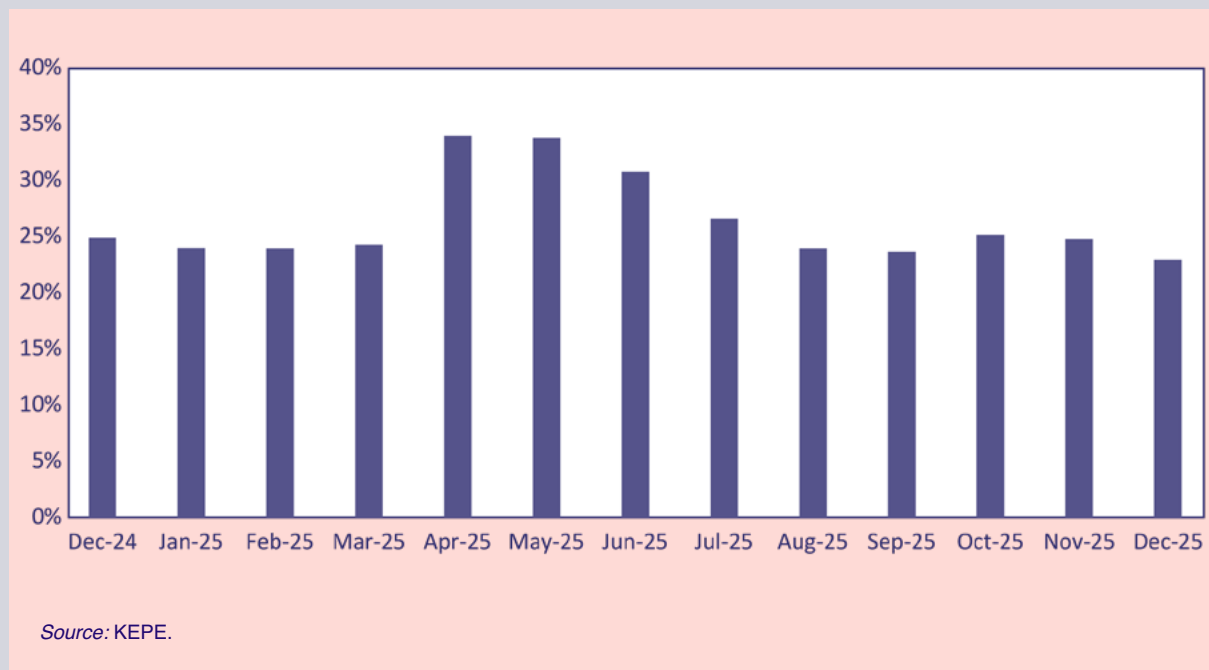
	31/12/2025	Year min	Year max	Year change (%)
FTSE/Athex Large Cap	5,351.12	3,550.72	5,393.69	49.87%
Athex ESG Index	2,502.24	1,676.07	2,521.37	49.11%
Athex Composite Share Price Index	2,120.71	1,455.08	2,135.29	44.30%
Athex All Share Index	484.28	340.27	485.25	42.66%
Hellenic Mid & Small Cap Index	2,895.30	2,005.36	2,910.16	36.78%
FTSE/Athex Mid Cap Index	2,825.02	2,262.76	3,029.36	21.04%
FTSE/ATHEX BASIC MATERIALS	9,526.07	4,549.74	9,779.91	89.86%
FTSE/Athex Banks	2,293.85	1,278.63	2,474.67	78.37%
FTSE/ATHEX FINANCIAL SERVICES	10,727.19	6,002.57	11,567.10	77.76%
FTSE/ATHEX INDUSTRIALS	10,051.45	6,534.30	10,116.32	40.43%
FTSE/ATHEX ENERGY & UTILITIES	6,877.47	4,945.68	6,917.59	38.13%
FTSE/ATHEX CONSUMER STAPLES	8,812.55	6,653.46	9,184.21	31.75%
FTSE/ATHEX TECHNOLOGY & TELECOMMUNICATIONS	6,774.60	5,244.36	6,774.86	19.49%
FTSE/ATHEX CONSUMER DISCRETIONARY	5,840.77	4,770.42	6,429.79	16.00%
FTSE/ATHEX REAL ESTATE	5,616.36	4,359.91	5,733.12	15.10%

Source: Daily official list of trading activity of the ATHEX 31/12/2025.

transactions of equities, reaching €53,600.93 million, from €33,908.72 million for the whole year 2024.

Examining the uncertainty regarding the short-term course of the Greek market through the KEPE GRIV implied volatility index—the so-called “fear” index—fluctuations are observed within the year, with the index reaching its annual highs in April 2025 and subsiding in the following months. The significant spike in international market uncertainty in April 2025 was triggered by international pressures arising from changes in U.S. trade policy and concerns over their global impact. 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 2025, reaching 21.37% on 31/12/2025, from 24.73% on 28/11/2025. Moreover, the average daily value of the index decreased compared to the previous month, reaching 22.91% in December 2025, from 24.79% in November 2025. The index remained below its historical average level (since January 2004) for the Greek market, which stands at 31.78%. 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 the previous month, with fluctuations within the year. Figure 1.5.1 illustrates the average daily value of the KEPE GRIV index per month for the period Dec. 2024 – Dec. 2025. The increased uncertainty during April – May 2025 gradually decreased, with the index’s average daily value in December 2025 reaching a lower level compared to December 2024.

FIGURE 1.5.1**Average daily value of the KEPE GRIV index per month (Dec. 2024 – Dec. 2025)**

1.5.3. Greek Government T-bills, Greek Government bonds and corporate bonds in 2025

During 2025, the ECB proceeded with successive cuts to its key interest rates until June 2025, with rates remaining unchanged since then (deposit facility rate, main refinancing operations rate, and marginal lending facility rate at 2.00%, 2.15%, and 2.40%, respectively).⁵ At its most recent meeting in December 2025, the ECB Governing Council decided to keep the three key ECB interest rates unchanged, noting that “its updated assessment reconfirms that inflation should stabilize at the 2% target in the medium term”.⁶ Overall, the easing of the ECB’s monetary policy was also transmitted to the real economy, with bank loan interest rates for non-financial corporations declining significantly during 2025 across all loan categories, while relatively smaller rate reductions were also recorded for bank loans to households (BoG, 2025).

The successful issuances by the Greek Government continued, characterized by increased demand and investor interest, with the weighted new funding cost

declining further at the end of September 2025 compared to the end of June 2025, March 2025, and the end of 2024.⁷

Table 1.5.3 illustrates the de-escalation of Greece’s short-term borrowing cost during 2025 across the entire spectrum of short-term securities (13, 26, and 52 weeks). The yields of 13-, 26- and 52-week T-bill issues throughout 2025 remained at lower levels compared to the end of 2024. The largest decrease was recorded in the 13-week T-bills, falling from 2.82% to 1.72%. Meanwhile, the gradual decline in interest rates for 26-week T-bills (from 2.61% to approximately 1.75% before the final December adjustment) and the corresponding stabilization of 52-week T-bills around 2% confirm that the Greek Government has regained the ability to draw liquidity at a low cost, benefiting from both the favorable ECB environment and the confidence of institutional investors in the country’s prospects.

Moreover, examining the interest rates of the Greek Government benchmark bonds, according to Bank of Greece data for 2025 (Figure 1.5.2), an overall shift

5. See [Information about the ECB interest rates](#), Bank of Greece.

6. See [ECB Press Release of 18/12/2025](#).

7. See the *Public Debt Management Agency Quarterly Bulletins* [No116](#), [No117](#), [No118](#), and [No119](#), the latest available at the time of writing.

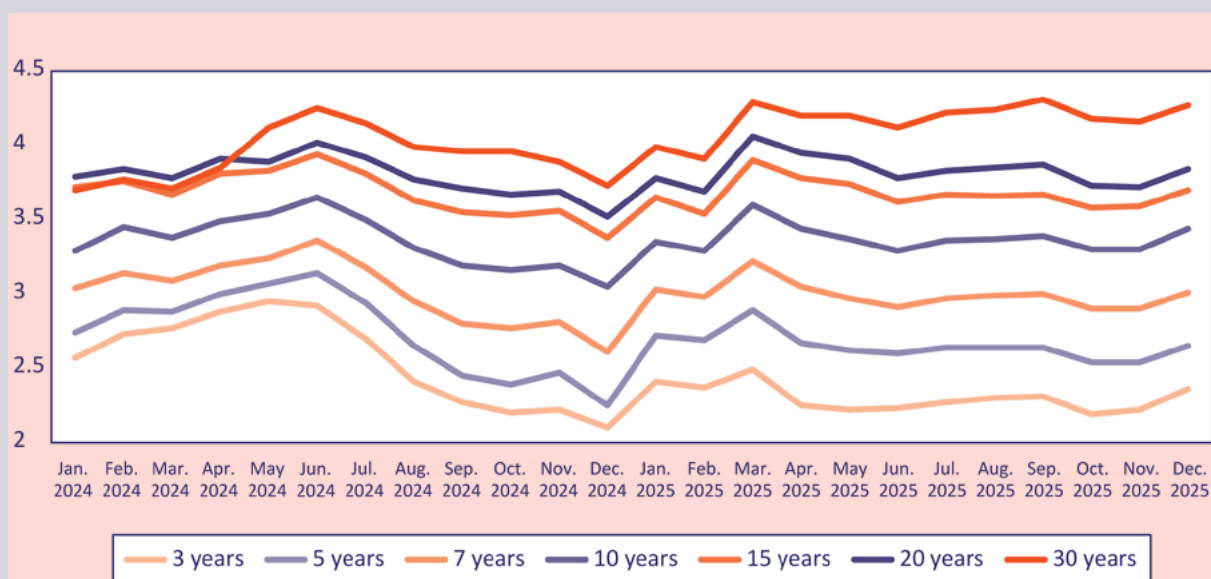
TABLE 1.5.3 Greek Government T-bills yields (issues from the end of 2024 to the end of 2025)

Auction date	13 weeks	Auction date	26 weeks	Auction date	52 weeks
29/10/2025	1.72%	23/12/2025	2.01%	3/12/2025	2.03%
1/10/2025	1.78%	26/11/2025	1.78%	3/9/2025	1.97%
30/7/2025	1.76%	22/10/2025	1.76%	4/6/2025	1.84%
2/7/2025	1.70%	24/9/2025	1.79%	5/3/2025	2.15%
29/4/2025	1.85%	20/8/2025	1.74%	4/12/2024	2.27%
2/4/2025	2.03%	23/7/2025	1.71%		
29/1/2025	2.37%	25/6/2025	1.75%		
31/12/2024	2.82%	28/5/2025	1.74%		
		23/4/2025	1.90%		
		26/3/2025	2.10%		
		19/2/2025	2.19%		
		22/1/2025	2.45%		
		23/12/2024	2.61%		

Source: Ministry of Economy and Finance.

FIGURE 1.5.2

Monthly average yield (%) of Greek government benchmark bonds (Jan. 2024 – Dec. 2025) for maturities of 3, 5, 7, 10, 15, 20 and 30 years



Source: Bank of Greece.

of the yield curve to higher levels is observed during 2025. The monthly average yield of Greek Government bonds in December 2025 was higher compared to December 2024 across all maturities. The largest increase was recorded for the 30-year bonds, while the smallest was for the 3-year bonds.

Finally, focusing on corporate bonds, according to ATHEX data, the Hellenic Corporate Bond Price Index⁸ recorded marginal losses of -0.06%, while the Hellenic Corporate Bond Index⁹ recorded a return of 3.73% for 2025.¹⁰ Furthermore, the cash value of settled transactions of corporate bonds in December 2025 increased by 30.93% compared to December 2024, reaching €33.10 million from €25.28 million, respectively. Examining the whole of 2025, an increase of 27.18% was recorded compared to 2024, at €409.29 million from €321.81 million, respectively. Note that in 2025, four corporate bond issuances were recorded, totaling €1.39 billion (from €330 million in 2024), which were characterized by massive oversubscriptions (averaging 2.4 times) as well as narrowed yield spreads (ATHEX, 2026).

1.5.4. Conclusions

The year 2025 constitutes a landmark year for the Greek stock market, as it concluded with impressively high returns, increased capitalization, and transactions value, as a result of a series of positive developments that attracted investor interest. The return of the ATHEX to developed market status as of September 2026 represents a historic achievement that expands its investor base, attracting capital from a broader spectrum of institutional investors. At the same time,

the acquisition of ATHEX by Euronext ensures participation in a unified European ecosystem, enhancing the extroversion of the Greek capital market and creating conditions of increased transparency and liquidity that offer new financing and growth perspectives for Greek companies. Note that a total of €2.5 billion in capital was raised through the stock market in 2025, from €2.2 billion in 2024. This suggests that companies are now turning to alternative financing sources, reducing their exclusive reliance on banks. Simultaneously, the successive upgrades of the Greek economy act as a catalyst for the economy as a whole, having now achieved investment grade ratings from all credit rating agencies. Furthermore, the Greek bond market attracted investor interest through successful issuances and a reduced weighted new funding cost, while significant issuance activity and investor interest were also observed in the corporate bond market. In this context, the Greek stock market is entering a new era with significant growth prospects for Greek businesses and the capital market.

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8. Based on the net price of each bond.

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

10. Returns on 29/12/2025 according to the daily official list of trading activity of the ATHEX of 31/12/2025.

1.6. Recent developments and prospects of the global economic activity: Stabilization of global GDP growth at 2025 levels amid heightened uncertainty

Aristotelis Koutroulis

Despite concerns about a sharp slowdown in global GDP growth, in 2025 the global economy showed remarkable resilience in the face of rising protectionism and considerable uncertainty. This year, global economic activity is expected to maintain most of the momentum it built up in 2025. However, the global economy remains vulnerable to potential new shocks.

1.6.1 Recent developments and short-run prospects of the global economy

Rising protectionism, ongoing geopolitical tensions, and the high uncertainty that accompanied macroeconomic developments throughout the past year created an explosive mix of economic headwinds. Nevertheless, the global economy in 2025 showed remarkable resilience, with annual global GDP growth exceeding initial expectations and settling at around 3.2% (see Table 1.6.1). Global activity was boosted by (a) front-loaded increased orders and a large accumulation of inventories by businesses in the first quarter of the year in anticipation of higher tariffs, (b) favorable conditions in financial markets, (c) monetary policy easing, (d) increased household consumption amid widespread stability in labor markets, and (e) a surge in investment in physical infrastructure related to the implementation of artificial intelligence (OECD, 2025; IMF, 2026; UN, 2026; and WB, 2026). Meanwhile, the high degree of adaptability of global value chains to the new tariff regime and the absorption of part of the increased tariffs by companies contributed significantly (WB, 2026).

In 2026, the global economy is expected to face multiple and interrelated challenges. Specifically, the weakening of international trade due to the full implementation of new tariffs, the fading of the positive effects from last year's front-loaded increased supplies by businesses, the sluggish growth of domestic demand in countries directly affected by escalating geopolitical tensions, weak public investment in countries with

tight fiscal margins, and increased uncertainty about the direction of macroeconomic policies around the world are expected to exert downward pressure on global economic activity (OECD, 2025; UN, 2026; and WB, 2026). On the other hand, strong investment in new technologies in advanced economies, fiscal support measures in countries with fiscal space, monetary policy easing and more favorable financing conditions, as well as stronger private consumption in countries with stable labor markets, are expected to stimulate the global economy. Against this background, should the pace of global GDP growth slow down, the slowdown would be marginal (see Table 1.6.1).

Risks that might derail the global economy from its growth path refer to the following scenarios: (a) an escalation of geopolitical tensions, (b) a further increase in protectionism, (c) a reversal of the positive sentiment in international financial markets due to a generalized revaluation of securities, and (d) a sharp rise in inflation due to (a) and (b) (OECD, 2025; IMF, 2026; UN, 2026; and WB, 2026).

1.6.2 Inflation, employment, and investment

In 2025, global inflation remained on a downward trend, with the annual average index falling by half a percentage point compared to 2024. During the same period, in 40% of all countries worldwide, inflation (at a national level) returned to its long-term average of the 2010-2019 period (UN, 2026). However, in several advanced and developing economies, the rate of disinflation towards central bank targets remains extremely low compared to what was expected (OECD, 2025 and UN, 2026). In general, there are large differences between countries in relation to both the rate of decline and the levels of inflation. To a certain extent, these differences reflect variations in national economies in terms of economic policy, structural characteristics, and, obviously, the degree of their involvement in recent international economic diplomacy disputes.

The emerging trends towards further declines in international energy prices and weaker demand for internationally tradable goods (WB, 2026), combined with the slowdown in nominal wage growth in advanced economies and less pressure on the national currencies of developing economies in foreign exchange markets (UN, 2026), have led to the assessment that global inflation will continue its downward trend in 2026, falling to 3.1% (see Table 1.6.2). In advanced economies, average annual inflation will approach the 2010-2019 average, reaching 2.4%. A similar reduction (approx-

TABLE 1.6.1 Real Gross Domestic Product^{1,2} (annual percentage changes)

	2025*					2026**					2027**				
	IMF	EC	OECD	WB	UN	IMF	EC	OECD	WB	UN	IMF	EC	OECD	WB	UN
World economy	3.3	3.1	3.2	3.4	3.2	3.3	3.1	2.9	3.1	3.1	3.2	3.2	3.1	3.2	3.3
Advanced economies	1.7	1.7	:	1.7	1.6	1.8	1.7	:	1.6	1.6	1.7	1.9	:	1.6	1.8
USA	2.1	1.8	2	2.1	1.9	2.4	1.9	1.7	2.2	2	2	2.1	1.9	1.9	2.2
Euro Area	1.4	1.3	1.3	1.4	1.4	1.3	1.2	1.2	0.9	1.1	1.4	1.4	1.4	1.2	1.4
Japan	1.1	1.1	1.3	1.3	1.2	0.7	0.7	0.9	0.8	0.9	0.6	0.7	0.9	0.8	1
United Kingdom	1.4	1.4	1.4	:	1.4	1.3	1.2	1.2	:	1.1	1.5	1.4	1.3	:	1.3
Developing economies	4.4	4.2	:	4.2	4.4	4.2	4.2	:	4	4.2	4.1	4.2	:	4.1	4.3
Brazil	2.5	2.2	2.4	2.3	2.5	1.6	1.8	1.7	2	2	2.3	2	2.2	2.3	2.3
Russia	0.6	0.8	:	0.9	0.8	0.8	1.1	:	0.8	1	1	1.2	:	1	1.5
India	7.3	6.8	6.7	7.2	7.4	6.4	6.5	6.2	6.5	6.6	6.4	6.4	6.4	6.6	6.7
China	5	4.8	5	4.9	4.9	4.5	4.6	4.4	4.4	4.6	4	4.4	4.3	4.2	4.5

Sources: IMF (2026), European Commission (2025), OECD (2025), United Nations (2026), and World Bank (2026).

* 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.

mately 0.3%) will also be recorded in average annual inflation in the developing world in 2026, with the corresponding index falling to 3.9% (see Table 1.6.2).

The above forecasts are subject to considerable uncertainty, as potential negative developments regarding (a) international energy prices (due to escalating geopolitical tensions and conflicts), (b) food prices (due to adverse weather conditions), and (c) prices of other commodities (due to further increases in tariffs or export restrictions) could slow down the decline in inflation or even reverse its downward trend.

Statements made by US political leaders in early 2025 regarding tariff increases created the impression that the ensuing uncertainty surrounding trade policy would have a negative impact on labour markets worldwide. Nevertheless, the front-loaded increase in economic activity in anticipation of higher tariffs, combined with the partial retreat of US political leaders from their initial positions, prevented the emergence of strong pressures in labour markets. Against this background, the annual global unemployment rate remained unchanged (compared to 2024) at 5% (UN, 2026).

Labour markets are expected to exhibit comparable stability in 2026, with unemployment rates at the global and national levels estimated to record only marginal fluctuations (see Table 1.6.3). However, this stability does not leave much room for complacency, as there

are signs of weakening labour demand in many advanced economies. For example, in countries such as the US, the UK, Germany, and Japan, the ratio of the total number of new job offerings to the total number of the unemployed is on a downward trend and below the 2019 levels (OECD, 2025). This development points to a slowdown in employment growth and a reduction in the rate of increase in nominal wages in the near future.

Undoubtedly, the risks threatening the smooth functioning of the global economy (further rise in protectionism, escalation of geopolitical tensions, etc.) are potentially destabilizing factors for labour markets around the world. However, the key issue that seems to concern analysts today is the impact on employment of the application of artificial intelligence (AI) to a wide range of production processes. On the one hand, it is believed that the application of AI technologies will bring significant benefits in terms of efficiency, most notably an increase in labour productivity. On the other hand, there is much talk about significant changes in the structure of employment. Although no significant shifts in labour markets have been observed to date as a result of the application of AI, relevant studies indicate that any effects on the structure and level of employment will be particularly noticeable over the next five years. It is interesting to note that these studies conclude that large-scale job losses will occur not only in low- and medium-skilled occupations (e.g.,

TABLE 1.6.2 Inflation¹ (annual percentage changes)

	2025*			2026**			2027**		
	EC	OECD	UN	EC	OECD	UN	EC	OECD	UN
World economy	:	:	3.4	:	:	3.1	:	:	:
Advanced economies	:	:	2.7	:	:	2.4	:	:	2.2
USA	2.8	2.7	2.9	3	3	2.7	2.3	2.3	2.3
Euro Area	2.1	2.1	2.1	1.9	1.9	1.9	2	2	2
Japan	3.2	3.2	3.2	2.2	2.2	2.9	2	2.1	2.6
United Kingdom	3.7	3.5	3.5	2.6	2.5	2.8	2	2.1	2.5
Developing economies	:	:	4.2	:	:	3.9	:	:	3.7
Brazil	:	5.1	5	:	4.2	4.3	:	3.8	4
Russia	8.9	:	8.9	5.4	:	5.1	4.6	:	4.4
India	2.3	1.9	2.7	3.5	3.4	4.1	4	4	4.3
China	:	-0.2	0	:	0.3	0.8	:	0.8	1

Sources: European Commission (2025), OECD (2025), and United Nations (2026).

* Estimations, ** Projections.

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

TABLE 1.6.3 Annual unemployment rates (advanced economies)

	2025*		2026**		2027**	
	EC	OECD	EC	OECD	EC	OECD
USA	4.2	4.2	4.4	4.4	4.3	4.4
Euro Area	6.3	6.4	6.2	6.3	6.1	6.1
Japan	2.5	2.5	2.5	2.4	2.5	2.4
United Kingdom	4.6	4.7	4.7	4.9	4.6	5

Sources: European Commission (2025), and OECD (2025).

* Estimations, ** Projections.

administrative staff, data entry operators, and related occupations) but also in highly skilled, well-paid professions (e.g., computer programmers and software engineers). On the contrary, there will be an increase in demand for specializations related to big data analysis and financial services technologies (UN, 2026).

Regarding investment, despite the easing of monetary policy and more favorable financing conditions, the pace of global investment activity in 2025 was sluggish. This development is mainly attributed to the high level of uncertainty that prevailed among businesses due to increased protectionism and escalating geopolitical tensions (UN, 2026).

Compared to the rest of the world, public and private sector investment grew much faster in advanced economies. In particular, public investment in several advanced economies focused on projects related to (a) the digital transformation of economies, (b) infrastructure that supports the energy transition, and (c) national security. In the private sector, investment spending mainly focused on replacing existing mechanical equipment, acquiring hardware and software to enable the use of AI (US), strengthening research and development (R&D) (Europe), and upgrading the technology of export-oriented companies (Japan) (UN, 2026).

With the exception of India and some economies in Southeast Asia and the Arabian Peninsula, investment performance in 2025 in the developing world was not comparable to that of advanced economies. This underperformance is partly linked to tight fiscal constraints and, therefore, to the limited capacity of the state to participate in the formation of fixed capital.

In 2026, investments related to the development and application of new technologies are expected to continue to attract the investment interest of businesses in most economies around the world. However, as long as uncertainty remains high and business expectations

fluctuate widely, global investment activity is unlikely to move beyond the low levels seen last year (UN, 2026).

1.6.3 Regional developments

Advanced economies

In 2025, despite the unfavorable international environment, advanced economies continued to grow at a satisfactory pace as changes in trade policy had less impact than initially expected. This is explained by (a) the front-loading of economic activity in anticipation of higher tariffs, (b) delays in the implementation of the new tariff regime, (c) the retreat of governments from their initial extreme positions, (d) the successful efforts of businesses to circumvent higher tariffs using various techniques, and (e) the delayed incorporation of higher tariffs into consumer prices (WB, 2026). Although the effects of higher tariffs will become more apparent in the coming months, it is estimated that they will be offset by more favorable financing conditions and stable labor markets. As a result, the average annual rate of economic growth in the advanced world is not expected to change significantly in 2026 (see Table 1.6.1) (IMF, 2026 and WB, 2026).

More specifically, GDP growth in the US in 2026 is expected to hover around 2%, boosted by expansionary fiscal policy, lower interest rates, and continued investment momentum in new technologies (IMF, 2026). In the Eurozone, the continued disbursement of Next Generation EU funds, investment momentum, and rising private consumption amid rising employment and household purchasing power are the key factors that will contribute to the expansion of economic activity in 2026. However, potential losses of market share outside Europe (due to the appreciation of the euro and low competitiveness) are expected to keep the economy at a moderate pace of economic growth (see Table

1.6.1) (ECB, 2025). Japan will also experience a moderate GDP growth rate in 2026, as exporting companies – mainly the automotive industry – are expected to face lower external demand due to increased tariffs (UN, 2026). Finally, a similar slowdown in economic growth is expected in the United Kingdom this year due to fiscal consolidation measures and significant macroeconomic uncertainty (OECD, 2025).

Emerging and developing economies

In 2025, economic activity in emerging and developing economies was boosted by a surge in exports (especially in the first half of the year) and stronger domestic demand due to more favorable financing conditions. Although exports will lose much of last year's momentum, the gradual improvement in household and business confidence, combined with increasing capital inflows from abroad, is expected to boost private consumption and investment, keeping economic growth in 2026 close to 2025 levels (see Table 1.6.1) (WB, 2026).

Despite the recent agreement between China and the US to curb their aggressive tariff policies and despite the planned supportive economic policy, China's economic growth rate in 2026 will slow slightly due to weakening external demand and the prolonged crisis in the Chinese real estate market (EC, 2025 and UN, 2026). In India, private consumption, public investment, and favorable fiscal policy are expected to be the main drivers of economic activity in 2026. However, higher export tariffs will limit exports, reducing the rate of economic growth by about half a percentage point compared to 2025 (OECD, 2025 and UN, 2026). As for Russia, the country's economic performance will deteriorate as a combined result of constraints on production capacity, high interest rates, and international economic sanctions imposed due to the war

with Ukraine (EC, 2025). Finally, in Brazil, the maintenance of tight monetary policy, fiscal challenges, and increased tariffs on the country's exports are expected to hold GDP growth in 2026 just below 2% (EC, 2025).

1.6.4. World trade and commodity prices

The pace of expansion in international trade (goods and services) is expected to slow significantly during 2026, falling by 0.7 to 1.9 percentage points (see Table 1.6.4). Important factors contributing to the expected slowdown are the easing of front-loading activity and the weakening demand for internationally tradable goods due to the full implementation of higher tariffs (OECD, 2025; IMF, 2026; and UN, 2026).

Alongside significant fluctuations in the volume of international trade flows, international trade appears to have recently entered a phase of significant structural change. On the one hand, companies are showing a greater propensity for geographical expansion of production chains with the aim of creating more options for the distribution of production across individual firms. On the other hand, the application of new technologies has enabled a rapid rise in trade in services through digital technology. According to analysts, these changes are opening new horizons for the expansion of international trade, while at the same time providing opportunities for greater participation in countries that remain on the margins of international trade flows (UN, 2026).

As regards international commodity prices, they are expected to decline by 7% in 2026 due to the gradual weakening of global demand for industrial and energy products. More specifically, the average international price of Brent crude oil is expected to be \$60 per barrel (compared to \$69 in 2025), as increased global supply from OPEC countries is expected to exceed weak glob-

TABLE 1.6.4 World trade volume (annual percentage changes, goods and services)

	2024*	2025*	2026**	2027**
IMF	3.6	4.1	2.6	3.1
EC	3.4	2.8	2.1	2.7
OECD	3.9	4.2	2.3	2.8
WB	3.4	3.4	2.2	2.7
UN	3.5	3.8	2.2	3.2

Sources: IMF (2026), European Commission (2025), OECD (2025), United Nations (2026), and World Bank (2026).

* Estimations, ** Projections.

al demand. Natural gas prices in the US and Europe will follow diametrically opposite paths (an 11% increase in the US and a corresponding decrease in Europe). Finally, base metal prices are expected to remain relatively stable, while prices of basic food commodities are expected to decline marginally (WB, 2026).

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2. Fiscal developments

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2.1. State Budget, public debt and fiscal outlook

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2.1.1. Execution of the State Budget 2025

The State Budget for 2025 is estimated to close with a deficit of €4.459 billion (-1.8% of GDP), compared to an initially projected deficit of €5.930 billion (or -2.4% of GDP) (Table 2.1.1). The State Budget balance appears improved by €1.471 billion, allowing for a reduction of the deficit as a percentage of GDP, despite the fact that the GDP itself is also estimated to increase relative to the initial forecast (+€1.183 billion). Accordingly, the primary balance is estimated to reach €5.275 billion (2.1% of GDP), compared to an initial estimate of a surplus of €3.470 billion (1.4% of GDP).

The improved outcome of the State Budget, relative to initial estimates, is mainly attributed to the revenue side, which is expected to exceed projections across all subcategories. As regards expenditures, these are also projected to increase across all subcategories, except for the category “allocations under distribution,” which corresponds to Public Investment Programme (PIP) expenditures. In any case, the increase in expenditures is lower than the increase in revenues; therefore, the overall result is improved relative to initial estimates.

Revenues are estimated to reach €77,034 million, i.e., increased by €2,461 million compared to the 2025 Budget target. The overperformance is attributed by 79% to tax revenues. VAT revenues are estimated to exceed projections by €952 million, while income tax revenues are expected to exceed projections by €855 million. Out of the total overperformance of €2,461 million, €1.807 billion originates from these two categories

Expenditure estimates amount to €81,493 million, compared to a forecast of €80,502 million. Total expenditures, excluding the category “allocations under distribution,” are estimated to increase significantly by €2,228 million relative to initial projections. On the contrary, the category “allocations under distribution”

is expected to exhibit a significant decrease compared to forecasts. Specifically, expenditures in this category are estimated to amount to €16,365 million, compared to an initial estimate of €17,602 million, i.e., a 7% decrease, which contributes €1,237 million to the primary balance of the State Budget. It should be noted, however, that even if this specific expenditure category had not exhibited under-execution—i.e., had remained at the level of the initial forecast—the primary balance of the State Budget would still have remained improved relative to initial projections.

Increased revenues improved the fiscal outcome and the balance. Figure 2.1.1 presents the evolution of the primary balance over the period 2008–2026, as well as the evolution of nominal GDP. As observed, in nominal terms, the GDP losses resulting from the economic crisis of the period 2008–2017 were fully recovered by 2024. Furthermore, from 2024 onwards, the State Budget balance remains consistently positive and above 1% of GDP. In 2025, it is estimated to reach 3.1% of GDP, while in 2026, it is projected to decline but remain positive (2.1% of GDP).

Figure 2.1.2 illustrates the evolution of State Budget revenues and expenditures over the same period. During 2008–2019, revenues fluctuated, with minor annual variations, around €50–55 billion. Similarly, expenditures, after a significant initial decline during 2008–2014 (from €76.3 to €55.1 billion) due to the fiscal adjustment programme, stabilized at approximately €55 billion annually. The COVID-19 pandemic, the recession it triggered, and the support measures that were implemented pushed revenues and expenditures in opposite directions. Expenditures increased from €55 to €70 billion, while revenues declined from €55 to €47 billion. Subsequently, and up to 2023, expenditures continued to hover around €70 billion, while the increase in revenues gradually narrowed the gap. From 2024 onwards, the absolute difference remains at roughly the same level.

During the first phase of the economic crisis (2008–2011), expenditures as a share of GDP continued to increase despite their decline in absolute terms (as GDP contracted proportionally more due to the deep recession). After 2011, the combined effect of fiscal consolidation measures and the slowdown of the recession stabilized expenditures at approximately 30%–31% of

TABLE 2.1.1 State Budget data according to ESA, € million

	2024	2025		2026
	EDP Oct. 2025 ¹	Forecast ²	Estimate ³	Forecast
State Budget				
Net Revenues	72,180	74,573	77,034	79,983
<i>Taxes</i>	68,309	69,203	71,146	73,645
<i>of which:</i>				
VAT	25,683	26,673	27,625	29,229
Excise duties	7,258	7,276	7,407	7,460
Recurrent property taxes	2,430	2,394	2,411	2,328
Income tax	24,723	25,212	26,067	26,757
<i>Social contributions</i>	61	60	61	61
<i>Transfers</i>	7,282	8,794	9,307	10,930
<i>Sales of goods and services</i>	894	965	1,211	1,061
<i>Other current revenues</i>	3,793	3,043	2,962	2,274
<i>Sales of fixed assets</i>	29	37	36	51
<i>Tax refunds</i>	8,188	7,529	7,689	8,038
Expenditure ⁴	74,921	80,502	81,493	86,793
<i>Compensation of employees</i>	14,870	14,790	15,395	15,589
<i>Social benefits</i>	340	425	568	628
<i>Transfers</i>	32,299	34,436	34,863	35,567
<i>Purchases of goods and services</i>	2,201	1,910	2,351	2,258
<i>Subsidies</i>	73	81	138	80
<i>Interest payments (gross basis)</i>	10,203	9,400	9,828	9,815
<i>Other current expenditure</i>	117	102	118	101
<i>Non-allocated expenditure</i>	13,438	17,602	16,365	20,299
<i>Purchase of fixed assets</i>	1,380	1,757	1,868	2,456
Public Investment Programme ⁵				
<i>Revenue</i>	3,547	4,300	4,300	4,350
<i>Expenditures</i>	9,914	9,200	9,700	9,500
Recovery and Resilience Fund ⁶				
<i>Revenue</i>	3,145	4,237	4,293	5,950
<i>Expenditures</i>	3,401	4,900	4,900	7,192
State Budget Primary Balance ⁷	7,418	3,470	5,275	3,005
% of GDP	3.1%	1.4%	2.1%	1.2%
State Budget Balance ⁷	-2,741	-5,930	-4,459	-6,810
% of GDP	-1.2%	-2.4%	-1.8%	-2.6%
GDP ⁸	236,736	247,514	248,697	260,035

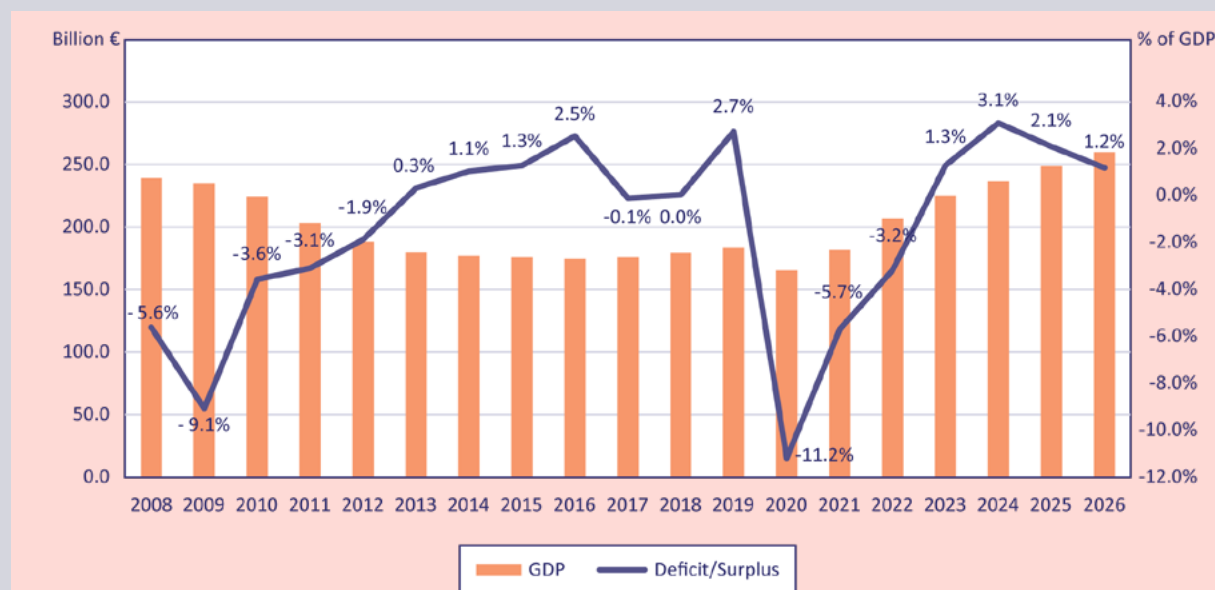
TABLE 2.1.1 (continued)

Source: State Budget 2025 and 2026, Ministry of Finance.

Notes:

1. Revenue and expenditure data for the years 2024 and 2025 are provisional.
2. Targets of the 2025 Budget, adjusted to the aggregate figures as reflected in the estimates of the Budget Report for 2025.
3. Targets of the 2025 Budget, adjusted to the aggregate figures as reflected in the estimates of the Budget Report for 2026.
4. Central Government expenditures are classified according to the major categories of Presidential Decree 54/2018 (Government Gazette A' 103).
5. Revenues of the Public Investment Budget, excluding the Recovery and Resilience Facility (RRF), are included under transfers and other current revenues, while PIP expenditures are included under allocations under distribution.
6. RRF revenues are included under transfers, while the corresponding expenditures are included under allocations under distribution.
7. Deficit (-) / Surplus (+).
8. The GDP estimate for 2025 and the forecasts for 2026 are as presented in the estimates and projections of the Introductory Report of the 2026 Budget.

FIGURE 2.1.1
Gross Domestic Product (GDP) and State Budget Primary Deficit/Surplus 2008–2026
(in % of GDP and € billion)

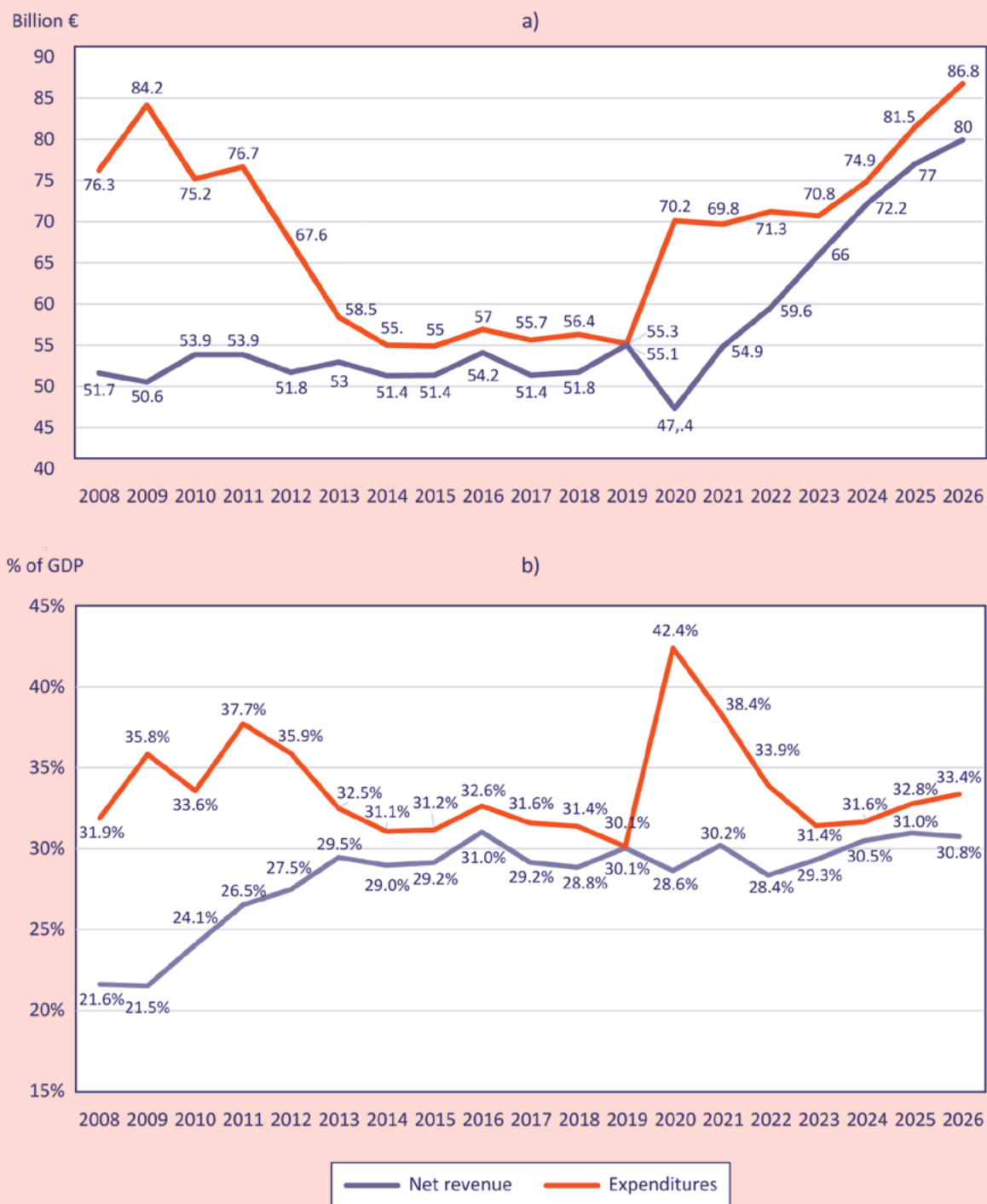


Source: Budget Introductory Report, various issues.

Note: 2025 constitutes an estimate, while 2026 constitutes a forecast of the 2026 State Budget.

FIGURE 2.1.2

State Budget's net revenues and expenditures 2008–2026 (in € billion and in % of GDP)



Source: Budget Introductory Report, several issues; General Accounting Office of the State.

Note: 2025 constitutes an estimate, while 2026 constitutes a forecast of the 2026 State Budget.

GDP. At the same time, amid a severe recession, revenues increased and stabilized at around 31% of GDP. The COVID-19 crisis (2021) led to a sharp increase in public expenditures; however, the gradual withdrawal of support measures and the recovery of the economy subsequently reduced this ratio at a similarly rapid pace, resulting in revenues and expenditures being nearly balanced in 2023 and 2024.

2.1.2 Evolution of public debt in the third quarter of 2025

According to the latest available data from the Public Debt Management Agency, as of 30/9/2025, General Government debt amounted to €368 billion, reduced by €0.6 billion (0.2%) compared to the previous quarter and by €3 billion (0.8%) compared to the end of 2024. The entirety of this debt is at a fixed interest rate, while the weighted average maturity stands at 18.48 years. The average re-fixing period is 17.88 years, whereas the cash-based debt servicing cost, including swaps, amounts to 1.33%.

The net debt position of the General Government, after deducting cash reserves—which reached €45.8 billion—amounted to €322.2 billion during the period under review. Net General Government debt decreased by €4.5 billion (1.4%) compared to the previous quarter and by €6.4 billion relative to the end of 2025.

With regard to the Central Government, in 2025Q3 its debt amounted to €402.2 billion, recording a decrease of €1 billion (0.3%) compared to the previous quarter and €1.7 billion (0.4%) compared to the end of 2024, as well as €0.5 billion (0.5%) relative to the corresponding quarter of 2024. In addition, the cash reserves of the Greek State decreased by €743.4 million (0.2%) compared to the previous quarter, while they increased by €875.5 million (0.2%) relative to the end of 2024 and by €2.2 billion (0.6%) compared to the corresponding quarter of 2024.

Table 2.1.2 presents the composition of the Central Government's debt in Q3/2025. Central Government debt has been entirely converted into fixed-rate debt denominated in euro. Regarding its tradability, the shift in the composition of debt in favor of non-tradable debt relative to tradable debt stood at 25% and 75%, respectively, during the period under review. Furthermore, with respect to guarantees provided by the Greek State, these continue to decline, reaching €27.9 billion during the period examined.

The distribution of debt by residual maturity in the third quarter of 2025 is presented in Table 2.1.3, Short-term

securities (with maturity of less than one year) of the Greek State account for 16.9% of the total, compared to 9.5% represented by medium-term securities (with maturity from 1 to 5 years), and 73.6% represented by long-term securities (with maturity beyond five years), from 16.5%, 10.1%, and 73.4%, respectively, in the previous quarter of 2025. Compared to the corresponding quarter of 2024, a decrease in the share of short-term securities is observed, alongside an increase in the shares of medium-term and long-term securities.

The weighted average residual maturity of total Central Government debt amounted to 14.60 years, decreased from 16.85 years in the corresponding quarter of 2024. New borrowing in the third quarter of 2025 was distributed as follows: 45.9% from the issuance of Treasury bills, 43.7% from fixed-rate bonds, 10.1% from NGEU loans, and 0.2% from bonds issued by the European Investment Bank (EIB) (Figure 2.1.3).

Figure 2.1.4 presents the maturity profile of Central Government debt based on the latest available data. The depiction of the most recent figures indicates that, excluding the remainder of the current year (2025), the distribution of debt repayment obligations is, with only minor exceptions, relatively smooth, remaining at levels below €15 billion per year up to 2070.

2.1.3. Fiscal prospects

With regard to the execution of the 2026 Budget, it is too early to draw definitive conclusions. The outlook for fiscal aggregates is inherently linked to that of the national economy. The Greek economy exhibits stronger growth rates compared to the euro area, with the increase in tourism revenues and the impact of the Recovery and Resilience Facility playing a significant role in this performance. In addition, the reduction in the debt-to-GDP ratio constitutes a positive factor.

On the other hand, developments in EU relations, particularly with the United States, and their potential economic implications are characterized by considerable uncertainty and volatility. Although the exposure of the Greek economy to the United States is relatively limited, any adverse effects on the euro area would also negatively affect the domestic economy.

In the short term, the prospects of the Greek economy remain positive; however, maintaining this trajectory constitutes a challenge within an unstable international environment and at a time when the main “internal” driver—namely the Recovery and Resilience Fund—is approaching completion.

TABLE 2.1.2 Central Government debt data¹ (amounts in € million)*

Period	2024Q3	2024Q4	2025Q2	2025Q3
Outstanding Central Government debt	404,285.64	403,860.68	403,204.53	402,200.52
Debt by type of interest rate				
Fixed ²	404,285.64	403,860.68	403,204.53	402,200.52
Floating ^{2,3}	0.00	0.00	0.00	0.00
Debt by way of trading				
Tradable	105,114.27	105,003.78	108,865.22	108,594.14
Non-tradable	299,171.37	298,856.90	294,339.31	293,606.38
Debt by currency				
Euro (€)	404,285.64	403,860.68	403,204.53	402,200.52
Non-euro currency	0.00	0.00	0.00	0.00
Cash Deposits of the H.R.⁴	19,461.70	18,120.80	16,501.90	17,245.30
Guarantees of the Greek State	27,310.18	28,218.54	28,388.20	27,874.57

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

Notes:

1. Central Government debt differs from General Government debt (Maastricht debt) by the amount of intra-governmental debt and other items as defined under ESA '95.

2. The fixed/floating interest rate ratio is calculated taking into account: (a) interest rate swap transactions, (b) the use of financial instruments by the European Stability Mechanism (ESM) in relation to loans granted to the Greek State, and (c) the incorporation of risk parameters from the EFSF liabilities portfolio into the Greek public debt portfolio.

3. Inflation-linked bonds are included under floating-rate bonds.

4. The account of the reserve buffer from capital market operations is included, with a balance of €15,697.3 million as of 30/6/2025 and 30/9/2025.

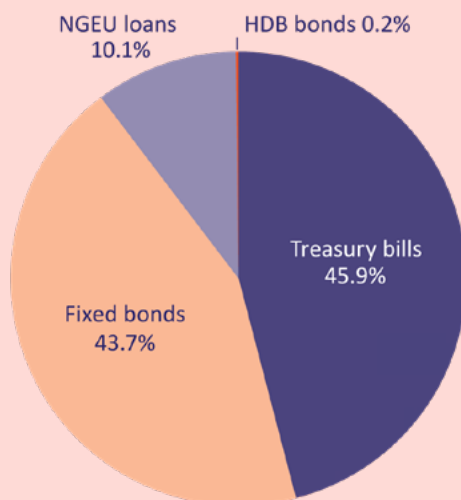
* Provisional data.

TABLE 2.1.3 Budgetary Central Government debt by residual maturity (amounts in million €)

Period	2024Q3	2024Q4	2025Q2	2025Q3
Total volume	404,285.64	403,860.68	403,204.53	402,200.52
Short-term (up to 1 year)	62,755.92	70,895.60	66,310.05	68,171.09
Medium-term (1 to 5 years)	51,734.96	43,686.26	40,920.23	38,101.52
Long-term (more than 5 years)	289,794.76	289,278.82	295,974.25	295,927.91

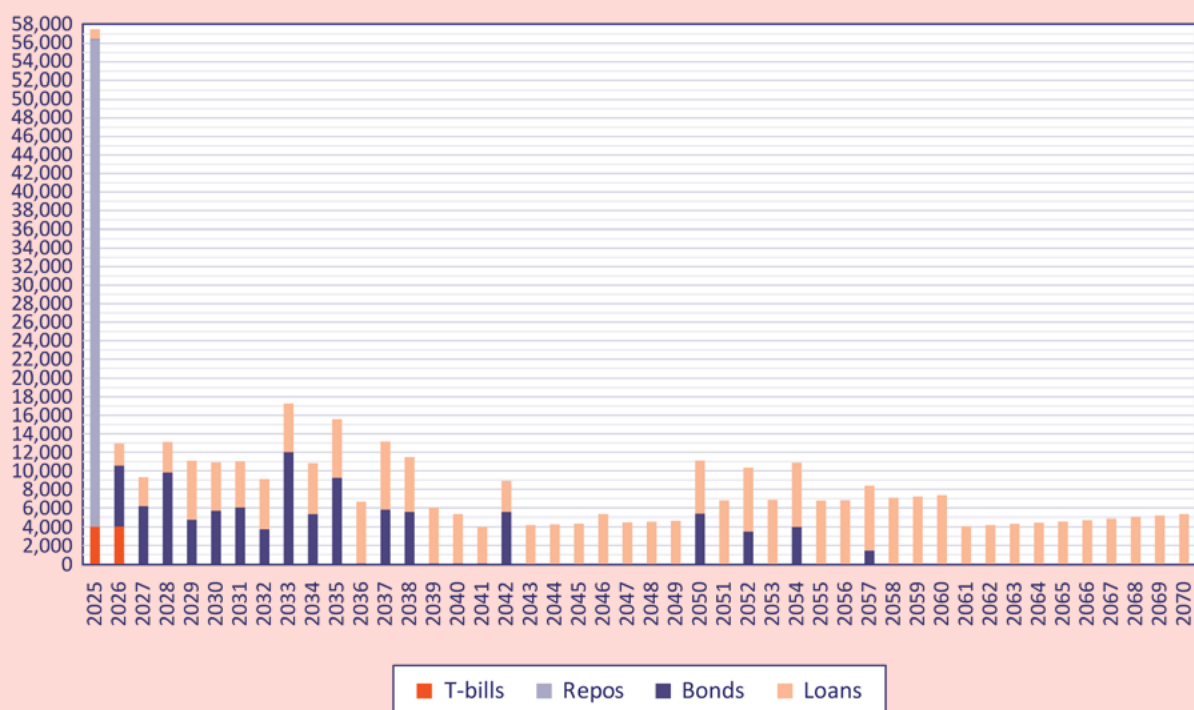
Source: *Public Debt Bulletin*, General Accounting Office of the State, Ministry of Finance.

FIGURE 2.1.3
Distribution of new borrowing, Q32025



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

FIGURE 2.1.4
Maturity schedule of Central Government debt as of 30 June 2026 (amounts in € million) €



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

Notes: The maturities of securities are smoothed through debt buybacks and liability management operations.
Includes the extension of EFSF loans as agreed at the Eurogroup meeting of 22 June 2018.

2.2. Fiscal policy, debt, and the economic cycle in Greece

Georgios Bertsatos,
Christos Chrysanthakopoulos

2.2.1. Introduction

Fiscal policy is one of the key pillars of macroeconomic stability and sustainable growth. In the case of Greece, the accumulation of deficits and debt over the previous decade, combined with the deep recession, sharply highlighted the limits of the fiscal policy framework at the time and raised questions about the sustainability of public debt. The Greek crisis lasted longer than the crises experienced in other European economies, while the frequent procyclical adjustment weighed on the economic cycle. Today, however, the available data show a clear turnaround. The decline in the debt-to-GDP ratio, the significant reduction in borrowing costs, the ability to make early debt repayments, and the im-

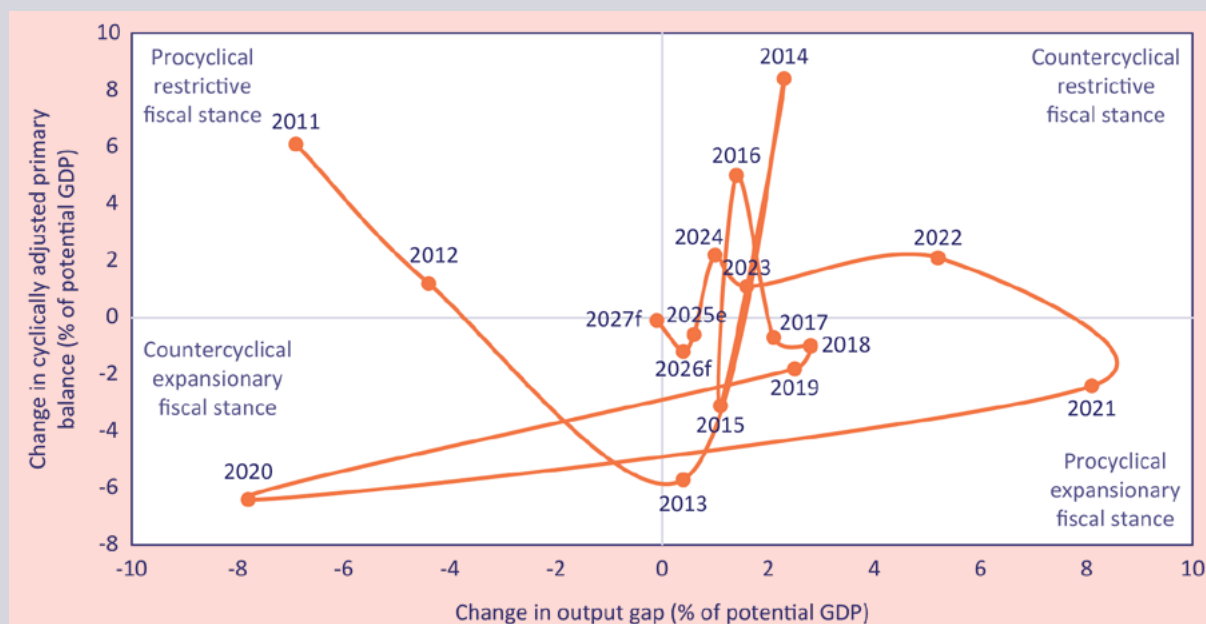
provement in fiscal credibility signal that the past weaknesses have been overcome. This progress is part of the new European fiscal framework, which moves away from rigid rules and emphasizes the specific characteristics of each country, the path of net primary expenditure, and the structural balance, strengthening the conditions for a sustainable fiscal path.

2.2.2. Conduct of fiscal policy in Greece, 2011-2027

Figure 2.2.1 shows the relationship between change in the output gap (i.e., actual GDP minus potential GDP to potential GDP) and change in the discretionary fiscal policy (i.e., the cyclically adjusted primary balance to potential GDP). This relationship provides a coherent framework for interpreting the cyclical behavior of fiscal policy.

Countercyclical fiscal policy is defined as a policy that has a stabilizing effect, i.e., it is expansionary during periods of recession and restrictive during periods of boom. Conversely, procyclical fiscal policy is defined as a policy that intensifies economic cycle fluctuations

FIGURE 2.2.1
Evolution of discretionary cyclical behavior in fiscal policy



Source: AMECO, authors' calculations.

by applying restrictive policy during recessions or expansionary policy during periods of expansion. The countercyclical fiscal policy is considered preferable internationally, as it limits macroeconomic imbalances (or destabilization) and promotes sustainable growth. (Barro, 1979; Larch et al., 2021).¹

The experience of the previous decade, as illustrated in Figure 2.2.1, shows that fiscal policy in Greece was largely procyclically restrictive in 2011-2012. In conditions of a deep recession and a sharply negative output gap, the implementation of extensive fiscal adjustment had a destabilizing effect, exacerbating the contraction in economic activity and weighing on the momentum of recovery. This figure clearly shows the misguided timing of the policy, which was not aligned with the phase of the economic cycle and contributed to the prolonged duration and depth of the Greek crisis. In contrast, 2020 marks a turning point, as in the context of an unprecedented exogenous shock due to COVID-19, fiscal policy was clearly countercyclical and expansionary. This choice, which was also supported at the European level, had a stabilizing effect,

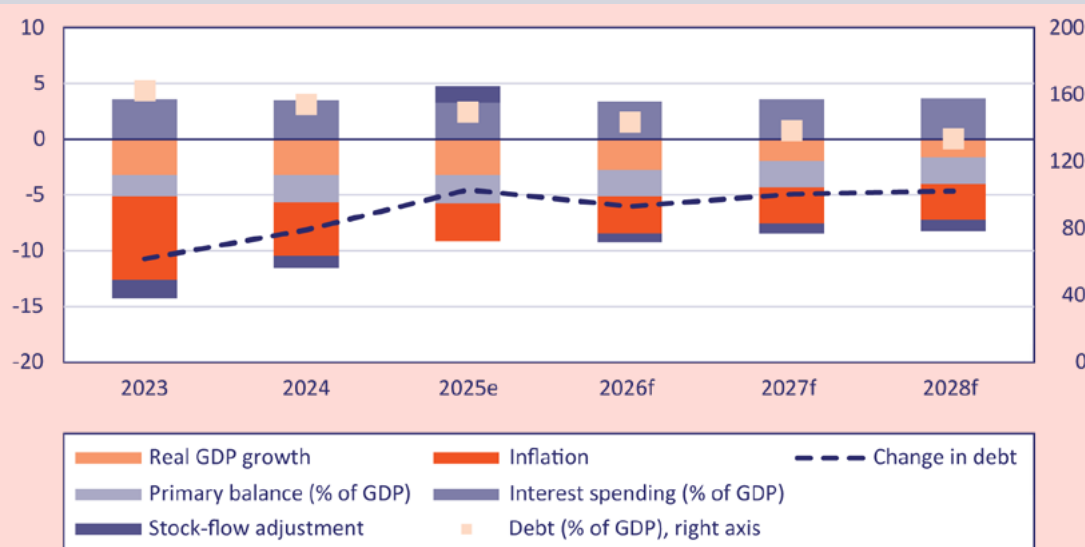
limited the economic losses, and provided a strong rebound effect in the coming years.

The period from 2022 to 2024 is particularly important, as the fiscal stance, as shown in Figure 2.2.1, appears broadly consistent with the new European fiscal framework, which emphasizes the institutionalization of countercyclical policies as official rules for the EU Member States (European Commission, 2024).² The avoidance of strong procyclical interventions and the gradual transition to a more neutral fiscal stance reflect the adjustment of Greek policy to the new EU economic governance rules. According to the European Commission forecasts, the period 2025-2027 tends to be characterized by acyclical fiscal policy.

2.2.3. Evolution of the debt-to-GDP ratio and the main components of its change

Figure 2.2.2 shows the evolution of the public debt change and its individual components, highlighting the gradual but substantial improvement in Greece's fiscal position in the period up to 2028. Specifically,

FIGURE 2.2.2
Evolution of the debt-to-GDP ratio and the components of its change



Source: Ministry of Economy and Finance, Medium-Term Fiscal-Structural Plan 2025-2028.

1. Barro, R. J. (1979), On the determination of the public debt, *Journal of Political Economy*, 87(5, Part 1), 940-971.

Larch, M., Orseau, E., & Van Der Wielen, W. (2021), Do EU fiscal rules support or hinder counter-cyclical fiscal policy?, *Journal of International Money and Finance*, 112, 102328.

2. European Commission (2024), Commission welcomes political agreement on a new economic governance framework fit for the future. Press Release, 19 October 2021. See https://ec.europa.eu/commission/presscorner/detail/en/ip_24_711

the overall percentage-point (pp) change in the debt-to-GDP ratio, as shown by the dotted line, improves significantly: from around -11 pp in 2023, it gradually narrows and stabilizes at around -5 pp in the period 2025-2028, indicating a slowdown in the rate of reduction, but, at the same time, a consolidation of a downward and sustainable debt trajectory, which is projected to reach 133.4% of GDP in 2028. The components analysis shows that the two main factors contributing to debt reduction are inflation and economic growth. Real GDP growth contributes significantly to debt reduction by more than 3 pp per annum in the period 2023-2025, with its impact diminishing but remaining significant throughout the projected period. In addition, inflation had a strong impact on debt reduction, especially in the period 2023-2024, but from 2026 onwards its contribution to debt reduction declines and tends to stabilize at around 3 pp. At the same time, the primary balance turns into a steadily positive fiscal consolidation factor, contributing to debt reduction of around 2.5 pp per annum from 2024 onwards, reflecting the transition to sustainable primary surpluses.

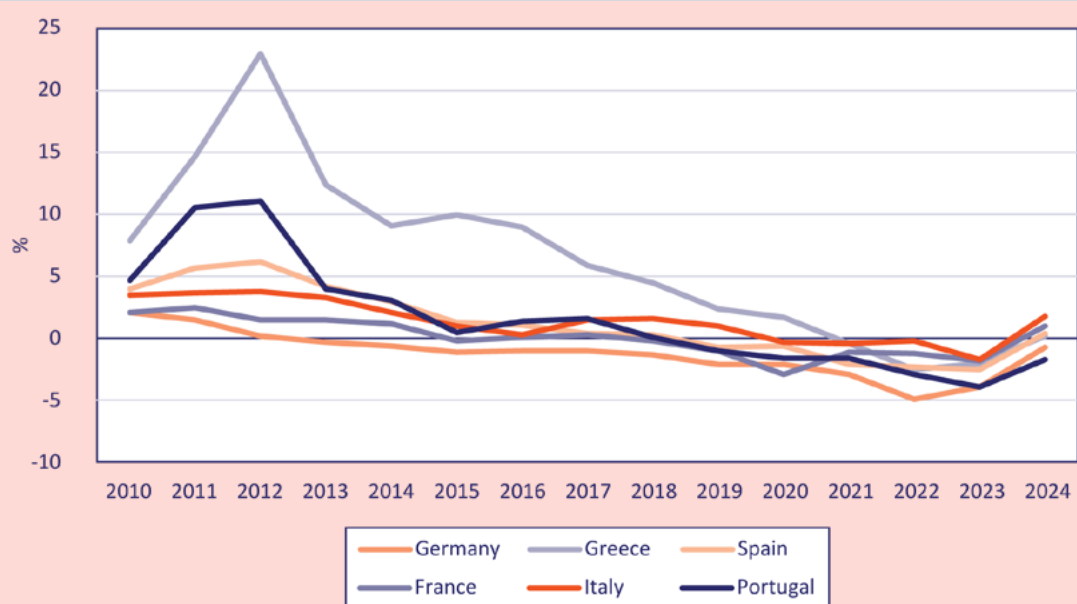
On the other hand, interest payments continue to have an upward effect on debt, in the range of 3.2 to 3.6 pp per annum, with this effect remaining controlled and stable, thanks to the structure of Greek debt and the favorable maturity profile.

Overall, Figure 2.2.2 shows that the improvement in Greece's fiscal indicators is not coincidental, but rather the result of the combined effect of economic growth, prudent fiscal policy, and control of adverse factors. The projected path until 2028 confirms that public debt is entering a phase of increased stability and sustainability, strengthening Greece's credibility (in terms of institutions and markets) and the scope for economic policy.

2.2.4. General government borrowing costs

Figure 2.2.3 shows the evolution of real long-term interest rates in selected European Union (EU) economies, which directly reflect the real cost of government borrowing from the markets. The figure includes countries that either experienced a more severe and prolonged recession in the previous decade or maintain high levels of public debt, such as Greece, Italy, Spain, and Portugal, as well as reference countries such as Germany and France. The evolution since 2010 clearly shows Greece's unfavorable position in the early years of the debt crisis, when real long-term interest rates skyrocketed to extremely high levels, exceeding even 20% (in 2012), reflecting the intense uncertainty, the loss of market confidence, and the deep recession that the Greek economy had entered. Subsequently, and especially after 2014, there has

FIGURE 2.2.3
Long-term real interest rates in selected EU27 countries



Source: AMECO, authors' calculations.

been a gradual but steady decline in borrowing costs. After 2021, Greece's real long-term interest rates are at levels comparable to or lower than those of other economies with high debt-to-GDP ratios, such as Italy and Portugal, and are no longer the worst values within the EU. For example, in the period 2021-2024, the Greek real interest rates averaged -1.3%, while in some years they remained lower than those of France, Italy, and Spain.

Such development is a clear indication of the gradual restoration of the credibility of the Greek economy and the markets reward for the prudent fiscal policy of recent years, as reflected in the restoration of its investment-grade status by credit rating agencies, along with the continuous improvement in its credit ratings. The improvement in fundamentals, the achievement of primary surpluses, the strengthening of growth momentum, and the decline in the debt-to-GDP ratio have contributed decisively to reducing the borrowing costs.

3. Human resources and social policies

KEPE, *Greek Economic Outlook*, issue 59, 2026, pp. 58-66

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

The number of employed persons increased in the third quarter of the year, reaching new all-time highs. The composition of employment has changed in favour of women, who appear to be more active in the labour market. The total number of employed women has increased compared to the pre-crisis period, while that of men has decreased. The rapid decline in employed foreigners, especially men, who seem to move more easily than women, is a cause for concern, as it is expected to intensify the shortages of low-skilled labour in the market.

Significant differences were recorded for another quarter between sectors of economic activity. The large sectors of trade and tourism created new positions on an annual basis, but the large contraction of employment in the agricultural sector is troublesome. Total hours of work did not change substantially; they remained above the European average, but differences are identified between categories of workers and, above all, strong dependence on employed family members and a reduction in the number of self-employed individuals without employees during 2025. Also, part-time employment is returning to pre-crisis levels, a reduction possibly fuelled by shortages in the labour market.

Given the developments in employment, it is not surprising that unemployment has decreased for another quarter, although differences between population groups persist. The interesting finding is that some of these groups now face fewer chances of unemployment compared to the pre-crisis period, contrary to others. These imbalances can be used to identify the groups that face greater problems of reintegration into the market. Therefore, the need for targeted interventions is still present, especially if one considers the high

share of the long-term unemployed, which increased in the third quarter of 2025.

Paid employment strengthened in the first ten months of the year, as hires exceeded quits and layoffs. Furthermore, in accordance with recent years' experience, most hires concerned full-time jobs, while conversions to flexible types of employment involved no surprises. Most of the signed collective labour agreements did not provide for wage increases, while those that did, did not exceed 4% in real terms. According to official data, the reduction in labour market shortages continued in the third quarter of 2025, while Greece remained below the European average, a fact that does not justify complacency.

Finally, recent institutional developments in the workplace, namely the 'Social Agreement' and the related five-year action plan, are assessed positively, as they are expected to improve the protection of employees through increasing their coverage by Collective Bargaining Agreements, as suggested by the European Directive (EU) 2022/2041.

3.1.2. Labour Force Survey

Employment

The number of employed persons over 15 years of age in the third quarter of 2025 (2025Q3) reached 4.403 million people, recording an increase on both a quarterly (+16.1 thousand) and an annual basis (+79 thousand). Some 60% of new jobs were filled by women, whose number increased by 2.6% compared to just 1.3% for men. However, women continued to represent less than half of the employed persons in 2025Q3 (43.4%), so there is still room to increase their contribution to the labour market. The increase in employed persons was also stronger for young people aged 15-24 (+2.3%) compared to people over 25 (+1.8%). In contrast, the number of employed foreigners decreased by approximately 85 thousand people on an annual basis. Almost 70% of that decrease is due to males. A comparison with 2008Q3 shows that the number of employed foreigners¹ decreased by

1. For the convenience of the reader, foreigners are defined as employed individuals with non-Greek citizenship and natives or Greeks as those with Greek citizenship.

approximately 287 thousand people, with men dominating here as well. It is worth noting that in the last year, the decrease in the number of employed foreigners reached 85 thousand people, a figure that corresponds to a 45.4% (50% for men) decrease. Given the shortages in low-skilled human resources, the finding is alarming and, if it is not reversed, a widening of shortages in the coming months cannot be ruled out.

Given the stock of employed persons, these changes are comparatively small, so the employment rate did not change much. However, it increased on both a quarterly and an annual basis. For persons aged 15-64, the employment rate increased by 1.5 percentage points on an annual basis, reaching 65.6%. This is the highest employment rate ever, even though the number of employed persons is lower than in 2008Q3 by almost 237 thousand people; this is possible because the population is now smaller. The employment rate of men aged 15-64 (74.8%) also took its highest value, while for women it was only 0.2 percentage points lower than the maximum recorded in 2025Q2. The interesting fact is that employed women have exceeded the high of 2008, while men are still lagging. This means that the change in employment composition caused by the economic crisis is not temporary, since 15 years later or so, women are more likely to be employed than in the past. On the other hand, the blow to men was strong and has not yet been remedied, possibly due to the transition of many of those who lost their jobs to long-term unemployment. Accordingly, the employment rate of young people 15-24 years old approached 20%, which is much lower than the historical maximum, while people 25-64 years old recorded a high in 2025Q3 (74.6%).

The employment rate of foreigners over 15 years of age remained higher than that of Greeks. This shows that immigrants come to work. Note that the employment rate of foreigners in 2025Q3 was approximately 11 percentage points higher than that of Greeks, exceeding 59% (vs. 48.7% of Greeks). A greater difference is recorded among men, almost 20 percentage points, compared to just 6 percentage points for women. In fact, in recent years there seems to be a strong seasonality in the employment of foreign women; their employment rate is higher than that of Greek women in the third quarter and sometimes in the second quarter of the year.

Employment: sector of economic activity

Employment has evolved differently across sectors of economic activity, even at an aggregate level. Thus, the increase of 79 thousand jobs recorded on an annual basis in 2025Q3 is equivalent to a loss of 83.2

thousand jobs in the primary sector (agriculture), additional losses of 3.4 thousand in the secondary sector (manufacturing) and a dizzying increase of 163.2 thousand jobs in the tertiary sector (services). In terms of proportional changes, the primary sector lost almost 18% of its employed individuals, while services increased the number of people employed by more than 5% in the last year alone. Indicatively, since 2008 the primary sector has lost approximately a quarter of its employed workers, the secondary sector one third and the tertiary sector has expanded by approximately 7%. At first glance, these changes may look alarming. However, the comparison with the EU27 is revealing; the trends are the same but differ in magnitude. In particular, the decrease in employment in the primary sector in the EU27 exceeds 42% compared to 2008Q3, and the increase in the tertiary sector reaches 19%. Only the secondary sector seems to have undergone faster changes in Greece, as the decrease in employment is approximately four times faster (-31.2% compared to -8.4% in the EU27). The variations in the last year are more pronounced in Greece in the primary and tertiary sectors, but in the same direction. In the secondary sector, however, an increase was recorded in the last year at the EU27 level (+0.8%), unlike Greece.

The analysis by single-digit sector shows that in the last year, 14 out of 21 sectors recorded an increase in employment (Table 3.1.1). Most new jobs were recorded in the sector *Professional, scientific and technical activities* (42.2 thousand), followed by the sectors *Wholesale and retail trade, repair of motor vehicles and motorcycles* (36.5 thousand) and *Accommodation and food service activities* (23.8 thousand). Even the *Construction* sector, which often occupies the public debate due to its importance in overall economic activity and labour shortages, showed an increase in employment by 10.7 thousand. Proportionally, one of the largest increases was recorded in the *Arts, entertainment and recreation* sector (+20.2%), a small sector that employed 1.7% of the total in 2025Q3, while the *Professional, scientific and technical activities* sector also recorded a proportionally strong increase (+15.3%). In contrast, 83.2 thousand positions were lost from the agricultural sector in the last year alone. This is a finding that confirms the sector's declining course over time, but at the same time makes it imperative to plan interventions to restrain it. A positive observation is that large sectors, that is, those with an employment share of over 5%, showed increases, with the exception, of course, of *Agriculture, forestry and fishing*, as well as *Education*.

TABLE 3.1.1 Employment by single-digit sector, 2025c

	2025Q3 ('000)	Δ(annual) ('000)	Δ(annual) (%)	2025Q3 share (%)
A. Agriculture, forestry and fishing	385.0	-83.2	-17.8	8.7
B. Mining and quarrying	5.7	-2.5	-30.5	0.1
C. Manufacturing	423.1	2.2	0.5	9.6
D. Electricity, natural gas, steam and air conditioning supply	41.8	-4.0	-10.3	0.9
E. Water supply, sewerage, waste management and remediation activities	34.9	-9.0	-20.5	0.8
F. Construction	204.8	10.7	5.5	4.7
G. Wholesale and retail trade, repair of motor vehicles and motorcycles	763.5	36.5	5.0	17.3
H. Transportation and storage	243.5	-2.1	-0.9	5.5
I. Accommodation and food service activities	475.2	23.8	5.3	10.8
I. Information and communication	114.0	14.1	14.1	2.6
K. Financial and insurance activities	88.0	8.0	10.0	2.0
L. Real estate activities	12.2	1.4	13.0	0.3
M. Professional, scientific and technical activities	318.3	42.2	15.3	7.2
N. Administrative and support service activities	122.9	10.8	9.6	2.8
X. Public administration and defence; compulsory social security	359.2	5.9	1.7	8.2
O. Education	311.1	-1.5	-0.5	7.1
P. Human health and social work activities	297.7	0.8	0.3	6.8
R. Arts, entertainment and recreation	73.7	12.4	20.2	1.7
S. Other service activities	95.5	9.9	11.6	2.2
T. Activities of households as employers	25.5	-0.3	-1.2	0.6
Y. Activities of extraterritorial organisations and bodies	2.3	1.4	155.6	0.1

Source: Labor Force Survey, ELSTAT, processed by KEPE.

Employment: type of employment

The dominant type of employment in Greece is paid employment. Particularly after the crisis, the share of wage earners has increased, peaking in 2025Q3, when it approached 74%, up 2.6 percentage points compared to 2024Q3, but still far from the EU27 average (86.7%). However, a long-term peculiarity identified is the large share of self-employed people, especially without employees. While this share in the EU27 in 2025 was close to 9%, in Greece it was close to 17%; almost double. A finding that stands out from studying Eurostat data in 2025 is the rapid decrease in the number of the self-employed without employees in Greece, which reached 9% on an annual basis in 2025Q3, while an annual decrease has already been recorded since 2024Q2. This decrease may be linked to a recent increase in the administrative burden of the self-employed or to the choice of working while retired, an option that did not exist previously. However, a similar trend is also recorded at the European level, although the decrease is milder. In any case, this may be a temporary phenomenon. On the other hand, the recent tax relief measures for the young self-employed² are expected to reverse the downward trend or at least constrain it.

Employment: working hours

According to official Eurostat data, total working hours remained stable compared to the corresponding quarter of 2024 at 41.3 hours per week. However, the average hides differences between categories of employed people, which are sometimes wide. Thus, the self-employed with employees seemed to work the longest, namely 49.4 hours per week in 2025Q3, i.e., half an hour less compared to the same quarter last year. They were followed by the self-employed without employees, with 46.5 hours per week, around 24 minutes less on an annual basis, and employed family members, with 41.9 hours of weekly employment, around 2.5 hours more on an annual basis. Paid employees, with 39.5 hours of work per week, are the group with the shortest working hours and just 12 minutes more compared to 2024Q3. Therefore, the two groups that work longer moderated their working hours, while those that work fewer hours increased them, especially employed family members.

These figures alone tell only part of the story. One must compare them with the situation in the EU27 to draw further conclusions. The main one is that, on average, people in Greece work longer hours compared to people in other European countries (+4.2 hours in

2025Q3), possibly partly due to lower labour productivity. Another conclusion is that the self-employed, with and without employees, work longer hours on average in the European Union in general. That means it is not a Greek phenomenon. A third conclusion is that the differences between Greece and the EU27 across types of employed people show significant deviations. Thus, while all employed individuals worked 4.2 more hours per week in Greece in 2025Q3, paid employees worked 3 hours more. The situation is similar for the self-employed with employees. In contrast, self-employed people without employees reported working 6.7 more hours per week than the European average, while employed family members worked 8.8 more hours per week. These findings seem to indicate that Greece relies disproportionately on the work of family members, as if they were regular employees, an element that is likely related not only to the size and form of businesses in the country, i.e., small family businesses, but also to the institutional framework. Furthermore, this is a structural phenomenon that did not change during the crisis, as historical data show that even before the crisis, employed family members worked almost 8 hours more per week in Greece.

Finally, the distribution of employed people between full-time and part-time work seems to have returned to pre-crisis levels and even lower; only 5% of employed people worked part-time in 2025Q3. In fact, almost 40% (38.8%) of them did so because they were unable to find a full-time job, a share that is very close to that of the pre-crisis period (41.6% in 2008Q3). Labour shortages and low wages are probably contributing to the reduction in part-time employment by making it unattractive.

Unemployment

The number of unemployed people decreased by 35.2 thousand over the past year to 393.2 thousand people. As a result, the general unemployment rate dropped to 8.2% in 2025Q3, thus further approaching the minimum level of 2008 (7.3% in 2008Q3). Some population groups had worse employment prospects, i.e., higher unemployment rates, as is traditionally the case in the Greek labour market (Table 3.1.2). Women, for example, continued to face a higher unemployment rate than men: 10.6% versus 6.2%. However, the gender gap gradually narrowed, with the minimum recorded in 2025Q2 (3.1 percentage points). The interesting fact, however, is that the unemployment rate for women has already fallen below the minimum (10.9% in 2008Q3), while that for men remains higher (4.7% in 2008Q3). Moreover, the unemployment rate was higher for young

2. See: <https://www.capital.gr/tax/3965369/ti-fernei-to-2026-stous-eleutheros-epaggelmaties-oles-oi-allages/>

TABLE 3.1.2 Unemployment rate for various population groups

	2025Q3	Δ(annual) (percentage points)	2025c Share (%)
All	8.2	-0.8	100.0
Men	25.1	-0.8	42.1
Women	17.2	-0.9	57.9
Young people 15-29	15.3	-0.6	27.5
People 30+	7.0	-0.8	72.5
Greeks	8.2	-1.6	97.2
Men	6.2	-1.5	41.0
Women	7.0	-1.3	56.2
Foreigners	9.7	-2.3	2.8
Men	7.0	-1.3	1.1
Women	10.6	-1.8	1.7
Master's degree and/or Ph.D.	5.1	-2.5	7.8
University degree	7.6	0.1	20.3
Higher Technical Vocational Education degree	7.7	-2.1	18.5
Upper secondary diploma	8.2	-1.7	37.7
Lower secondary diploma	9.7	2.3	8.4
Primary or less	12.4	3.3	7.3

Source: Labor Force Survey, ELSTAT, processed by KEPE.

people aged 15-29 (15.3%) compared to people over 30 (7%). A similar phenomenon with gender differences is observed, as the unemployment rate for young people aged 15-29 has fallen below the minimum of 2008Q3 by 0.3 percentage points, while that for people over 30 remains higher by 1.9 percentage points.

In addition, foreigners face a higher unemployment rate than Greeks.³ In 2025Q3, the former faced an unemployment rate of 9.7% compared to 8.2% for the latter. The difference in the unemployment rate also had a gender dimension, as it was lower for men, with an unemployment rate of 7% for foreigners and 6.2% for Greeks, while for women the difference amounted to 2.3 percentage points, with the unemployment rate for foreign women reaching 13%. In this case, the unemployment rate for Greeks has converged towards the

minimum of 2008Q3 faster, with the difference being less than one percentage point, while that of foreigners still deviates significantly (3.9 percentage points higher). The deviation from the minimum is similar for foreign men and women. In contrast, among Greeks, the unemployment rate for women has decreased below the 2008 minimum by 0.4 percentage points, while for men it remained higher by 1.4 percentage points.

Upper secondary education graduates have an unemployment rate similar to the general average. Those with more education face better employment prospects, i.e., lower unemployment rates, while those with less education face worse employment prospects. Specifically, the unemployment rate for lower secondary education graduates was 9.7% in 2025Q3, and for primary school graduates or less education,

3. The previous issue of the *Greek Economic Outlook* highlighted the very low unemployment rate of foreign males in the second quarter of 2025 (2.3%). It appears that this was indeed a temporary deviation, as the unemployment rate in the third quarter was higher compared to that of Greek males and clearly much higher than the second quarter.

it was 12.4%. Correspondingly, the unemployment rate for those with a master's degree and/or a Ph.D. was 5.1%, for those with a university degree 7.6%, and for those with a higher technical vocational education 7.7%. This means that employment prospects improved for some groups, such as those with a master's degree and/or a Ph.D., and worsened for others, such as lower secondary education graduates.

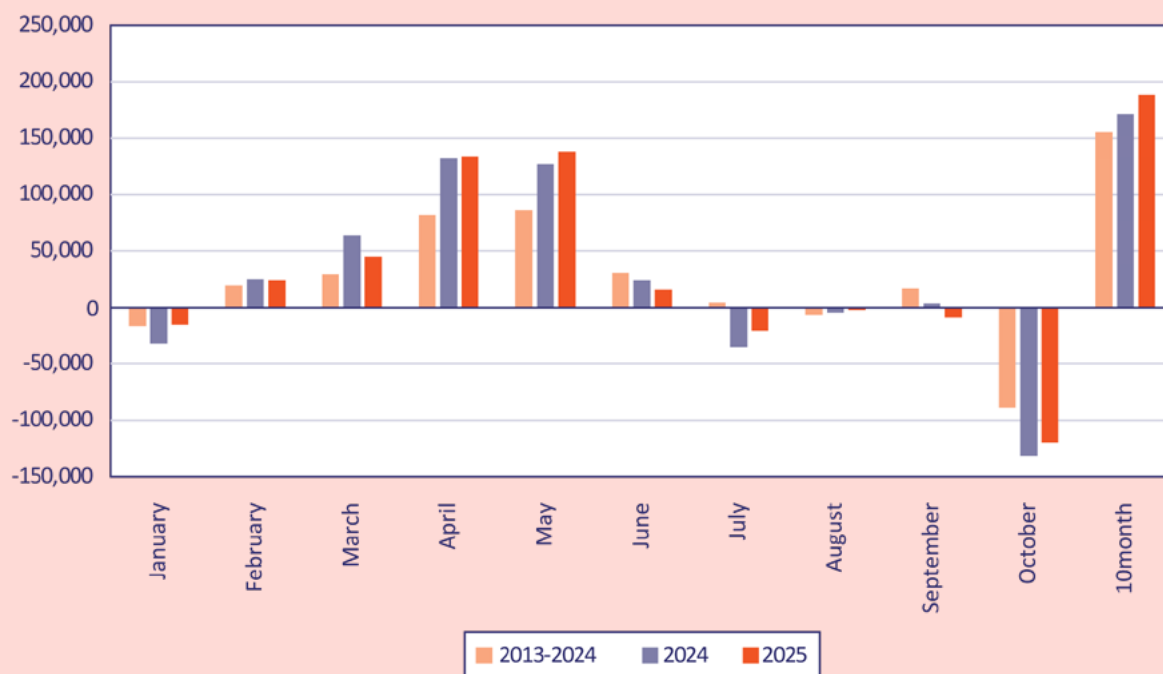
Table 3.1.2 shows which groups are at greater risk of unemployment and, at the same time, the most populous categories of the unemployed, based on specific features. Thus, one can identify which groups are in greatest need of support and for which groups interventions should be more extensive based on their size. In addition, a parameter that poses additional challenges in the design of policies to fight unemployment is the high share of the long-term unemployed, i.e., those who have been looking for work for more than twelve months. The reason is that this group of the unemployed faces greater obstacles to reintegrate into the labour force, not only related to the human capital that is devalued, but also to the associated stigma. The respective share stood at 58.7% in 2025Q3 (almost 231

thousand people), around 2 percentage points higher than in the corresponding quarter of 2024, despite the overall improvement in employment prospects. Moreover, the corresponding share is half that of the EU27. This observation should interest policy makers, because it stresses that some groups are being marginalized and the overall improvement in economic conditions is not enough to get them back on track.

3.1.3. Paid employment

Paid employment maintained a positive balance in the first ten months of 2025, as shown in Graph 3.1.1, and was, in fact, wider than in 2024 and the average of the years 2013-2024. Specifically, in the period January to October, approximately 188.1 thousand new paid employment jobs were added compared to 171.2 thousand in 2024 and 155.5 thousand new jobs on average in the period 2013-2024. The months of January, July, August and September had a negative balance, as is usually the case due to seasonality; therefore the stock of paid jobs decreased. The remaining months, however, had a positive balance, increasing paid em-

GRAPH 3.1.1
Net flows of paid employment



Source: ERGANI Information System Reports, Ministry of Labor and Social Security, processed by KEPE.

ployment and, consequently, total employment.

Compared to 2024, approximately 61.7 thousand more hires and 44.9 thousand more quits and layoffs were recorded, the majority of which, approximately 88%, concerned terminations of permanent contracts and expiry of fixed-term contracts. Hires primarily concerned full-time jobs (54%), followed by part-time jobs (36.7%), while work-in-shifts new jobs were limited to fewer than one in ten (9.3%). Compared to 2024, the share of full-time hires increased slightly (+1.5 percentage points), and the share of part-time hires decreased accordingly; the share of hires in work-in-shifts jobs remained stable.

Conversions of full-time job contracts into flexible types reached 46.7 thousand, i.e., approximately 8.3 thousand more compared to the first ten months of 2024 and 7.2 thousand compared to the corresponding period of 2023. The majority (75.1%) concerned conversions to part-time employment, 23.8% concerned new work-in-shifts employment contracts with the employee's consent, while conversions without the employee's consent were limited to 1.1% of the total, i.e.,

518 conversions in the ten months. These shares are comparable to those of 2024, so no substantial variation was recorded. It is noted that in the autumn, and specifically in September and October, increased conversions of full-time work contracts into flexible types were observed compared to the rest of the year.

Finally, the number of firm-level collective bargaining agreements signed in 2025 by month is presented in Table 3.1.3. A total of 170 firm-level agreements were signed in the first ten months of the year. Fewer than half provided for wage increases (42.9%), while the rest kept nominal wages constant, essentially reducing real wages. In the corresponding period of 2024, 205 firm-level agreements were signed, but the share of those that provided for wage increases was even smaller (35.6%). Accordingly, most employees who signed collective bargaining agreements did not get wage increases. However, the interesting fact is that the nominal wage increases that were finally agreed upon reached an average of 6.4%, i.e., about 1.8 percentage points higher compared to 2024. Due to in-

TABLE 3.1.3 Firm-level collective agreements that provided for wage increases

	# of collective bargaining agreements Δ(salary)	# of employees	% salary increase	# of collective bargaining agreements without Δ(salary)	# of employees
Jan	6	2,059	4.9%	12	10,945
Feb	5	1,854	5.3%	4	1,852
Mar	9	2,711	5.0%	15	9,350
Apr	12	12,832	4.4%	9	843
May	14	7,517	9.2%	19	6,741
June	11	4,077	14.3%	6	4,238
Jul	6	2,413	7.2%	16	8,634
Aug	4	1,082	4.8%	2	1,151
Sep	2	503	7.0%	8	5,989
Oct	4	1,216	1.8%	6	2,201
Jan-Oct	73	36,264	6.4%	97	51,944

Source: ERGANI Information System Reports, Ministry of Labor and Social Security, processed by KEPE.

flation, the real increases were significantly lower. However, given that the average annual inflation in the first ten months of 2025 was lower than in the corresponding period of 2024 (CPI: 2.5% vs. 2.9%) and the nominal increases were higher, it follows that the real wage increases were slightly higher in 2025.

3.1.4. Job vacancies

According to ELSTAT, the number of vacancies in the Greek labour market in 2025Q3 reached 45.7 thousand, recording an increase of 17.6% compared to the second quarter (38.8 thousand), due to the strong seasonality of specific sectors of economic activity, like tourism, and a decrease of 6.4% compared to the same quarter of 2024 (48.8 thousand). From the fourth quarter of 2024 onwards, vacancies have been decreasing on an annual basis. This is a strong indication of a de-escalation of shortages in the labour market—provided, of course, that the official data are indeed representative of the market, an assumption which is often disputed based on work^{4,5} from social partners. Therefore, caution is advised in interpreting the findings.

Eurostat's data on job vacancies by sector allow for the identification of job vacancies in each sector separately, as well as a comparison with the European average (EU27). At an aggregate level, ELSTAT records all job vacancies excluding the agricultural sector and households as employers (sectors B-S), while Eurostat reports job vacancies only in the business economy (sectors B-N). This explains the discrepancy in total job vacancies: 28.7 thousand according to Eurostat in the business economy and 45.7 thousand according to ELSTAT for almost the entire economy.

In 2025Q3, the vacancy rate was highest in Greece in the sectors *Water supply, sewerage, waste management and remediation activities* (4.9%), *Construction* (6.8%) and *Professional, scientific and technical activities* (3.1%). On the other hand, almost zero vacancies were recorded in the sectors *Financial and insurance activities* (0.2%) and *Real estate activities* (0.3%). Compared to the European average over the last five years, the vacancy rate in the Greek economy is lower by approximately one percentage point. The sectors *Water supply, sewerage, waste management and remediation activities* (+2 percentage points), *Information and communication* (-2.3 percentage points) and *Administrative and support service activities* (-2.1

percentage points) stand out. The remaining sectors either have very similar performances, or the vacancies are proportionally fewer in Greece.

Therefore, based on official data on vacancies, the Greek economy does not seem to be facing a bigger problem than the European average, while there are certainly economies with more vacancies in 2025Q3 in the business economy, such as Belgium (4.6%), Austria (3.8%), the Netherlands (4.4%), Malta (3.9%) and Cyprus (3.3%). Furthermore, in recent quarters, further de-escalation has been recorded, always based on official data. This does not mean that policymakers should stay inactive, because even limited shortages can create problems in a small open economy, given also the evident demographic contraction and the popular option among Greeks and immigrants to emigrate.

3.1.5. Institutional interventions

The European Directive (EU) 2022/2041 urges member states of the EU27 to ensure adequate minimum wages and, at the same time, sets the target of 80% of employees being covered by a Collective Bargaining Agreement (CBA). Member states that are lagging are invited to adopt whatever measures they deem necessary to converge towards the target. In this context, after seven months of tripartite consultation (May–November 2025), an agreement was reached between the Ministry of Labour and Social Security and all the National Social Partners, which was named the 'Social Agreement'. It is a joint commitment of workers, employers and the state to build a working environment with clear rules, trust and transparency, which will be based on the dissemination of collective bargaining agreements.

The 'Social Agreement' aims to introduce some important arrangements to facilitate the increase in the number of employees covered by collective bargaining agreements. In particular, until recently a collective bargaining agreement had to cover 50% of the employees of a sector (sectoral collective agreement) or occupation (co-occupational collective agreement) in order to be extended to all employees of the sector or occupation. The 'Social Agreement' aims to reduce this percentage to 40%. In addition, if the collective bargaining agreement is co-signed by National Social Partners, then it will automatically be extended to all employees in the sector or occupation. The General

4. See <https://www.dnews.gr/eidhseis/oikonomia/563977/i-agera-ergasias-stereyei-apo-anthropino-dynamiko-oi-akalyptes-the-seis-to-2026#:~:text=The%20labor%20market%20is%stereyed%20by%20human%20dynamics.The%20uncovered%20positions%20in%202026%20-%20Dnews>.

5. See https://www.travel.gr/how_to_travel/travel-news/synedrio-sete-giannis-paraschis-enth/ and more recently <https://www.in.gr/2025/12/12/economy/stereyei-ellada-apo-ergatika-xeria-se-poiou-kladous-katagrafontai-elleipseis/>

Confederation of Greek Workers (GSEE), upon invitation from a member trade union, will be able to co-sign sectoral collective agreements, which will then be extended to the entire sector. In addition, the required data to be submitted to the registers for a collective bargaining agreement to be valid is reduced. Hence, the coverage of the agreement can be extended, while it is made easier to apply to the Organisation for Mediation and Arbitration (OMED) with a request for the provision of its services. Finally, in the past, non-registration or errors in the data could cancel the agreement or result in severe penalties. The 'Social Agreement' aims for more flexible rules.

A second important change that increases protection against sudden adverse changes to the detriment of employees is the introduction of the full retroactivity of a collective bargaining agreement. Specifically, until recently, a collective bargaining agreement after its expiration was extended by one quarter. Once that period expired, none of the terms applied. The 'Social Agreement' aspires to change this, as it stipulates that all terms of the collective bargaining agreement are extended until the signing of a new one or an individual employment contract. Moreover, employees hired within three months of the expiration of the collective bargaining agreement enjoy the same protection.

A third important change that the 'Social Agreement' wishes to introduce involves the appeal procedure to the OMED, which becomes faster and clearer for the parties. In practice, a three-member Pre-Audit Committee is set up in the OMED that will strictly control only the fulfilment of the legal conditions for a unilateral appeal. Also, the second level of arbitration is abolished for faster decisions, without, however, abolishing the right to judicially challenge them.

Following the 'Social Agreement' and based on it, a five-year action plan was agreed upon⁶ by the National Social Partners and the Ministry of Labor and Social Security to strengthen the collective bargaining agreements. The action plan is based on five priority axes and a specific implementation schedule. The first axis

will be completed within the first quarter of 2026 and concerns the strengthening of the regulatory framework for collective bargaining through the enactment of the 'Social Agreement'. The second axis concerns the period from the second quarter of 2026 to the second quarter of 2027, when the establishment of a tripartite Working Group (with members representing the Ministry of Labor and Social Security and the National Social Partners) is provided for to supervise the actions aimed at strengthening collective bargaining. During the same period, the third axis will be implemented, which provides for the digitalisation (electronic filing of collective bargaining agreements and creation of a Digital Registry), collection and availability of data, so that it is possible to monitor the evolution of the coverage of employees by collective bargaining agreements.

The fourth axis will be implemented in the second quarter of 2026 to the fourth quarter of 2030 and provides for the implementation of studies, research, information and educational actions on collective bargaining issues. The fifth axis concerns the period from 2028 to 2030 and includes the monitoring of the implementation of the Action Plan for the promotion of collective bargaining, as well as targeted checks on the implementation of the terms of collective bargaining agreements.

Finally, the progress of the action plan will be assessed by drawing up an annual monitoring and evaluation report, as well as the consolidation of the implementation of the terms of the collective bargaining agreements. In this context, the Labour Inspectorate will carry out targeted interventions and inspections, based on an operational plan that will be drawn up in collaboration with the Ministry of Labour and Social Security, following proposals from the tripartite Working Group. Thus, both the Labour Inspectorate and the Ministry of Labour and Social Security will have the opportunity to derive valuable information on labour market state of play, contributing to the design of even more targeted and effective policies.

6. See <https://ypergasias.gov.gr/wp-content/uploads/2025/12/20250206789.pdf> for the ministerial decision.

3.2. Evolution of basic indicators of poverty, social exclusion, and deprivation in Greece (2010–2023)

Vlassis Missos

Based on key indicators from the Income and Living Conditions Survey (SILC) for 2010–2023, the general picture in Greece is mixed and does not support clear-cut conclusions. Some indicators improve during certain periods, while others show stagnation or partial worsening. Overall, the data suggest that social risks do not decline in a steady or linear way. More specifically, indicators on household work intensity and some forms of deprivation show that socioeconomic conditions have changed over time, but this is not enough to confirm a clear improvement in social welfare. In particular, the income-based indicator of poverty risk (after all social transfers have been paid) shows that poverty risk remains persistent and does not follow a stable downward trend. At the same time, poverty risk or social exclusion (a broader indicator) includes multiple dimensions of vulnerability, reminding us that social pressures extend beyond income and may remain even when one indicator improves.

Taken together, the data point to a mixed picture rather than a clear improvement in well-being. This suggests that a significant part of the population still faces risk or hardship, and that social vulnerability remains sensitive to economic and institutional changes. For this reason, the period should be treated as one that requires continuous monitoring, rather than as clear evidence of stable improvement.

In this context, Table 3.2.1 (2010–2023) presents living conditions and material deprivation in Greece through four percentage indicators that describe different but related aspects of social vulnerability, i.e., risk of poverty after social transfers, low household work intensity, risk of poverty or social exclusion (AROPE), and material deprivation (inability to afford at least 7 goods/services) under the “Europe 2030” framework. All four indicators measure population shares, but they capture different dimensions. Some focus on income poverty, others on employment intensity, others on broader social exclusion, and others on material deprivation.

The indicator “risk of poverty after social transfers” captures the share of the population that remains be-

low the poverty threshold after social transfers are included, based on the survey methodology. In simple terms, it measures poverty risk after the social protection system has had its effect. In Table 3.2.1, this indicator is high at the beginning of the period, reaching 23.1% in 2011 and 2012. It then declines steadily to its lowest level in 2019 (17.7%). After 2020, it rises again, reaching 19.6% in 2023. This is lower than in 2010 (21.4%) but higher than in 2019, which means the earlier improvement was only partly maintained.

Turning to employment-related vulnerability, the indicator “population living in households with low work intensity” (ages 0–60) shows the share of people living in households where adults worked very little during the year compared with their available work capacity. It reflects the connection between household and employment and is closely linked to social exclusion, but it is not only an income measure. Table 3.2.1 depicts that this indicator rises from 12.0% in 2010 to a peak of 18.2% in 2012. After that, it declines steadily, with only a small temporary increase in 2020 (13.0% from 12.6% in 2019). The decline becomes stronger in the most recent years, reaching 8.1% in 2023, the lowest level in the period. This suggests a clear reduction in the share of people aged 0–60 living in households with very low work intensity.

Moreover, “risk of poverty or social exclusion” (AROPE) shows the share of the population facing at least one of three conditions: income poverty risk, severe material deprivation, or very low work intensity in the household. Since it combines these three dimensions, it is a broad measure of social vulnerability. As shown in Table 3.2.1, under the “Europe 2030” framework, the AROPE series is available from 2014 onward. It starts at a high and almost unchanged level (32.4% in 2014 and 32.6% in 2015), then declines clearly to 27.4% in 2019. It rises again in 2020 (28.3%), then falls to its lowest point in 2022 (26.1%), before increasing slightly to 26.9% in 2023. Overall, AROPE falls by 5.5 percentage points between 2014 and 2023, but it still remains above one quarter of the population at the end of the period.

Alongside this, the “material deprivation” indicator (Europe 2030 framework) shows the share of the population that cannot afford at least 7 items from a standard list of basic material and social needs. It measures a more direct and practical form of hardship because it focuses on access to goods and services. In Table 3.2.1, this series is available from 2014 onward. It is higher in the middle of the decade, reaching 18.4% in

TABLE 3.2.1 Indicators of poverty and social exclusion (% population), Greece

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Poverty risk, after social transfers	21,4	23,1	23,1	22,1	21,4	21,2	20,2	18,5	17,9	17,7	19,6	18,8	18,9	19,6
Population living in households with low work intensity (ages 0–60)	12,0	14,2	18,2	17,2	16,8	17,2	15,6	14,6	13,8	12,6	13,0	10,5	9,2	8,1
Risk of poverty or social exclusion (AROPE, Europe 2030)	-	-	-	-	32,4	32,6	32,2	30,3	29,0	27,4	28,3	26,3	26,1	26,9
Material deprivation index	-	-	-	-	17,6	18,4	18,3	16,1	15,8	14,9	13,9	13,9	13,5	14,0

Source: ELSTAT, Surveys of Income and Living Conditions (SILC).

2015 (and 18.3% in 2016), and then declines steadily to its lowest level in 2022 (13.5%). In 2023, it rises slightly to 14.0%. Even so, the overall trend still shows improvement compared with 2014 (17.6%), with a total decline of 3.6 percentage points.

Overall, a combined reading of Table 3.2.1 shows a mixed but clear pattern. Indicators linked to work intensity and material deprivation improve substantially over the period. The income-based and composite indicators also improve, but they fluctuate and remain

high enough to show that a significant part of the population is still socially vulnerable. More specifically, AROPE falls from 32.4% in 2014 to 26.9% in 2023, and material deprivation falls from 17.6% to 14.0% over the same period. However, both indicators rise again in 2023 (AROPE from 26.1% to 26.9%, and deprivation from 13.5% to 14.0%), while the risk of poverty after social transfers also returns to 19.6%. This shows that recent changes are not moving in one stable direction and should be monitored carefully.

4. Reforms-Economic development

KEPE, *Greek Economic Outlook*, issue 59, 2026, pp. 69-71

4.1. Governance effectiveness of the Greek economy

Athanasios Chymis

4.1.1. Introduction

Despite the reform efforts of the last decade, the competitiveness of the Greek economy does not appear to be improving significantly. It is well known that the concept of competitiveness is comparative. This means that if other countries move faster in the same direction, even when Greece undertakes reforms to improve its socio-economic conditions, the competitiveness of the Greek economy will remain constant or even deteriorate.

While during the COVID-19 pandemic Greece seemed to accelerate reforms and gain ground in terms of competitiveness, this improvement does not appear to be sustainable. According to the International Institute for Management Development (IMD), which constructs an annual global competitiveness ranking, effective governance is a key factor in achieving economic and social prosperity in a country (IMD, 2025).

Therefore, this article focuses not only on the overall competitiveness of the Greek economy, but also on specific indicators that refer to the effectiveness of governance. These indicators are part of the overall competitiveness index. It should be noted that the years listed in the tables refer to the year of publication of the index/report and not to the data, which usually have a time lag of at least one year.

4.1.2. IMD world competitiveness rankings

The latest edition (2025) of the IMD world competitiveness ranking emphasizes that effective governance plays a decisive role in reducing social inequalities and maintaining economic strength.¹ Table 4.1.1 shows the evolution of the Greek economy's ranking for the 2021-2025 period according to the IMD's

world competitiveness ranking. It also presents selected sub-indicators relating to governance effectiveness and infrastructure for the digital transition (a critical parameter of competitiveness).

The second row of the table shows the total number of countries included in the IMD ranking. For 2025, in addition to the overall ranking, the table shows the ranking of the Greek economy among all European Union member states – EU26 (excluding Malta, which is not included in the IMD report), in order to provide a more complete picture of where the Greek economy stands in relation to its EU partners.

The outlook does not appear positive. While there is an upward trend in the overall ranking until 2022 (data refer to 2021), the positive trend has since come to a halt. This is particularly worrying given that the decline in the competitiveness of the Greek economy will have long-term consequences and will undermine any positive signs (growth, attraction of foreign direct investment) achieved in recent years. In 2025 (2024 data), there is a decline in the ranking compared to 2021 (2020 data) in all sub-indicators except scientific infrastructure. The worst performers are, in order, management practices (down 10 places), the social framework (down 7 places), technological infrastructure (down 6 places), and the institutional framework (down 5 places).

The tax policy indicator needs a comment. Greece ranks 58th among 69 countries, which is considered a low rank. However, Greece ranks 16th among the EU26, which is slightly below the average (13th place). In fact, the Greek economy is ahead of Slovakia (59th), Finland (60th), Germany (61st), Spain (62nd), Sweden (63rd), Austria (64th), Italy (66th), the Netherlands (67th), Belgium (68th), and France (69th). The explanation is that, in general, European economies are not competitive in terms of their taxation policy compared to most countries worldwide. European economies are known for their high taxes, which are used to finance their strong welfare states.

However, in the case of the Greek economy, while taxes are high, there is no corresponding welfare state as

1. See: <https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/>

TABLE 4.1.1 The Greek economy's competitiveness ranking

	2021	2022	2023	2024	2025	
Total number of countries	64	63	64	67	69	EU26
General rank	46	47	49	47	50	22
Tax policy	61	51	52	57	58	16
Institutional framework	43	46	48	49	48	23
Business legislation	35	40	41	31	38	18
Social framework	35	42	43	40	42	23
Management practices	48	51	59	51	58	20
Basic infrastructure	44	39	46	48	47	20
Technological infrastructure	45	50	49	47	51	23
Scientific infrastructure	40	39	40	36	36	18

Source: IMD 2025 (and previous years).

in other European economies, a fact reflected in several infrastructure indicators commonly used by international organizations. Such infrastructure indicators include education, health, road network, rail network, green spaces, index of best cities to live in, etc., and Greece ranks very low among its 26 EU partners. Table 4.1.1 includes only the relevant infrastructure indicators relating to the digital transition, which is considered very important for so-called digital competitiveness.

4.1.3. World Bank's governance indicators

According to the World Bank, the term “governance” refers to the traditions and institutions through which authority is exercised in a country, and this plays a very important role in shaping the development outcomes of an economy. The Bank reports that a large number of studies highlight how institutions that promote inclusion and accountability support higher economic growth, stronger public services, and expanded opportunities. When governance systems struggle to perform these functions, the development outcomes are often more difficult to sustain.²

The above points are crucial for an economy such as Greece's, which has only recently emerged from a major economic crisis and needs to continue its development path unhindered in order to achieve socio-economic

convergence with its EU partners. Table 4.1.2 presents the six governance indicators compiled by the World Bank since 1996. The table shows the evolution over the six-year period 2019-2024, which is the last year for which data are available. It should be noted here that the year indicated corresponds to the collection of data, and there is no time lag. The table shows the scores and rankings among the EU27 partners.

From 2019 to 2024, only ‘accountability’ (from 69.70 to 70.53) and ‘quality of regulation’ (from 61.47 to 62.43) have improved their scores, with the latter also improving its ranking. The other indicators (political stability, government effectiveness, rule of law, and control of corruption) show a decline in their scores.

‘Political stability’ has risen in the rankings, which means that other European countries (e.g., France) have deteriorated more than Greece due to increased social unrest. The same seems to be true for ‘quality of regulation’, which has risen significantly in the rankings (from 26th to 22nd place) despite only a slight improvement in its score.

The biggest decline with respect to the score is in ‘government effectiveness’ (55.06, down from 60.26), which is also reflected in the drop in the ranking (26th, down from 23rd). This is something that should concern us because, as international organizations agree and the literature shows (IMD, 2025), and as mentioned

2. See: <https://www.worldbank.org/en/publication/worldwide-governance-indicators>

TABLE 4.1.2 Greece's score and ranking in the six worldwide governance indicators

	2019		2020		2021		2022		2023		2024	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Voice & accountability	69.70	22	71.82	22	70.82	22	70.70	22	71.38	22	70.53	22
Political stability	70.66	25	71.01	25	69.77	26	69.94	25	72.48	23	68.28	22
Government effectiveness	60.26	23	62.75	23	62.48	25	62.30	24	56.35	25	55.06	26
Regulatory quality	61.47	26	61.83	23	61.11	24	61.51	23	62.98	23	62.43	22
Rule of law	63.57	22	65.11	22	64.61	23	65.39	22	63.79	24	62.10	25
Control of corruption	54.01	22	53.54	23	55.77	23	54.38	23	54.52	22	53.92	22

Source: World Bank, 2025.

above, government effectiveness is the cornerstone of a competitive economy that achieves economic prosperity while reducing social inequalities through effective support for the socio-economically disadvantaged.

4.1.4. Concluding remarks

The competitiveness of the Greek economy, despite the reforms that have been and are being implemented, initially improved until 2022 and has since deteriorated, at least according to the IMD's world competitiveness ranking. An important factor hindering the improvement of competitiveness is the effectiveness of governance, which, despite efforts in terms of digital transition, does not seem to be improving. It should be noted that according to the digital competitiveness index, also published annually by the IMD, the Greek economy rose to 44th place in 2021, fell to 50th in 2022, fell further to 52nd in 2023, rose to 49th in 2024, and remained in the same position in 2025.³

Table 4.1.1 shows that the Greek economy has a particularly weak institutional framework, which hinders improvements in governance effectiveness. Fur-

thermore, the low ranking in administrative practices, combined with the weak institutional framework, creates an environment that is not conducive to effective administration and governance. This, in turn, has implications for low accountability and poor performance in controlling corruption. At the same time, poor performance in the rule of law deters domestic and foreign entrepreneurs from making productive investments (greenfield investments), which are precisely what the Greek economy needs to significantly boost low productivity, increase exports and, consequently, increase its competitiveness.

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3. See: https://imd.widen.net/content/xclarczvwrf/pdf/WDCR_Report_2025.pdf

4.2. Employment in the agricultural sector in Greece: Structural changes and policy challenges

Ioanna Reziti

Introduction

Agricultural employment in Greece has undergone significant changes over the past decade, with the main feature being a continuous decline in employment levels and a transformation in its composition. These developments directly affect the functioning of agricultural production and raise critical questions regarding the sustainability of the agricultural sector, particularly in relation to the age and educational structure of the workforce. This article examines the evolution of agricultural labour in Greece during the period 2013–2024, analyses the main structural trends that emerge, and explores the policy challenges associated with agricultural employment.

4.2.1. Evolution of agricultural labour in Greece (2013–2024)

Employment in agriculture followed a broadly downward trend during the period 2013–2024, consistently reflected both in the number of persons employed and in Annual Working Units (AWU¹). Despite an increase of 20.53% in total employment in the Greek economy, employment in the primary sector declined by 3.64%. As a result, the share of the primary sector in total employment decreased from 12.27% in 2013 to 9.81% in 2024 (a change of –20.05%), while the shares of the secondary and tertiary sectors increased by 1.19% and 3.83%, respectively. This finding indicates a persistent structural shift of the economy away from agricultural activity.

According to Agricultural Labour Input Statistics (Eurostat), total AWUs declined by 32.97% during the period 2013–2024, reflecting the gradual contraction of the available agricultural labour force (Table 4.2.1).

This decline affects both categories of labour:

- salaried labour (salaried AWU) recorded a decrease of 12.91%,
- while non-salaried labour (non-salaried AWU) experienced an even sharper decline of 36.25%.

Despite the overall contraction in employment, the distribution of agricultural labour changed significantly over the period. Specifically, between 2013 and 2024, the share of non-salaried labour declined by 4.90%, whereas the share of salaried labour increased by 29.93%. In 2024, salaried labour accounted for 18.27% of total AWUs, compared with 14.06% in 2013, while non-salaried labour stood at 81.73%, down from 85.94%. This indicates that, although non-salaried labour remains dominant, salaried employment has strengthened its relative position over the last decade. This shift suggests a gradual movement of active farms toward more stable and formal forms of employment, partially replacing traditional family labour.

The changes observed in agricultural employment over the last decade are not merely cyclical fluctuations but are embedded in a broader framework of structural transformations in the agricultural sector. According to the 2023 (Integrated Farm Statistics) results of ELSTAT, there has been a steady decline in the number of small family farms in Greece, alongside an increase in the average size of agricultural holdings, reflecting the concentration of production among fewer but larger producers. Furthermore, the ageing of the agricultural population intensifies the contraction of family labour and accelerates structural change. Overall, these findings indicate that Greek agriculture is transitioning toward fewer, larger, and more professionally organized holdings, characterized by a different labour mix and higher technological intensity.

4.2.2. Labour productivity and changes in value added

Examining labour productivity constitutes a critical step in understanding changes in agricultural employment, as a reduction in AWUs does not necessarily entail a corresponding decline in output. On the contrary, international experience shows that a contraction of the agricultural workforce is often accompanied by

1. AWU: A unit of labour measurement equivalent to one full-time employed person for one year (Eurostat).

TABLE 4.2.1 Evolution of agricultural employment

Year	AWU	Salaried	Non-salaried	% Salaried	% Non-salaried
2013	466.99	65.68	401.31	14.06	85.94
2014	461.40	69.20	392.20	15.00	85.00
2015	456.40	73.00	383.40	15.99	84.01
2016	451.60	76.90	374.70	17.03	82.97
2017	422.27	72.87	349.40	17.26	82.74
2018	394.86	69.05	325.81	17.49	82.51
2019	369.24	65.43	303.81	17.72	82.28
2020	345.30	62.00	283.30	17.96	82.04
2021	336.93	60.76	276.16	18.03	81.96
2022	328.76	59.55	269.21	18.11	81.89
2023	320.79	58.37	262.43	18.20	81.81
2024	313.02	57.20	255.82	18.27	81.73

Source: Eurostat, *Agricultural labour input statistics (AWU)*, dataset aact_ali01.

TABLE 4.2.2 Indices of labour productivity (2013–2024)

Year	GVA	AWU	Labour productivity
2013	5,234.30	466.99	11.21
2014	5,443.02	461.40	11.80
2015	5,991.06	456.40	13.13
2016	5,346.86	451.60	11.84
2017	5,936.45	422.27	14.06
2018	5,613.96	394.86	14.22
2019	5,998.40	369.24	16.25
2020	5,812.64	345.30	16.83
2021	5,739.19	336.93	17.03
2022	6,755.99	328.76	20.55
2023	7,501.18	320.79	23.38
2024	7,961.27	313.02	25.43

Source: Eurostat, *Economic Accounts for Agriculture (EAA)* – GVA (dataset aact_eaa01) and *Agricultural Labour Input Statistics* – AWU (dataset aact_ali01).

an increase in productivity, because of technological improvements, mechanisation, and changes in the organisation of farms (Kołodziejczak, 2025; Kijek, 2019; Peng, 2024). This trend, observed in many European Union countries, suggests that the reduction in AWUs is part of deeper structural transformations rather than an indication of sectoral decline. Within this context, the analysis of labour productivity becomes necessary for interpreting the Greek data and for exploring whether changes in employment are associated with shifts in the productive capacity of agriculture.

Labour productivity in agriculture shows a particularly strong increase over the period 2013–2024 (Table 4.2.2 above). Specifically, productivity—measured as Gross Value Added (GVA) per Annual Working Unit (AWU)—rose from 11.21 in 2013 to 25.43 in 2024, recording an overall increase of 126.75%. This increase far exceeds the growth of total GVA, which rose by 52.10%, and is directly linked to the substantial reduction in the available agricultural labour force, as total AWUs declined by 32.97% over the same period.

These findings indicate that in 2024 each AWU produces more than double the value generated in 2013. The reduction of the agricultural workforce does not necessarily lead to a decline in output, as technological progress, the concentration of agricultural land in larger and more organised holdings, and improvements in management significantly increase productivity per worker. Agriculture is becoming less labour-intensive and more capital-intensive. However, the substitution of labour by capital raises labour productivity without necessarily implying an improvement in the quality or skill level of labour.

4.2.3. Age and gender structure of farm managers

The age distribution of farm managers, as presented in Table 4.2.3, indicates a pronounced ageing process over the period 2013–2023. The share of managers under the age of 35 declined from 5.20% to 3.73%, while the 35–44 age group also experienced a substantial contraction. In contrast, the shares of managers aged

TABLE 4.2.3 Age distribution of farm managers (2013 and 2023)

Age group	2013	2013 (%)	2023	2023 (%)
< 35	36,890	5.20	18,120	3.73
35–45	104,330	14.70	47,500	9.77
45–54	169,660	23.91	100,370	20.65
55–64	176,370	24.86	137,910	28.38
≥ 65	222,240	31.32	182,050	37.46
Total	709,490	100.00	485,950	100.00

Source: Eurostat, *Farm Structure Survey (FSS)*.

Note: The figures are expressed as the number of agricultural holdings and correspond to one farm manager per holding, in accordance with the Eurostat definition.

TABLE 4.2.4 Distribution of agricultural labour by gender (AWU), 2013 and 2023

	2013	2023	Change (%)
Male	356,850	376,510	5.51
Female	87,490	135,860	55.29
Total	444,350	512,370	15.31

Source: Eurostat, *Farm Structure Survey (FSS)*.

55–64 and those aged 65 and over increased markedly, with the latter group accounting for 37.46% in 2023. Overall, the proportion of farm managers aged over 55 now amounts to 65.84%, pointing to a serious problem of generational renewal and succession in the agricultural sector.

The pronounced ageing of farm managers, with the share of those aged over 55 increasing from 56.18% in 2013 to 65.84% in 2023, is directly linked to the changes observed in agricultural employment. The contraction of younger age groups, and particularly of managers under the age of 45, limits the availability of family labour and intensifies exit trends without immediate succession. This development is reflected in the significant decline of non-salaried labour (non-salaried AWUs), as well as in the overall reduction of the agricultural labour force in AWU terms over the period 2013–2024. At the same time, the increasing age of farm managers reinforces the need to substitute own labour with salaried employment, thereby contributing to the relative increase in the share of salaried workers in total agricultural labour.

The distribution of agricultural labour by gender (Table 4.2.4 above) indicates that a clear change in the composition of employment occurred during the period 2013–2023. Male labour, measured in AWU terms,

increased only marginally, while female labour recorded a particularly strong rise, leading to a significant increase in women’s share of total agricultural labour. As a result, the overall increase in AWUs² is largely attributable to the expansion of female participation, indicating a restructuring of the labour base of the agricultural sector and a strengthening of the role of women in agricultural production.

4.2.4. Labour and land productivity in relation to the economic size of holdings

In Section 4.2.2, labour productivity was calculated directly as the ratio of Gross Value Added (GVA) to employment measured in AWU terms, in order to capture its evolution over time. This section examines labour and land productivity in relation to the economic size of agricultural holdings. For this purpose, Eurostat data (ef_m_pry) on labour and land productivity of agricultural holdings are used, allowing for comparisons between small and large holdings³ and for an investigation of the role of size in shaping productivity.

Table 4.2.5 presents a clear differentiation in labour and land productivity between small and large agricultural holdings over the period 2013–2023. In small

TABLE 4.2.5 Labour and land productivity by economic size (standard output) of agricultural holdings, 2013 and 2023

Economic size	Land productivity 2013	Land productivity 2023	Labour productivity 2013	Labour productivity 2023
Small (< 25.000 € SO)	3,166.5	4,121.4	61.8	48.9
Large (> 100.000 € SO)	2,403.8	6,571.3	168.2	178.4

Source: Eurostat, *Land and labour productivity of agricultural holdings by type and size of the farm* (ef_m_pry).

2. The divergence in results is due to the use of different statistical sources. In the present study, Agricultural Labour Input Statistics are maintained as the main reference for the analysis of agricultural labour, as they capture annual actual labour input in AWU terms, while data from the Farm Structure Survey are used exclusively for the structural analysis of agricultural holdings.

3. Agricultural holdings are defined according to their economic size (Standard Output – SO). Small holdings are those with an economic size of less than €25,000 SO, while large holdings are defined as those with an economic size exceeding €100,000 SO, in accordance with Eurostat’s economic size classification. Medium-sized holdings (€25,000–€100,000 SO) are not examined separately, as the aim of the analysis is to highlight productivity differences between the extremes of the distribution rather than to provide a comprehensive coverage of all size categories.

holdings, land productivity increases while labour productivity declines, indicating that improved land utilisation is not accompanied by a corresponding increase in labour efficiency. In contrast, large holdings record a simultaneous increase in both land productivity and labour productivity, suggesting a different pattern of production organisation. Although the data do not allow for the drawing of causal conclusions, the table demonstrates that the increase in overall productivity in the agricultural sector is not uniform, but is associated with differences in the economic size of holdings.

According to the relevant literature, larger agricultural holdings are expected to exhibit higher levels of productivity due to economies of scale and greater capital intensity (OECD, 2011; Latruffe, 2010). However, in 2013 land productivity in small holdings was higher than in large ones, suggesting that differences in the efficiency of production factors are not always linear and may vary over time, as also highlighted by Rizov et al. (2013).

The examination of the training and education of farm managers is situated within the broader theoretical framework of human capital, according to which skills and education are systematically associated with labour productivity (Becker, 1964). In the agricultural sector, the relevant literature has emphasised that the education of farm managers is linked to improved capacity to adapt to technological and organisational changes, as well as to more efficient use of production factors (Schultz, 1964). Moreover, empirical studies show that the level of education and training is related to the adoption of innovations and modern practices in agriculture, factors that are indirectly linked to la-

bour productivity (Feder et al., 1985; Latruffe, 2010). From this perspective, the examination of training does not aim to provide a direct causal explanation of the observed differences in productivity, but rather to explore a factor that, according to the international literature, is systematically considered in analyses of productivity in agriculture.

4.2.5. Education and training of farm managers

The international literature within the human capital framework indicates that skills and education are associated with a more efficient use of production factors (Schultz, 1964; Latruffe, 2010).

Differences in productivity among agricultural holdings raise the question of whether characteristics of human capital are related to the organisation and management of production. Within this context, this section examines the level of education and training of farm managers.

Training data indicate that the level of agricultural education among farm managers in Greece remains essentially unchanged over the period 2013–2023, with basic agricultural training⁴ being predominant (Table 4.2.6). The share of farm managers with full agricultural training remains particularly low, despite the slight increase recorded during the period under review. The increase in productivity is not accompanied by a corresponding strengthening of agricultural training, which does not allow for the substantiation of a causal relationship between the two. This finding underlines that training is examined as a structural characteristic of human capital.

TABLE 4.2.6 Distribution of farm managers by level of agricultural training (%), 2013 and 2023

	2013 (%)	2023 (%)
Practical experience only	5.50	5.22
Basic agricultural training	93.91	94.09
Full agricultural training	0.59	0.69

Source: Eurostat, Farm managers by age, sex and agricultural training.

4. Basic agricultural training, according to Eurostat, refers to a limited form of education or training in agriculture that does not correspond to full professional or higher agricultural education.

4.2.6. Updated income measure of labour productivity (2025 data)

Beyond the above analysis based on volume indicators covering the period 2013–2024, the most recent Eurostat article (17/12/2025), “*EU agricultural labour productivity up by 9.2% in 2025*”, allows for an updated income-based assessment of labour productivity in Greek agriculture for 2025. This approach captures short-term income developments and does not overturn the structural conclusions derived from the analysis of volume indicators for the period 2013–2024.

According to Eurostat’s methodology, labour productivity in the agricultural sector can be measured as real factor income per full-time equivalent. This indicator reflects the remuneration of all production factors (land, capital, and labour) corresponding to each full-time equivalent in agriculture, expressed in real terms (adjusted for inflation) and presented as an index. Agricultural labour productivity should not be confused with either the total income of agricultural households or the income of an individual employed in agriculture.

Agricultural labour productivity increased in 19 EU countries in 2025. The largest increases were recorded in Luxembourg (40.1%), Poland (33.4%), and Estonia (30.9%). By contrast, declines were estimated in eight EU countries, with the most pronounced decreases observed in Croatia (14.9%), Portugal (10.7%), and Greece (8.8%).

Unlike countries where productivity growth resulted either from a substantial increase in income or from a faster contraction of employment, Greek agriculture is characterised by limited flexibility in labour adjustment. The structure of the sector, marked by a high share of small and family farms, restricts the ability to rapidly reduce employment as a mechanism to offset income pressures, a point also highlighted in the relevant literature on the European Union (Kijek & Kijek, 2019).

At the same time, the decline in productivity may be associated with increased production costs, adverse weather conditions, or price pressures, factors that directly affect real agricultural income without immediately altering the volume of employment. International experience shows that short-term fluctuations in agricultural productivity often reflect income volatility rather than changes in technological efficiency (OECD, 2019).

Finally, the divergence of Greece’s performance from the European Union average underscores that productivity growth at the European level is not uniform and depends on the combination of income developments and employment adjustment. As noted in the literature, countries in which productivity growth

is achieved primarily through employment reduction exhibit different dynamics compared to those where employment remains relatively stable (Kołodziejczak, 2025). In this sense, the decline in productivity in Greece in 2025 highlights the limits of an adjustment model based on maintaining employment under conditions of income pressure.

4.2.7. Conclusions of the analysis of agricultural labour

The analysis of agricultural labour in Greece over the period 2013–2024 demonstrates that the agricultural sector is undergoing a long-term process of structural transformation, characterised by a contraction of employment, changes in its composition, and a significant increase in labour productivity in volume terms. The decline in Annual Working Units was more pronounced than the changes in generated value added, resulting in a substantial rise in productivity per AWU, without a corresponding strengthening of human capital. Changes in the composition of agricultural labour, and in particular the gradual shift from non-salaried to salaried employment, reflect changes in the organisation of production and are associated with the concentration of agricultural activity in fewer but economically larger holdings. Differences in productivity between small and large holdings confirm that the increase in average productivity in the agricultural sector is not uniform, but is mainly driven by efficiency gains in larger and more capital-intensive units.

At the same time, the analysis of the age and educational structure of human capital highlights the ageing of farm managers and the stagnation in the level of agricultural training. Therefore, the observed increase in labour productivity is linked to employment reduction and increased capital intensity in agriculture, rather than to improvements in labour skills.

The updated income-based approach to productivity for 2025 adds a complementary dimension to the analysis, highlighting the importance of short-term income volatility. The decline in income-based labour productivity in Greek agriculture in 2025 does not overturn the long-term structural conclusions, but underscores the limits of an adjustment model based on maintaining employment under conditions of increased pressure on agricultural income. Short-term productivity fluctuations primarily reflect income-related and exogenous factors rather than changes in the sector’s technological efficiency.

Overall, Greek agriculture presents a dual picture: on the one hand, the long-term increase in productivity in volume terms indicates profound structural changes

in the organisation of production; on the other hand, pronounced income instability highlights the sector's vulnerable position and the limited scope for employment adjustment in response to short-term pressures. This distinction is critical for interpreting developments in agricultural labour and forms the basis for assessing the role of the Common Agricultural Policy (CAP) and national interventions in maintaining and renewing human capital in the agricultural sector.

4.2.8. CAP and agricultural employment

The Common Agricultural Policy (CAP) constitutes the main policy framework that indirectly affects agricultural employment in the European Union, primarily through support for agricultural income and the sector's structural adjustment. Although the CAP does not have employment as a primary objective, its interventions influence the retention, composition, and renewal of human capital in agriculture.

Direct payments under Pillar I contribute to the stabilisation of farm income, acting as a mechanism for maintaining productive activity and, indirectly, employment. However, the literature emphasises that income support does not automatically translate into job retention, particularly in an environment of structural pressures and an increasing tendency toward production concentration (OECD, 2019).

At the same time, the CAP includes specific measures aimed at generational renewal, mainly through complementary income support for young farmers and start-up measures under the CAP Strategic Plans 2023–2027. While these measures facilitate entry into the farming profession, evaluations indicate that their effectiveness in terms of long-term renewal of agricultural employment is limited when they are not accompanied by succession mechanisms and income stabilisation (European Commission, 2021).

Pillar II of the CAP, although addressed to all farmers, includes investment and advisory measures that can indirectly affect employment through farm modernisation and skills upgrading. However, the emphasis of these interventions remains primarily on physical capital, while their linkage to the quality and retention of agricultural labour is limited and often fragmented (European Commission, 2020).

Overall, the CAP influences agricultural employment mainly indirectly, through income support and the promotion of structural adjustment, without constituting an active employment policy tool. Existing experience shows that, although the CAP contributes to maintaining the productive base, it is not sufficient on its own to

address the decline, ageing, and unequal distribution of agricultural labour, making its supplementation with targeted national employment policies necessary.

4.2.9. National policy interventions for agricultural employment

International and European literature converges on the view that, although the Common Agricultural Policy (CAP) is crucial for supporting agricultural income, it cannot by itself address the structural challenges of agricultural employment. Issues such as the decline in Annual Working Units, the ageing of human capital, and the unequal distribution of employment by the economic size of holdings require complementary national policy interventions tailored to the specific conditions of each country (European Court of Auditors, 2017; OECD, 2019).

First, the literature highlights the role of national farm succession policies as a key determinant of the retention of agricultural employment. Studies show that the absence of institutional mechanisms for the gradual transfer of farms and income leads to a delayed exit of older farmers and discourages younger generations (Leonard et al., 2017; Zagata & Sutherland, 2015). National interventions that reduce administrative and fiscal transfer costs and promote joint management arrangements have proven more effective than fragmented entry incentives.

Second, the stabilisation of agricultural income at the national level is recognised as a critical prerequisite for employment retention, particularly for young and small-scale producers. International experience shows that high volatility in prices and costs is a major factor behind early exit from the profession, even where support through the CAP exists (OECD, 2025). National risk management instruments and complementary income support measures can function as mechanisms for sustaining employment.

Third, the transition from family labour to salaried employment necessitates the existence of national labour market policies adapted to agriculture. The literature points out that the absence of flexible and institutionally secure employment frameworks leads either to undeclared work or to the substitution of labour by capital, with adverse effects on overall employment (OECD, 2019).

Finally, enhancing the quality of agricultural labour through national knowledge and skills policies constitutes a critical complement to the CAP. Human capital theory and empirical studies indicate that sustainable productivity growth requires investment in farmers' skills and managerial capacity, rather than

merely reducing employment (Becker, 1964; Schultz, 1964). National training and advisory systems, when operating systematically rather than sporadically, can support both productivity and employment retention (European Commission, 2020).

Overall, the academic literature demonstrates that the sustainability of agricultural employment requires a mixed policy framework in which the CAP operates in conjunction with national interventions that directly target succession, income stability, the regulation of agricultural labour, and the upgrading of human capital.

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Returns to education in Greece: Causal evidence from the 1977 Labor Market Survey

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Abstract

We estimate the causal effect of schooling on log earnings using instrumental variables (IV), addressing the endogeneity of schooling by using father's education as an instrument. The IV estimate implies a return of approximately 7.9 percent per additional year of schooling. First-stage and endogeneity tests confirm instrument strength and the need for IV.

Keywords: Returns to education, instrumental variables, causal impact.

JEL Codes: I2, I26, J24, J31.

1. Introduction

Ordinary least squares (OLS) estimates of returns to schooling may be biased due to endogeneity (Card 1999). To address this, we estimate the causal return to schooling using father's education as an instrument. The identifying assumptions are: (1) relevance—parental schooling is strongly correlated with the individual's schooling; and (2) exclusion—conditional on controls, father's education affects adult earnings only through the individual's schooling. We estimate 2SLS as the main specification. Under standard monotonicity, the 2SLS coefficient is a local average treatment effect (LATE) for *compliers* whose schooling is shifted by father's education. We compare OLS and IV estimates to assess the direction of bias (IV often exceeds

OLS if ability bias is negative due to measurement error, or if marginal returns are higher for compliers).

There are several attempts to estimate the returns to education in Greece using OLS (Kanellopoulos 1997; Lambropoulos and Psacharopoulos 1992; Leibenstein 1967; Livanos and Pouliakas 2011; Magoula and Psacharopoulos 1999; Prodromidis and Prodromidis 2008; Tsamadias 2001). Psacharopoulos (1982) analyzed the 1977 labor market survey and estimated the rate of return to schooling. He found a relatively low rate of return of 5.8 percent — the global average rate of return to schooling is 9 to 10 percent (Psacharopoulos and Patrinos 2018). OLS studies broadly confirm modest payoffs, though point estimates vary by cohort, sector, and specification. For example, returns tend to be higher in the private sector than the public sector and are sensitive to controls for experience, region, and occupation; they also shift with macroeconomic conditions, structural changes, and the evolving industrial mix. Methodologically, most Greek estimates rely on standard log-earnings regressions with limited strategies to address endogeneity, leaving them vulnerable to ability bias, measurement error in schooling, and selection into employment. Heterogeneity is another recurring theme: some studies find larger returns for higher education relative to secondary, gender differences in slopes, and nonlinear patterns along the schooling distribution. Overall, the preponderance of OLS evidence suggests that Greece's returns are positive but below international averages. This context underscores the value of causal designs (e.g., IV, policy discontinuities) to reassess returns net of endogeneity.

We begin by replicating Psacharopoulos (1982) using the 1977 Labor Market Survey to recover his baseline OLS return. We match his sample restrictions and covariates to ensure strict comparability. This replication yields a benchmark against which all subsequent

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estimates are judged. We then re-estimate the return using the same specification but with a causal design to address endogeneity.

Causal evidence on the private return to schooling in Greece is limited but growing. Chletsos and Roupakias (2020) instrument spouse's education—exploiting assortative mating—to obtain an IV return of 3.2 percent per year of schooling, only modestly above their OLS estimate of 2.9 percent. While informative, the design hinges on a strong exclusion restriction (spouse's schooling must affect earnings only via own schooling) and is potentially sensitive to assortative mating on unobservables and household labor-supply channels. Patrinos (2022) leverages exogenous variation from the Greek Civil War as a schooling shock, reporting a substantially larger IV return of 8.0 percent versus 5.9 percent by OLS—consistent with attenuation from measurement error and/or higher marginal returns among compliers exposed to conflict-induced schooling disruptions. Most recently, Cholezas and Kanellopoulos (2024) use parental education and sibship size as instruments and find IV returns in the 7–11.5 percent range, compared with 3–6 percent by OLS. Taken together, the Greek IV literature generally finds IV estimates greater than OLS estimates, aligning with international evidence that OLS can understate causal returns due to measurement error, selection, and heterogeneous treatment effects, and placing Greece's causal returns closer to (or slightly above) global benchmarks.

We use father's education as an instrument (Aakvik et al. 2003; Ashenfelter and Zimmerman 1997; Card 1993; Gong 2019; Ichino and Winter-Ebmer 1999; Levin and Plug 1999). However, to be a valid instrument, it needs to be unrelated to wages (Lemke and Rischall 2003; Trostel et al. 2002). In Greece, the return to one additional year of schooling is higher for those whose fathers have more education (Patrinos 1995). The private marginal return to the 5th year of schooling rises with father's education, but the overall relationship is weak. Only three broad categories emerge based on father's schooling, and the difference between secondary and tertiary-educated fathers is not statistically significant. The main distinction lies between those with illiterate fathers and everyone else. Surprisingly, workers with fathers who had tertiary education are not significantly better off than those with fathers who completed secondary school. Returns to schooling vary modestly: 5.4 percent for fathers with secondary or higher education, 5.1 percent for primary, and 5.0 percent for illiterate fathers—close to the overall average of 5.6 percent. Hence, the potential bias is minor, and estimates remain consistent with those

using strictly exogenous instruments (Hoogerheide et al. 2012; Hou et al. 2020). We therefore use father's education as an instrument, assuming it influences a child's schooling via genetic or environmental factors (relevance) but has little to no direct effect on earnings (exclusion restriction).

2. The Greek labor market of the 1970s

The late 1970s were a pivotal transition for Greece following the 1974 restoration of democracy. The production structure was anchored in agriculture, tourism, shipping, and small-scale trade, while manufacturing was modest and dominated by small firms. Labor markets were characterized by high self-employment, substantial rural-to-urban migration, and emerging but still centralized wage bargaining; the public sector was expanding in scope and influence. Education policy was in flux: post-1974 reforms broadened access to schooling, standardized curricula and the language of instruction, and increased upper-secondary progression, setting the stage for later tertiary expansion. These institutional and sectoral features matter for interpreting returns to schooling circa 1977. Greece's late-1970s political normalization and evolving economic structure provide the backdrop against which both OLS and causal estimates of the private return to schooling should be read (see Alogoskoufis 2024 for an overview).

The labor market during this era exhibited distinct features: the state was a dominant employer, absorbing a high proportion of university graduates—according to an OECD study, and higher education holders made up 40 percent of state employees in Greece in the mid-1960s, compared to only 5 percent in France (OECD 1966). Greece's comparatively underdeveloped industrial sector, in contrast to other rapidly industrializing European nations, meant fewer opportunities for skilled private-sector employment. As a result, the public sector, offering more job security and social benefits, became especially attractive to the educated, fueling rising demand for education (Livanos 2010; Gouvias 1998). Education was widely viewed as the key vehicle for promoting social mobility and equality in Greek public discourse (Tsakloglou and Cholezas 2005). The education system remained highly centralized under the Ministry of Education and Religious Affairs, with the structure largely unchanged after democratization. However, the late 1970s saw a continued expansion of higher education—extending trends from the 1960s—driven by political reforms, public sector incentives, and broader efforts to modernize the educational system in the post-junta era.

3. Data and sample

We draw on the 1977 Special Wages and Salaries Survey—the same microdata analyzed by Psacharopoulos (1982)—conducted by the National Statistical Service of Greece. The survey was expressly designed to measure the structure of pay and employment across urban labor markets and was fielded to a stratified random sample of 8,756 wage-and-salary workers in 12 cities. The questionnaire records earnings, schooling, experience, and father’s schooling. Following the original study, we restrict the analysis to male employees to avoid composition and measurement issues linked to gender-specific labor-force participation, discrimination, and the construction of experience measures for women in this period. Table 1 provides variable means and standard deviations.

4. Identification strategy: Instrumental variables

Given an instrument Z_i , the coefficient b_i in the returns-to-schooling model reflects the individual’s private return, with a population average of b_o (Patrinos and Sakellariou 2006). Under homogeneous returns, IV estimation requires the instrument to be uncorrelated with both the error term and unobserved ability. But when returns vary across individuals, this is not enough. In that case, identifying causal effects also requires assuming that the instrument is unrelated to people’s individual gains from schooling—a much stronger condition.

This heterogeneity implies that b_i is drawn from a distribution of causal effects, and different estimators will

identify different parameters within that distribution. As such, IV estimates depend on the particular relationship between the instrument and treatment assignment. Under specific assumptions, IV recovers a local average treatment effect (LATE)—the average return for those whose schooling decisions are influenced by the instrument. Thus, the IV estimate answers a local, policy-relevant question, rather than a general one.

We estimate the causal effect of schooling (S) on log earnings ($\ln Y$) using IV to address potential endogeneity. We use father’s schooling, sf , as an instrument for schooling, controlling for experience and its square. The IV estimation is conducted using two-stage least squares (2SLS) with robust standard errors to account for heteroskedasticity.

5. Empirical analysis

Our estimate of the returns to schooling in Greece in 1977, using father’s education as an instrument, is higher than the existing non-experimental returns to education estimates at the time. We include male workers ages 14-65. The ordinary least squares estimates use the standard Mincerian specification. The results reported in Table 2 show the OLS estimates, followed by the first stage estimates and IV results in the fourth column. The OLS results are the same as in Psacharopoulos (1982).

The first-stage results indicate that the instrument sf strongly predicts schooling, with an F-statistic of 58.75, well above the conventional threshold of 10, indicating no weak instrument problem. Overall, father’s education affects one’s schooling significantly. An in-

TABLE 1 A summary of variables

Variable	Mean	Std
Log wage	12.15	0.55
Schooling	12.08	4.72
Father’s schooling	7.62	4.37
Experience	20.10	11.57
Experience-squared	537.73	536.96
Annual earnings (drachmas)	216,289	119,080
N	6,112	

Source: Labor Market Survey, 1977.

TABLE 2 Returns to education: Greece, 1977

Variable	OLS		IV	
	1	2	First stage	Earnings
Schooling	0.054 (38.400)	0.058 (45.400)		0.079 (25.600)
Experience	0.059 (34.000)	0.059 (33.900)	0.123 (8.500)	0.056 (28.600)
Experience-squared	(0.001) (25.900)	(0.001) (25.900)	(0.005) (16.500)	(0.001) (19.100)
Father's schooling	0.011 (7.500)		0.426 (41.400)	
Constant	10.757	10.787	9.074	10.530
F-test			1710.2	695.18
p-value			0.000	0.000
Overidentification statistic				Exactly identified
Wu-Hausman F-test				58.75
p-value of Wu-Hausman F test				0.000
R-squared	0.3777	0.3720	0.2873	0.3300
Adjusted R-squared	0.3773	0.3717		
N		6,112	6,112	6,112

Source: Labor Market Survey 1977.

Notes: In the 1st, 2nd and 4th columns, the dependent variable is the log of annual earnings; in the 3rd column, it is years of schooling. Numbers in parentheses are t-scores in the case of OLS and first stage, z-scores for the IV.

crease of 1 year in father's education is associated with an increase of 0.4 years in the individual's years of schooling.

The OLS estimates of the returns to schooling in 1977 were estimated as 5.8 percent by Psacharopoulos (1982), which we replicate here. The IV estimate is 7.9 percent, which is 2.1 percentage points higher than the corresponding OLS estimator. Our results are consistent with others who have used parental education as an IV (see, for example, Aryal et al. 2022; Chletsos and Roupakias 2020; Cholezas and Kanellopoulos 2024; Harmon et al. 2003).

These findings align with the idea that returns to education vary across individuals (Card 2001). The LATE framework helps explain this: it captures the return for the group whose schooling choices are influenced by

the instrument—in our case, mainly poorer individuals, who likely have higher returns at the margin. OLS tends to underestimate returns because it averages across the entire population and is subject to attenuation from measurement error in schooling. IV estimates, by contrast, correct for classical measurement error in the schooling variable and reflect the effect for a specific subgroup with above-average returns. As a result, IV estimates are often larger than OLS estimates when returns are heterogeneous. Measurement error in reported years of schooling, particularly in older surveys relying on retrospective self-reports, can further attenuate OLS estimates, contributing to the observed OLS–IV gap alongside endogeneity and treatment-effect heterogeneity (Card 2001; Bound et al. 2001).

Using Ishimaru (2024), we decompose the OLS–IV gap

into three parts: (1) covariate weighting, which gives different importance to background factors (e.g., experience), or the part of the gap explained by different distributions of covariates in OLS vs IV samples; (2) treatment-level weighting, which handles varying levels of the values of the schooling variable itself; and (3) the marginal effect, or the bias correction since the IV method corrects for hidden confounding factors that OLS misses.

Decomposition results (Table 3) indicate that only 0.06 percentage points of the gap are attributable to differences in the distribution of observed covariates, while treatment-level weighting differences account for 0.04 percentage points. The remaining 1.98 percentage points (96 percent of the gap) reflect differences in marginal returns—suggesting that endogeneity or treatment effect heterogeneity is the main driver of the IV–OLS gap.

We also conclude that father’s schooling is a valid instrument, even if it has a direct effect on earnings, because that effect appears to be small. To examine this, we compare two earnings regressions: the first includes father’s schooling and the second one does not (Table 2). The inclusion of father’s schooling increased the *R*-squared from 0.3720 to 0.3777, a gain of 0.0057 (or approximately 0.57 percentage points). The adjusted *R*-squared rose from 0.3717 to 0.3773, or 0.56 percentage points. This modest improvement in model fit suggests that while father’s schooling contributes some predictive value to individual schooling outcomes, its incremental effect is limited—consistent

with standard interpretations of *R*-squared changes (Wooldridge 2010; Gujarati and Porter 2009).

The period under study was one of profound transformation for Greece. The restoration of democracy in 1974 ushered in political stability, and education became a central pillar of modernization and social mobility. Labor markets remained segmented, with high levels of self-employment and an expanding public sector that disproportionately absorbed educated workers. In this institutional setting, education functioned not only as a signal of productivity but also as a ticket to stable and relatively prestigious public-sector jobs. That the causal return is higher than the OLS estimate suggests that, even in a labor market where credentials carried strong signaling value, genuine productivity-enhancing aspects of education were substantial.

Several caveats should be borne in mind. First, the validity of father’s education as an instrument depends on the exclusion restriction, which, while plausible, cannot be tested directly. Although robustness checks suggest that any direct effect of father’s schooling on earnings is minor, we cannot rule it out entirely. Second, the LATE interpretation reminds us that IV estimates are not universal: they apply to the subgroup of individuals whose schooling is affected by the instrument. In our case, these are likely to be individuals from lower socioeconomic backgrounds who were on the margin of continuing their studies. Thus, while the 7.9 percent figure is policy-relevant, it should not be generalized to all workers in the 1970s.

TABLE 3 Decomposition of the IV-OLS gap in return to schooling estimates

Coefficients			Decomposition		
OLS	IV	IV-OLS	ΔCW	ΔTW	ΔME
0.058	0.079	0.021	0.0006	0.0004	0.0198
(0.001)	(0.003)	(0.003)	(0.0002)	(0.0002)	(0.0028)

Source: Labor Market Survey 1977.

Note: Standard errors are in parentheses. The first three columns report the OLS estimates, the IV estimates, and their gaps. The next three columns report the estimates of the CV (covariate weight) difference, the TW (treatment-level weight) difference, and the ME (marginal effect) difference components. By construction, these three components sum to the IV-OLS gap. Standard errors are robust to heteroskedasticity and correlation across observations.

6. Concluding remarks

This article has revisited the returns to education in Greece by re-analyzing the 1977 Special Wages and Salaries Survey with a causal identification strategy. The use of father's education as an instrument provides a credible way to address endogeneity and recover a local average treatment effect (LATE) of schooling on earnings. The results suggest a private return to education of approximately 7.9 percent per additional year of schooling, which is substantially higher than the OLS benchmark of 5.8 percent reported in Psacharopoulos (1982). This finding is consistent with international evidence that IV estimates often exceed OLS, reflecting both attenuation bias from measurement error and heterogeneity in returns, whereby individuals at the margin of schooling—those whose decisions are most influenced by their father's education—experience above-average payoffs.

This study also illustrates the value of re-examining historical data with modern econometric techniques. The 1977 survey remains one of the most comprehensive early datasets on Greek labor markets. By applying an IV strategy, we are able to extract new insights from old data, contributing both to the historical record and to methodological debates. The decomposition of the OLS–IV gap shows that endogeneity and treatment-effect heterogeneity are the primary drivers of differences, rather than differences in observed covariates. This aligns with recent work highlighting how IV can capture higher marginal returns for groups with stronger responses to the instrument.

The implications of these findings are far-reaching. For policymakers in Greece during the 1970s, the evidence would have supported continued investment in expanding access to education, as private returns were high and likely correlated with broader social benefits. More generally, our results reinforce the enduring message that education is a sound economic investment. The historical evidence that causal returns were robustly positive provides an important reminder of education's long-run payoff.

Moreover, by identifying that causal returns exceed OLS estimates, our study implies that conventional methods may understate the benefits of education. This matters for cost–benefit analyses of educational policy, international comparisons, and the design of interventions aimed at reducing inequality. In particular, individuals at the margin of schooling—those most influenced by parental background—appear to reap the largest gains. This provides an equity argument for policies targeting disadvantaged groups, as they may experience disproportionately high returns when educational barriers are lowered.

This article demonstrates the potential of combining historical data with modern causal inference, and several avenues for extension remain open. One natural step would be to broaden the scope beyond male wage earners by incorporating women and the self-employed, which would provide a more comprehensive picture of Greece's human capital payoff. Another direction is to examine dynamic returns over time by linking evidence across decades to see how payoffs evolved with economic modernization, EU accession, and structural reforms.

The evidence presented here reaffirms that education in Greece during the late 1970s yielded high and economically significant private returns. By applying instrumental variables to the 1977 Survey, we move beyond the limitations of OLS and provide a causal estimate that is both larger and more credible. The results are consistent with international patterns and resonate with broader theories of human capital. Most importantly, they remind everyone that investing in education—especially for those from disadvantaged backgrounds—not only fosters social mobility but also delivers strong economic dividends. Education was, and remains, one of the most powerful levers for individual and national development.

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Recent developments in private returns to education in Greece

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Abstract

The article estimates private returns to education in Greece over the period 2007-2024 and examines their evolution in the context of major economic changes experienced by the country, mainly due to the sovereign debt crisis. The data come from the Survey of Income and Living Conditions (EU-SILC), and the sample is restricted to employees aged 25-64. The estimates are based on the standard Mincer earnings equation, ensuring comparability with both international and domestic findings. The results show that returns to education have decreased over time in Greece, in line with the simultaneous contraction in labour earnings observed in the reference period, with no clear evidence of a subsequent recovery. Estimated returns are systematically higher for women, especially at higher levels of education. Notably, gender differences have widened for holders of postgraduate degrees. When these findings are considered alongside the lower unemployment rates of higher-level graduates, one can conclude, with relative certainty, that continued education remains a rational choice at the individual level.

Keywords: Private returns to education, EU-SILC, earnings from work.

JEL Codes: I26, J24, J31.

1. Introduction

The private return to education refers to the monetary benefit individuals obtain from acquiring additional years of education and/or completing a specific level

of education. In the framework of human capital theory (Becker, 1964), this monetary return contributes, along with other parameters,¹ to the final decision of the individuals (and their families) to invest in education in terms of time, effort, and financial resources. The choice to obtain further education resembles an investment decision because it involves both direct² and indirect³ costs, i.e., it requires the sacrifice of resources in the present and is therefore expected to generate future benefits. Such benefits are realized in the form of increased earnings from work. Earnings increase with educational attainment because the accumulation of knowledge and skills increases productivity and, therefore, leads to higher earnings from work. So, *ceteris paribus*, higher labour productivity translates into higher earnings from work and greater returns for each additional year of education.

The close relationship between education and earnings from work implies that during recessions, when wages fall, returns to education are expected to fall. However, while years of education are treated as homogeneous, for practical reasons, each level of education is different in terms of knowledge and skills, and, therefore, may have a different impact on labour market pay. Therefore, it is not unusual for overall wages to fall while returns to specific levels of education increase.

The aim of this article is to trace the evolution of the private return to each level of education in Greece over the period 2007-2024, spanning the period just before the economic crisis and to the most recent available year. The analysis utilizes microdata from the European Survey on Income and Living Conditions (EU-SILC), thereby systematically supplementing the existing bibliography with the most recent data for Greece and investigating the role of education in shaping earnings from work in the first quarter of the 21st century. Moreover, by dividing the examined period 2007-2024 into four consecutive sub-periods, it is possible to explore how macroeconomic conditions affected returns to education, through the change in earnings from work, and, therefore, the motivation of individuals to continue

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1. Such as the increased chances of finding a job, the social prestige that a job entails, etc.

2. For example, tuition fees, book costs, accommodation and food costs, etc.

3. The main origin of indirect costs is opportunity costs, i.e., the benefits that the individual forgoes by devoting time, effort and financial resources to obtaining further education, instead of, for example, finding a job and starting to earn a wage immediately.

their studies. As Kniesner, Padilla and Polachek (1978) and Chen and Kelly (2020) have already documented, the economic cycle affects returns to education.

The following section provides a brief literature review that sets the framework for the analysis. Section 3 describes the sample and methodology used. Section 4 presents and discusses the empirical results, while Section 5 concludes by summarizing the main findings and outlining the challenges faced by those involved in returns to education.

2. Literature review

Returns to education have been extensively studied internationally⁴ (Psacharopoulos, 1972, 1981, 1985; Psacharopoulos and Patrinos, 2002; Patrinos and Psacharopoulos, 2010) and adequately in the Greek literature (Cholezas, 2005). Estimating returns to education at the individual level is usually done with the help of the Mincerian earnings equation (Mincer, 1974) and the method of Ordinary Least Squares (OLS). The earnings equation practically links earnings with years of education, one of the inputs that increase the human capital that an individual embodies, and other inputs, such as years of work experience,⁵ actual or potential depending on the available information, while it can also include a number of variables that differentiate the effect of education on earnings, such as gender, industry, profession, place of work, size of the employer, etc. The aim is to account for as many factors as possible that influence earnings from work so that the estimated coefficient of education reflects education's real effect on earnings.

More years of education are associated with higher earnings, and this is a strong incentive for individuals to obtain more education. Recent international estimates suggest an average return to a year of education of between 9.5% and 10.1% (Psacharopoulos and Patrinos, 2018; Montenegro and Patrinos, 2023). Women enjoy a higher return than men by about 2 percentage points (11.7% versus 9.6%). Variations are also found between different regions around the world. The highest return to education is found in Sub-Saharan Africa (12.3%) and the lowest in the Middle East and North Africa (7.3%). In Europe and Central Asia, the return to a year of educa-

tion reaches 7.4%. In general, the return to a year of education is higher in countries with low and middle income per capita, due to the relative scarcity of human capital.

Estimating separate returns to each level of education, it appears that in recent years, tertiary education graduates have enjoyed greater benefits (Montenegro and Patrinos, 2023) in contrast to what was true in the past (Psacharopoulos and Patrinos, 2018). The return to tertiary education reaches 15.2%, while that to primary education is limited to 10.6%. On the other hand, the return to secondary education is even lower and barely exceeds 7%. Two regions are exceptions: Europe and Central Asia, on the one hand, and the Middle East and North Africa, on the other, where primary education continues to be more productive than tertiary education.⁶ Women benefit more from an additional year of education, as shown by the higher returns they enjoy to all three levels of education. This does not mean that they have higher earnings, but that the benefit from continuing education is greater for women, so they have a greater incentive than men to continue their studies.

Most studies to calculate returns to education in Greece use data before 2000 (Kanellopoulos, 1985; Patrinos, 1992; Patrinos and Lambropoulos, 1993; Magoula and Psacharopoulos, 1999; Cholezas, 2005; Prodromidis and Prodromidis, 2008). In these, a decrease in returns is observed in the 1980s and a recovery in the 1990s. Thus, returns ranged for men from 7.1% (1974) to 5.2% (1988) and 6.7% (1994) and 7.2% (1999) and for women from 11.4% to 6.4% and 7.8% and 8.9%, respectively (Cholezas, 2005; Tsakloglou and Cholezas, 2001). The return to an additional year of education in Greece ranged from 7% to 7.6% during the period 2004-2012, with a downward trend recorded in the period 2008-2012, i.e., during the economic crisis, when the return decreased by 1.2 percentage points (from 7.6% to 6.4%) (Montenegro and Patrinos, 2023). More recent estimates of returns to a year of education show declining trends over time. Specifically, when performance is estimated using the OLS, a decline over time is observed from 6% in 2011 to 3.7% in 2019 for men and from 4.4% to 3.9% for women, respectively (Cholezas & Kanellopoulos, 2024).

Regarding levels of education, the higher the level, the greater the return, as is the case in almost all devel-

4. A brief presentation and evaluation of the progress of efforts to assess the role of education in shaping earnings, as well as the objections associated with it, is given by Psacharopoulos (2024).

5. A distinction can be made between actual, when years of work are known, and potential work experience, which is calculated as age - years of education - age at which education began. There can be significant differences between the two, especially in periods of high unemployment. Furthermore, differentiations can include general, valuable to all employers, versus specific work experience, valuable to one or a few employers.

6. At this point, it should be noted that primary school graduates, at least in European countries, are an endangered species and are old, so they have accumulated other forms of human capital. Therefore, caution is advised in interpreting the results.

oped countries. Thus, tertiary education consistently has a higher return than lower levels of education (Magoula and Psacharopoulos, 1999; Cholezas, 2005; Cholezas and Kanellopoulos, 2024), while, in addition, it acted as a shield against unemployment during the economic crisis (Kanellopoulos, et al., 2013). Also, women seem to have systematically higher returns to education. In the early 2000s, the return to university education (HEI) was estimated at approximately 24% for men and 29% for women, while that of technological educational institutions (TEI) was at 14% and 17.6%, respectively (Livanos and Pouliakas, 2011). Returns to HEI in the period 2004-2007 declined and especially so in the period 2010-2012, when a clear reduction during the economic crisis was reported, without however disrupting gender differences (Kanellopoulos et al., 2013). Thus, the return to a TEI degree fell by about 2 percentage points for men (to 7.2%) and by almost 4 percentage points for women (to 10.9%). Correspondingly, the return to a university degree decreased during the crisis (2010-2012) by 2.2 percentage points for men (to 21%) and 3.1 percentage points for women (to 21.6%). More recently, the return to university education in 2022 was estimated at 34.5% regardless of gender, clearly lower for men than for women (33.6% versus 40.8%) (Magoula, 2023).

3. Data and methodology

The sample is drawn from the EU-SILC data for the period 2007-2024⁷, and it includes employees aged 25-64. Table 1 reports selected descriptive statistics of the sample. Average real earnings from work in the period 2007-2024 amount to approximately 1,490€, while median real earnings are almost 190€ lower, so the difference between the two is close to 14.5%. This disparity suggests that there is high inequality in earnings from work, which may be due to the low coverage of workers by collective bargaining and/or to the greater dispersion of skills and job positions, which is possibly linked to the decreasing presence of middle-skilled occupations. The average age of the individuals in the sample is 42 years. Women constitute 45% of the sample, while approximately 65% of individuals are married. The distribution of educational attainment is as expected. Approximately 17% of the sample are graduates of compulsory education (up to high school), 35% have completed upper secondary education, and 9% have post-secondary non-tertiary studies. A sizeable share (36%) of the sample has a university education degree and 4% has a master's degree or a Ph.D. Furthermore, actual labour market

experience is close to 18 years. Finally, individuals in the sample worked, on average, for more than 11 months in the previous year, with approximately one-tenth of this period spent in part-time employment.

The overall picture of the sample obscures substantial heterogeneity in labour earnings across individuals with different characteristics. Moreover, wage differentials indicate differences in productivity, differences in characteristics, and/or discrimination. For instance, wage differences are found between people of different genders and people with different levels of education completed.

Table 2 presents the sample differences between men and women, which are not limited to earnings. On average over the reference period, men were paid almost 24% higher than women. This difference may be due to the characteristics of men that contribute to higher productivity and/or to discrimination in the labour market against women. Moreover, the difference between mean and median wages is significantly higher among men (16.7% versus 11.3%), suggesting greater earnings dispersion for men, whereas women tend to be more concentrated in jobs with similar characteristics. Furthermore, men show higher work intensity, while women are comparatively more likely to work part-time, as on average they worked 1.5 months part-time compared to 0.7 months for men. Finally, notable gender differences are also found in educational attainment. Women are more likely to hold a university degree (43% vs. 30%) and less likely to have completed compulsory or upper secondary education. The percentage of postgraduate holders does not differ significantly between men and women.

Table 3 shows that as the level of education increases, earnings increase, with the relationship being almost linear. An exception is post-secondary non-tertiary education, which one would expect to ensure higher earnings compared to upper secondary education, but this is not the case. Furthermore, the ratio between average and median earnings, which is a proxy of inequality, is higher among HEI graduates, followed by those with postgraduate degrees. This is not surprising, given the greater heterogeneity of those graduates compared to graduates from lower levels of education. Given the positive association between education and earnings from work, the lower average earnings of women in Table 2 seem to be a contradiction. However, it is explained by differences in other observed characteristics between the two genders, as well as by discrimination in the labour market.

The last column of Table 3 calculates the wage premium enjoyed by graduates of each level compared to upper

7. Earnings refer to the year prior to that of the survey, so returns are essentially calculated for the period 2006-2023.

TABLE 1 Descriptive statistics of employees 2007-2024

	Average	Median
Actual monthly earnings	1,491.70	1,303.85
Age	42.40	42.00
Women	0.45	
Married	0.65	
Compulsory education	0.17	
Upper secondary education	0.35	
Post-secondary education	0.09	
University education (HEIs)	0.36	
Postgraduate studies	0.04	
Work experience	17.78	17.00
Months of employment in the previous year	11.14	
Months of part-time employment (%)	0.10	

Source: EU-SILC.

Notes: All estimates are weighted.

Earnings refer to real earnings from work deflated by the CPI (base year = 2020).

TABLE 2 Characteristics of male and female employees 2007-2024

	Men	Women	Total
Average monthly earnings	1,632.59	1,317.76	1,491.70
Median monthly earnings	1,399.34	1,183.83	1,303.85
Months of employment	11.23	11.03	11.14
Months of part-time work	0.06	0.14	0.10
Compulsory education	0.20	0.13	0.17
Upper secondary education	0.39	0.30	0.35
Post-secondary education	0.07	0.10	0.09
University education (HEIs)	0.30	0.43	0.36
Postgraduate studies	0.04	0.04	0.04

Source: EU-SILC.

Notes: All estimates are weighted.

Earnings refer to real earnings from work deflated by the CPI (base year = 2020).

TABLE 3 Real monthly earnings from work by educational level 2007-2024

	Average (€)	Median (€)	Reason for difference	Increment vs. secondary (%)
Compulsory education	1,208.40	1,111.22	8.75	-10.13
Upper secondary education	1,344.57	1,198.81	12.16	-
Post-secondary education	1,329.35	1,188.47	11.85	-1.13
University education (HEIs)	1,744.95	1,516.40	15.07	29.78
Postgraduate studies	2,018.09	1,772.11	13.88	50.09
Total	1,491.70	1,303.85	14.41	10.94

Source: EU-SILC.

Notes: All estimates are weighted.

Earnings refer to real earnings from work deflated by the CPI (base year = 2020).

secondary graduates. Graduates of compulsory education were on average paid 10.1% lower in the reference period, while post-secondary graduates did not have a real difference, approximately 10 euros (or 1.1%). In contrast, HEI graduates seem to be favoured, with almost 30% higher average wages, and holders of a first or second cycle of post-graduate degree earn 50% more than upper secondary graduates. Accordingly, the difference between holders of a postgraduate degree and university graduates was over 15%. These premia are indicative of higher productivity and constitute incentives for young people to continue their studies.

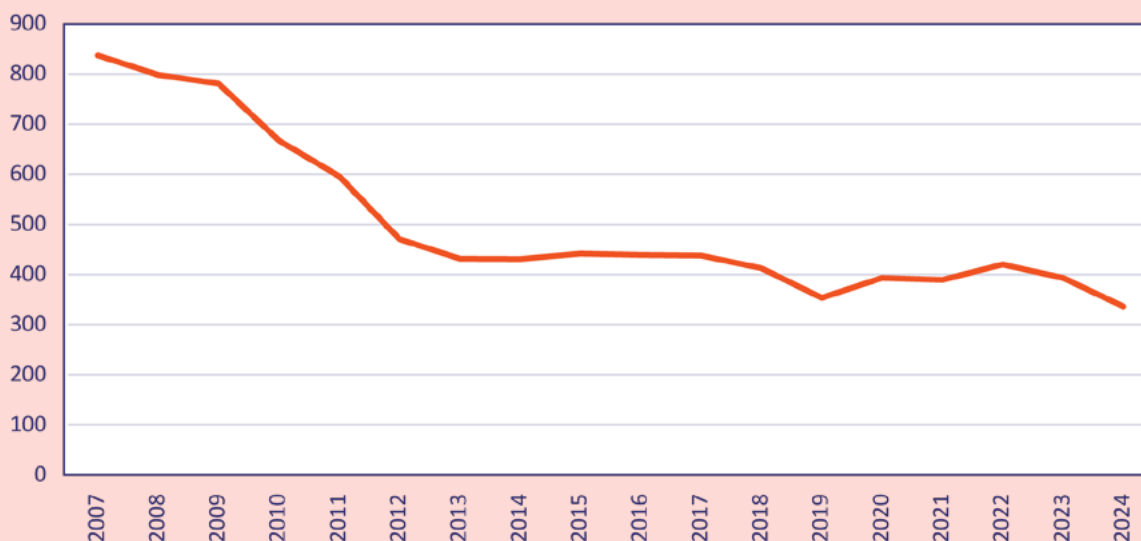
Finally, an examination of the evolution of key variables over time reveals differences in earnings from work, as well as in educational attainment, even though the length of the period is too short. The share of university graduates increased from around 30% in 2007 to just over 36% in 2024, while the proportion of compulsory education graduates decreased from almost 28% to 13%. These trends indicate a growing preference among younger cohorts to acquire more education. Therefore, one would expect that the earnings of the more educated would have increased over time. Contrary to this expectation, real labour earnings for graduates decreased by almost 40% over the period 2007-2024. Furthermore, the examination of the wage premia for university graduates, including those with first and second cycle master's degrees, reveals a significant decrease compared to upper secondary

graduates. As illustrated in Graph 1, the wage premium for HEI graduates decreased from almost 840 euros per month in 2007 to less than 340 euros in 2024. This suggests that the economic crisis had a balancing effect by reducing wage inequalities based on educational attainment. It also seems that the reduction in the gap started to stabilize in 2014, a year that coincides with the beginning of the labour market recovery. However, a new downward trend is evident from 2022 onwards, indicating that the relative earnings advantage associated with higher education has continued to weaken in recent years.

The question that clearly arises is why individuals continued to opt for more education, when the benefit from it seems to be decreasing. The answer is multifaceted, as educational choices are influenced by other factors that contribute to the individual's specific decision, such as prestige and access to specific professions that are not possible without specific studies. Employment prospects also play a key role. As already mentioned, although employment prospects worsened for all during the crisis, employment outcomes worsened to a lesser extent for HEI graduates (see Mitrakos, Tsakloglou and Cholezas, 2010, and Kanellopoulos et al., 2013). Thus, the opportunity cost of obtaining additional education decreased and pushed young people to continue their studies, as the alternative was unemployment. At the same time, obtaining a degree improved individuals' chances of employment. Furthermore, a degree and,

GRAPH 1

Evolution of the difference in real monthly earnings from work of HEI graduates and secondary education graduates, 2007-2024



Source: EU-SILC.

Note: Earnings refer to real earnings from work deflated by the CPI (base year = 2020).

even more so, postgraduate studies, constitute an additional asset for individuals wishing to seek employment abroad. Given that many highly educated people migrated during the crisis to seek employment abroad (Lazaretou, 2016), the link between formal qualifications and finding a job can hardly be disputed. Another plausible explanation is that individuals expect future conditions to improve, since the decision to continue their studies has a long planning horizon.⁸

Given the decline in labour earnings over the reference period, the next step of the analysis investigates how this translated into changes in the returns to education. To facilitate comparability with the results from other countries, returns to education are estimated with the most widely applied empirical approach, which also entails the fewest data requirements. Specifically, the standard Mincerian earnings equation is employed, taking the following form:

$$\ln(w_i) = \alpha + \beta S_i + \gamma_1 X_i + \gamma_2 X_i^2 + \varepsilon_i \quad (1)$$

where $\ln(w_i)$ denotes the logarithm of earnings from

work for each individual i ⁹, i.e., annual, monthly, or hourly wage; S_i represents the years of completed education; X_i is the years of work experience;¹⁰ and ε_i is the usual error term capturing the effect of unobserved factors on earnings. The square of work experience captures the concavity of the earnings function with respect to work experience, as it has been empirically shown that earnings increase with years of work experience up to a point and subsequently decline. The semi-logarithmic form of the earnings function means that the estimated coefficients (β , γ_1 , γ_2) can be interpreted as approximate percentage changes in earnings for each additional year of education or work experience, respectively, that is, as the marginal effect of the specific explanatory variable on earnings.

EU-SILC does not provide information on years of schooling, but only on the level of education attained. Therefore, educational attainment is modelled using a set of dummy variables corresponding to each education level. As a reference category – against which the returns to the remaining levels of education are calcu-

8. Recall that the sample consists of employees. However, in the Greek labor market, self-employed people with or without personnel have a strong presence. The sample also includes employees in the public and private sectors. These categorizations may change the evolution of earnings over time.

9. Monthly earnings were calculated using annual earnings from work and months of employment.

10. The data provides information about the actual work experience of individuals.

lated—the most populous group is typically used; in the present analysis, upper secondary education (Lyceum) serves as the benchmark category. The earnings equation now takes the following form:

$$\ln(w_i) = \alpha + \sum_{\kappa=1}^K \beta_{\kappa} D_{i\kappa} + \gamma_1 X_i + \gamma_2 X_i^2 + \varepsilon_i \quad (2)$$

where $D_{i\kappa}$ denotes a set of dummy variables indicating the highest level of education κ attained by individual i , and β_{κ} captures the return to each education level or, more simply, the earnings premium associated with level κ relative to the reference level.

Equation (2) is estimated using ordinary least squares (OLS), with the logarithm of actual monthly earnings from work as the dependent variable. The independent variables also include a dummy variable for gender (female=1), a dummy variable for marital status (married=1), dummy variables for the region of residence of the individual and dummy variables for the years of the survey. The earnings equations are estimated for the full period 2007-2024 as well as for four sub-periods: 2007-2009, 2010-2014, 2015-2020 and 2021-2024.¹¹

Sub-periods are defined based on macroeconomic conditions. The period 2007-2009 corresponds to the period before the economic crisis, during which growth rates were high and unemployment was close to 7.5%. The sub-period 2010-2014 captures the phase of the deep economic crisis, marked by the sharp decline in GDP, the decline in employment and the

rapid increase in unemployment, which resulted in approximately one in four being unemployed. The third sub-period, 2015-2020, represents a phase of gradual recovery and mild growth, during which economic activity strengthened, and employment followed a steady upward trajectory with a corresponding decrease in unemployment. Finally, the sub-period 2021-2024, is the period during and after the pandemic, when the economy, following the initial economic shock, gradually stabilized and improved in terms of GDP growth, employment, and unemployment. Using sub-periods allows for the examination of the evolution of returns to education over time and the role of macroeconomic volatility in shaping them. In addition, all equations are estimated for the full sample and separately for men and women, enabling an assessment of gender-specific differences in returns to education.

4. Results

The full set of estimation results is reported in Table A1 in the Appendix. Table 4 presents the estimated returns to each level of education (vis-à-vis upper secondary) for the entire reference period 2007-2024. Returns are computed from the estimated coefficient of the education-level dummy variable according to $r_D = e^{\beta_D} - 1$, where $D = 1, \dots, 5$, denotes the level of education,¹² and upper secondary education (i.e., $D = 2$) serves as the reference category. All reported re-

TABLE 4 Returns by education level and gender, 2007-2024 (%)

	All	Men	Women
Compulsory education	-18.19	-18.02	-18.59
Post-secondary education	9.20	9.53	8.75
University education (HEIs)	36.26	34.25	38.05
Postgraduate studies	67.39	66.78	66.91
N	103,799	56,440	47,359

Notes: All returns are statistically significant at the $p < 0.001$ level.

Returns are derived from Tables A1, A2 and A3.

11. It is noted that the income data in EU-SILC refer to the previous year. This means that the total period under consideration in terms of income is 2006-2023.

12. For example, the estimated HEI coefficient for the entire sample is 0.309 (see Table A1). The transformation based on this formula $(e^{(0.309)} - 1) \times 100$ equals the respective return when compared to upper secondary education graduates, i.e., 36.26% (see Table 4). Any differences in the fourth decimal place are due to rounding.

TABLE 5 Returns by education level and sub-period (%)

	2007-2009	2010-2014	2015-2020	2021-2024
Compulsory education	-20.66	-18.59	-18.73	-12.86
Post-secondary education	10.37	10.72	10.44	4.85
University education (HEIs)	48.05	38.66	34.54	28.02
Postgraduate studies	95.89	86.03	65.89	55.65
N	12,044	17,490	52,900	21,365

Notes: All returns are statistically significant at the $p < 0.001$ level.

Returns are derived from Table A1.

turns are derived from highly statistically significant estimates ($p < 0.001$).

The results show the different performance that *ceteris paribus* reserves each level of education in monetary terms. Compulsory education penalizes its graduates, as, on average, they are paid about 18% lower wages compared to upper secondary graduates throughout the period. By contrast, all three higher levels of education entail increased wages, and, in fact, the higher the level, the more the wages premia. Thus, post-secondary education entails higher wages by about 9%, tertiary education by about 36%, while holders of postgraduate degrees are paid almost 68% higher wages than upper secondary graduates. The return of postgraduate studies compared to a tertiary degree is the difference between the corresponding returns. In this case, the difference is approximately 31 percentage points, implying that postgraduates earn approximately one-third higher salaries than tertiary graduates.

Previous studies have documented higher returns to education for women in Greece (Cholezas, 2005; Livanos and Pouliakas, 2011; Cholezas and Kanellopoulos, 2024). The evidence in Table 4 partially confirms this pattern fully. Thus, the financial penalty of compulsory education is marginally higher for women, about half a percentage point. Only a university degree benefits women more than men, as they enjoy about 4 percentage points higher returns. In postgraduate studies, the benefits are practically equal for both sexes, while post-secondary education seems to increase men's earnings more. Taken together, these findings suggest that *ceteris paribus* it is more beneficial for women to obtain a university degree, while everyone will benefit

financially if they further continue their studies.

To examine the impact of the economic crisis on returns to education, the sample period is divided into four sub-periods and separate earnings equations are estimated for each. The corresponding results are presented in Table 5. The main patterns identified in the previous table are also evident in this one. Compulsory education entails a wage penalty compared to upper secondary graduates, while all educational levels past that entail positive wage premiums, which increase the higher the level of education. The additional important information provided by this table is that inequality in the distribution of returns to education has narrowed. This is likely to be largely due to the corresponding contraction in the distribution of earnings identified earlier. Overall, these findings suggest that the premium employed individuals enjoy from an additional level of education seems to be decreasing over time in the Greek labour market. Thus, while in the pre-crisis period (2007-2009) holding a tertiary degree involved an average of approximately 48% higher earnings relatively to upper secondary education, this premium declined by almost 10 percentage points during the period of deep crisis (2010-2014), fell further by 4 percentage points during the period of economic recovery (2015-2020), and ended up at less than 30% in the last sub-period. This suggests a weakening of the financial incentives to continue one's education over time.

Tables 6 and 7 report the results of the estimates separately for men and women. While gender differences are modest, they do exist. The wage penalty associated with compulsory education, for example, is almost equal for men and women before the crisis but follows

a divergent trajectory over time and ends up being greater for men in the most recent sub-period. The post secondary education premium increased for men during the years of the deep crisis (2010-2014), significantly exceeding the corresponding premium for women. The subsequent years recorded a significant decline, resulting in a considerably smaller premium, about half the size of the premium observed for women.

Returns to a university degree declined for both genders, although the decline was steeper for women during the years of the deep crisis, while for men it was more gradual and accelerated in the last period. Despite this, the return to a university degree continues to be higher for women. Correspondingly, the

return to postgraduate studies did not differ much between men and women prior to the crisis. Over time, however, it evolved differently. For women, the big decline took place in the years of the deep crisis (2010-2014), while for men, it took place in the third period (2015-2019). However, women in the last two periods continue to exhibit higher returns to postgraduate education, as was also the case before the crisis, while these relative advantages seem to be widening.

A final observation concerns the evolution of gender differences in the estimated returns to education over time. In contrast to the generalized downward trend in returns across all levels of education identified during the period under review, gender differences appear,

TABLE 6 Returns by education level and sub-period (%), men

	2007-2009	2010-2014	2015-2020	2021-2024
Compulsory education	-20.65	-16.38	-18.88	-15.06
Post-secondary education	9.17	13.31	11.02	3.80
University education (HEIs)	42.60	39.78	32.70	24.94
Postgraduate studies	92.10	96.33	63.73	52.69
N	6,809	9,604	28,719	11,308

Notes: All returns are statistically significant at the $p < 0.001$ level.
Returns are derived from Table A2.

TABLE 7 Returns by education level and sub-period (%), women

	2007-2009	2010-2014	2015-2020	2021-2024
Compulsory education	-20.62	-22.30	-18.49	-8.48
Post-secondary education	11.59	6.90	10.26	6.86
University education (HEIs)	53.41	36.77	36.41	31.81
Postgraduate studies	96.17	71.72	67.76	59.39
N	5,235	7,886	24,181	10,057

Notes: All returns are statistically significant at the $p < 0.001$ level.
Returns are derived from Table A3.

as a rule, to be widening, without reversing sign. The main exception is university graduates, where the gender gap has narrowed. In the last sub-period, the penalty for female graduates of compulsory education is almost 7 percentage points lower than that of men, whereas before the economic crisis there was no substantial gender difference. Similarly, in post-secondary education, the gender difference in favour of women increased by approximately 1.3 times. At the postgraduate level, gender differences in returns widened in the two most recent sub-periods, following the significant contraction recorded during the deep crisis (2010-2014). By contrast, returns to a university degree exhibit a narrowing of the gender gap, with the corresponding size estimated at approximately 7 percentage points and average returns at approximately 36%.

These observed variations may reflect changes in the composition of the workforce and educational groups (compositional effects), shifts in the mechanisms of selection in employment and continuation of studies (selection effects), as well as changes in the distribution of men and women between professions and sectors with different wage structures (occupational sorting). While disentangling these mechanisms lies beyond the scope of our analysis, it constitutes a crucial direction for future research.

Finally, to provide a snapshot of current returns to education in Greece, one can rely on the last column of Table 5. Differences in returns by gender are presented in Tables 6 and 7. Regardless of gender, then, a graduate—*ceteris paribus*—enjoys 28% higher earnings from obtaining a university degree, while the benefit exceeds 55% if one also obtains a post-graduate degree. This implies that post-graduate studies alone add an earnings premium of about 27 percentage points. Moreover, the cumulative premium from the two higher levels of education for women is approximately 7 percentage points larger compared to men.

5. Conclusions and challenges

Despite the decline in returns to education observed since the crisis, education continues to be a profitable investment in Greece. It remains the primary mecha-

nism through which individuals increase their human-capital and is still associated with higher productivity and, consequently, increased labour earnings. Based on estimates from 2020 onwards, obtaining a university degree in Greece, on average, implies an increase in labour earnings of approximately 28%, while a post-graduate degree yields an additional 27%. Returns are slightly higher for women, implying stronger incentives to continue their studies. If one adds to these monetary returns the lower unemployment rates facing university graduates and post-graduates,¹³ then the crucial role of education in improving individual living standards becomes even more evident. Therefore, the observed increase in the average level of educational attainment in Greece over time seems fully justified from an individual perspective.

At the same time, in recent years attention has been focused on the knowledge and skills of individuals as a means of shaping their career prospects.¹⁴ Educational outcomes are not homogeneous, in part due to educational inequalities. Even graduates from the same level of education or with the same specialization—especially when it comes to secondary and post-secondary vocational education and university that often lead directly to the labour market—may have developed different skills, some of which are innate or at least not cultivated within the formal education system. Especially today, with the emphasis placed on the promotion of lifelong learning, which needs to be further strengthened.

These considerations raise the question whether years or level of education, and even one's specialization, are sufficient to determine one's productivity and, therefore, the financial return to a particular choice. On the other hand, an alternative research agenda would involve shifting attention in other directions, which would include measuring specific knowledge and skills instead of formal qualifications. While such an approach would require richer datasets, it would pave the way for in-depth investigation of issues related to individuals' educational choices and their professional development. Moreover, it would provide insights for the design of educational and training programmes by the state aiming at economic growth and improving social well-being.

13. Even if these are due to increased rates of overeducation between employees with high educational qualifications and the displacement of people with low educational qualifications.

14. See the Skills Union (Union of Skills) of the European Union: https://commission.europa.eu/topics/competitiveness/union-skills_en

TABLE A1 Estimates of the Mincerian earnings equation

	(1)	(2)	(3)	(4)	(5)
	2007-24	2007-09	2010-14	2015-20	2021-24
Compulsory education	-0.201*** (0.00580)	-0.231*** (0.0143)	-0.206*** (0.0113)	-0.207*** (0.00763)	-0.138*** (0.0114)
Post-secondary education	0.0880*** (0.00681)	0.0986*** (0.0150)	0.102*** (0.0153)	0.0993*** (0.00873)	0.0473*** (0.00823)
University education	0.309*** (0.00782)	0.392*** (0.0192)	0.327*** (0.0110)	0.297*** (0.0101)	0.247*** (0.0138)
Postgraduate	0.515*** (0.0121)	0.672*** (0.0606)	0.621*** (0.0398)	0.506*** (0.0166)	0.442*** (0.0270)
Woman	-0.213*** (0.00493)	-0.272*** (0.0103)	-0.225*** (0.00890)	-0.188*** (0.00443)	-0.175*** (0.00496)
Experience	0.0360*** (0.00130)	0.0492*** (0.00217)	0.0383*** (0.00135)	0.0355*** (0.00106)	0.0214*** (0.00128)
Experience ²	-0.000499*** (0.0000258)	-0.000773*** (0.0000616)	-0.000514*** (0.0000295)	-0.000473*** (0.0000227)	-0.000255*** (0.0000291)
Married	0.0831*** (0.00472)	0.110*** (0.0113)	0.0947*** (0.00803)	0.0744*** (0.00798)	0.0616*** (0.00772)
Stationary term	6.961*** (0.0222)	6.854*** (0.0202)	6.888*** (0.0242)	6.507*** (0.0145)	6.899*** (0.0170)
N	103,799	12,044	17,490	52,900	21,365
R ² adj.	0.346	0.352	0.355	0.319	0.297

Notes: Standard errors in parentheses.

* p < 0.05, ** p < 0.01, *** p < 0.001

Eurostat weights have been used in all estimates so that the sample is representative of the population.

All estimates include dummy variables for region of residence and year of survey.

TABLE A2 Estimates of the Mincerian earnings equation, men

	(1)	(2)	(3)	(4)	(5)
	2007-24	2007-09	2010-14	2015-20	2021-24
Compulsory education	-0.199*** (0.00724)	-0.231*** (0.0173)	-0.179*** (0.0175)	-0.209*** (0.0109)	-0.163*** (0.0111)
Post-secondary education	0.0910*** (0.00967)	0.0877** (0.0291)	0.125*** (0.0182)	0.105*** (0.00973)	0.0373** (0.0113)
University education	0.295*** (0.00961)	0.355*** (0.0197)	0.335*** (0.0147)	0.283*** (0.0154)	0.223*** (0.0153)
Postgraduate	0.512*** (0.0158)	0.653*** (0.0552)	0.675*** (0.0512)	0.493*** (0.0215)	0.423*** (0.0303)
Experience	0.0333*** (0.00144)	0.0436*** (0.00214)	0.0380*** (0.00192)	0.0327*** (0.00134)	0.0197*** (0.00160)
Experience ²	-0.000474*** (0.0000271)	-0.000697*** (0.0000419)	-0.000518*** (0.0000445)	-0.000455*** (0.0000278)	-0.000259*** (0.0000341)
Married	0.134*** (0.00641)	0.191*** (0.0142)	0.127*** (0.00916)	0.120*** (0.00782)	0.115*** (0.0156)
Stationary term	6.998*** (0.0221)	6.881*** (0.0237)	6.871*** (0.0302)	6.529*** (0.0205)	6.912*** (0.0177)
N	56,440	6,809	9,604	28,719	11,308
R ² adj.	0.337	0.327	0.342	0.299	0.273

Notes: Standard errors in parentheses.

* p < 0.05, ** p < 0.01, *** p < 0.001

* p < 0.05, ** p < 0.01, *** p < 0.001

Eurostat weights have been used in all estimates so that the sample is representative of the population.

All estimates include dummy variables for region of residence and year of survey.

TABLE A3 Estimates of the Mincerian earnings equation, women

	(1)	(2)	(3)	(4)	(5)
	2007-24	2007-09	2010-14	2015-20	2021-24
Compulsory education	-0.206*** (0.0105)	-0.231*** (0.0246)	-0.252*** (0.0193)	-0.204*** (0.0144)	-0.0886*** (0.0165)
Post-secondary education	0.0838*** (0.00821)	0.110*** (0.0144)	0.0667** (0.0218)	0.0977*** (0.0104)	0.0663*** (0.0159)
University education	0.322*** (0.00978)	0.428*** (0.0264)	0.313*** (0.0213)	0.310*** (0.00824)	0.276*** (0.0137)
Postgraduate	0.512*** (0.0122)	0.674*** (0.0954)	0.541*** (0.0436)	0.517*** (0.0139)	0.466*** (0.0258)
Experience	0.0364*** (0.00169)	0.0517*** (0.00572)	0.0389*** (0.00253)	0.0350*** (0.00150)	0.0207*** (0.00187)
Experience ²	-0.000482*** (0.0000443)	-0.000804*** (0.000177)	-0.000535*** (0.0000916)	-0.000402*** (0.0000382)	-0.000199*** (0.0000484)
Married	0.0371*** (0.00677)	0.0384* (0.0155)	0.0579*** (0.0160)	0.0389*** (0.00955)	0.0160 (0.00821)
Stationary term	6.718*** (0.0304)	6.579*** (0.0389)	6.691*** (0.0239)	6.319*** (0.0145)	6.723*** (0.0204)
N	47,359	5,235	7,886	24,181	10,057
R ² adj.	0.307	0.316	0.314	0.297	0.283

Notes: Standard errors in parentheses.

* p < 0.05, ** p < 0.01, *** p < 0.001

* p < 0.05, ** p < 0.01, *** p < 0.001

Eurostat weights have been used in all estimates so that the sample is representative of the population.

All estimates include dummy variables for region of residence and year of survey.

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Vacant student places and the minimum admission requirement: What do the data show about prospective students' preferences

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Abstract

The introduction of the Minimum Admission Requirement (EBE) in 2021 has not yet been evaluated. This is partly because June 2025 marked the four years—the minimum duration of studies in most Greek university departments—and the necessary administrative data for evaluation are still not available. Nevertheless, an examination of the available data on vacant student places, the total number of available student places, and the number of successful candidates and their preferences suggests that the debate about the EBE creating vacant student places at universities may be misplaced. It is unclear whether the number of vacant student places is overestimated and to what extent these vacancies might reflect students' preferences. Given that many businesses are struggling to find qualified university graduates across several fields, better planning and coordination are needed so that “vacant” student places in low-demand fields are not maintained, while supply is increased in other fields.

Keywords: Minimum admission requirement, higher education, candidate preferences, vacant student places, education policy.

JEL codes: I23, I26, I28.

1. Introduction

Data from the Ministry of Education for 2025 shows that approximately 65% of candidates from both General and Vocational High Schools (GEL and EPAL, respectively) who sat the qualifying exams for university admissions (Panhellenic exams) in June 2025 gained admission to higher education institutions, including universities, the School of Pedagogical and Techno-

logical Education (ASPETE), the Higher Schools of Tourism Education (ASTE), military academies, police academies, the fire academy, coast guard academies, and merchant marine academies (AEN). The success rate for those who submitted an undergraduate admissions form (*mixanografiko*) was 89.4%. The Hellenic Authority for Higher Education (HAHE) reports that, in 2024, fewer than 25% of students completed their studies within the designated timeframe (HAHE, 2025). This low graduation rate raises questions about its causes, which may include challenging university curricula relative to high school preparation; students needing to work for financial reasons, hindering their focus; mismatched department placements and student preferences; and unfavorable labor market conditions for job placements (see, *inter alia*, HAHE, 2025; IOBE, 2017; Karamessini, 2008; Aina *et al.*, 2011; OECD, 2011).

The international literature on the association between school grades, field of study preferences and time to graduation from university indicates that students with low high school grades and those enrolled in departments that were not their top preferences tend to graduate later and with lower grades (e.g., Radunzel and Mattern, 2020; Fouarge and Heß, 2023).

When investigating the consequences of delays in completing studies, a distinction is made between those that impact students directly (microeconomic effects) and those that have wider effects on the economy and society (macroeconomic effects). Microeconomic effects include increased study costs, psychological stress, lower grades, and less favourable job market outcomes for graduates (Aina and Casalone, 2020). The macroeconomic effects involve management costs linked to difficult-to-gauge student numbers and a growing gap between the skills and knowledge required in the labour market and those held by new graduates, as delays in graduation often mean that knowledge gained early in the course becomes outdated (Brunello and Winter-Ebmer, 2003).

Few empirical studies explore how extending study duration affects students' grades and labour-market prospects. Italy, which is quite similar to Greece—with many secondary school graduates entering higher education but only a small proportion finishing within the expected timeframe—serves as a useful reference. Research on Italy shows an inverse relationship be-

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-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.

tween students' grades and the length of their studies, as well as lower lifetime earnings for those who take longer to complete their studies than for those who finish on time (Aina and Casalone, 2020; Brugiavini *et al.*, 2014). Similar research in France confirms that longer study durations negatively impact wages, as extended studies are seen as indicating lower student ability to potential employers (Brodaty *et al.*, 2008).

Regarding explanations for delays in completing studies, aside from obvious reasons related to regulations that allow such extensions, studies suggest that the macroeconomic environment and wage structure also contribute to longer graduation times (Aina *et al.*, 2011; Brunello and Winter-Ebmer, 2003). Specifically, in a challenging macroeconomic setting, limited employment opportunities reduce the motivation to finish studies on time. Similarly, a compressed wage scale leads to lower returns and increases the duration of studies. Other factors include mismatches between students' preferred fields of study and the disciplines they ultimately enroll in (Berlingieri *et al.*, 2023). In Greece, during the economic crisis, the adverse macroeconomic climate helped extend study durations (Galanaki *et al.*, 2025), as the crisis heightened the need for students to support their families financially, while the additional income from an extra year of education also decreased (Cholezas and Kanellopoulos, 2024).

Regarding Greece, the question is whether completing studies would be quicker if student selection were based on different criteria. The government believes the answer is yes and has decided to address delays in study duration by establishing a clear maximum time limit and introducing a grade threshold for university entry. From the 2021 nationwide (Panhellenic) examinations onwards, candidates who score below a specified average in the four nationally examined subjects cannot include that department in their application form. The threshold is set by each university department. The introduction of the Minimum Admission Requirement (EBE) led to a decline in the number of university entrants. Publicly, this is often seen as an increase in unfilled study places. However, what is less acknowledged is that the number of available student places specified by the Ministry does not always match the figures proposed by departments, which are often significantly fewer. Vacant student places are calculated as the difference between admitted students and the entrance quotas set by the Ministry, but not all these places are genuinely vacant, as after implementing the EBE, many departments admit only as many students as they can teach. Furthermore, there is little discussion about how many of the students who were successful in the exams enroll, which affects the

precise vacancy count. There is also ongoing debate about denying students access to higher education without considering whether those who do not meet the EBE would graduate. The first students admitted after the introduction of the EBE could graduate by 2024–25. However, ELSTAT data on graduation rates by department are only available up to 2023–24, making a comprehensive assessment of the EBE's impact challenging. This article aims to systematically present data on available student places, applicants, and admitted students; assess whether the EBE has better aligned students' preferences with the fields of study in which they enroll; and explore whether the decline in applicants is linked to graduation rates within the expected time frame and returns to education.

The remainder of the article is organised as follows: Section 2 briefly explains the current institutional framework for student admission to higher education. Section 3 provides details on the number of available places, applicants, and admitted students in tertiary institutions. Section 4 concentrates on the EBE and vacant student places. Finally, the last section summarises and proposes research questions for further investigation. This article offers an initial approach to the topic, which still requires further systematic study, beginning with the collection and analysis of data that are currently not available in the public domain.

2. Institutional framework for admission to higher education

Currently, third-year students of both general and vocational upper secondary schools (GEL and EPAL) can apply to study in tertiary education establishments by sitting the Panhellenic exams. Additionally, students who have already taken the Panhellenic exams in the past two years can apply based on their original grades. To qualify as applicants, third-year students need to take at least two of the four required subjects for their chosen departments, or two subjects plus a special subject (such as drawing) if necessary. Admissions are organised through four streams which students follow in their final two years of upper secondary school and which determine their exam subjects. Each stream leads to different study fields, although some departments are accessible from multiple streams. Before the Panhellenic exams take place, the Ministry of Education announces the number of available places. Applicants list their department preferences in order of priority, based on their grades in the subjects examined. To be admitted, they must meet or exceed a department-specific threshold, the Minimum Admission Requirement (EBE). The EBE is calculated by averaging all candidates' performances across the four relevant

subjects then multiplying by a coefficient between 0.8 and 1.2. For example, a department with an EBE coefficient of 0.8 might admit candidates scoring up to 20% below the national average. Applicants are admitted to their highest ranked department provided they meet the EBE set by that department. Departments choose the EBE prior to the announcement of the grades.

3. Number of student places, applicants, and successful candidates in higher education 2019-2025

The number of students admitted each year is decided by the Ministry of Education. The Ministry explains that it determines this number after considering the universities' recommendations. Table 1 displays the admissions figures from General Lyceums (GEL) and Vocational Lyceums (EPAL) for the years 2019-2025. Between 2019 and 2021 there were no year-to-year changes in the number of available student places either overall or for individual universities. However, in 2022, one year after the introduction of the EBE, the number of available student places fell by 9,021 (11.7%). This decrease affected all universities except for the Higher Schools of Tourism Education. Nonetheless, not all departments within each university were affected equally; some remained unaffected. The year 2021 marks a turning point. From 2022 to 2025, there are again no year-on-year variations in the number of available student places.

In Table 2, we focus on students in general upper secondary education (day and evening schools) and

record the number of candidates and successful applicants to universities, ASPETE and ASTE, as well as the police, coast guard, fire department, and Merchant Marine Academies (AEN), in each year from 2019 to 2025. In 2019 and 2020, approximately 83% of third-year upper secondary students were admitted to universities. From 2021, following the introduction of the EBE, this percentage fell to around 65%. Less than 1% of students were admitted to ASPETE and ASTE (0.6% in 2019 and 2020 and 0.3% after 2020). The percentage of candidates who entered the police, coast guard, fire department and AEN schools increased from approximately 2.5% in 2019 and 2020 to around 4% since. Table 3 presents the same information as Table 2 for students at vocational high schools (EPAL). This indicates that about 60% of EPAL students are successful in being admitted to higher education institutions including police and coast guard academies. The number of EPAL students succeeding in these schools rises over time, as is the case with GEL students. Around 40% of EPAL students are accepted at university.

As shown in Tables 2 and 3, from 2021 onwards, there is a notable difference between the number of candidates and those who ultimately submit an undergraduate admissions form. Approximately 30% of GEL students and 40% of EPAL students do not submit an undergraduate admissions form. One explanation for this is that candidates who do not meet the stricter admission criteria following the introduction of the EBE do not submit an undergraduate admissions form because, as mentioned earlier, if their grades do not exceed the minimum threshold, they are not eligible. However, another

TABLE 1 Student places in tertiary education, 2019-2025

Academic year	Student places
2019/20	78,335
2020/21	77,970
2021/22	77,415
2022/23	68,394
2023/24	68,574
2024/25	68,851
2025/26	68,307

Note: The data refer to student places allocated to GEL and EPAL students at universities, the School of Pedagogical and Technological Education (ASPETE), and the Higher Schools of Tourism Education (ASTE).

Source: Annual decisions of the Minister for Education.

TABLE 2 Number of candidates and successful entrants to tertiary education from General Lyceums (GEL), 2019–2025

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Current-year GEL students							
-who submitted an undergraduate admissions form	77,728.00	76,411.00	75,435.00	72,012.00	73,222.00	74,847.00	73,941.00
-who were admitted to universities	NA	NA	52,528.00	51,469.00	52,727.00	54,713.00	53,455.00
-who were admitted to ASPETE and ASTE	64,506.00	64,129.00	47,935.00	46,764.00	48,035.00	49,170.00	49,030.00
-who were admitted to police academies, coast guard academies, the fire academy, merchant marine academies	540.00	528.00	220.00	251.00	196.00	232.00	242.00
	1,897.00	2,296.00	2,266.00	2,548.00	2,606.00	2,769.00	2,749.00
Total successful candidates out of the current-year GEL students	66,943.00	66,953.00	50,421.00	49,563.00	50,837.00	52,171.00	52,021.00
Success rate (% of the total number of candidates)	86.12	87.62	66.84	68.83	69.43	69.70	70.35
Success rate (% of candidates with an undergraduate admissions form)	ND	ND	95.99	96.30	96.42	95.35	97.32
GEL candidates who graduated in the previous two years	14,035.00	13,229.00	9,511.00	9,674.00	6,739.00	7,272.00	6,367.00
-who submitted an undergraduate admissions form	NA	NA	9,481.00	9,674.00	6,739.00	7,272.00	6,367.00
-who were admitted to universities	6,955.00	6,867.00	5,807.00	5,393.00	4,395.00	4,417.00	4,209.00
-who were admitted to ASPETE, ASTE	60.00	60.00	39.00	27.00	29.00	22.00	29.00
-who were admitted to police academies, coast guard academies, the fire academy, merchant marine academies	203.00	252.00	270.00	296.00	239.00	269.00	247.00
Total successful candidates out of the GEL candidates who graduated in the previous two years	7,218.00	7,179.00	6,116.00	5,716.00	4,663.00	4,708.00	4,485.00
Success rate (% of the total number of candidates)	51.43	54.27	64.30	59.09	69.19	64.74	70.44
Success rate (% of candidates with an undergraduate admissions form)	ND	ND	64.51	59.09	69.19	64.74	70.44

Note: NA = Not available. ND = Not defined. For 2019 and 2020, to the best of our knowledge, there is no data on the number of candidates with an undergraduate admissions form. As a result, some of the calculations were not possible.

Source: Ministry of Education Press Releases.

TABLE 3 Number of candidates and successful entrants to tertiary education from Vocational Lyceums (EPAL), 2019–2025

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Current-year EPAL students							
-who submitted an undergraduate admissions form	NA	14,201.00	16,655.00	15,138.00	15,350.00	15,569.00	14,696.00
-who were admitted to universities	10,850.00	NA	10,481.00	9,781.00	9,352.00	9,782.00	8,943.00
-who were admitted to ASPETE and ASTE	5,542.00	6,038.00	5,355.00	5,004.00	5,014.00	4,999.00	4,819.00
-who were admitted to police academies, coast guard academies, the fire academy, merchant marine academies	122.00	131.00	135.00	95.00	98.00	98.00	99.00
	299.00	438.00	581.00	620.00	634.00	758.00	754.00
Total successful candidates out of the current-year EPAL students	5,963.00	6,607.00	6,071.00	5,719.00	5,746.00	5,855.00	5,672.00
Success rate (% of the total number of candidates)	ND	46.52	36.45	37.78	37.43	37.61	38.59
Success rate (% of candidates with an undergraduate admissions form)	54.96	ND	57.92	58.47	61.44	59.85	63.42
EPAL candidates who graduated in the previous two years							
-who submitted an undergraduate admissions form	1,350.00	1,579.00	1,867.00	2,481.00	1,896.00	1,394.00	1,511.00
-who were admitted to universities	ND	ND	1,855.00	2,481.00	1896.00	1,394.00	1,511.00
-who were admitted to ASPETE, ASTE	533.00	616.00	572.00	618.00	628.00	605.00	594.00
-who were admitted to police academies, coast guard academies, the fire academy, merchant marine academies	8.00	11.00	7.00	10.00	10.00	9.00	12.00
	31.00	47.00	52.00	56.00	66.00	64.00	64.00
Total successful candidates out of the EPAL candidates who graduated in the previous two years	572.00	674.00	631.00	684.00	704.00	678.00	670.00
Success rate (% of the total number of candidates)	42.37	42.68	33.80	27.57	37.13	48.64	44.34
Success rate (% of candidates with an undergraduate admissions form)	ND	ND	34.02	27.57	37.13	48.64	44.34

Note: NA = Not available. ND = Not defined. For 2019 and 2020, to the best of our knowledge, there is no data on the number of candidates with an undergraduate admissions form. As a result, some of the calculations were not possible.

Source: Ministry of Education Press Releases.

TABLE 4 Distribution of admitted candidates by the preference ranking of the department in which they were admitted

Preference ranking	2019	2025
1	21.6	35.9
2	12.6	19.7
3	9.4	12.5
4	7.6	8.8
5	5.9	5.7
6	5.0	4.1
Other	37.9	13.3

Source: Ministry of Education Press Releases.

explanation concerns the reduced returns to education observed after the economic crisis (Cholezas and Kanellopoulos, 2024). In other words, the data show that after the crisis, the additional income from each extra year of education is lower than before. Investigating the significance of each explanation requires, *inter alia*, detailed information on the grades of students who did not ultimately submit an admissions form.

Although we do not yet have data to determine whether students admitted under the new entry system will complete their studies more quickly, we know from students' preference declarations that a significantly higher percentage of admitted students entered their first-choice departments.

Table 4 shows the distribution of successful candidates by their preferred department of admission. In 2019, before the implementation of the Minimum Admission Requirement (EBE), only 21.6% of all successful candidates were admitted to their first choice. By 2025, this percentage had increased by nearly 15 points to 35.9%.

Research indicates that enrolling in a department where students genuinely wish to study leads to better academic outcomes (Berlingieri *et al.*, 2023; Nicolitsas, 2017). In Greece, the proportion of students in each department who study beyond the minimum required duration is negatively linked to the proportion of students who ranked that department among their top three choices (Nicolitsas, 2017). This negative relationship becomes even more evident when the proportion of students expressing a preference for the department (as their first, second, or third choice) exceeds 50%. The reason for this negative relationship is that students

admitted to a department that was among their top preferences tend to have greater motivation, stronger willingness, and skills better suited to that department, enabling them to complete their studies more rapidly.

4. Minimum admission requirement and vacant places in Universities

As mentioned in Section 2, from 2021 onwards, the Ministry of Education has instructed each department to assign a coefficient for calculating the Minimum Admission Requirement (EBE). The coefficient should range between 0.8 and 1.2. The distribution of EBE coefficients across the 456 departments, including military, police, and fire academies, for 2025 is shown in Table 5. It indicates that 14.4% of departments chose an EBE coefficient of 1, 33.6% selected a coefficient greater than 1, and the remaining 52% (i.e., 237 departments) chose a coefficient less than 1.

Approximately 30% of the departments (133 departments) are former Technological Educational Institute (TEI) departments. Among these, 70% (i.e., 93 departments) selected an EBE below 1.

The implementation of the EBE from 2021 onwards was accompanied by vacant student places at universities. This sparked public debate about the sustainability of departments with small enrollments. In 2022, 61 of the 456 departments had vacant places. About one-third of the departments with vacant places were former TEI departments. The median percentage of vacant places, relative to total available places in departments with vacancies, was 33%.

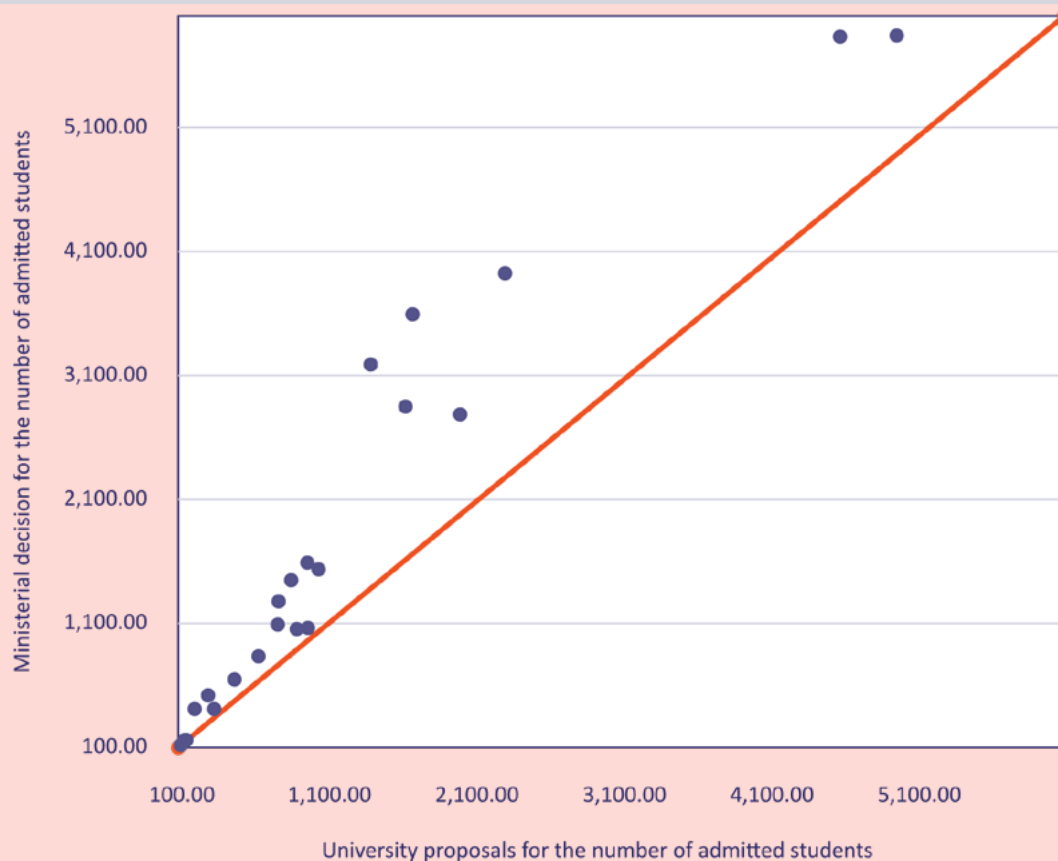
TABLE 5 Distribution of departments by EBE, 2025

EBE	% of departments
0.80	41.0
0.85	2.9
0.86	0.2
0.88	0.2
0.90	6.8
0.95	0.9
1.00	14.4
1.05	1.3
1.10	2.9
1.15	0.4
1.18	0.2
1.20	28.7

Source: Ministry of Education Press Releases.

FIGURE 1

Ministerial decision and university proposals for the number of admitted students, average of 2009 and 2010

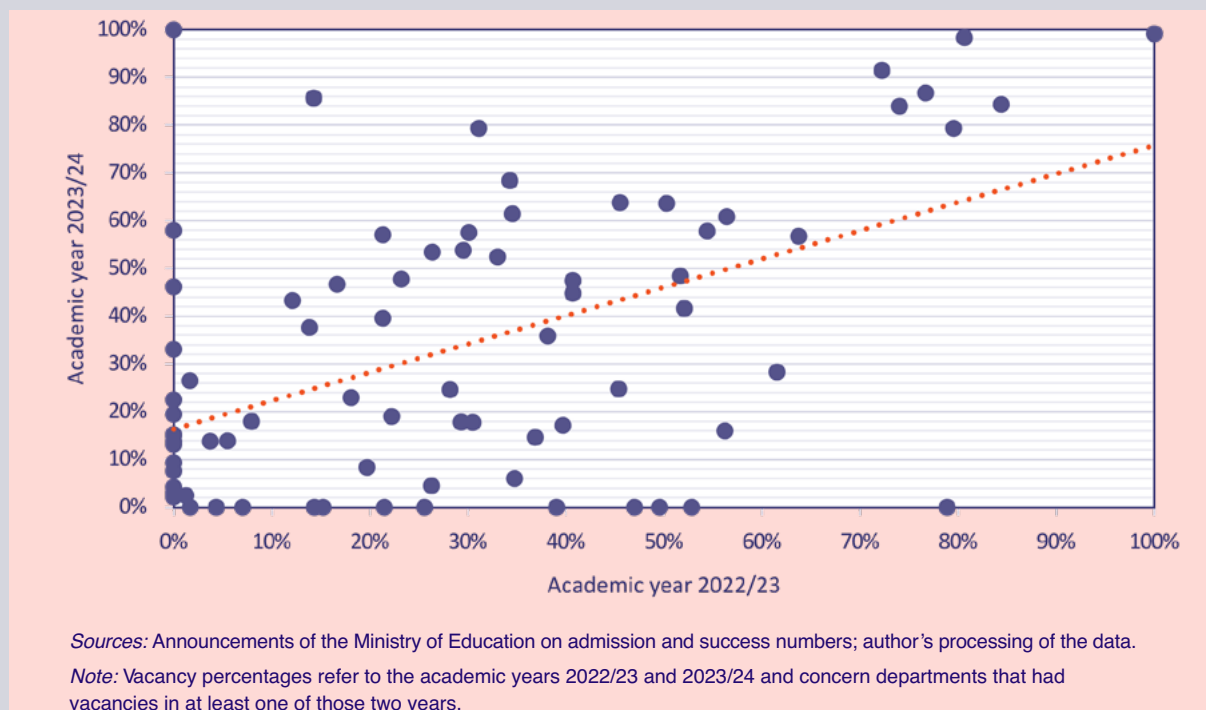


Source: Ministry of Education, Examinations Directorate.

Note: The data refer to the 22 universities in the country in 2009 and 2010.

FIGURE 2

Vacant student places as a percentage of available student places by department in departments with vacant places



However, defining a university place as “vacant” is not entirely straightforward for at least two reasons. First, as already mentioned, before the introduction of the EBE, most university departments requested fewer incoming students from the Ministry than the number ultimately decided by the Ministry, at least when university funding was not strictly linked to student numbers. Systematic data on the number of places requested by departments are not available; however, older Ministry data from 2009 and 2010 (shown in Figure 1) indicate that, at the university level, all 22 universities proposed lower admission numbers than those decided by the Ministry. Therefore, calculating vacant places based on the Ministry’s decision overestimates vacancies. This is especially evident in departments that require examinations in special subjects (e.g., Italian language), where the number of candidates sitting the exam is much lower than the number of student places set by the Ministry of Education.

Second, we do not know the counterfactual; places might have remained vacant even without the EBE, as departments with vacancies tend to rank low in students’ preferences. Even if some students were admitted to these departments, in practice, very few might have enrolled. An analysis of candidate preference data and vacant places for the years 2022–2025,

conducted in preparation for this article, shows that departments with a high percentage of students selecting them as their first preference have no vacant places. Conversely, departments with high vacancy rates were not chosen among students’ top preferences. This negative correlation between preferences and vacant places indicates that places remained unfilled due to insufficient demand.

There are no recent studies on Greece that measure returns to education by field of study. An earlier study by Livanos and Pouliakas (2011) shows that the highest returns are in medical studies, followed by computer science, law, and engineering/polytechnic fields. The lowest returns are among graduates in humanities, agricultural studies, and physical education. Data on vacant student places reveal that there are no vacancies in medical or law schools, while some engineering departments outside major cities have openings, as do certain information technology and computer science departments. Given the strong labour market demand for engineering and computer science graduates, the question arises as to why these departments are not more appealing to upper secondary school students. One explanation suggested by the data is that departments located far from major urban centres are less attractive due to

high living costs, which diminish the private returns to education. Another reason involves comparisons not only across fields of study but also between higher education and alternative options that require less effort from students.

Generally, however, departments have not used their experience from the first four years of EBE implementation to revise the coefficient they initially set. As shown in Figure 2, there is a positive correlation in vacancy rates between the two consecutive academic years (2022/23 and 2023/24). Nonetheless, some departments reduced their EBE coefficient, which was accompanied by a decrease in, or even the elimination of, vacant positions (e.g., the Department of Social and Educational Policy at the University of the Peloponnese). In some instances (e.g., speech therapy departments), vacancies occurred in one year, but not the next, as departments in the same field merged, thereby reducing the total available places in that discipline. There are also cases where, despite an unchanged EBE, departments experienced vacancies in one year but not the next, or *vice versa*. In departments with a small number of incoming students (e.g., Surveying and Geomatics Engineering), even minor changes in the absolute number of admitted students appear as significant vacancy percentages.

5. Summary and Conclusions

The above provides an initial overview of data on the number of student places, applicants, and successful candidates following the 2021 changes in access to higher education. The lack of data on students' academic progression prevents an assessment of these changes, and data on the graduation rates of students first admitted under the new system have not yet been published by the Hellenic Statistical Authority (ELSTAT).

The main conclusion from the data is that the number of students submitting admissions forms has decreased considerably, though it is uncertain whether this is solely due to the introduction of the Minimum Admission Requirement (EBE). The discussion about the EBE leading to vacant places in universities may be misleading, as it is unclear whether the number of vacant places is overstated and whether vacancies mainly reflect student preferences, since students do not choose these departments. However, given existing job vacancies and the difficulties businesses face in finding skilled higher education graduates in many fields, better planning and coordination are required to avoid maintaining "vacant" places in courses that no longer attract demand and to increase supply in others.

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