

Makantasi, Evmorfia; Valentis, Helias

Article

Greece's economic odyssey: Persistent challenges and pathways forward

Economies

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Makantasi, Evmorfia; Valentis, Helias (2024) : Greece's economic odyssey: Persistent challenges and pathways forward, *Economies*, ISSN 2227-7099, MDPI, Basel, Vol. 12, Iss. 6, pp. 1-40,
<https://doi.org/10.3390/economies12060139>

This Version is available at:

<https://hdl.handle.net/10419/329065>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Review

Greece's Economic Odyssey: Persistent Challenges and Pathways Forward

Evmorfia (Fay) Makantasi * and Helias Valentis 

diaNEOsis, 15125 Marousi, Greece

* Correspondence: fay.m@dianeosis.org; Tel.: +30-213-0023-000

Abstract: Two years after the COVID-19 pandemic, the Greek economy seems to have overcome the turmoil of the pandemic crisis as well as that of the following energy crisis. Nevertheless, it would be wrong to assume that the Greek economy has returned to a sound state, since this was not really the case even before the pandemic. Furthermore, the anemic growth rates of the pre-pandemic period were followed by an equally weak average growth rate (including the impact of the pandemic), as some of the significant fundamental weaknesses of the Greek economy, which had accumulated over time and constituted the real origin of the Greek crisis, have not been properly addressed yet. This paper attempts a complete mapping of the current state of the Greek economy, offering an insight into the external and internal determinants affecting it.

Keywords: Greece; Greek economy; Greek crisis; Greek debt; Greek competitiveness; development policy; investment strategy; eurozone

1. Introduction

In 2023, the Greek economy seems to have had a satisfactory registered growth (of 2.2%, according to the latest¹ European Commission (EC) estimates², [European Commission and Directorate-General for Economic and Financial Affairs \(2023b\)](#)), especially given the adverse timing on an international financial level. The rapid recovery following the pandemic crisis lost its momentum due to disruptions in the supply chain and the energy market, which, combined with the significant geopolitical instability, resulted in the considerable deceleration of most great developed economies, in combination with very high inflation rates. As the monetary authorities set monetary stability as their top priority, they were obligated to function restrictively by increasing the key interest rate level immediately and drastically, instead of functioning invigoratingly for their economies in a period of trends towards a recession.

This is the case to a considerable extent with the eurozone, with significantly adverse consequences for Greece. The Greek economy finds itself much farther from regularity in relation to the rest of the EU and eurozone economies as a result of an intense debt crisis that led to three successive bailout programmes³ and the adoption of extreme fiscal austerity measures, resulting in a very deep and lasting economic recession. Since it is the only economy among the EU and the eurozone that has not yet recovered from the great economic crisis of the previous decade (by the end of 2023, it is estimated that it was at −18.4% of the 2008 GDP in real terms), it becomes clear that it is in the greatest need of faster economic growth. This presupposes a rapid investment rate, which is rendered considerably harder by the restrictive monetary policy. It is noted that, in the 2010–2021 period, Greece suffered a cumulative loss of standard capital amounting to EUR 94 bn. This loss must be replenished so that the country's production possibilities can at least be restored to those before the crisis.

Contrastively, the influx of very significant European resources by Next Generation EU (NGEU), to the extent that they are directed towards an investment activity and mobilize



Citation: Makantasi, Evmorfia (Fay), and Helias Valentis. 2024. Greece's Economic Odyssey: Persistent Challenges and Pathways Forward. *Economies* 12: 139. <https://doi.org/10.3390/economies12060139>

Academic Editor: Kamal P. Upadhyaya

Received: 22 March 2024

Revised: 29 April 2024

Accepted: 15 May 2024

Published: 4 June 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

adequate, additional, private resources towards investments, can neutralize the negative impact of the restrictive monetary policy over the financing terms. The considerably increased incoming flow of foreign direct investments (FDIs) as well as the creditworthiness upgrade of the Greek state on an investment level are significantly helpful in the aforementioned process. This upgrade substantiates the depletion of the idiosyncratic risk of the Greek economy and also releases considerable investment resources from systemic investors. Many of the aforementioned factors, however, have served as a policy alibi for not prioritizing all the necessary structural changes and reforms required so that the Greek production and development model can be purged. In any case, this will involve a considerably demanding struggle that will last many years and necessitate constant effort as well as alertness to achieve a rapid readjustment to any unexpected development.

Therefore, this paper attempts to provide a thorough and cohesive mapping of the present state of the Greek economy as well as of the risks and opportunities involved in its course in the immediate future and aims to shed light on all the fields that have margins for improvement or are in need of it⁴.

2. The Magnitude of the Greek Economic Crisis

The impact of the COVID-19 pandemic on various economies is clearly evident. Initially, there was a necessary shutdown in the production process of many goods and services—including many intermediate goods and services that constitute a crucial influx into other sectors—due to personnel infections, the border being shut down for long periods of time and the quarantine on means of transport (e.g., the cargo ships at their first port of call of every additional country during their voyage). Subsequently, there was a disruption in the supply chain and the added value chain, concerning the majority of end products, as well as a sudden and unprepared transition to teleworking for many employees and other factors that made the aggregate supply suffer from a significant global negative shock. At the same time, the restrictive measures for the pandemic to the extent that they also restricted the consumption behavior (confinement to the house, the shutdown of specific shops, the border shutdown, quarantine, etc.) alongside the atmosphere of uncertainty regarding the citizens' financial/work status or their health, made the aggregate demand suffer from an equally significant global negative shock as well. These bilateral negative shocks resulted in a deep and sudden recession in 2020 for all the world's economies and the ones more prone to external trade were more severely struck.

According to the quarterly data, it seems that the Greek as well as the global economy had already fully recovered from this recession since the beginning of the third quarter of 2021 (2021-Q3) despite the fact that there was still a considerable degree of uncertainty regarding the course of the pandemic crisis and due to several new focal points of risk, such as the energy crisis and the global inflation wave. However, it would be wrong to assume that, after the pandemic and all the aforementioned uncertainties, the Greek economy has returned in a good state, as this was not really the case before the pandemic, either.

We often refer to the Greek economic crisis that started in 2009 as a past state, which, depending on the narrator, lasted until 2016, 2018 or 2019. The truth is, though, that the Greek economy never exited this crisis. On the contrary, when the pandemic started, it was still approximately 25% below its level of economic activity in the distant 2008. As becomes apparent in Figure 1, although Greece escaped the considerably negative growth rates after 2013, its economy was in a virtual standstill until 2016 (with an average annual growth rate of -0.07%) and then it “paddled along” and grew slightly for 3 years (with an average annual growth rate of only 1.55%) until the advent of the pandemic crisis. As a result, when the pandemic struck at the beginning of 2020, the Greek economy registered at -23.1% of the 2008 GDP and lacked substantial, developmental “momentum”. The 2020 pandemic recession was very deep (-9.3%)—as a matter of fact, it was the second deepest in the EU-27—but it proved to be temporary. The bouncing of the economy occurred instantly in 2021 (with a full recovery until 2021-Q3) and was followed by a considerable growth rate in 2022 as well, which can be partly explained in terms of base impact, for the first half of 2022

(until 2022-Q2) when compared with the first half of 2021. Thus, the post-pandemic growth rate of the Greek economy appears to be among the highest in the EU-27 (an average annual rate at 6.96%, which is the fifth greatest performance within the EU). Nevertheless, to a considerable degree, this is due to the previous 2020 recession, which was also one of the biggest in the EU-27. If one includes the pandemic period, it becomes clear that, by the end of 2022, the Greek economy had cumulatively grown by 3.74% since 2019 (with an average annual rate of 1.23%). This performance ranks 18th in the EU-27. At the same time, Greece stands much farther from its long-lasting balance, in comparison with the rest of the EU countries. According to the latest EC ([European Commission and Directorate-General for Economic and Financial Affairs \(2024\)](#)) estimates, the actual Greek GDP grew further by 2.2% in 2023, and as a result, it now registers at −18.4% of the 2008 GDP level, whereas by the end of 2025 it will have exceeded the −15% level.

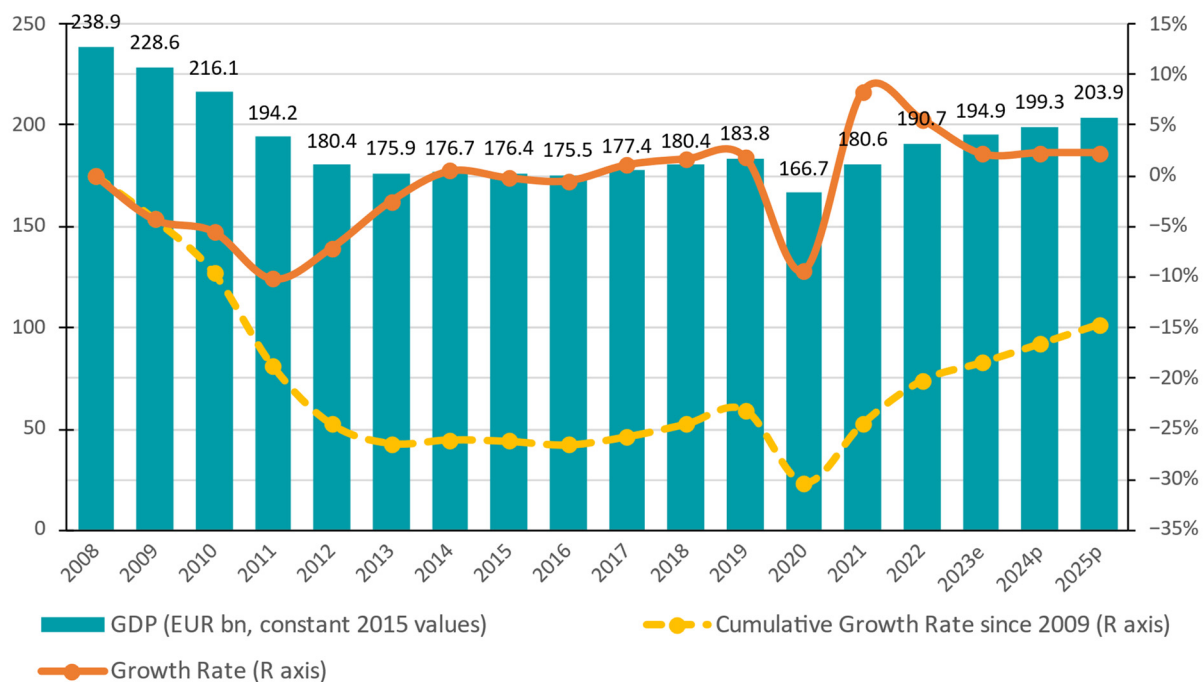


Figure 1. GDP and growth rate. e = estimation; p = forecast. Source: Eurostat and European Commission (AMECO), diaNEOsis editing.

It becomes clear from the aforementioned rates that the Greek economic crisis by no means belongs to the past. On the contrary, the Greek economy still has to come a very long way.

The true components of the GDP are none other than the added value contributed by every business in the country during a specific year. Consequently, a decrease in GDP is caused by a reduction in the added value of the country's businesses, leads to a reduction in the products available for every use and, thus, a consequent decrease in social welfare. Therefore, such a significant and sustained decrease in GDP can only register, in product value terms, accordingly dramatic alterations in the microeconomy (the finances of every business and every household), employment, real income, social prosperity and social coherence. Indicatively, Figure 2 presents the repercussions of the aforementioned GDP course, in terms of total and long-term unemployment.

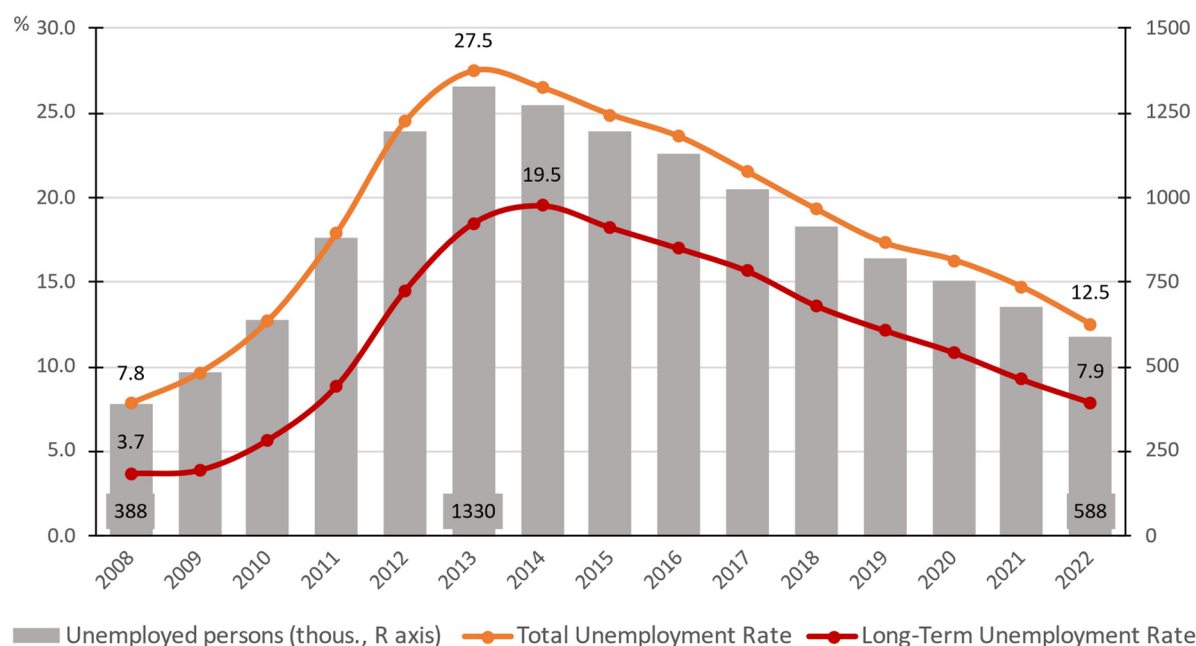


Figure 2. Total and long-term unemployment. All rates are expressed in terms of the total workforce. Long-term unemployed are those who remain unemployed for 12 months or more. Source: Eurostat (Labor Force Survey).

It is clear that unemployment skyrocketed by almost 20 percentage points (pp) from 2009 to 2013, as the GDP was shrinking dramatically. This added approximately 1 million unemployed people. Since then, unemployment has de-escalated, but at a very slow rate (an average annual decrease of 1.67 pp or ~82,500 people). This rate seems to have been affected by the pandemic only marginally and temporarily. In accordance with the latest available annual data, in 2022, unemployment remained at over 12.5% (the second highest rate in the EU, after Spain at 12.9%), the total number of unemployed people exceeding 588,000. Another phenomenon that gives rise to serious concern is the portion of the long-term unemployed (that is, those who have been continuously out of work for over 12 months) in the total number of unemployed. Whereas fewer than half of the people out of work were long-term unemployed in 2008, in 2014, they became almost three-quarters of the total number. Subsequently, their numbers decreased, but their portion remained at over 70% in 2019 and over 63% in 2022. The estimate and the recording of the consequences of long-term unemployment on individuals and societies do not lie within the scope of the present paper, but it is obvious that this specific social group, and especially its portion that remain unemployed for much longer than 12 months, deserve special solicitude from the state.

It is a particularly common misconception to view the Greek economic crisis as a subcase of the global financial crisis of 2007–2008 or as a simple case, albeit with certain peculiarities, of the frequent inherent circularity that is common in all the world's economies. On the contrary, the "Greek crisis" is a distinctive situation, prompted by the global financial crisis of 2007–2008, but caused by significant accumulated and fundamental weaknesses of the Greek economy, which deteriorated considerably, evidently, because of the very poor political and economic treatment that it received. As depicted in Figure 3, the Greek crisis is one of the deepest and longest economic crises of a developed economy in modern history, if not the deepest and longest. The "Great Depression" of 1929 in the USA caused more intense recession rates during the first 4 years, but the cumulative recession did not exceed 26.3% and the economic activity returned to pre-recession levels by 1936. The United Kingdom, in its deepest recession in modern history, suffered the greatest, cumulative loss of 14.9% in the period after the First World War (1920–1924) and returned to pre-recession levels within 5 years.⁵ The widely known recession in Argentina started in 1999 and the

cumulative loss of real GDP did not exceed 18.4%, whereas it surpassed pre-recession levels within 6 years. Subsequently, the Argentinian economy grew at the fastest pace. In contrast with the aforementioned cases, Greece suffered cumulative losses in terms of real GDP that exceeded 26% (26.38% in 2013), as opposed to the level before the crisis and it still registers cumulative losses at over 18.5% to the present day.⁶ Regarding the European economies that entered recession at the same time as Greece, due to the financial crisis of 2007–2008, it is clear from the data that the depth of their recessions is not at all comparable with the case of Greece. Only the Italian economy manifests prolonged recession and—like the Greek economy—still registers anemic recovery rates. The case of Ireland is particularly interesting, as its course was similar to the course of Greece in the first 2 years of recession, with a maximum cumulative loss of 9.4%. However, it stabilized immediately afterwards, and by mainly exploiting foreign direct investment, it exceeded the pre-crisis levels of economic activity within 6 years and has achieved explosive growth since then.⁷

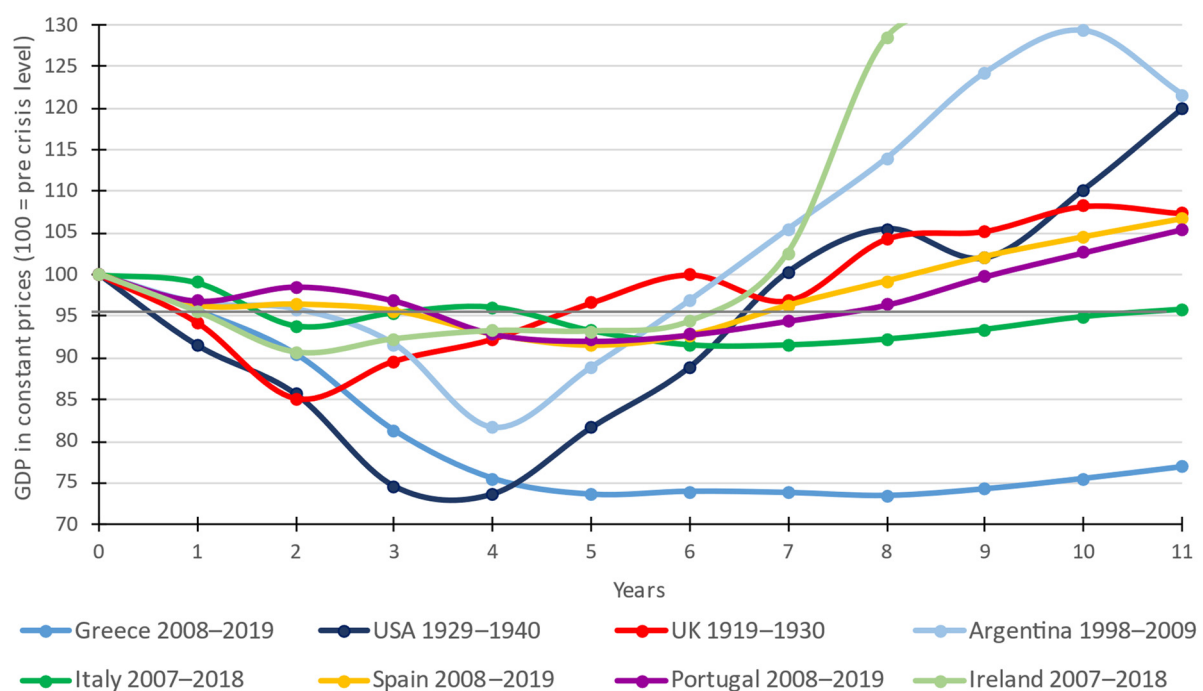


Figure 3. The Greek crisis vs other major economic crises. Sources: Eurostat, Bureau of Economic Analysis (USA), World Bank, Federal Reserve Bank of St Louis.

The important question raised at this point is why the Greek economy appears to have such a great difficulty in recovering from this economic crisis, which lasted over a decade, as opposed to its immediate recovery in 2021, after the severe recession of 2020, though in the midst of uncertainties due to the continuing pandemic, and contrary to all the other aforementioned cases of countries. To start with, the performance of the Greek economy, as it becomes apparent from the course of its real GDP and the rest of its qualitative and quantitative features, bears no resemblance to the usual recurrent recessions that appear during the economic cycles. On the contrary, it exhibits the features of a rather permanent, violent correction—downwards—because of fundamental, systemic and structural weaknesses,⁸ which were possibly exposed to the financial markets due to the financial crisis of 2007–2008. These weaknesses include the distorted and state-funded production model, the deficit in competitiveness, the vast public debt, the unfair and ineffective tax system, the deficient and non-transparent capital market, the unsustainable public insurance system, the distorted savings and investments model, the extremely tardy administration of justice combined with the existence of an excessive number of—in many cases contradictory—laws and poor legislation, the cumbersome bureaucracy, the quality

of the political system, etc., many of which have not yet been fully dealt with, despite the important efforts made.

To many people, the slowness of the Greek economy to contain the economic shrinkage and the anemic growth that it subsequently exhibited are due to the fiscal policy of strict austerity followed. If a significant fiscal extension had been permitted, even temporarily, during the first years of the economic crisis, the outcome would have been completely different. Although this is a valid claim, it excludes the need to correct the aforementioned weaknesses and does not include the fact that the public debt crisis is one of the main components of the Greek economic crisis. The degrees of freedom in fiscal policy had already been lost before the Greek economy reached its lowest point, while the external factors that now defined the fiscal policy ultimately aimed at making an example out of Greece for other European countries and not at the recovery of the Greek economy. The political timing, mainly at a European level, during which the Greek crisis occurred, clearly constitutes an important factor in its course. However, it remains an absolute fact that it is imperative for Greece to deal with the aforementioned fundamental, systemic and structural weaknesses.

Another aggravating circumstance, usually ignored in public discourse, is the fact that the very depth of a recession and, primarily, its duration become preventive factors for recovery possibilities. The reduction in the whole production of an economy is by definition equivalent to a corresponding—but not necessarily proportional—reduction in the use of its resources. These resources include the available raw materials, the soil, the physical capital as well as labor. Under the—plausible, in the case of Greece—hypothesis that the prior state of the economy was not a in state of overuse of its resources, a recession would clearly cause a corresponding underutilization of such resources. A severe and/or persistent underutilization of capital resources devalues them due to the increased actual depreciation of physical and human capital⁹ and provides incentives for their transfer elsewhere, which results in the loss of these resources in the economy under recession¹⁰. To put it briefly, if, for some reason, the total product of an economy is much and/or for too long less than its potential product, then its potential product tends to decrease and, as a consequence, the development prospects of this economy are also reduced. There is no doubt that this mechanism has operated in the Greek crisis. The so-called “brain drain” is a well-known issue, but it is not equally perceived that it is only a part of a broader problem of devaluation and outflow of disposable resources, as well as that this has already negatively influenced the growth prospects of the Greek economy. It is worth noting that for the half a million young and educated people who left the country in 2008–2016, the Greek state is estimated to have invested EUR 8 billion in their education, while their host countries gained EUR 50 billion in GDP and EUR 12.9 billion in public revenues.¹¹

3. The Effects of the Crisis on Disposable Income

During the Greek economic crisis, the average Greek citizen had to face the increase in average taxation, apart from their reduced average income, due to the strictly restrictive fiscal policy. It is indicative that, while from 2008 to 2016 the loss of the country’s GDP was at 27%, the corresponding loss in the total tax revenue of the state was at only 7%, in accordance with a relevant study by diaNEOsis ([diaNEOsis and IOBE \(2018\)](#)). The obvious cause of this discrepancy is the dramatic increase in taxation. In an attempt to examine the overall impact of recession and over-taxation on the average Greek, we carried out the exercise of subtracting per capita taxes and compulsory social security contributions from per capita domestic income. The combined results appear in Figure 4, in constant 2015 values and in juxtaposition with the individual per capita consumption.

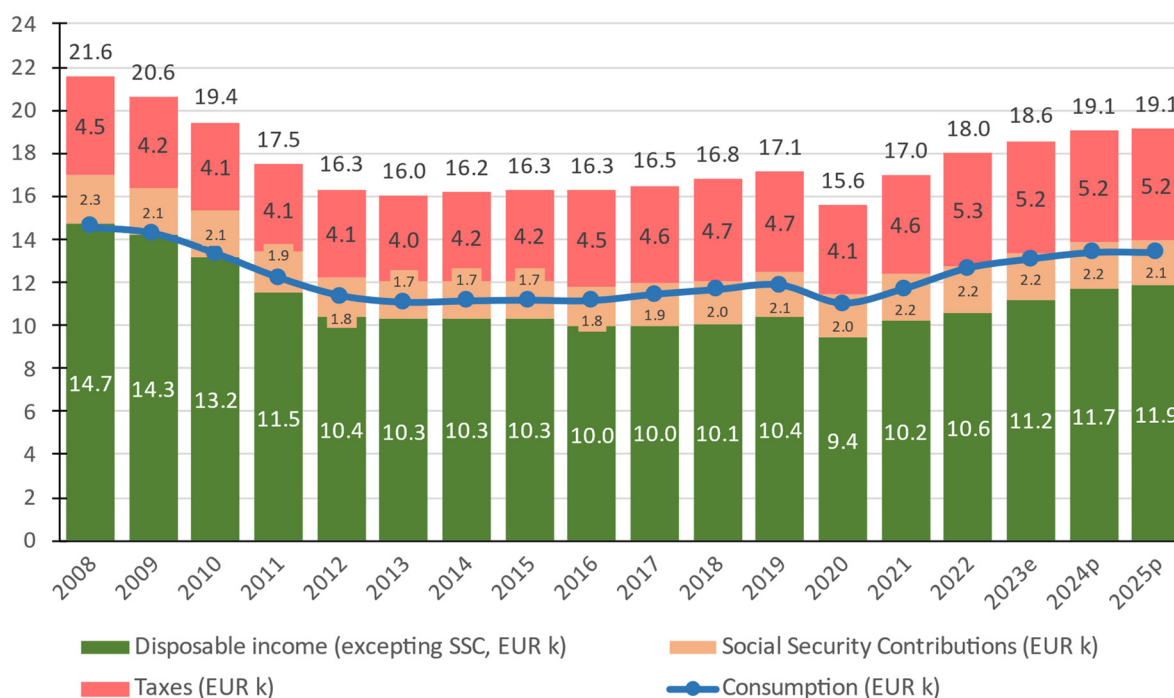


Figure 4. Per capita disposable income, taxes and SS contributions vs consumption. In constant 2015 values. e = estimation, p = forecast. Source: European Commission (AMECO), diaNEOsis editing.

It is absolutely clear from the results that the tax policy became an additional aggravating factor for the average Greek citizen, while their income was depressed by the severe recession. More precisely, from the end of 2008 to the end of 2013, when the average domestic income was reduced by 25.6%, the average disposable income was reduced by an additional 4.5 pp (30.1%). The total of per capita taxes and contributions amounted to 31.8% of the domestic per capita income in 2008, but, in 2013, this ratio had risen to 35.9%. After that, an increase in average income by 6.9% was rendered possible by the slow growth of the Greek economy until 2019, but the average disposable income remained almost stable (with an increase of approximately 0.8%), as the average share of taxes and contributions on the analogy of the income had already reached 39.5%. Therefore, in the complete course of the Greek economic crisis, the tax policy further aggravated the already sharply decreasing per capita incomes, during the shrinkage phase, and it absorbed every profit, during the slow growth phase. In the pandemic of 2020, the share of taxes and contributions remained stable (at 39.5%) and, thus, the significant reduction in per capita income was transferred proportionally to disposable income (with a reduction of −9.1% in both). During the recovery years after the pandemic recession (in 2021 and 2022), the considerable growth in average income was combined with the share of taxes and contributions, which was on the increase and reached 41.4% in 2022. As a result, the increase in disposable per capita income was mitigated. The estimated course of these figures in the following years is encouraging. By 2024, the disposable per capita income is expected to exceed its 2011 level for the first time in 13 years and the share of taxes and contributions on total income is estimated to continue decreasing.

It is of particular interest to juxtapose the aforementioned data with per capita final consumption. As the Greek pension system is primarily redistributory, the greater part of social security contributions is returned to the private economy as pensioners' income. For this reason, the individual consumption should be compared with the disposable income with contributions (the sum of the green category and the orange one, in every bar, in Figure 4).¹² This specific comparison is revealing not only regarding the course of the average Greek person's margin for saving, but also concerning the domestic market ability to hope for invigorated consumption. The average share of consumption expenditure on

disposable income with contributions rose to 96.2% in 2018 from 85.6% in 2008. Respectively, the remaining average saving dropped from EUR 2449 in 2008 to only EUR 455 in 2018, which is less than one-fifth of its initial level. In 2019, the situation was marginally improved (at 95.2% in terms of average consumption share on disposable income with contributions and EUR 596 remaining income). This changed, however, in 2020 (96.1% and EUR 443, respectively) due to the severe shrinkage in average disposable income. Despite the additional significant disruption in consumer behavior in 2020, because of exogenous restrictions on the range of consumer choices, caused by the lockdowns and due to the significant increase in economic uncertainty on the consumers' part (reduced consumer confidence), the independent consumption and the phenomenon of consumption smoothing led to a fairly smaller alteration in the average consumption. This was probably also the result of the very important counterbalancing state subsidies given to households and businesses. Since then, the average individual consumption growth rate has been observed to marginally exceed the alteration rate in average disposable income with contributions. As a result, its share is estimated at 98% in 2023 and the average saving from the remaining income amounts to EUR 261.¹³ In conclusion, it becomes clear that there is no space for stimulating domestic demand via increasing domestic consumption spending, as the latter is actively limited by disposable income, combined with the additional negative impact on savings, which are completely depressed. The reinforcement of disposable income constitutes an obviously deliberate goal, which, however, is a rather unrealistic measure for stimulating domestic demand.

4. The Production Structure of the Greek Economy

Before investigating which available options would be really effective for the reinforcement of the Greek economy, it is worth examining to what extent the Greek economic crisis exerted a uniform influence over its separate sectors or whether there was considerable asymmetry among the burdens involved. To this end, we grouped all Greek economy sectors for which there are gross value added (GVA) data in 14 initial categories¹⁴. Figure 5 depicts the contribution of each one of these groups to the Greek total GVA, during the years 2005–2020, and the total GVA value, in these years, in constant 2015 values.

To begin with, we can observe a period of sharp total GVA reduction, from 2008 to 2014 (with an average annual reduction rate of 4.4%), and a period of very slow growth, in the years 2015–2019 (with an average annual growth rate of only 0.7%). During the overall period of 2007–2019, the total GVA was reduced by 21.2% or EUR 43.5 billion, in constant 2015 values.¹⁵ What is more, according to individual data, the economic crisis seems to have caused significant structural changes in the Greek economy. In 2007, the three primary sectors were the following: 1. wholesale and retail trade (with a 14% share), 2. manufacturing (at 11.9%) and 3. real estate activities (at 10.4%). In 2019, the three more important sectors remained the same, but with quite differentiated shares and in a different order: 1. real estate activities (at 17.5%), 2. wholesale and retail trade (at 11.7%) and 3. manufacturing (at 10%).

More specifically, from 2007 to 2019, the construction sector suffered a dramatic shrinkage in its GVA by almost 70%—a percentage change more than triple than the total GVA—and, as a result, its share was greatly reduced. The professional and administrative/support service activities sector also performed similarly, to a somehow smaller degree, as it was reduced by 43.2%—which was more than double the alteration of the total GVA. Other sectors that registered percentage reduction greater than the corresponding reduction in total GVA, and therefore exhibited reduced shares in Greek production, were classified in the following order: 1. human health and social work activities (at −37.7%), 2. wholesale and retail trade (at −37.2%), 3. manufacturing (at −36.3%), 4. transportation and storage (at −36%) and 5. the sector of public utility service provision (energy (excluding oil products), water and telecommunications, at −35.5%). At the very opposite end, three sectors not only registered increased relevant shares in the Greek economy, but also exhibited increased GVA. The top performing sector was real estate activities, which increased its GVA by 32.6%

(or EUR 7.1 billion). The agricultural sector (agriculture, forestry and fishing) followed with a 25.8% increase (or EUR 1.5 billion) and then the sector of accommodation and food service, with an increase of 6.6% (or EUR 650 million). It should be noted that the accommodation and food service sector constitutes a superset of the tourism sector, transportation excluded. Unfortunately, there are no open data available for its further division nor for the division of the transportation sector into passenger transfer and transportation of goods, so tourism cannot be analyzed in more depth. Under the plausible hypothesis that tourist transfer does not generate a particularly large GVA in Greece¹⁶ and, surely, this does not exceed the GVA created in food service by customers who are not tourists, it is deduced that the direct effect of tourism on the Greek economy does not exceed 6.8%. To this share, which is in total harmony with relevant estimates by the Organization for Economic Cooperation and Development (OECD) (OECD (2020)), indirect effects should be added, insofar as domestic inputs are used in the tourism supply chain, in order to calculate the total impact of tourism on the country's total output. Finally, three more sectors increased their shares in the country's total GVA, although they suffered reductions in their GVA—these reductions were relatively smaller: the sector of “public administration, defence and compulsory social security” (at −8%), the sector of financial and insurance activities (excluding social security, at −9.7%) and the education sector (at −16.4%).

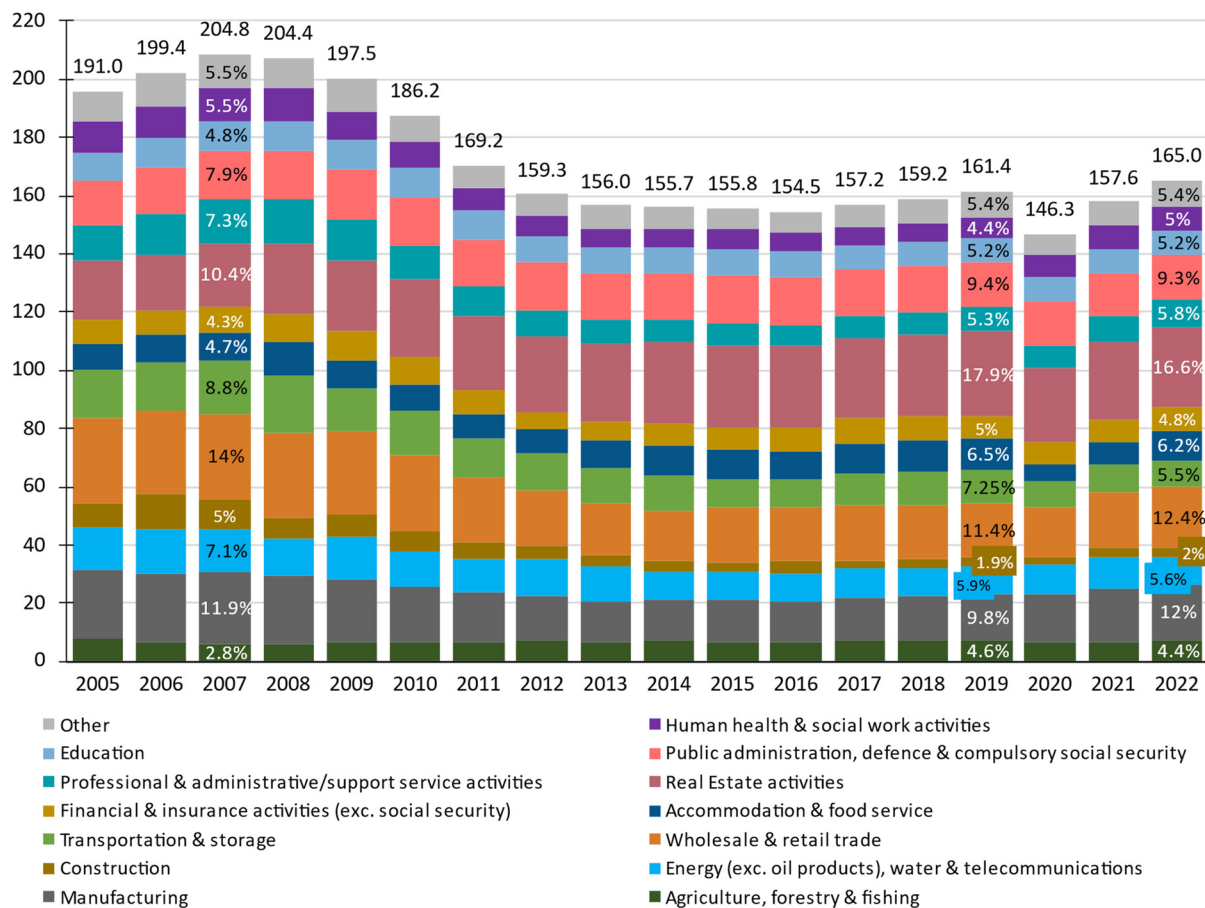


Figure 5. Gross value added by sector (EUR, billion, constant 2015 prices). Source: Eurostat, diaNEOsis editing.

4.1. The Asymmetric Effects of the Pandemic

Important conclusions can also be drawn regarding the consequences of the pandemic crisis on the individual sectors of the Greek economy. The country's total GVA dropped by 9.4% or EUR 15.1 billion in 2020 in comparison with 2019. With the only exceptions being utilities [energy (excluding oil products), water and telecommunications, at +3.8%],

manufacturing (at +3.5%) and health (human health and social work activities, at +1.2%), all sectors were aggravated, but the allocation of this aggravation was not at all symmetrical. More specifically, almost one-third of the loss came from the accommodation and food service sector, which registered an almost 50% loss of GVA (at 48.2%), due to the dramatic decrease in tourist influx. The transportation and storage sector suffered a very high decrease in produced value added (by 24.3% or EUR 2.8 billion), the champion being air transport, (a decrease of 59.3%). Secondly, the real estate activities sector suffered a reduction of 11.9% or EUR 3.4 billion) and this sector contributed to almost one-fifth of the total loss, due to its large share. Thirdly, some of the sectors grouped above under the “other” category are such examples, the primary sector here being “arts, entertainment and recreation” (a reduction of 29.6%). All the other sectors, apart from manufacturing and utilities, suffered clearly smaller GVA losses, quantitatively fluctuating between 0.8% and 11.9%. In conclusion, the pandemic crisis aggravated the Greek economy in a particularly unequal way, by exercising multiple pressures on the tourism-related sectors and, more generally, the final provision of services as well as transportation and arts.

4.2. The Current Production Structure

During the recovery years from the pandemic crisis (2021–2022), the total GVA was not only fully restored to pre-pandemic levels, but it also registered a small further growth (at +2.3%, compared with the 2019 levels). Apart from the return of the total GVA level, we can also observe a general restoration of the production structure of the Greek economy to the pre-pandemic structure (2019), which, however, included some differentiations. The main differentiation, pointed out by the data, has to do with the manufacturing sector, which grew much more than the overall economy (at +22.3% since 2019) and as a result, its share increased. Furthermore, the sectors of wholesale and retail trade (at +12.1%), professional and administrative/support service activities (at +12.1%) and construction (at +10.1%) also registered a great growth, which was considerably bigger than the overall economy. At the very opposite end, the transportation and storage sector failed to neutralize—until 2022—the majority of its losses caused by the pandemic (at −21.7% in 2019, whereas in 2020, at −24.3%). Real estate activities only partly recovered (at −4.9% in 2019, whereas at −11.9% in 2020). In spite of this difficulty, the real estate activities sector remains the principal activity sector for the contemporary Greek economy, with a share reaching 16.6%, a considerably upward overall trend and with very powerful prospects for the future (as substantiated also by the very big volume of foreign direct investment directed towards real estate)¹⁷. The sector of wholesale and retail trade also considerably contributes to the Greek produced product, with a share exceeding 12.4%, despite the compression of consumption abilities. Moreover, the course of the manufacturing sector has been particularly encouraging mainly over the recent years, having already established the third highest contribution before the pandemic, and it now registers a very powerful and uninterrupted upward trend.

5. Competitiveness and External Balance of the Greek Economy

5.1. The Current Account Deficit and the External Imbalance

Another issue worthy of analysis has to do with the competitiveness and external balance of the Greek economy. When a country imports more than it exports, without being able to cover the discrepancy, via incomes or transfers from abroad, then it faces a deficit in its current account balance (CAB). The funding of this deficit requires international, private, and public borrowing on the part of the country or a divestment of a part of its assets abroad, that is, a reduction in its net worth abroad. Consequently, the sustainability of a deficit in CAB depends on the current and expected level of the country’s net worth abroad, that is, on past or expected future equivalent surpluses in CAB. The achievement of surpluses in CAB is a process that is anything but platitudinous, as it requires either a significant improvement in business competitiveness—so that exports can be increased and imports

decreased, to a certain degree—or a considerable decrease in consumption expenditure—so that imports can be reduced—with whatever this entails regarding social prosperity.¹⁸

Unfortunately, all the aforementioned information does not seem to have ever been communicated in a simple and comprehensible manner in public discourse; so, the Greek economy has kept having deficits in CAB, throughout the period after the democracy's restoration.¹⁹ The general state of the structure of CAB during this period includes an enduring, particularly negative balance of goods and a diachronically positive but of a smaller size services balance, which is determined to a high degree by the sectors of tourism and transportation. The rest of the minor balances (primary and secondary income balances) register quantitatively lower values, below and above zero.

Until Greece's accession into the eurozone, the CAB deficits were generally small (lower than 4% of GDP), with the exception of some isolated temporary spikes, mainly because of fluctuations in oil price—in conjunction with the dependence of the Greek economy on energy imports—and the election cycle²⁰. Until 1990, the monetary/currency policy was used in the pursuit of the external balance—more specifically, the policy used was that of the constant decline of the drachma, with further emergency devaluations—but with decreasing effectiveness. The policy of drachma as “hard currency”—that is, the policy of decline restriction—was adopted from 1990 onwards and, consequently, the pursuit of the external balance came into the field of fiscal and employment policy.

Following the country's accession into the eurozone, the subsequent reduction in interest rates and the loss of the monetary/currency policy, the CAB deficit deteriorated significantly and, initially, it was stabilized at approximately EUR 15 billion or 7–9% of GDP. From 2006 onwards, as clearly indicated in Figure 6, the CAB deficit was even more enlarged, as a matter of fact to an excessively high degree, reaching EUR 36.6 billion or 15.1% of GDP by 2008. Given these levels, the CAB deficit exposed a fundamental external imbalance in the Greek economy to the markets, which could not be sustainable, a fact that contributed decisively to the course of the Greek economy later on, with the outbreak of the international financial crisis of 2007–2008. The so-called “twin deficits”, that is the fiscal balance deficit and the CAB deficit, constituted the basic indications of non-sustainability of the Greek economy and led to the Greek crisis.

During the crisis, the CAB state significantly improved, primarily due to the considerable shrinkage in disposable income, which resulted in a compression in domestic consumption expenditure and a reduction in total imports rather than thanks to the improved competitiveness. More specifically, since 2009, the CAB deficit has started decreasing drastically and, as a matter of fact, in the years 2014–2015, it was almost reduced to zero, as it registered under EUR 1.5 billion and 1% of the GDP. It becomes clear from the data on the goods and services exports and imports that this adjustment was achieved almost completely by reducing imports by 32.1% (from EUR 84.8 billion to EUR 57.5 billion), whereas exports rose by only 0.7% (from EUR 56.1 billion to EUR 56.5 billion). After 2015 and until the advent of the pandemic, the overall imports seem to have been changing at the same pace as the total exports, thus keeping the CAB deficit low. More analytically, during the 2015–2016 period, both were reduced, because of the difficulties brought about by capital controls, among other factors, whereas later, both aspects of international trade grew rapidly. This growth in the exports of goods and services was a particularly encouraging factor, because it suggested improved competitiveness and extroversion on the part of Greek businesses. As a matter of fact, the total exports in 2019 reached the historically high percentage of 39.6% of GDP (EUR 72.6 billion). Nevertheless, it must be noted that, despite the significant improvement in CAB, during this period, no CAB surplus was achieved in any of the aforementioned years.

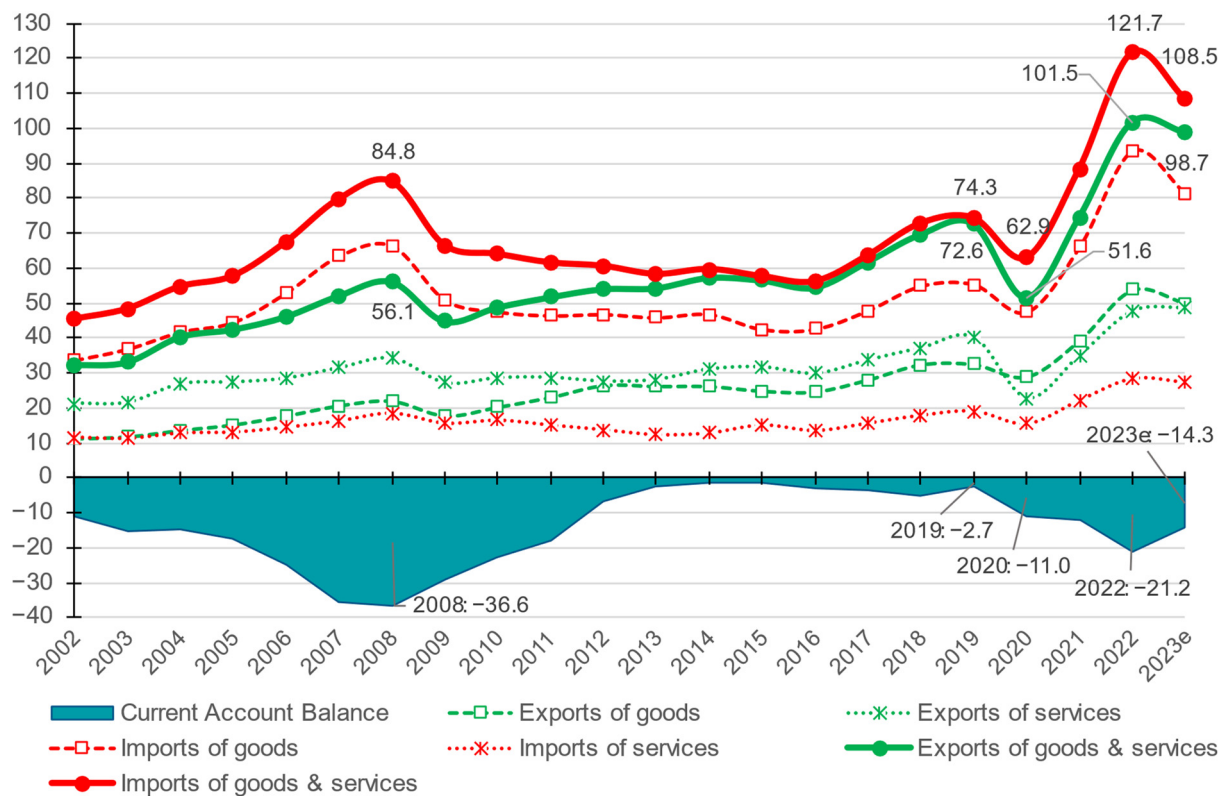


Figure 6. International trade and current account balance (EUR, billion, current values). e = extrapolation of available monthly data to the whole year. Source: Bank of Greece, diaNEOsis editing.

The advent of the pandemic in 2020 caused global disruption to international trade at both goods and services levels. The considerable share of tourism in Greek total exports and inflexible Greek imports were contributing factors to this disruption that derailed the CAB once again. More specifically, the diachronically surplus services balance suffered a loss of approx. EUR 13.8 billion, compared with 2019 figures, mainly due to tourist industry collections²¹, whereas the diachronically deficient balance of goods improved by EUR 4.3 billion, with reductions in both exports and imports of goods²². In total, the exports of goods and services dropped by almost 29% and imports by 15.4%, and as a result, the CAB deficit more than quadrupled.

Already since 2021, the aforementioned compression in Greek international trade had been completely restored, actually exceeding 2019 figures. The course of the overall exports was particularly encouraging, and not only did this course continue the pre-pandemic trend, but it also accelerated significantly, thus achieving historically high levels in 2021 and 2022, in both absolute terms (EUR 74.4 billion and EUR 101.5 billion, respectively) and GDP terms (at 41% and 49.1%, respectively). This is unprecedented in the modern history of the Greek economy. These performances of Greek exports are surely a strongly encouraging development for the Greek economy, especially if we also consider that the substantial increase in exports over the last years—the difficult 2020 excluded—has not relied exclusively on the development of the exports of services, but its crushingly biggest part (approximately three-quarters of the total alteration since 2019) derives from the export of goods. As a matter of fact, even if we exclude fuels—the raised price of which artificially increases the value of fuel exports—the rest of the goods continue having a significantly larger share of services in the rise in overall exports (at 44.3% of the total change, as opposed to 26.3%). This fact proves that, after so many years, the Greek economy is regaining powerful developmental support from both its primary and secondary sectors, thanks to, at least a part, these sectors, which are highly energetic, healthy and extroverted.

On the other hand, at the same time as the successive export records in recent years, there were equivalent or even more powerful successive records in imports as well, either in absolute terms (EUR 88.3 billion in 2021 and EUR 121.7 billion in 2022) or GDP terms (at 48.6% and 58.9%, respectively), a phenomenon not compatible with a conclusion of improved general competitiveness. As the increase in imports outweighs the increase in exports following 2020, the total impact on CAB is negative and, as a result, Greece is in danger of wasting all the progress in counterbalancing it, a goal achieved by means of great sacrifices during the crisis decade. A lot of people attribute the derailment of imports—and, consequently, of the CAB deficit—to the energy crisis, as Greece is an energy net importer and, therefore, the increased prices of basic energy goods it imports artificially inflate net imports. Nevertheless, by isolating fuel imports, we can observe that solely 35.3% of the total increase in imports since 2019 can be attributed to fuels, and by extension, partially, to the energy crisis (Figure 7). Even if we completely exclude the change in fuel imports, the remaining 64.7% of the import increase since 2019 (EUR 30.6 billion) is enough to continue overbalancing the whole increase in total exports (EUR 28.9 billion).

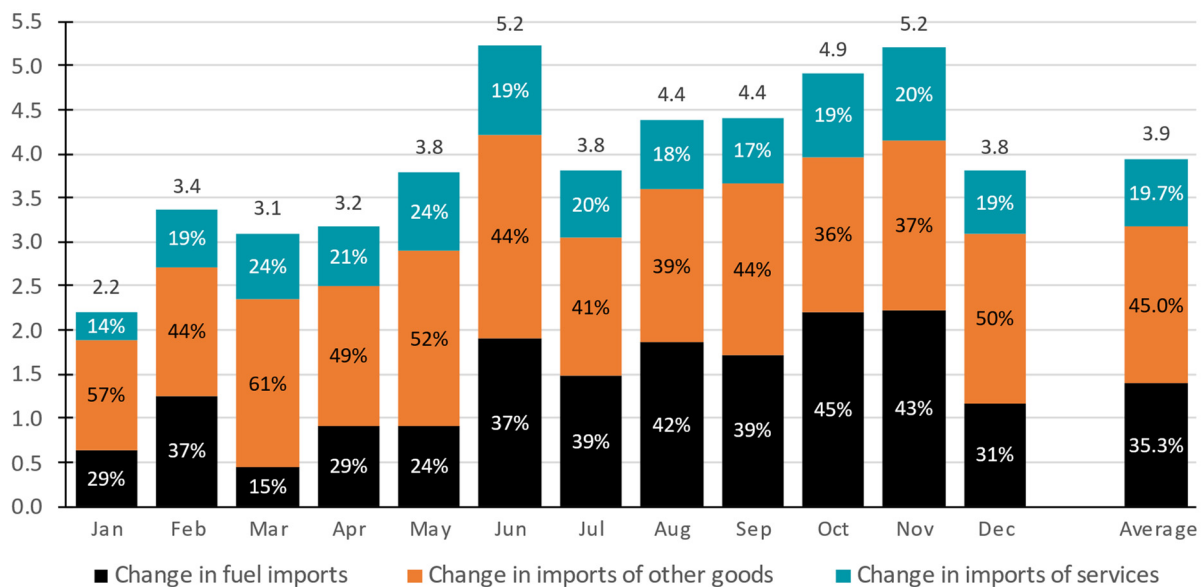


Figure 7. Change in imports per month in 2022 compared to 2019 (EUR, billion). Fuel shares on total change are represented in label percentages. Source: Bank of Greece, diaNEOsis editing.

5.2. International Trade in Goods

As already mentioned, if we focus on exports and imports of goods, Greece is a net importer. This is due to many factors, such as the focus of the Greek economy on the tertiary sector, especially tourism, and reversely, the very limited focus on high-tech goods, the limited interconnection between Greek businesses and international value chains and, more generally, the low competitiveness of Greek manufacturing. Not all of these factors necessarily have negative connotations, nor is it necessary for an economy to have a balanced or surplus balance of goods, as potential surpluses in the services balance might as well fill the gap.

However, the problem arises when we include two important elements. The first is the inherent volatility in tourist traffic and its revenue, because of external and unpredictable factors.²³ This volatility should be taken for granted and into consideration in private citizens' business choices, as well as in the development policy options. If tourism is the Greek "economic locomotive", it should be known that this "locomotive" does not have particularly stable power. It is obvious that political and business actions are necessary for the reduction in this volatility to the highest degree (extension of the tourist season, creation of alternative tourist products, accession into more tourist markets, etc.)²⁴; however, what is

perhaps more necessary is the development of other sectors of the Greek economy as well, so that it does not rely solely on tourism. The other element is the broader tertiary sector. The Greek tertiary sector focuses to a high degree on the provision of end services (B2C), that is, on end consumers. As we already explained in an earlier section, the domestic disposable income leaves no margin for the stimulation of consumption expenditure and, therefore, the tertiary sector of end services has no substantial margin for growth. On the contrary, as is also the case with the strongest developed economies, the tertiary sector focusing on the provision of interim services (B2B) and the support of the other sectors of the economy (businesses of the primary and secondary sector) has significant advantages not only for itself but also for the supported sectors. However, the development of a tertiary sector of this type requires that the primary and secondary sectors be relatively healthy and thriving.

Therefore, it is worth using data on the international trade of goods as evidence of the competitiveness, extroversion and, thus, the health of the particular sections of the primary and secondary sectors. Figures 8–11 depict the diachronic progress of Greek exports and imports of goods for seven individual categories of goods, according to the Standard International Trade Classification (SITC).²⁵

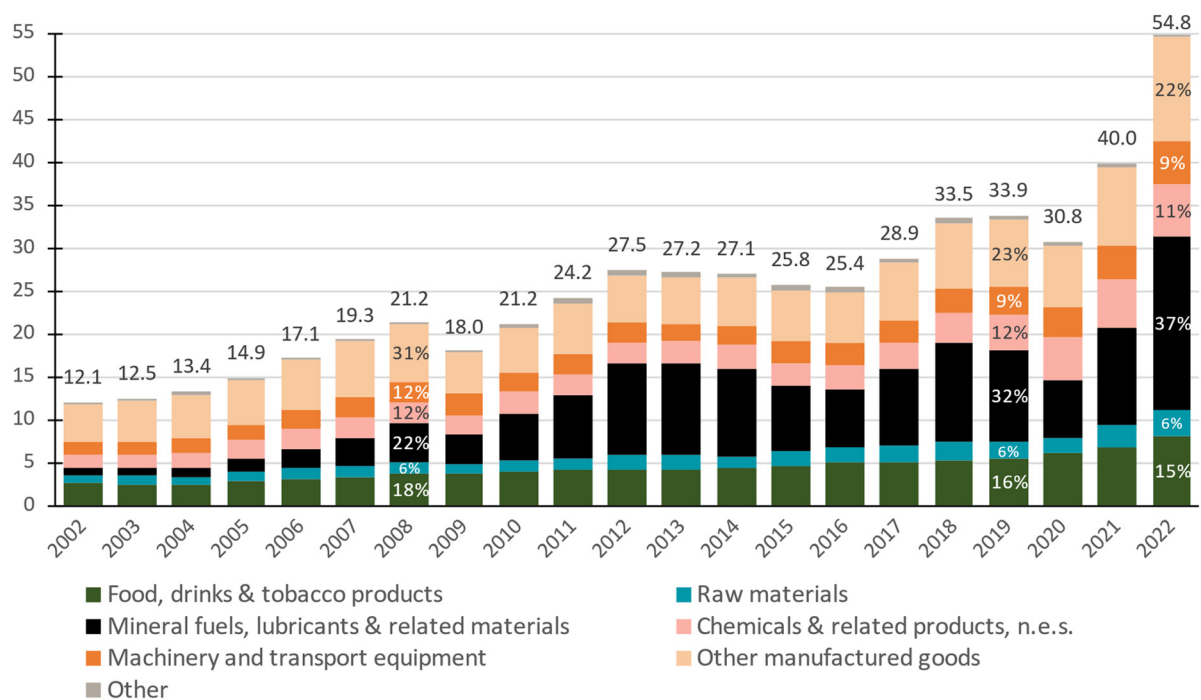


Figure 8. Exports of goods: progress and composition of Greek exports of goods (EUR, billion, current values) Source: Eurostat.

The restriction on the imports of goods becomes obvious once more from the aforementioned data in the first years of the Greek economic crisis, obviously due to the compression in consumption expenditure. At the same time, exports seem to have grown significantly during the 2010–2012 period but then remained stagnant until the imposition of capital controls. Capital controls, especially during the first phase of their imposition (2015–2016) seem to have considerably influenced the total value of the international trade of goods, but this influence was not at all symmetrical regarding the type of goods. On the contrary, the international trade of mineral fuels and lubricants fully determined the progress of the total value of goods exports and imports (almost entirely). Subsequently, both aspects of Greek international trade developed rapidly until the beginning of the pandemic, which is when they were disrupted.

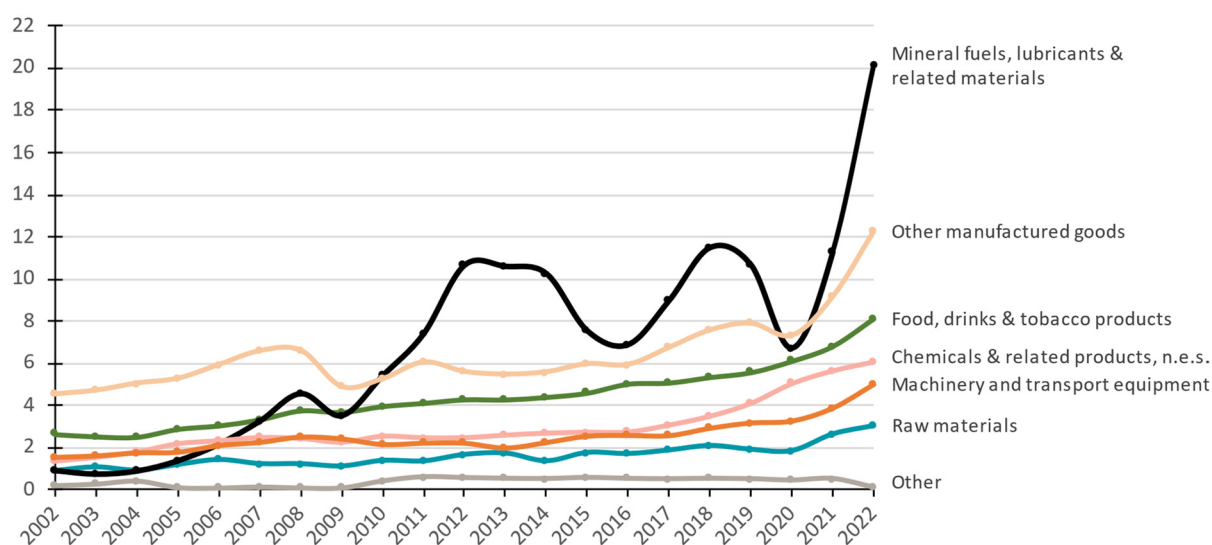


Figure 9. Exports of goods: evolution of individual SITC categories of Greek exports of goods (EUR, billion, current values). Source: Eurostat.

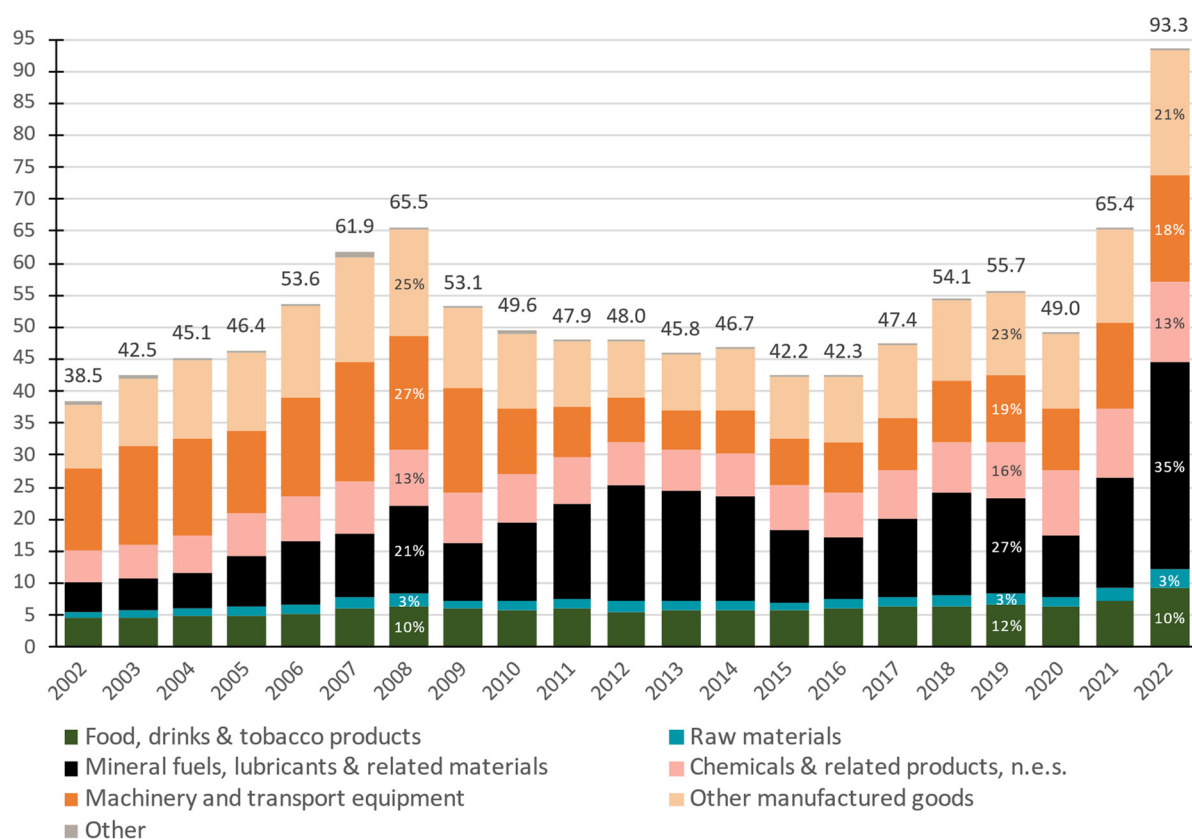


Figure 10. Imports of goods: progress and composition of Greek imports of goods (EUR billion, current values). Source: Eurostat.

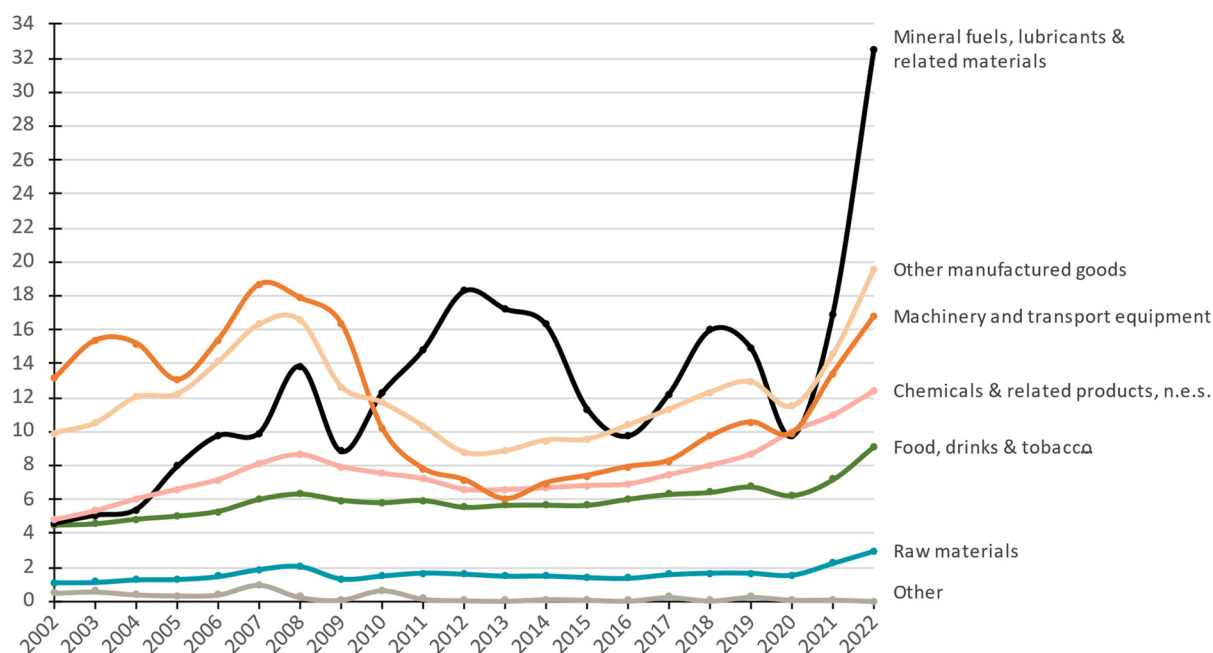


Figure 11. Imports of goods: evolution of individual SITC categories of Greek imports of goods (EUR, billion, current values). Source: Eurostat.

The first fact worth commenting on is the significant contribution of “mineral fuels, lubricants and related materials” to both the imports and exports of goods in Greece. Although Greece is a net energy importer, in the form of mainly crude oil and natural gas, it is also an important junction in the value chain of oil products ([diaNEOsis](#) and [IOBE 2021](#)). The country imports much larger quantities of crude oil than those required by its energy needs and then these quantities are refined so that oil products can be produced. The products that do not cover domestic needs are exported to neighbor, mainly Balkan, economies. This activity, which yields a share on added value for Greece (see Section 4), was significantly intensified during the crisis years, with the exception of the years 2015–2016, during which it was significantly disrupted by capital controls. During the 2008–2009 period, the exports of “mineral fuels, lubricants and related materials” increased by 133.1% and their share in the total exports of goods reached 32% in 2019, whereas their imports increased by only 7.7% and their share in the total imports of goods reached 27% in 2019. Surely, due to the energy crisis after the pandemic, the value of the international trade of mineral fuels, lubricants and related materials in current values skyrocketed in 2022. This reveals a broader problem of analysis arising from the significant volatility, exhibited by the international trade of energy goods in Greece. This significant volatility is mainly due to purely external factors in the case of Greece and that is why our following analysis will focus on the rest of the categories of international trade goods.

With reference to the other exports, the performance of “chemicals and related products, n.e.s.” is particularly positive, with exports increasing by 68.6% in the 2008–2019 period and by an additional 48% in the 2019–2022 period. In fact, these products also had excellent export performance in 2020, in the midst of the pandemic, when they had an increase of 22.9% compared to 2019. The total alteration in their exports from 2008 to 2022 was 149.5% (CAGR: 6.75%). Respectively, large percentage changes were also seen in raw materials exports, the value of which in 2022 came to be higher by 147.8% in comparison with the one in 2008 (CAGR: 6.7%) and higher by 58.9% in comparison to the one in 2019. Exports of the category “food, drinks and tobacco products” are also significantly higher than those of the pre-crisis levels and have been increasing steadily since after 2009, without demonstrating any slowdown due to the imposition of capital controls or the pandemic crisis. Specifically, their export value in 2019 was 47.7% higher than the 2008 level and they

further increased by 45.6% by 2022 (a total change in the period 2008–2022: 115%, CAGR: 5.6%). Two categories of manufactured goods also had positive performance but only in recent years (after 2016): “machinery and transport equipment” and “other manufactured goods”, the exports of which in 2022 increased by 93% and 107.1% compared to their 2016 level, respectively (total changes since 2008: 98.9% and 86.2%, respectively).

With reference to imports, if we exclude “mineral fuels, lubricants and related materials”, the peculiar behavior of which has been analyzed previously, all other categories suffered decreases in the first phase of the Greek economic crisis, in the period 2009–2013. The most significant changes during this period were the 66.4% decrease in imports of “machinery and transport equipment” and the 46.7% decrease in imports of “other manufactured goods”. Subsequently, and until 2019, all categories except for “food, drinks and tobacco products” and “chemicals and related products, n.e.s.” only partially recovered. The imports of the “food, drinks and tobacco products” category had already fully recovered since 2018. The “chemicals and related products, n.e.s.” category had fully recovered by 2019 and was also the only product category with a 15.3% indeed increase in imports in 2020, while the rest of the imports trade in goods suffered significant losses. All goods import categories had significant increases henceforth, with “raw materials” (a 75.8% change in the 2019–2022 period), “machinery and transport equipment” (a 59.3% change) and “other manufactured goods” (a 51.2% change) being the main protagonists.

Overall, from the behavior of the international trade in goods, we can distinguish some encouraging elements and some elements of concern. Among the encouraging elements we have, first of all, to include the extremely positive trend in exports of “food, drinks and tobacco products”. These products, produced by both the primary and the secondary sector, seem to be gaining more and more recognition from abroad and improving their competitiveness. What is also particularly encouraging is the increase in exports of two categories of manufactured goods: “chemicals and related products, n.e.s.” and “other manufactured goods”. These sectors, especially after 2016, demonstrate strong export dynamics, which is a good indication of the competitiveness course of Greek industry. On the negative side, we should firstly mention the significantly reduced import share of the category “machinery and transport equipment”, despite its significantly increasing trend in recent years. These tradable items are pure capital goods, and their imports follow the trend in investment expenditure, the importance of which will be discussed in detail in the next chapter. A second negative element emerging from the aforementioned data is that the country continues to export more raw materials than it imports. The exported raw materials do not generate significant export revenues, nor do they offer significant added value to an economy, both of which could certainly be enhanced if processed domestically. This fact highlights, in a more general way, a limited manufacturing sector in Greece, unable to use domestic and international raw materials in significant quantities for the creation of additional added value.

In conclusion, the CAB deficit is a long-standing problem of the Greek economy, indicating its long-standing inability to remain competitive. The competitiveness of an economy is not a static issue and does not depend only on labor costs. On the contrary, first the improvement in and then preservation of competitiveness require increases in the productivity of resources—not only labor—and the efficiency of production at a rate initially higher and then at least equivalent to the rest of the world. In a rapidly changing technological world, the economy of Greece will have to “run” even faster and smarter in order to cover the competitiveness deficit and continue at a sustainable competitive pace. This can only be achieved by the immediate adoption of more advanced technologies, by rapidly training the labor force on them, by magnifying the average business size, by stimulating R&D and innovation²⁶ and by fostering a more business-friendly environment for entrepreneurship—not only for international and established entrepreneurship, but especially for domestic and new entrepreneurship.²⁷ The benefits of this will be multiple. The consolidation of a competitive and dynamic productive base will stabilize the Greek economy and decouple it from the domestic demand, whereas the increase in real incomes

will allow for a better standard of living, higher levels of investment expenditure and improved public debt sustainability. However, as long as this does not happen and the competitiveness of Greek businesses remains limited, the Greek economy will maintain and possibly intensify its diachronic ease of covering a significant part of domestic demand with imports without being able to finance them with equivalent exports. As a result, there will be a new expansion in CAB deficits, which implies further accumulation of external debt and, inevitably, new bankruptcy.

6. The Problem of Investment in the Greek Economy

6.1. The Investment Gap

During the Greek economic crisis, in the first years due to high recession rates and then due to poor policy followed and the accumulation of significant sources of risk, there was a drastic reduction in investment expenditure in the Greek economy. The gross fixed capital formation (GFCF)—from a historically high level of EUR 55.7 billion in 2007, in constant 2015 values (in current values it was EUR 60.5 billion)—reached a level of EUR 19.6 billion in 2012 (Figure 12) and remained at that level until 2020. That is to say, for a series of 9 consecutive years, the investments of the Greek economy were about one-third of 2007 investments. In relative GDP terms, the GFCF had stood at 21.9% of GDP until 2008²⁸ and then fell to a level of around 11.1% of GDP in the 2012–2019 period, an undoubling documenting that the decrease in investment expenditure is not only due to income reduction, but also to additional discouraging factors. From 2020 onwards, we have observed the share of GDP directed towards investment increasing significantly, thus reaching an estimated (by EC (European Commission and Directorate-General for Economic and Financial Affairs (2023b))) 14.7% in 2023, which on the one hand can be attributed to fund inflows from the very strong European NGEU program²⁹, but also indicates a clear shift in investment climate.

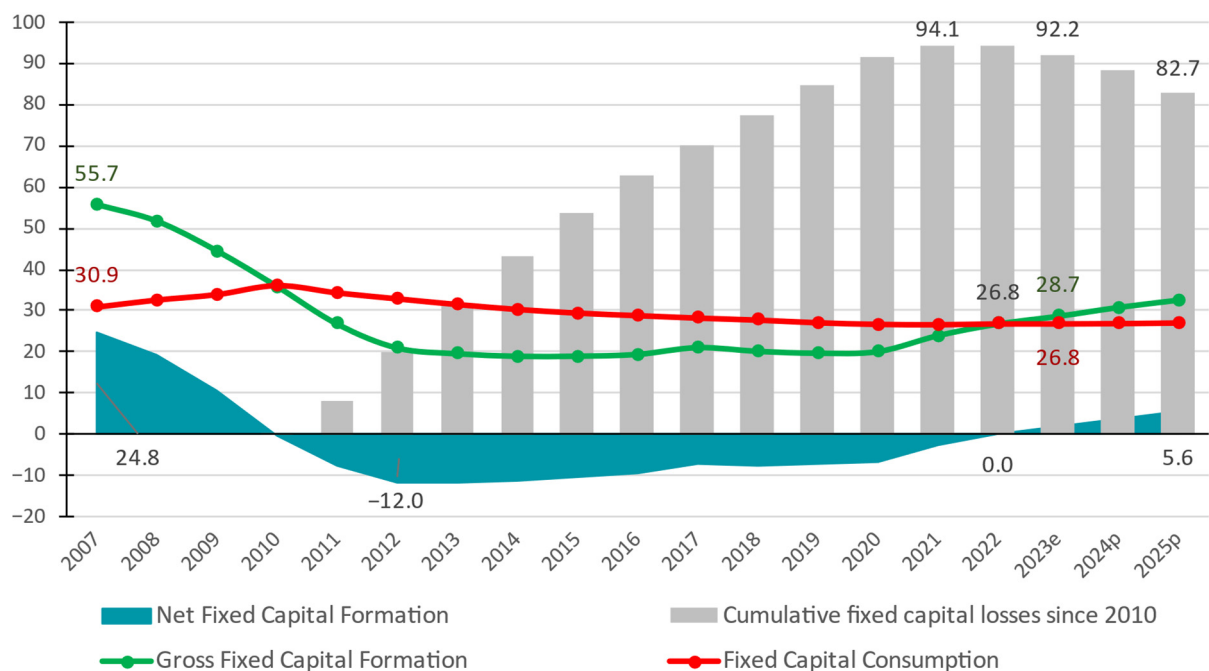


Figure 12. Fixed capital formation (EUR, billion, constant 2015 values). e = estimation; p = forecast. Source: European Commission (AMECO).

As fixed capital investment expenditure was so dramatically reduced, since 2010, it has not only lost the ability to counterbalance fixed capital consumption (FCC), but it has stabilized at a much lower level than the FCC, resulting in a consistently and strongly negative net fixed capital formation (NFCF) for a very long period of time (12 years). More

specifically, whereas in 2007 the NCFI amounted to EUR 24.8 billion in 2015 value, by 2010, it had been reduced to zero; in 2012, it reached its minimum point of -EUR 12 billion and then slowly increased until 2020. This slow growth was not due to the improvement in GFCF, but to the decrease in FCC, due to the reduction in fixed capital stock. Therefore, the Greek economy was in a continuous, and indeed intensive, state of decumulation of its physical capital stock for 12 consecutive years, with the cumulative loss of fixed capital exceeding EUR 94 billion—in 2015 values—by the end of 2021. The significant increase in investment expenditures since 2021 has resulted in capital consumption being counterbalanced in 2022, thus stopping this decumulation of capital stock. In fact, according to EC estimates and predictions, a process of covering the losses of previous years already began in 2023, a process which will continue to accelerate in the following years.

The growth in Greece's GDP in recent years has certainly freed up some resources for investment purposes. However, it is clear from the data on disposable domestic income and savings, analyzed in a previous chapter, that there is no significant space for the required investment expenditure to be financed by domestic means. The gap between the demand for resources for investment purposes and the supply of financing reinforces the importance of incoming financial resources for the Greek economy, such as European, NGEU and National Strategic Reference Framework (NSRF) resources, as well as FDI. And indeed, incoming FDI has emerged in recent years as a very important reinforcement factor for domestic investments, having reached unprecedented heights (Figure 13). Significant benefits from FDI also arise at the levels of (a) the partnership with international entrepreneurship and the integration of domestic production with international chains, (b) the transfer of modern know-how and cutting-edge technologies and (c) the practical creation of a climate of trust, which is a prerequisite for growth. For these reasons, a sustained policy of attracting further FDI is useful, particularly in targeted sectors.³⁰

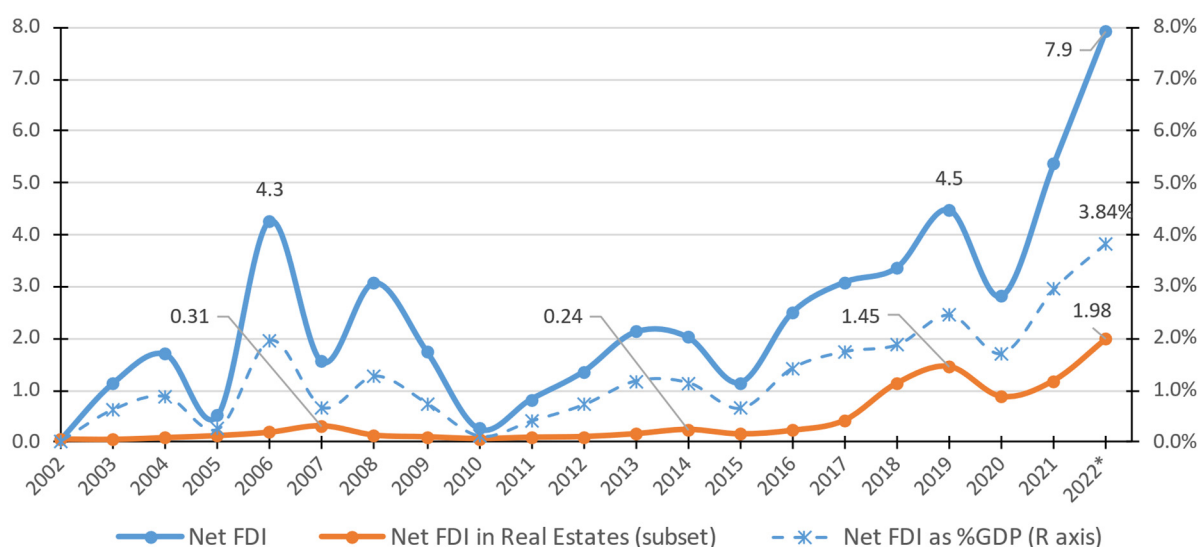


Figure 13. Foreign direct investment (EUR, million, current values). Source: Bank of Greece. *: provisional data.

In any case, despite the big improvement in the Greek economy's investment rate in recent years, capital stock remains at a much lower level than that before the economic crisis, and its restoration will take many more years. The re-accumulation of physical capital is perhaps the most crucial factor for the achievement of sustainable growth. Only through it can potential GDP and labor productivity be increased and therefore sustainable growth in GDP, employment and real wages be achieved. Moreover, the economic growth of an economy by stimulating aggregate supply enhances its competitiveness, unlike what happens by stimulating aggregate demand. It is therefore clearly necessary, on the one hand, to make the best use of the very significant European resources of the NGEU and,

on the other hand, to take advantage of the opportunity of the change in climate brought about by these resources, with policies to actively attract further investment and mitigate all the discouraging factors that still exist.

6.2. The Critical Factor of Banking Sector Robustness

One of the main factors that contributed to the negative trend in investment expenditures in the Greek economy is the difficult position of the banking sector, which resulted in a very limited supply of loans to businesses and the subsequent increase in their borrowing costs.

During the crisis years, banking institutions faced significant difficulties in accessing international markets, due to the overall classification of Greece as a high-risk country and market doubts about the capital adequacy of the banks themselves. The capital adequacy of the banks had been affected, as a very large part of their assets (in particular, mainly loans to the private sector and Greek public sector bonds) had an increased degree of risk and therefore reduced financial value. Moreover, Greek citizens' very low disposable income was putting strong pressure on the stock of deposits. To cover this liquidity gap, the banks were forced to resort to increasingly expensive funding sources, including emergency liquidity reinforcement from the Bank of Greece—under the supervision of the European Central Bank (ECB)—through the ELA (“Emergency Liquidity Assistance”) mechanism and reduced credit provision to the private sector to the maximum degree. This situation is illustrated in a highly characteristic way in Figure 14.

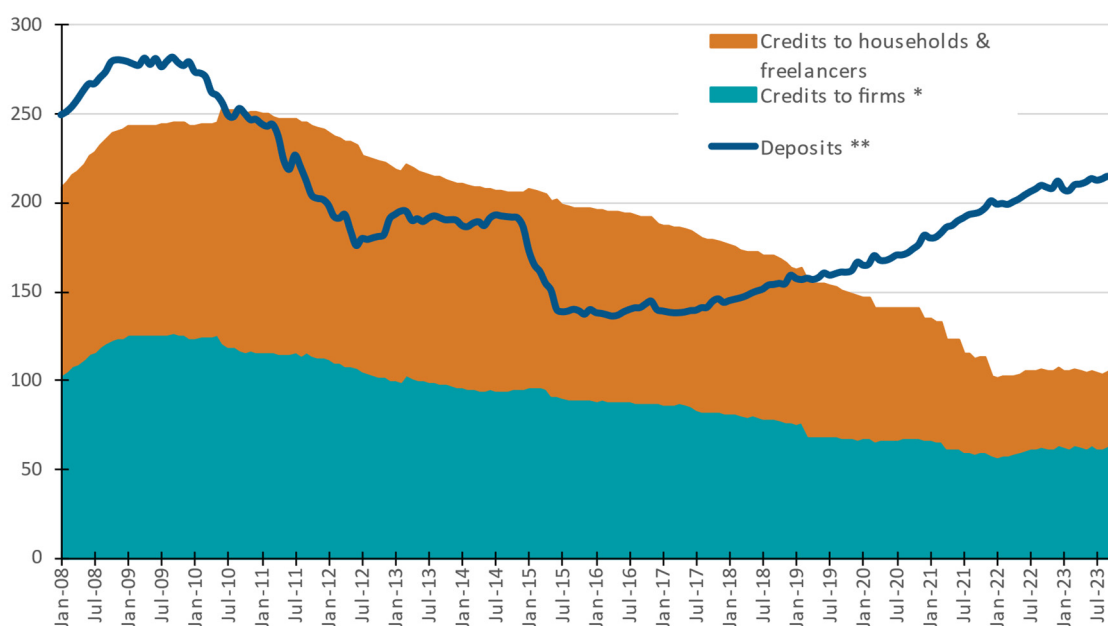


Figure 14. Deposits and credits to the private economy (EUR, billion). * excluding financial and insurance firms. ** excluding the “liabilities related to transferable assets” account. Source: Bank of Greece.

The viability of the banking sector in Greece had become practically impossible. In order to stay alive, it took a total of three rounds of recapitalization,³¹ two of which after its bankruptcy,³² and a cosmogenic restructuring, which has led to 96% of total assets being concentrated in just four large banks today, the so-called “systemic” banks. The worst period of the banking sector started at the end of 2014 (the time of the failed Hellenic Republican presidential election), with the sum of deposits plummeting by EUR 52.7 billion (a 27.5% decrease) over eight months (from December 2014 to July 2015) and balancing at a level below EUR 140 billion only due to the imposition of capital controls and the signing of a third memorandum (Memorandum of Understanding). By the imposition of capital

controls, which limited the “bleeding” of deposits, and the latest round of recapitalization, the banking sector was able to “stand on its own two feet”, although it continued to be weak. The fundamental problem that remained unsolved was the huge volume of non-performing loans (NPLs) in the banks’ portfolios.

As shown in Figure 15, in December 2015, total NPLs were close to EUR 120 billion, whereas their share of total loans was over 48%.³³ Dealing with this problem proved an extremely difficult exercise, as the sale of NPLs can only be carried out at a much lower price than their nominal value, which implies additional capital needs.³⁴ The much-needed solution seems to have been finally found in the “Hellenic Asset Protection Scheme”, with the code name “Hercules”³⁵. This scheme contributed to a drastic acceleration in NPL reduction pace during its implementation (from December 2019 to April 2021), resulting in the EC’s approval of two more phases of its extension: “Hercules II” (from April 2021 to October 2022) and “Hercules III” (from November 2023 to December 2024), which included some improvements/additions. The results are quite evident in the figures. According to the latest available data, in September 2023, the total NPLs had fallen to EUR 12.1 billion, at one-sixth of their level before the implementation of the first “Hercules” scheme (EUR 77.6 billion, at the end of September 2019), and their share had reached 7.3% (from 41.9% at the end of September 2019).

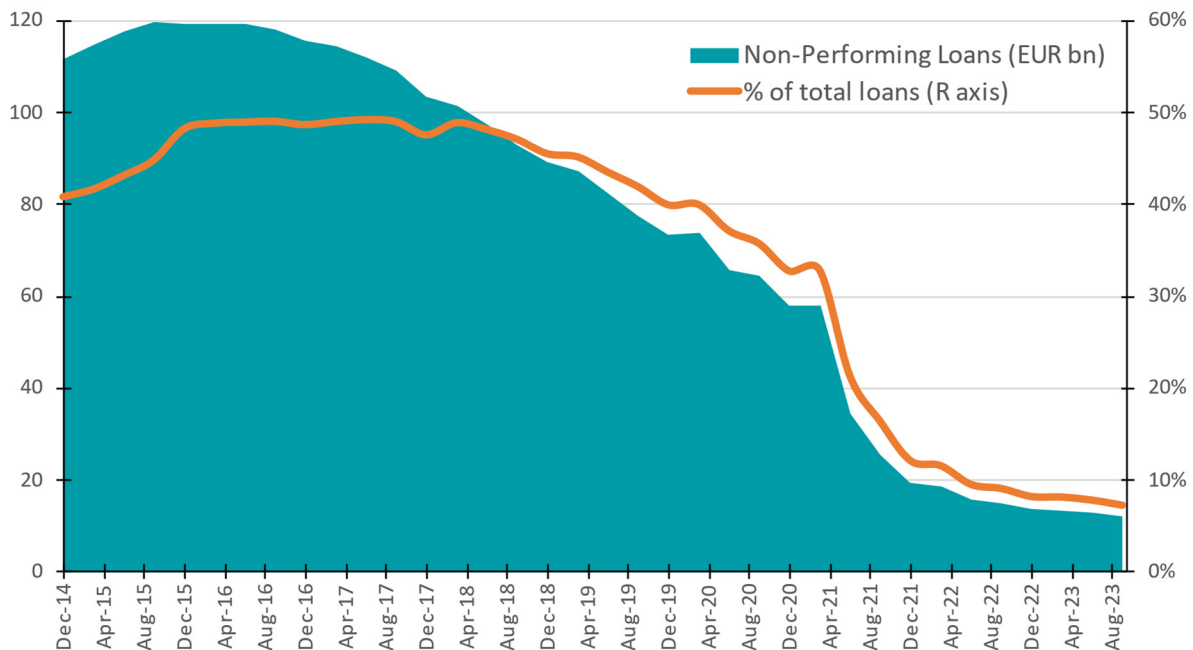


Figure 15. Non-performing loans. Source: Bank of Greece; figures on a consolidated basis, on-balance sheet and before provisions.

The “purge” of the banking system was a necessary objective for one more reason, as it plays a key role under the loan part of the RRF, which includes part of the accompanying financing and supervision. In particular, according to the Greek recovery and resilience plan (RRP) “Greece 2.0”, a portion of 20–40% of the budget of each investment project selected in the RRF loan program is financed by domestic or international financial institutions. These authors have argued over time (See: [Makantasi and Valentis \(2021\)](#) and [Makantasi and Valentis \(2020\)](#)) for the significant benefits that would arise if public and European funds directed to support private investments were given through private specialized financial institutions, which would both leverage these funds with additional resources of their own and provide a more efficient mechanism for the management and screening of applications, initially, and the supervision and accountability later on. An important positive element is that these loans will not be guaranteed by the Greek public sector, so

the public sector comes to assist the private investment, not to eliminate its risk, whereas the private investor maintains the incentive to make every effort so that the investment pays off and the co-financing banking institution maintains the incentive of strict and integral supervision.

6.3. The Investment Model of the Greek Economy

Apart from the quantitative issue of the necessary investments, analyzed above, there is also the issue of their qualitative structure. Figures 16 and 17 show the diachronic structure of the GFCF according to the type of fixed capital created and the sector making the investment (in accordance with the corresponding previous grouping), respectively.

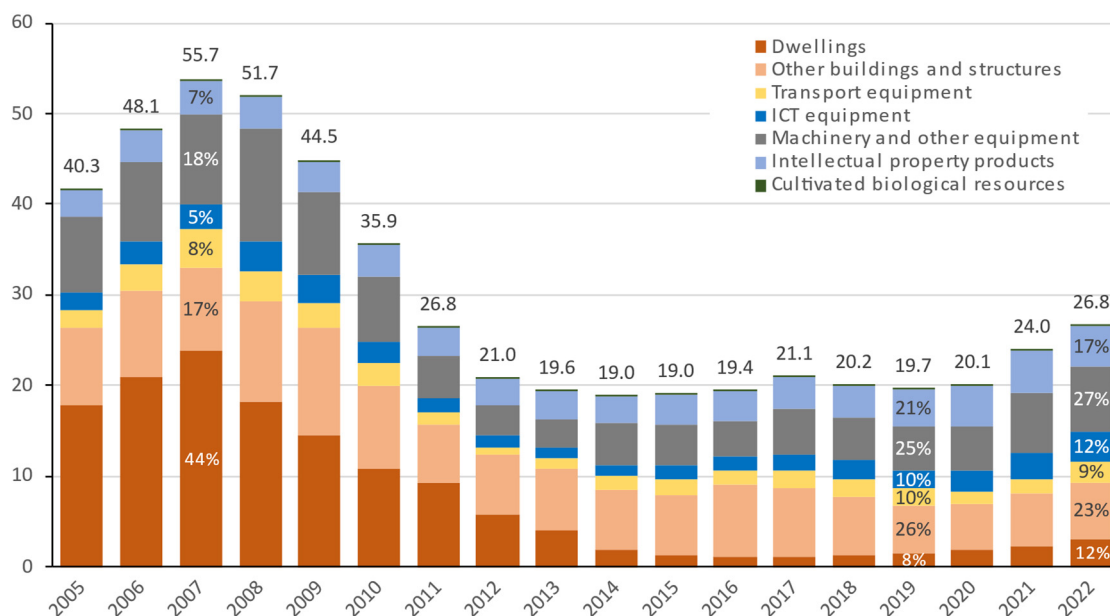


Figure 16. The mixture of fixed capital formation in Greece: by capital type (EUR, billion, constant 2015 prices). Source: Eurostat, diaNEOsis editing.

To a large extent, observation of the investment structure in Greece before the economic crisis points out the specific characteristics of the country's development model at that time. In particular, more than 61% of investment expenditure in 2007 was directed to the construction sector, with a ratio of 5:7 for residential construction and 2:7 for other constructions. On the contrary, net productive investments, such as investment in equipment (ICT, machinery, transport equipment, etc.) and intellectual property products³⁶, were the minority, with a share of only 38.4%. Constructions that are not residences may have some productive footprint, as their main part is the infrastructure constituting public goods with large positive externalities in production as well, but residence construction does not contribute significantly to the expansion of the productive potential of an economy. As a result, the country's investment model has had a limited efficiency in increasing its potential GDP from the beginning.

It is extremely interesting to see which sectors of the economy made these investments. In perfect accordance with the aforementioned analysis, we note that the real estate management sector accounted for 45% of the total GFCF consistently until 2007. It should be recalled that this particular sector generated only 10.4% of the total GVA in 2007. The second largest contributor to the GFCF was the narrow public sector ("public administration, defense and compulsory social security") with a share of 14%. Out of a total of 14 sector groups, 2 of them alone accounted for almost 60% of total fixed capital investment, as all other sector groups had an individual share of less than 6%. It is indicative that the industry sector, which is by definition a capital-intensive—and thus highly

investment-dependent—sector, with a share of total GVA of 11.9%, had a GFCF share of only 4%.

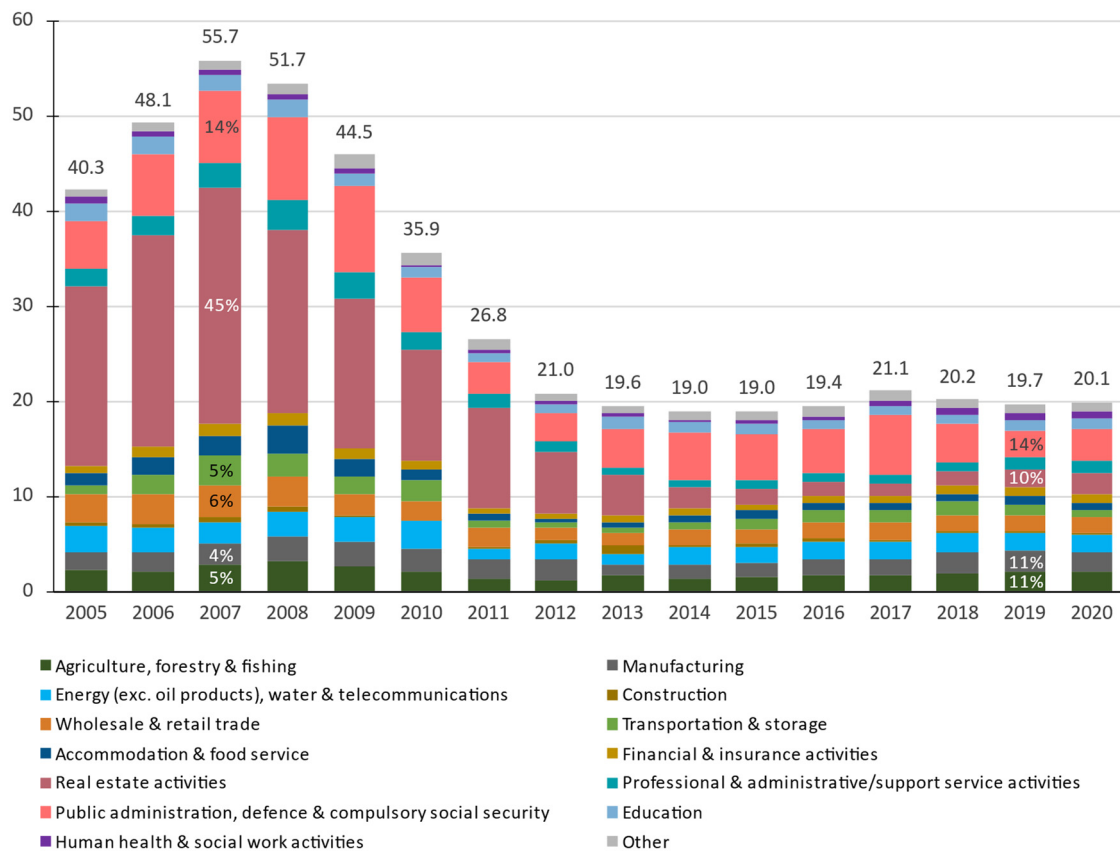


Figure 17. The mixture of fixed capital formation in Greece: by sector (EUR, billion, constant 2015 prices). Source: Eurostat, diaNEOsis editing.

The advent of the economic crisis created an environment of severe income constraints and uncertainty that made the aforementioned—in any way unsustainable—investment behavior impossible to maintain. The inevitable reduction in investment expenditure was not at all symmetrical, but instead focused primarily on investments that were abnormally high. In this way, the economic crisis has contributed to the rationalization of the country's investment model to a certain extent, without it being certain whether this is genuine or out of necessity. More specifically, whereas the total GFCF was reduced in 2019 compared to 2007 by 65% in real terms, the reduction in GFCF dedicated to residential construction in the same period was 93.5% (from EUR 23.9 billion to just EUR 1.5 billion, both in 2015 values). This was the main factor of the reduction in total GFCF, as investments directed at other types of fixed capital had significant, but comparatively smaller, reductions. The subsequent distribution of GFCF in 2019 was clearly more balanced. The expansion of investment opportunities in recent years has reversed the aforementioned trend, with investments towards the residential sector being more than double by 2022 (+102.6% from 2019, in constant values). Two other categories of fixed capital had a higher change in investment than the total GFCF (+35.9%): ICT equipment (+63.1%) and “machinery and other equipment” (+50.5%), resulting in an increase in their shares.

With reference to the subject of investment expenditure, the two dominant sectoral groups accounting for almost 60% of the GFCF in 2007 also had the largest decreases until 2019. The real estate management sector reduced its investment expenditure by 92.5% in real terms (from EUR 25 billion to EUR 1.9 billion, in 2015 values) and the narrow public sector by around two-thirds (from EUR 7.6 billion to EUR 2.7 billion). Almost all of the remaining sector groups also suffered significant decreases in investment expenditure,

the largest of which were in construction (−72.3%), accommodation and food services (−69%), and professional and administrative/support services (−62.6%). The exceptions to this rule were the health and social work sector, which had a marginal in absolute terms but significant percentage increase (by EUR 154 million or 27.9%), and the industry sector, which had a marginal increase in investment expenditure of 3.4%. The subsequent distribution of the GFCF in 2019 was also much more balanced at subject level. The sectoral group with the largest investment expenditure is now the narrow public sector, which has experienced a significantly decreasing share in recent years (from 30% in 2017 to 14.1% in 2019) and the vast majority of other sectors, including the real estate management sector, now hold investment shares of 5–10%.

6.4. *The Need for a Strategic Focusing of Investments*

As noted by these authors ([Makantasi and Valentis \(2020\)](#)), a long-standing problem in the management of European funds in Greece is the pursuit of the greatest possible fragmentation of funds into many small projects or many individual beneficiaries, most probably as a result of the Greek political culture. The result is the almost horizontal funding of all economy sectors, with small funds to each of them, funds not capable of providing significant benefit to any of them. The absence of strategic targeting leads to the non-maximization of overall productive benefit and a loss of opportunities, as equal resources are arbitrarily allocated to all sectors instead of prioritizing sectors with potentially multiplicative benefits or comparative advantages. In this way, European funds turn into a mere tool for boosting demand in a country diachronically characterized as a “demand-driven economy”, rather than being used as a lever for growth. This tactic has further negative consequences, such as the failure to achieve critical mass of reinforcement in any sector, the non-exploitation of the significant economies of a scale inherent in the management of European resources, the excessive increase in administrative and bureaucratic costs, and the creation of ideal conditions for the incubation of opacity and corruption.

So, what are some of the characteristics of the optimal targeting strategy in the case of Greece?

6.4.1. *Priority to Investments in Labor-Intensive Sectors*

As described in detail in a previous section, the Greek economic crisis brought about a huge increase in unemployment in its first years. The unemployment rate may have been slowly de-escalating in recent years, but by the end of 2023, it was still at a much higher level than the pre-crisis one (9.2% in December 2023, compared to an annual percentage of 7.8% in 2008), and the level of the pre-crisis unemployment rate cannot be described as low. In macroeconomic terms, the already high pre-crisis unemployment level implies nothing else but a great waste of resources. In terms of resources, unemployment is a twofold problem: the labor force who—against their will—are not put to good use, do not participate in the production process and therefore do not produce any products (reduction in aggregate supply), on the one hand, and create the need for the economy to incur inelastic consumption expenditure to maintain them (decrease in choices in the allocation of product use), on the other hand.

Particularly interesting conclusions can also be drawn from analysis at the level of relative abundance of resources. If we combine the data on the course of the labor force with the data on the course of the stock of physical capital during the economic crisis, as described in this section, a clear shift in the Greek economy (in relation to the rest of the world) emerges, in relative abundance terms, between physical capital and labor. In particular, by using EC estimates of the total amount of physical capital installed in Greece,³⁷ we come across the fact that during the 2009–2022 period, there was an actual reduction of almost 12.1% in capital stock. In the same period, once again based on EC measurements, the total labor force in Greece had a marginal growth of 0.72%. Therefore, the ratio of available physical capital to available labor decreased during the economic crisis (by 12.7%, according to EC estimates), and the Greek economy is thus characterized

today by more relative abundance of labor, compared to the one before the crisis. This shift in the Greek economy implies a corresponding shift in terms of comparative advantage (in relation to the rest of the world) towards labor-intensive sectors.³⁸ As a result, the relatively higher growth of labor-intensive sectors compared to capital-intensive sectors at this stage would maximize the overall competitiveness and the benefits of international trade.

A focus of investments on labor-intensive sectors has the potential to bring about a double benefit. On the one hand, it is in line with the shift in comparative advantages of the Greek economy and therefore has a benefit in terms of competitiveness. On the other hand, any investment in a labor-intensive sector has by definition a greater impact on the employment level against an equivalent investment in a capital-intensive sector. Thus, a focus of investments on labor-intensive sectors implies significant benefits in terms of employment as well and can help reduce unemployment more rapidly.

Given the aforementioned information, apart from the obvious necessary policy actions that should be adopted to stimulate employment, considerable scope for adapting an investment policy arises, giving priority and stronger incentives to investments in existing and new business activities that are relatively more labor-based. In this way, each unit of additional physical capital will create more job positions, more quickly decreasing the stock of untapped resources called unemployment. This policy has advantages over the opposite strategy (that is, a policy of focusing investment on capital-intensive sectors) or a strategy of non-focusing of private investments at all, as it entails significant benefits at a social level, but also at macroeconomic and competitiveness levels.

6.4.2. Priority to Investments That Enhance the Competitiveness and Openness of the Economy

The need to improve the competitiveness of the Greek economy and the benefits resulting from such a process have been explained in detail in the previous chapter. At this point, we will try to analyze some fields where a strategically targeted investment policy can contribute to achieving this goal.

One of the main aggravating factors on the competitiveness of the Greek economy is the relatively small average size of its businesses, as a result of the strong presence of self-employment and micro-entrepreneurship, which dominate the structure of the Greek productive system. Particularly indicative of the structure of the Greek economy are the EC data in its latest annual report on small and medium enterprises (SMEs) in the EU³⁹, with estimates for 2022. From these data, listed in Table 1, it becomes obvious that SMEs constitute almost the totality of Greek businesses in the non-financial business sector (NFBS)⁴⁰. However, while they employ 83.5% of the productive labor force, they produce only 57% of the total GVA (always, with respect to the NFBS). On the contrary, large businesses, although they occupy a near-zero percentage in terms of their number, employ about 16.5% of employed persons and produce 43% of the total GVA in Greece. This implies, on the one hand, the difference in efficiency in value-added production per employee between SMEs and large businesses and, on the other hand, the margin of macroeconomic efficiency benefit that exists from a relative expansion of the share of large businesses, or else an increase in the average production scale, at least up to the point observed in the EU as a whole.

The relatively small average size of Greek businesses creates multiple problems. Firstly, it does not allow for businesses to develop economies of scale, which would reduce average production costs and make them more competitive. In addition, the small size of businesses is associated with low labor productivity, inefficient management, difficulty in adopting new technologies, inability to carry out R&D activities⁴¹, increased likelihood of tax evasion and an underground economy, difficulties in financing and an inability to efficiently promote its products. The resulting competitiveness deficit of micro-enterprises excludes them from international markets and limits them to the provision of services for domestic consumption.

Table 1. The structure of Greek entrepreneurship.

	Businesses			Persons Employed			Value Added		
	Greece		EU-27	Greece		EU-27	Greece		EU-27
	#	Share	Share	#	Share	Share	EUR Billion	Share	Share
SMEs (0–249 persons employed)	731,829	99.9%	99.8%	2,180,534	83.5%	64.4%	34.8	57.0%	51.8%
Large businesses (250+ persons employed)	471	0.1%	0.2%	429,679	16.5%	35.6%	26.2	43.0%	48.2%

Note: Figures limited to the non-financial business sector. Estimations for 2022, produced by JRC, based on 2008–2020 figures from national and Eurostat databases. Source: European Commission, 2023 SME Country Fact Sheet for Greece and EU-27.

What keeps Greek businesses small? As the report of the so-called “Pissarides Committee” (Pissarides et al. (2020)) characteristically concludes, “The small size of Greek businesses is a consequence of rigidities in the economy that create incentives for businesses to remain small and make their development difficult”. To address this phenomenon, the report suggests creating incentives for the encouragement of mergers and other partnerships. In this context, the Greek government has moved to the enactment of significant tax incentives for SME mergers, transformations and partnerships (Law 4935/2022), whereas the “business scale up through partnerships, acquisitions and mergers” has been identified as one of the five pillars of the loan component in “Greece 2.0”. These initiatives are particularly encouraging; however, there is still room for further incentives in this direction, such as special provisions in the Development Law for investment projects aimed at the significant maximization of the existing business activities.

Another aggravating factor for the competitiveness of Greek businesses is the higher taxation compared to the rest of the world—and especially the EU—with regard to indirect taxes that burden the cost of their inflows, and the higher non-wage labor costs. Greek businesses are challenged to compete in the international market with businesses that do not have to face a VAT of 24%⁴², the particularly high excise duties on energy burdening the cost of raw materials of every business activity, and the particularly high non-wage costs of Greece. As a result, they are required to make an even bigger effort and even smaller profit margins are required in order for them to be competitive. Unfortunately, the need to generate increased public revenues, combined with the fact that the collection of indirect taxation has significantly increased efficiency in comparison with other forms of taxation, does not allow for a significant reduction in VAT and excise duties. The situation is similar for social security contributions, for which, however, the state’s efforts in recent years to limit them as much as possible should be acknowledged. A similar effort should also be made on the indirect taxation front, to a possible degree, since the reduction in taxation affecting productive activities should be a priority over the reduction in taxation not affecting them. With particular reference to excise duties on energy goods, it should be stressed that, apart from the impact on business costs, these taxes also create a negative chain effect, as energy is an influx in all links in a value chain.

Given the aforementioned difficult position of Greek export companies,⁴³ it is expected that investments in sectors producing goods and services not directed to the domestic market are discouraged. Therefore, in addition to the effort to reduce the aforementioned tax and insurance burdens, there is a need to implement, as a counterweight, special care of privileged treatment for investment projects creating or reinforcing extroverted activities. In addition to this, the political authorities must be aware of the pressure on businesses managing to be exporters and, as a counterweight, there must be a systematic effort to facilitate them at every possible level (e.g., priority and simplification in terms of bureaucracy, more favorable financing, cash facilities for paying taxes/contributions, tax clearance).

In conclusion, one of the major problems of the Greek economic crisis was the deep and lasting shrinkage in investment expenditure. This problem arose as a consequence of the crisis, due to a decrease in domestic income and the emergence of increased risk factors, but at the same time was the cause of its further prolongation. The pandemic crisis that started in 2020 aggravated the discouraging factors, but it was also the reason for the creation of a giant European investment program, which aimed not only to restart the European economy after the pandemic, but also to push it on a new course of faster and more sustainable growth in the coming decades. The NGEU resources, together with the rest of the European resources and the mobilized private resources, have already shown a visible impact on Greek investments and represent a unique opportunity to redirect the Greek economy towards a better development model. Neither the optimal use of these resources—which remains an issue—nor the final result they will have is self-evident. Further optimization of their allocation is required towards productive and appropriately targeted investments, in order to ensure not only that the investment gap is fully covered, but also that the Greek economy moves forward on a course of long-term sustainable development.

7. Challenges and Risk Factors for the Future

The COVID-19 pandemic found the global economy of early 2020 in a state of relative stability. As the SARS CoV-2 virus followed its predestined evolutionary course, by less and less pathogenic strains, the disease became significantly milder and its direct impact on economic activity was nullified. The global economy after the pandemic, however, was nothing like it was before the pandemic. A series of problems and disruptions, which arose as a result of the pandemic and the necessary restrictive measures imposed, continued to have a tangible impact on economies for quite a long time. Some of the main problems were the observed shortages and delays in critical raw materials and necessary inflows (e.g., microchips), the disruption of international freight routes and subsequent depletion of global transport capacity, and the disruption in the energy market.

The disruption suffered by the energy market from the pandemic shock had perhaps the most significant impact on the Greek economy, as well as the global economy. The commodity we call “energy” is not a mere consumer good, but it is, on the contrary, a practically irreplaceable intermediate good used in the production of all other goods. The major changes in global energy demand due to the pandemic (a sharp and unexpected reduction in 2020 and a milder increase in 2021–2022) were not reflected by supply changes of a corresponding rate, initially resulting in a significant drop in the price of all energy goods in 2020⁴⁴, followed by a much larger increase, already before the outbreak of the war in Ukraine (February 2022), which intensified the situation even more. As a result, there were very high prices for all energy commodities, which, to a significant degree, still exist. Indicatively, the average monthly price of crude oil in Brent exchange reached USD 117.69/Bbl in June 2022, 103.5% above the average level in the five years prior to the pandemic (USD 57.83/Bbl), whereas in the natural gas (NG) market in Europe, things were even worse, with the average monthly price in the Dutch TTF Spot reaching EUR 235.22/MWh in August 2022, 13.6 times the pre-pandemic average level (EUR 17.25/MWh).

The impact of such a high energy cost on every economy is easy to understand. In a relevant study by diaNEOsis, a theoretical estimate is made of the overall impact on the Greek economy of a reverse and much smaller change: a 10% reduction in the final price of electricity and NG.⁴⁵ According to the results, the overall impact on GDP would be an increase of EUR 941 million (a percentage impact of +0.5%) and the overall impact on employment would be 21,500 additional jobs. Unfortunately, the change in the actual prices of NG and electricity is not only completely far off from the aforementioned theoretical hypothesis but is opposite in direction and many times more pronounced in terms of magnitude. We cannot use the quantitative findings of this exercise to proportionally extrapolate quantitative estimates of the effects of the energy crisis on GDP and employment, but we can consider the extent of these effects.

Apart from the energy crisis and the rest of the disruptions caused directly or indirectly by the pandemic, Greece has recently been close to or even within the “epicenters” of several other hotspots of risk and uncertainty. First of all, the proximity of Greece to the geopolitical space of the Russo-Ukrainian war is clear, with whatever this implies in terms of geopolitical risk, defense needs and refugee influxes. Greece, however, faces similar problems regardless of the war in Ukraine. In the summer of 2020, a particularly serious crisis with Turkey was triggered and an independent threat of war is still being maintained by Turkey (an active “casus belli” and, at times, aggressive actions), thus forcing the Greek state to undertake significant rearmament expenditures, after a long period of underfunding of defense needs due to the economic constraints. Also, since the beginning of the last decade, there has been a steady flow of migrants and refugees from the eastern and southern borders of the country, which at times has had significant spikes (both spontaneous and artificial⁴⁶), creating significant social and economic problems in the country. Greece is also in close proximity to the war between Hamas and Israel that started in October 2023, which obviously creates similar pressures to the war in Ukraine. Moreover, however, as the country’s freight transit role and much of its international maritime trade is catalytically dependent on the Suez Canal, further strain arises from Houthi attacks on the Bab al-Mandab Strait, which drastically restrict the flow of goods from the Red Sea and Suez. Consequently, the Greek economy is in a challenging environment with a high degree of regional uncertainties, which undoubtedly affect it significantly.

7.1. The Global Inflation Wave

One of the main effects of the energy crisis, that the world has experienced and continues to experience to a smaller degree, has been cost inflation, as the increased energy cost is injected into all links of every value chain. The energy crisis, however, was not the only factor exacerbating production costs, but instead came to reinforce already existing inflationary factors, most of which also had their origins in the pandemic and the problems it caused to the global supply chain and thus on the global aggregate supply side. At the same time, the recovery of global economic activity after the pandemic was mainly driven on the demand side, as, due to the restrictive measures, households had accumulated both a stock of—obligatory—savings and a stock of deferred consumption. The common factor of all these was the highly excessive aggregate demand internationally, which led to strong upward trends in price levels.

In addition to the aforementioned information, mainly due to the climate, but also reinforced by disruptions in the supply chain of agricultural activity, significant upward trends in international prices of cereals (including wheat) and oil seeds were observed in 2020 and 2021. These trends were further enhanced by the Russo-Ukrainian war. On the one hand, both warring sides are major global producers and exporters of these particular agricultural products. On the other hand, the war has also placed considerable burden on agricultural production in the rest of the world through the cost of energy and fertilizers.⁴⁷ As cereals are a major inflow in the stock-breeding sector as well (animal feed), it is clear that their very high costs were eventually passed on to the whole range of foodstuffs.

The combination of all these factors created an exogenous inflationary wave that hit all the world’s economies to varying degrees. This wave found the Greek economy in a multiannual situation of practically constant prices. As illustrated in Figure 18, the inflation in Greece remained below 1.1% after 2012, by any calculation method. In fact, in the 2013–2016 period (2013–2015, based on the harmonized index of consumer prices—HICP), it was negative.⁴⁸ The cumulative price change between 2012 and 2019 was −1.3% according to the national consumer price index (CPI) and almost zero according to the HICP, meaning that the average price level in Greece in 2019 was marginally lower than the 2011 level. The pandemic and the necessary containment measures also led the Greek economy to deflation again in 2020, with the rate of reduction in price level being 1.25% (or 1.3% according to the HICP). In mid-2021, as economic activity restarted after the lockdowns, the price level returned to marginally positive change rates. Then, however, mainly due to the

skyrocketing in international energy prices and in combination with all the aforementioned factors, there was a skyrocketing in inflation, which reached 12.1% in September 2022 (similarly by HICP), having, since January of that year, already exceeded any historical level the Greek economy had shown after its accession into the eurozone.

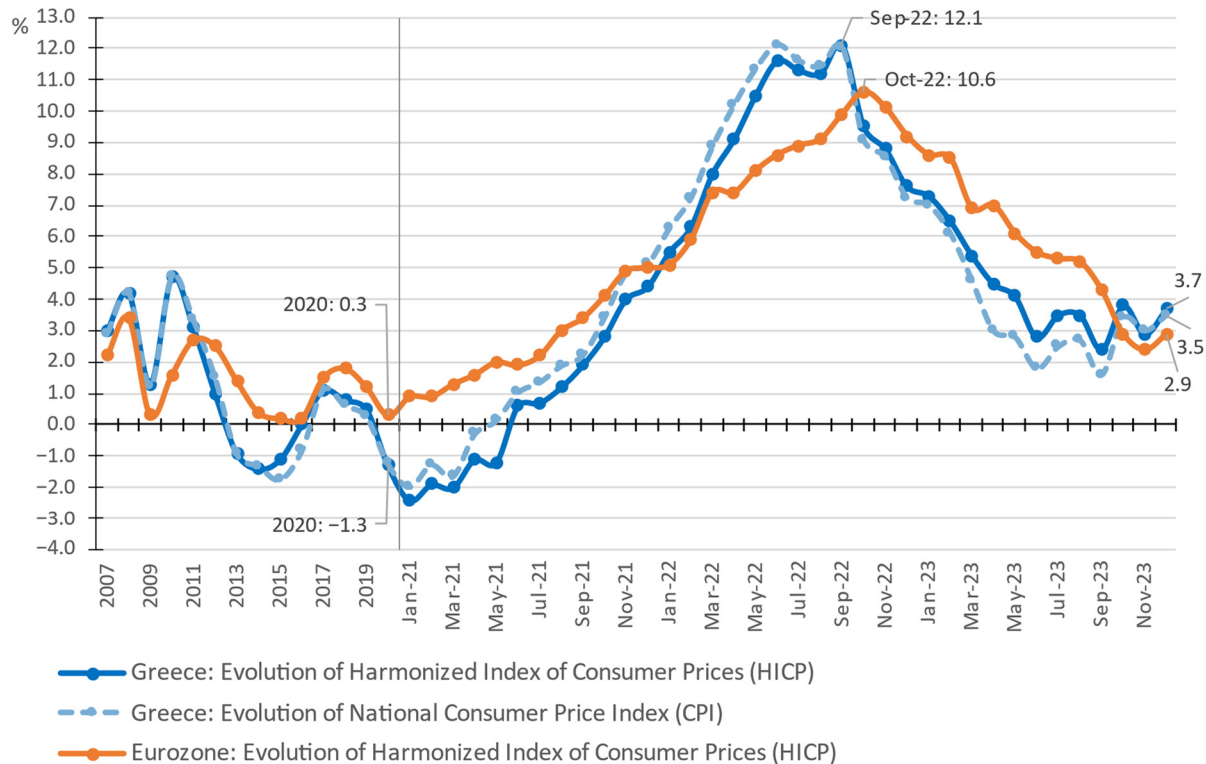


Figure 18. Inflation in Greece vs eurozone. Source: Eurostat and ELSTAT.

For the same period (after 2012), the average inflation rate in the eurozone has remained consistently higher than that in Greece,⁴⁹ but also consistently below the ECB's stated target of an average long-term rate of 2%. Indeed, particularly during the 2014–2016 period, the eurozone's inflation was only marginally positive, a phenomenon not due to the reduced economic activity of that period, but rather to the recession of the immediately preceding period. In general, there was a time lag in the reaction of inflation in the eurozone to changes in the real economy or in the ECB's expansionary policy, mainly attributed to the strong persistence of expectations for price change at very low levels, combined with other factors.⁵⁰ The pandemic led to a very low inflation rate of only 0.3% for the eurozone as a whole in 2020. The resurgence in demand in early 2021 combined with the lagging supply led to an unusually rapid rise in inflation to 2% by mid-2021, whereas the energy market crisis together with the other factors—which we have described—led to its spike later on. The peak recorded was at 10.6% in October 2022, having already surpassed all previous historical levels since its creation a year earlier (Oct 2021).

What is the impact on the Greek economy of the soaring inflation in Greece and the eurozone?

The direct answer to this question is “it depends”. Mild inflation in Greece, in the range of 2–3%, would be beneficial to the Greek economy, especially after a long period of deflation, provided that it is not higher than the current average inflation in the euro.⁵¹ The reasons mainly have to do with the flexibilization of the real wage so that it better reflects the changes in labor productivity, as the nominal wage shows significant stickiness. An additional benefit for the case of Greece is that the average inflation of the eurozone countries constitutes the overtime loss in real value of the common currency and therefore implies a reduction in the real value of Greek public debt.

However, problems begin at higher inflation levels, which go beyond the range we call “mild”. The prolonged occurrence of inflation rates significantly above mild creates a feedback inflationary dynamic that is extremely difficult to stop, mainly because of its integration in the expectations of economic agents. When the vicious cycle of inflationary expectations acts in an economy, it both multiplies any preexisting inflationary trend, creating an unstable system of accelerating inflation, and makes it extremely difficult to counteract the phenomenon. Blocking this vicious cycle, or at least slowing it down, requires a systematic effort over a long period of time combined with a significant level of credibility from the monetary authority, as expectations are always reshaped with a time lag.

Perhaps the most important risk from the international inflationary wave for the Greek economy arises from the pressure on the ECB to pursue a drastically restrictive monetary policy. In mid-2022, as the inflation rate in the eurozone had been well above the target level of 2% for almost a year, and even on an upward trend, the ECB was forced to suspend both active quantitative easing programs (the asset purchase program (APP), which had been active since late 2014 ([European Central Bank \(n.d.a\)](#)), and the pandemic emergency purchase program (PEPP), which was urgently set up to stimulate the eurozone economy during the pandemic ([European Central Bank \(n.d.b\)](#))) and embark on a process of successive and significant increases in key interest rates (Figure 19, [European Central Bank \(n.d.c\)](#))—from virtually zero to the highest levels recorded after 2001. Both these moves were not good news for the Greek economy. On the one hand, Greek government bonds never had time to be included in the APP (especially in the public sector purchase program—PSPP),⁵² whereas the emergency PEPP, in which Greece was included by exception,⁵³ had a very limited duration. On the other hand, a significantly restrictive monetary policy inevitably limits the investment pace and the development speed of all eurozone economies, whereas the Greek economy maintains the greatest (among the euro economies) need for investment and rapid development. Moreover, the increase in the key interest rate of the euro creates significant upward trends in government bond yield rates, which again will asymmetrically affect Greece more, the country maintaining the highest debt in terms of GDP. In this way, the scope for a development-oriented fiscal policy is limited, whereas the monetary policy is—necessarily—recessionary.

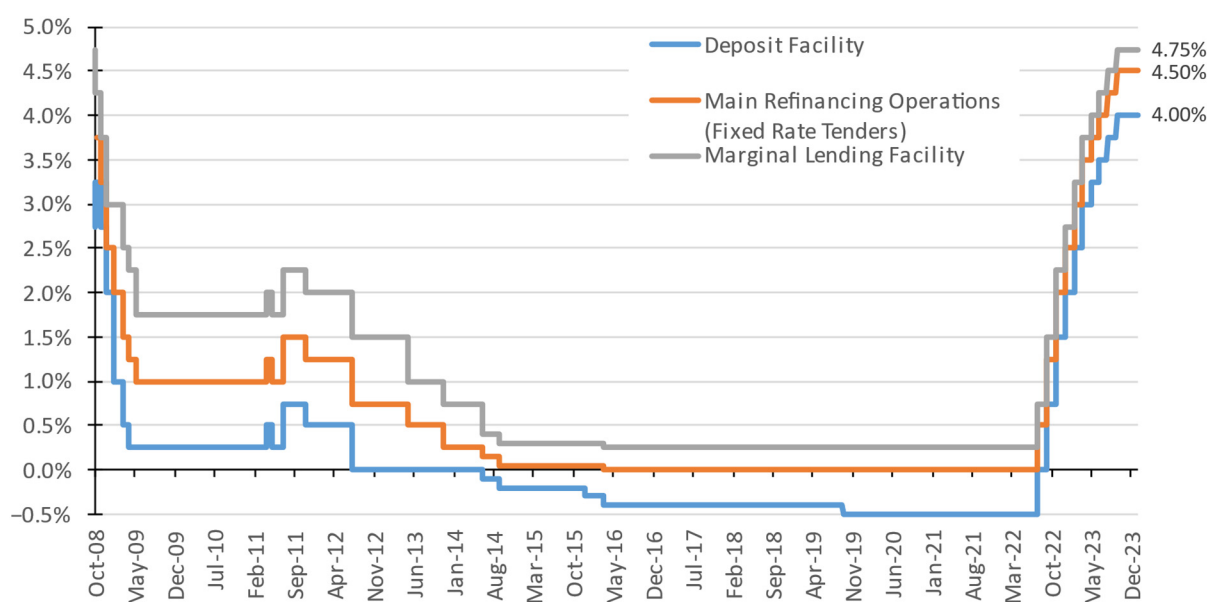


Figure 19. Key ECB interest rates. Source: [European Central Bank \(n.d.c\)](#).

In this context, a major opportunity arising from the skyrocketing in global inflation is also pointed out: the possibility of a rapid improvement in the competitiveness of the Greek

economy.⁵⁴ The largely imported inflation could be seen as a kind of currency devaluation, as the cost of imported goods, both final and intermediate, suddenly increased. A currency devaluation brings about an immediate improvement in the competitiveness of domestic businesses, through an immediate deterioration in terms of trade, at the cost of a reduction in the real value of domestic incomes and monetary wealth (in domestic currency). As the global inflationary wave raises the prices of all imported goods, it implies about half of the effects of currency devaluation: a reduction in the real value of incomes and monetary wealth, and a potential deterioration in trade terms. In other words, the Greek economy is already paying the costs of a currency devaluation, but in order to collect the benefits, the potential deterioration in trade terms would have to become actual. For this to happen, the increase in the cost of imported goods needs not to be balanced by a corresponding increase in the cost of exported goods. Or, respectively, the domestic inflation needs to remain at lower levels than the international inflation and especially the inflation of the main trading partners of Greece, that is the EU countries. In order to pursue this objective, given the concession of the monetary policy to the ECB, only instruments of fiscal policy, labor market policy and policy to monitor and enforce the proper functioning of markets and competition can be used. There is therefore significant feasibility for using all these instruments in a way that will limit the vicious feedback cycle of all price increases as far as possible.

The main criticism against the proposed deflationary policy is that it does not allow for the full protection of the citizens' real incomes from international inflation. However, "in reality, there is no way and no possibility of fully protecting the citizens of a small open economy from (imported) global inflation" (translated by [Gatsios and Ioannou 2022](#)). All efforts to safeguard real income inevitably reinforce the vicious inflationary cycle, with the end result being low or zero efficiency in terms of real income and at the same time generating high costs to the productive economy. Therefore, a major risk is also pointed out: not only of missing the opportunity of a rapid improvement in the competitiveness of the Greek economy, but also of resulting in the further deterioration of its competitiveness. This is not difficult, as the rapid increase in price level creates plausible political incentives for expansionary fiscal policy and the reinforcement of nominal minimum wages. On the one hand, an expansionary fiscal policy is by definition inflationary, as it stimulates the aggregate demand. However, between fiscal expansion through more government expenditure (subsidies to combat price increases) and fiscal expansion through less indirect tax revenue, it is clear that the latter is preferable, as it partially counterbalances cost inflation. On the other hand, reckless increases in nominal wages, whether they are the product of negotiations among social partners or are defined ad hoc by law, pose twice the risk. If they are not covered by a corresponding change in nominal labor productivity, then, apart from reinforcing the vicious cycle of price increases, they will cause a direct reduction in the competitiveness of Greek businesses and, additionally, they could make a part of labor unprofitable. This is the reason why it is essential that any intervention in the labor market is carried out following a thorough study that accurately calculates the actual situation of labor productivity and the potential impact of this intervention.

7.2. *The Excessive Level of Public Debt*

In recent years, the issue of Greece's large public debt has become a secondary matter. The debt remains very high (in both absolute and GDP-relative terms), but its very high weighted average maturity, combined with the very favorable interest rate conditions of the debt held by the official sector (states and international organizations) and the ECB's previously loose monetary policy, made it easily manageable. Debt servicing costs remain quite low, despite the very large fiscal expansion required in 2020 and 2021, due to exogenous needs arising from the pandemic and Turkey's aggression. At the same time, credit ratings for the Greek state are becoming better and better and, in fact, since 2023, an investment grade has been issued by three of the four major rating agencies.⁵⁵ Nevertheless, the very high level of public debt is, in itself, an inactive but extremely important risk factor,

which, under certain circumstances, can be triggered and create major problems for the Greek economy.

More specifically, as shown in Figures 20 and 21, Greece after 2015 and until 2019 managed to achieve not only sufficient primary fiscal surpluses and a breakeven fiscal balance (FB), as it was obliged to do, but also notable fiscal surpluses. During the same period, however, public debt did not decrease, as would be expected with current fiscal surpluses, but marginally increased, as the Greek state accumulated a generous level of cash reserves (reaching EUR 32 billion at the end of 2019) (Hellenic Republic and PDMA (Public Debt Management Agency) (2019)). The need that arose in 2020 for significant, urgent government expenditure turned the 2019 primary fiscal surplus of EUR 7.1 billion (3.9% of GDP) into a primary fiscal deficit of EUR 11.1 billion (6.7% of GDP), a change of around EUR 18.2 billion (10.6 pp of GDP). The result of all these changes was an increase in nominal debt by EUR 10.4 billion and the skyrocketing in the debt-to-GDP ratio from 180.6% to 207% of GDP, also due to the major recession in 2020 (9.3%, in real terms). The situation in nominal terms deteriorated further, reaching EUR 356.6 billion by the end of 2022, a level that exceeded the previous historical high level of EUR 356.2 billion in 2011, while the EC estimates that public debt continued to increase in nominal terms in 2023 as well. However, the significant real GDP growth in recent years, combined with strong inflation, resulted in GDP-relative debt drastically decreasing in the 2021–2022 period (to 172.6% of GDP at the end of 2022, reduced by 34.4 pp), which is estimated to have continued in 2023 as well (a reduction by 11.7 pp to 160.9% of GDP). The restoration of the fiscal constraints of the revised Stability and Growth Pact from 2024 is a sufficient guarantee that further de-escalation of Greek public debt in nominal terms will follow, whereas together with the continuation of the course of real growth in the Greek economy and the maintenance of relatively high inflation rates, a further significant reduction in debt is expected in GDP-relative terms as well.

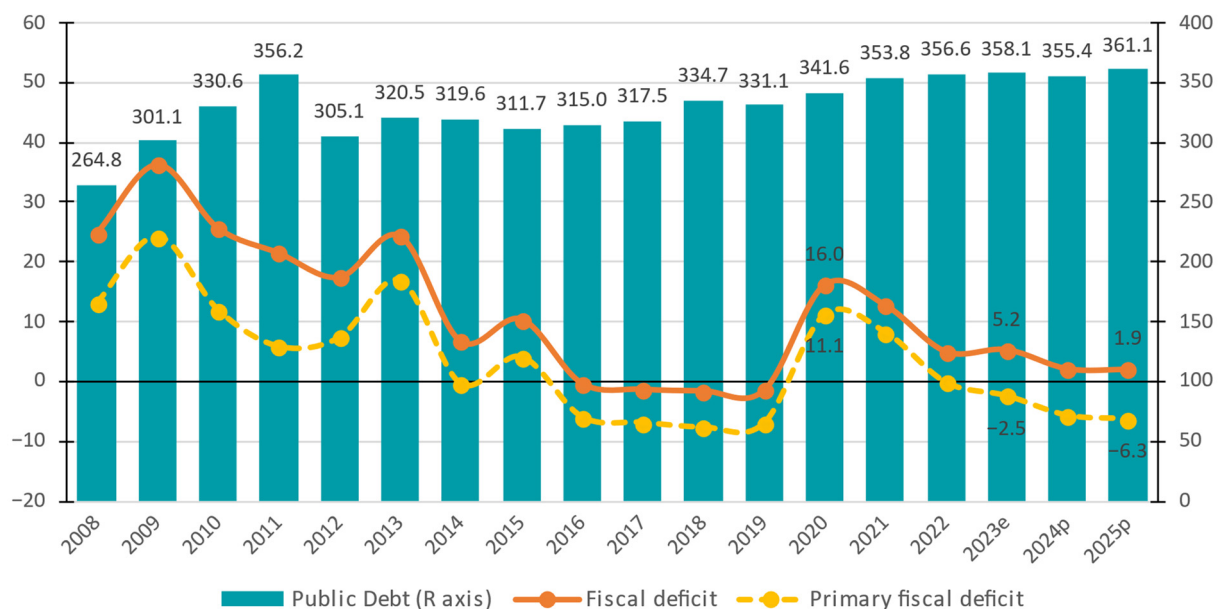


Figure 20. Public debt in current values (EUR, billion). e = estimation; p = forecast. Source: Eurostat and the European Commission (AMECO).

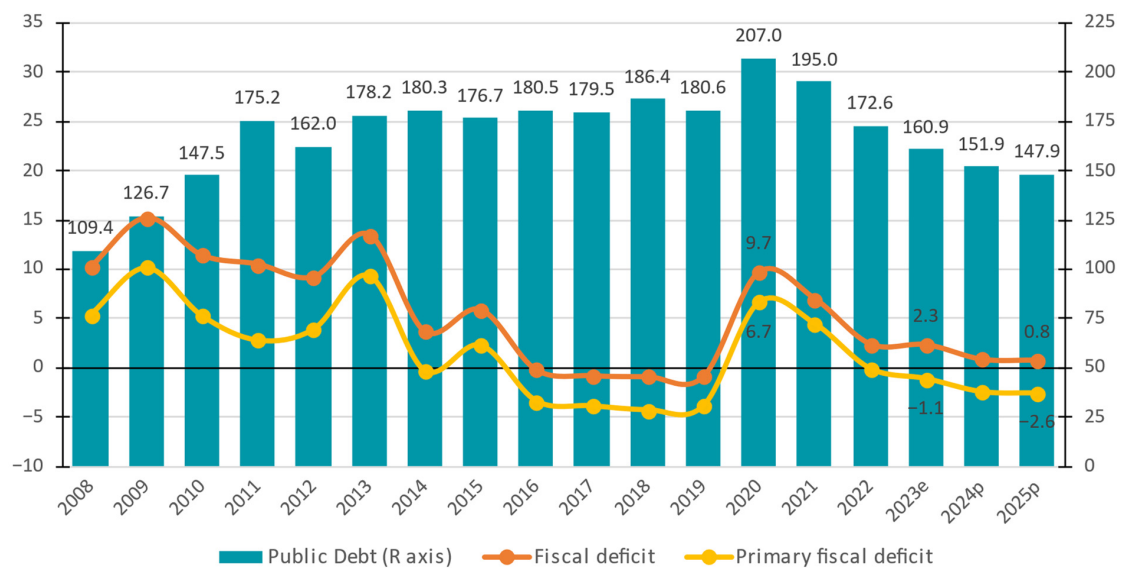


Figure 21. Public debt in GDP terms (%GDP). e = estimation; p = forecast. Source: Eurostat and the European Commission (AMECO).

The current state of Greek debt, despite its large size, seems to be quite good. According to official data, the weighted average maturity currently remains at a very high level of 20 years (Hellenic Republic and PDMA (Public Debt Management Agency) (2023)); the average effective interest rate (the interest paid-to-debt ratio) in 2022 was around 1.45%, whereas it is estimated to have risen to 2.16% in 2023;⁵⁶ debt servicing costs were 2.5% of GDP in 2022, whereas in 2023, they reached 3.5% of GDP; 71% of the total debt is held by official sector creditors; and the cash reserves held by the Greek government at the end of 2023 amounted to EUR 30 billion, a figure that would cover the gross refinancing needs of the Hellenic Republic for around 3 years. Because of all these factors, international markets are demonstrating practical confidence in the Greek public sector's credit, documented by the yield rates offered at the issuance of new Greek bonds as well as the yields of Greek government bonds in the secondary market, especially compared to the yield rates of the strongest EU economy (Greece–Germany yield spread, Figure 22).

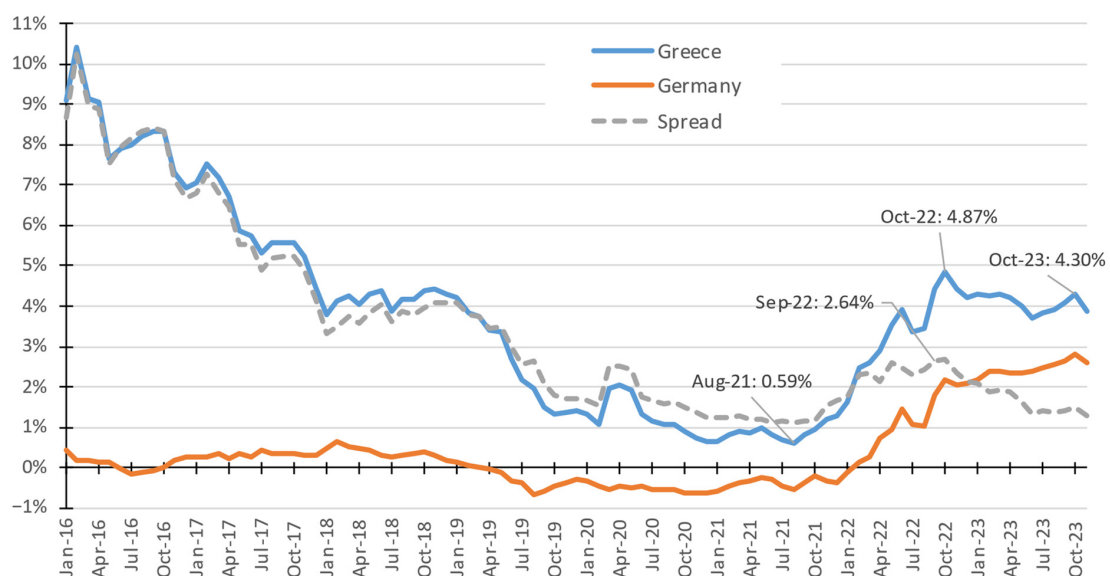


Figure 22. Secondary market: 10y gov. bond yields of Greece vs. Germany. Source: Federal Reserve Bank of St. Louis.

The secondary market may not directly affect the cost of Greek public sector borrowing, but it is a very good indication of the valuation of previously issued bonds of a certain maturity by international markets in a continuous, indeed, time. Greek bond yields, therefore, showed a significant downward trend in the 2016–2017 period, from the very high levels of early 2016 to a level between 4% and 4.5%. At this lower level, which continued to be quite high, they fluctuated steadily from early 2018 to mid-2019, and thereafter showed a new downward trend until the onset of the pandemic. The pandemic initially halted the decrease in Greek bond yield rates, in a transient market reaction specifically to Greece's idiosyncratic risk (a reaction that fully captures the changes in the spread). But the downward trend resumed soon enough, certainly due to the integration of Greek bonds in the ECB's emergency PEPP program. As a result, in August 2021, a historical low level of 0.533% was reached (August 5) with the average monthly yield at 0.59%. Subsequently, however, for about a year (until October 2022), there was a significant upward trend in Greek yields, which reflected both the general upward trend in yields in all eurozone countries and a more specific increase in the risk premium of the Greek state (a positive trend in the spread as well). This behavior can be explained by the increasing likelihood of discount by markets of the reversal in the ECB's hitherto highly expansionary monetary policy. Since then, Greek yields have shown relative stability, around the 4.1% level, with the spread having a significantly decreasing trend.

The behavior of the yield spread between Greek and German government bonds is of particular interest. In every critical circumstance in recent years (the outbreak of the pandemic, the expectation of a change in monetary policy and the outbreak of the war in Ukraine), it seems that markets initially react more quickly and more sharply to Greek public sector securities, whereas subsequently they probably turn out to have overreacted and proceed to a counterbalancing correction. The only exception to this rule, at least on the basis of the data so far, is the crisis in the Middle East, following the Hamas attack on southern Israel in October 2023. In times of crisis, this behavior is not unprecedented for markets, as investors are agitated and try to determine the extent of their exposure, usually taking short positions on the issuers they regard as the weakest links. This highlights how precarious the position of the Greek state becomes because of the amount of public debt, the credit rating it receives, and the idiosyncratic risk that the markets themselves assign to it.

So, despite the fact that the most important part of the decrease in Greek yields in recent years—according to the price signals given by international markets—is due to the drastic reduction in the idiosyncratic risk of the Greek state vis-à-vis the German state, with a secondary part being due to the ECB's highly expansionary monetary policy, the same markets show greater sensitivity/concern towards Greek securities in times of general turmoil. For the time being, the Greek state is quite protected from extreme volatility in the yield rates that markets demand to hold its debt, given that the vast majority of it is held by the official sector and has a fixed rate, whereas market yields only affect new issues. However, the relative participation of the official sector will decline over time, as the public debt of Greece will be refinanced with new issues from markets. And, according to the current amortization schedule, the upcoming 2026–2033 period has particularly demanding refinancing needs. This implies that (a) the Greek government will need to issue more new bonds in a period of relatively high yields; (b) as a result, the average cost of servicing the debt will increase quite rapidly; (c) at the same time, the pace at which public debt is transferred to private sector creditors will have accelerated. Thus, the characteristics of Greek debt that currently make it sound, despite its size, may be quite different at the end of this period and the sensitivity of its sustainability to the faith of markets will be significantly higher. If for some reason, then, a significant increase in Greece's idiosyncratic risk or in the systematic risk of the eurozone/EU occurs, it is not impossible that an unintended overreaction of markets (like those observed in recent years) or a voluntary mistrust by them could lead to a feedback loop of higher and higher risk premia and lower and lower credit, with the inevitable result of a new debt crisis.⁵⁷

Therefore, the size of Greek debt, as long as it remains particularly high in relation to Greece's economic capacity (i.e., in GDP terms), in itself constitutes a risk factor for the Greek economy, threatening it as a "sword of Damocles", already limiting its developmental prospects in the present. Seeking to neutralize this threat as soon as possible is therefore a one-way street. Over time, there have been three alternative methods for decreasing public debt: firstly, through a policy of fiscal austerity for the creation of a budget surplus; secondly, through debt restructuring or partial debt cancellation; and thirdly, through a "mild adjustment", i.e., a gradual decrease in the importance of debt due to economic growth (a reduction in the debt-to-GDP ratio) and inflation (a reduction in the real value of debt)⁵⁸. The only realistic option is the third. On the one hand, after ten years (2010–2019) of harsh fiscal austerity, there is no margin for further reduction in public expenditure and the increase in taxes will have a negative impact on the restart of the economy. On the other hand, the current creditors of the Greek state are mainly European institutions and eurozone member states, which would not consent, under any circumstances—and especially not unanimously—to the restructuring or cancellation of the Greek debt.⁵⁹ The "mild adjustment" option essentially requires the Greek economy to "move forward" rapidly, achieving significant and sustainable growth rates in the following years. As discussed in a relevant policy paper by diaNEOsis (Christodoulakis et al. (2020)), this implies the adoption of front-loaded policies for the rapid growth in domestic income that will prevent the debt-to-GDP ratio from increasing and keep it at serviceable levels. It remains to convince both European institutions and international markets of the adequacy of the "mild adjustment" in addressing the debt problem, which makes the need to achieve immediate and strong rates of economic growth even more urgent.

8. Conclusions

Despite the significant rates of investment and growth in the Greek economy since the pandemic crisis, there is still a long way to go for Greece to enter sustainable economic, social and political development orbit. And, as Sharma Ruchir aptly points out in his book *The Rise and Fall of Nations, Forces of Change in the Post-Crisis World* (Sharma (2016)), periods of long-term economic development occur because leaders avoid the excesses that produce debt and investment bubbles, currency and financial crises, and hyperinflation. With this in mind, in order to avoid a new Greek fiscal derailment, it is important that the significant European financial resources that enter the Greek economy do not create the illusion that "money is there" and thus lead to inertia, but that they mobilize us so that the "money will be put to good use". They should be directed towards productive and innovative investments that will increase the country's exports, create new jobs and have the maximum development footprint. And to achieve this, the public sector and market reforms are a one-way street, as is the addressing of major challenges that mine development, such as Greece's rapidly ageing demographic.⁶⁰

Author Contributions: Conceptualization, E.M. and H.V.; methodology, E.M. and H.V.; validation, E.M. and H.V.; formal analysis, E.M. and H.V.; investigation, H.V.; resources, E.M. and H.V.; data curation, H.V.; writing—original draft preparation, H.V.; writing—review and editing, E.M. and H.V.; visualization, H.V.; supervision, E.M.; project administration, E.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

¹ The entire analysis contained in this paper is based on open data from as late as 15 February 2024.

² Throughout this paper, we use estimates and predictions by the European Commission, available in the AMECO database. There are a multitude of other estimates/forecasts, using macroeconomic models specific to Greece, from domestic institutions, e.g., the Bank of Greece, the systemic banks, the Centre of Planning and Economic Research (KEPE) and academic research groups. AMECO was selected on the basis of the open access of all estimated variables and indicators necessary for the present analysis.

- 3 It should be noted that these three bailout programs were not undertaken for the benefit of Greece alone. The official default of a Eurozone member state would set a very negative precedent for the edifice of the monetary union, with obvious implications in terms of trust in the common currency and the EU and would expose other member states with high debt/GDP ratios or significant external imbalances to similar risks. A destabilization of the euro area could also have repercussions for the global economy as a whole. For these reasons, Greece should have been rescued, but at the same time, Greece should also have set an example to be avoided. These factors led to “bitter” bailout programs, combined with very strict fiscal austerity that inevitably resulted in a deepening of the economic recession. For a very comprehensive chronology of Greece’s bailout programs, and the underlying factors that shaped them, see [Dallara \(2024\)](#).
- 4 For a general overview of the current assessment of the Greek economy by international organizations, see [European Commission and Directorate-General for Economic and Financial Affairs \(2023a, 2023c\)](#), and [OECD \(2023\)](#).
- 5 Regarding the other three periods of great recession of the UK’s in modern history, its recession during the period of the “Great Depression” did not exceed 5.4% cumulatively and had been overcome by 1934; during the war and post-war period of 1944–1951, it did not exceed 12.2% cumulatively and lasted 7 years; and during the financial crisis of 2007–2008, it did not exceed 4.9% cumulatively and lasted 5 years.
- 6 According to the latest data by ELSTAT (the Hellenic Statistical Authority) and Eurostat, Greek GDP in the third quarter of 2023, with a calendar and seasonal correction and in 2015 values, was EUR 48.7 billion. This amount is equivalent to an annual GDP of EUR 194.8 billion in 2015 values, which is approximately equal to 81.5% of 2008 GDP in 2015 values.
- 7 For a more detailed analysis of the Ireland case, see the relevant case study by [diaNEOsis: Mitsos and Linardatou \(2019\)](#).
- 8 For a very comprehensive description of the chronic problems that led to the Greek economic crisis, see [Kostis \(2018\)](#).
- 9 This reference focuses only on the depreciation due to the underemployment and/or the preservation in an inactive state. The constant and usual depreciation and decrease in physical and human capital is not included here.
- 10 As an indicative example regarding employment, according to the annual data of the Labor Force Survey of ELSTAT, in 2019, the labor force of the country was smaller by approximately 311 thousand people in comparison with the 2009 level, an alteration of 6.2%.
- 11 Data from the [diaNEOsis](#) research: [Matsaganis et al. \(2018\)](#).
- 12 As this analysis seeks a diachronic comparison of the consumption expenditure with the disposable income, we have chosen to ignore—and therefore, not to exclude—the share of social security contributions that is not returned to the private economy as pensioners’ income. The reason is that it would significantly increase the complexity of the analysis, without any real benefit. The same applies to the inclusion of urgent state aid to the insurance funds, which is of course a net flow from taxes to pensions. These calculations are therefore only of value in a diachronic comparison and not as absolute amounts.
- 13 In fact, in 2022, the share of per capita consumption in per capita disposable income (with contributions) reached an all-time high of 99% and the remaining per capita savings reached an all-time low of EUR 127.
- 14 These 14 categories correspond to the NACE rev.2 classification as follows ([group]: [NACE rev.2 codes]): agriculture, forestry and fishing: A; manufacturing: C; energy (excluding oil products), water and telecommunications: D, E and J61; construction: F; wholesale and retail trade: G; transportation and storage: H; accommodation and food service: I; financial and insurance activities (excluding social security): K; real estate activities: L; professional and administrative/support service activities: M and N; public administration, defense and compulsory social security: O; education: P; human health and social work activities: Q; other: B, J58–J60, J62, J63, R, S, T and U.
- 15 This analysis as a whole has been conducted at constant prices (2015) and is therefore about real changes.
- 16 The entire air transport sector—including freight transport—which depends on tourism to a higher degree, has a GVA that does not exceed EUR 771 million or 0.48% of total GVA (the highest achieved in 2018).
- 17 See [Figure 13](#) in the next section.
- 18 We exclude from this phrase the trade policy instruments that have been used over time for CAB improvement, such as import duties and export subsidies, as their use is not free in member countries of customs or economic unions, as is the case of Greece.
- 19 According to the balance of payment statistics (BOP) methodology by the Bank of Greece. This does not apply on a national accounting basis.
- 20 In all election years of this specific period, that is, 1981, 1985, 1989, 1990, 1996 and 2000, except for the year 1993, the CAB deteriorated significantly.
- 21 From travel collections from abroad alone, there was a loss of EUR 13.9 billion compared to 2019 (−76%). Of course, travel payments to foreign countries also decreased by around EUR 2 billion (−71%). Therefore, the travel balance showed a loss of almost EUR 12 billion in 2020 compared to 2019 (−77%).
- 22 Exports of goods decreased by EUR 3.5 billion compared to 2019 (−10.9%), whereas imports of goods decreased by EUR 7.8 billion (−14.2%).

Examples of such factors can be the recent pandemic and previous, less severe pandemics (e.g., SARS in 2004, the bird flu in 2007), various international developments (such as wars or turmoil in nearby or competitive—from a tourism point of view—countries, and financial difficulties in countries of origin), international or domestic terrorism, migration crises, etc.

For a more detailed analysis of this issue and relevant proposals, see relevant studies by diaNEOsis: [diaNEOsis and ISPM \(2019\)](#) and [Vaggelas et al. \(2021\)](#).

Specifically, “food, drinks and tobacco products”: SITC0 and SITC1; “raw materials”: SITC2 and SITC4; “mineral fuels, lubricants and related materials”: SITC3; “chemicals and related products, n.e.s.”: SITC5; “machinery and transfer equipment”: SITC7; “other manufactured goods”: SITC6 and SITC8; and “other”: SITC9.

Specifically on the issue of R&D and innovation in the Greek economy, see the relevant study by diaNEOsis: [Kalogirou et al. \(2021\)](#).

For a detailed mapping of the current situation in the Greek startup ecosystem, see a relevant study by diaNEOsis: [Pepelasis et al. \(2022\)](#).

The average of the three-year period of 2006–2008. We avoid counting the years until 2004, as investment expenditure was increased due to an exogenous need, the preparation of the Olympic Games. We also avoid counting the year 2005, as the reduced investment in this year is partly caused by investment “fatigue”, after a long period of exogenously increased investment, and cautiousness about the course of the Greek economy in the post-Olympic Games era.

Of the total NGEU resources (EUR 750 billion in 2018 constant values), Greece was allocated EUR 29.1 billion from the recovery and resilience facility (RRF—EUR 16.5 billion in grants and EUR 12.6 billion in loans), as well an additional amount of EUR 3 billion from the other NGEU funds.

For the benefits that a well-designed and targeted FDI attraction policy can have, see the case study on Ireland as a role model for Greece, by diaNEOsis: [Mitsos and Linardatou \(2019\)](#).

The first round of recapitalizations was completed in 2013, as a result of private sector involvement (PSI), with EUR 25.5 billion from the Hellenic Financial Stability Fund (HFSF) and EUR 3 billion from private investors. The second round took place in 2014, with EUR 8.3 billion from private investors. The third round took place in late 2015, in the shadow of the referendum, with EUR 5.4 billion from the HFSF and EUR 9 billion from private investors.

The value of the equity capital of the banks was zeroed out twice: in February 2012 and November 2015.

For a better understanding of this level, we indicatively note that the corresponding share at the end of 2008 was 5.7%.

For a more detailed analysis of this, see [Hardouvelis \(2021\)](#).

The “Hercules” scheme provided for the creation of a special-purpose vehicle (SPV), which would purchase the non-performing exposures with resources derived from the issuance of securities of three quality grades. The low-rated securities would be transferred to an investor for a fee and the high-rated securities would be retained by the bank and guaranteed by the Greek public sector for a royalty.

This reference focuses on intellectual property products that constitute a fixed capital and are therefore used in the production process.

AMECO database, accessed on: 24 January 2024. The capital stock in this database is estimated by using historical fixed capital flows (GFCF and FCC) with an initial level defined as three times the GDP in 1960.

As there are no significant differentiations from the rest of the world in terms of relative changes in production technology and productivity of individual sectors during the same period.

[European Commission et al. \(2023\)](#). *Annual report on European SMEs 2022/2023* and its accompanying documents: “2023 SME Country Fact Sheet. Greece” and “2023 SME Country Fact Sheet. EU27”.

The non-financial business sector includes industry, construction, trade and services (NACE rev. 2, divisions B to J, L, M and N), but excludes agriculture, forestry and fishing as well as services that do not participate in the market to a high degree, such as education and health.

See the relevant information in the study by diaNEOsis: [Kalogirou et al. \(2021\)](#).

The fifth highest VAT coefficient in the EU, after Hungary (27%), Denmark, Croatia and Slovenia (25% for all three of them), whereas Finland also has a 24% coefficient.

For a detailed description of what happened in all energy markets in 2020, see [IEA \(2021\)](#).

For a detailed inventory of the issues faced by Greek export businesses, see [Kalyvitis et al. \(2018\)](#).

[diaNEOsis and IOBE \(2021\)](#). This analysis focused on electricity and NG, as the prices of these energy sources determine the competitiveness of the energy-intensive industry to a significant degree.

See the crisis at the Evros border in March 2020, within the framework of asymmetrical operations by Turkey.

One of the main raw materials for the production of fertilizers is NG (70–90% methane), which is used to mass-produce the ammonia contained in fertilizers. In addition, Russia is one of the main producers of fertilizers internationally, and together with its partner Belarus, they have a significant share in the global production of another important raw material for fertilizers: potassium.

Conventionally, unless otherwise stated, the calculation basis of the reported item will be the national consumer price index (CPI).

- 49 Based on the HICP, on the basis of which the interstate comparison should be made.
- 50 See the relevant ECB study: [Koester et al. \(2021\)](#).
- 51 In order to avoid a loss of competitiveness in the Greek economy vis-à-vis its main trading partners. It also implies the additional assumption that the monetary policy will be such that it will not allow for a loss of competitiveness vis-à-vis the rest of the world.
- 52 Since the Greek public sector had not had time to be rated by at least one rating agency (out of the four main agencies recognized by the ECB) with an investment grade.
- 53 While, in general, the eligibility requirements for eligible debt instruments set out in the APP were maintained, an exemption was granted specifically regarding securities issued by the Greek public sector. The total amount of the Greek debt purchased by the ECB under the PEPP exceeds EUR 39.2 billion.
- 54 See the relevant paper: [Gatsios and Ioannou \(2022\)](#).
- 55 S&P: BBB (20 October 2023, [Standard & Poor's \(2023\)](#)); Fitch Ratings: BBB (1 December 2023, [Fitch Ratings \(2023\)](#)); and DBRS: BBB (low) (8 September 2023, [DBRS Ratings \(2023\)](#)); whereas only Moody's rates Greek state bonds at one step below its lower investment grade (Baa3): Ba1 (15 September 2023, [Moody's \(2023\)](#)).
- 56 According to Eurostat figures (as of January 2024) and EC estimates (November 2023).
- 57 See [Calvo \(1988\)](#) for such a feedback mechanism.
- 58 On the condition that government bond yields remain below the sum of GDP growth and inflation.
- 59 See [Alogoskoufis \(2021\)](#) for a more detailed analysis of these available options and the arguments in favor of the third of them.
- 60 For a comprehensive analysis of Greece's demographic problem, see the relevant study by diaNEOsis: [Balourdos et al. \(2019\)](#).

References

- Alogoskoufis, George. 2021. Το χρέος και η αντιμετώπισή του μετά την πανδημία [Debt and How to Deal with It after the Pandemic]. *Οικονομικός Ταχυδρόμος*. June 6. Available online: <https://www.ot.gr/2021/06/06/academia/hellenic-observatory-lse/to-xreos-kai-i-antimetopisi-tou-meta-tin-pandimia> (accessed on 15 February 2024).
- Balourdos, Dionyssi, Nicolas Demertzis, George Pierrakos, and Elias Kikilias. 2019. *Η χαμηλή γονιμότητα στην Ελλάδα, δημογραφική κρίση και πολιτικές ενίσχυσης της οικογένειας* [Low Fertility in Greece, Demographic Crisis and Family Support Policies]. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/demography> (accessed on 15 February 2024).
- Calvo, Guillermo Antonio. 1988. Servicing the Public Debt: The Role of Expectations. *American Economic Review* 78: 647–61.
- Christodoulakis, Nikos, Miltiadis Nektarios, Helias Valentis, and Christos Axioglou. 2020. *Η Επανεκκίνηση Της Ελληνικής Οικονομίας. Ταμείο Ανάκαμψης Και Δημοσιονομικές Προοπτικές* [The Restart of the Greek Economy. RRF and Fiscal Outlook]. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/epanekkinisi-ellinikis-oikonomias> (accessed on 15 February 2024).
- Dallara, Charles. H. 2024. *Euroshock: How the Largest Debt Restructuring in History Helped Save Greece and Preserve the Eurozone*. New York: Rodin Books.
- DBRS Ratings. 2023. DBRS Morningstar Upgrades the Hellenic Republic to BBB (Low), Stable Trend. September 8. Available online: <https://dbrs.morningstar.com/research/420362/dbrs-morningstar-upgrades-the-hellenic-republic-to-bbb-low-stable-trend> (accessed on 15 February 2024).
- diaNEOsis, and IOBE [Foundation for Economic & Industrial Research]. 2018. *Η Φορολογία Εισοδήματος Στην Ελλάδα* [Income Tax in Greece]. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/i-forologia-eisodimatos-stin-ellada> (accessed on 15 February 2024).
- diaNEOsis, and IOBE [Foundation for Economic & Industrial Research]. 2021. *Ο Τομέας Ενέργειας Στην Ελλάδα: Τάσεις, Προοπτικές και Προκλήσεις* [The Energy Sector in Greece: Trends, Prospects and Challenges]. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/i-energeia-stin-ellada> (accessed on 15 February 2024).
- diaNEOsis, and ISPM [Institute of Social & Preventive Medicine]. 2019. *Η Ανάπτυξη Του Τουρισμού Τρίτης Ηλικίας Στην Ελλάδα Και Η Συμβολή Του Τουρισμού Υγείας* [The Development of Third Age Tourism in Greece and the Contribution of Health Tourism]. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/tourismos-tritis-ilikias> (accessed on 15 February 2024).
- European Central Bank. n.d.a. Asset Purchase Programmes. Retrieved 30 January 2023. Available online: <https://www.ecb.europa.eu/mopo/implement/app/html/index.en.html> (accessed on 30 January 2023).
- European Central Bank. n.d.b. Key ECB Interest Rates. Retrieved 30 January 2023. Available online: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html (accessed on 30 January 2023).
- European Central Bank. n.d.c. Pandemic Emergency Purchase Programme (PEPP). Retrieved 30 January 2023. Available online: <https://www.ecb.europa.eu/mopo/implement/pepp/html/index.en.html> (accessed on 30 January 2023).
- European Commission, and Directorate-General for Economic and Financial Affairs. 2023a. 2023 Country Report–Greece. June 14. Available online: <https://www.data.europa.eu/doi/10.2765/450492> (accessed on 15 February 2024).
- European Commission, and Directorate-General for Economic and Financial Affairs. 2023b. *European Economic Forecast: Autumn 2023*. Luxembourg: Publications Office of the European Union. Available online: <https://data.europa.eu/doi/10.2765/325116> (accessed on 15 February 2024).

- European Commission, and Directorate-General for Economic and Financial Affairs. 2023c. *Post-Programme Surveillance Report: Greece, Autumn 2023*. Luxembourg: Publications Office of the European Union. Available online: <https://data.europa.eu/doi/10.2765/900936> (accessed on 15 February 2024).
- European Commission, and Directorate-General for Economic and Financial Affairs. 2024. *European Economic Forecast: Winter 2024 (Interim)*. Luxembourg: Publications Office of the European Union. Available online: <https://data.europa.eu/doi/10.2765/01964> (accessed on 15 February 2024).
- European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Joint Research Centre, Laura Di Bella, Anastasis Katsinis, and Jaime Lagüera-González. 2023. *Annual Report on European SMEs 2022/2023: SME Performance Review 2022/2023*. Luxembourg: Publications Office of the European Union. Available online: <https://data.europa.eu/doi/10.2760/028705> (accessed on 15 February 2024).
- Fitch Ratings. 2023. Fitch Upgrades Greece to 'BBB-'; Outlook Stable. December 1. Available online: <https://www.fitchratings.com/research/sovereigns/fitch-upgrades-greece-to-bbb-outlook-stable-01-12-2023> (accessed on 15 February 2024).
- Gatsios, Konstantine, and Dimitris A. Ioannou. 2022. Ο πληθωρισμός ως ευκαιρία βελτίωσης της ανταγωνιστικότητας της ελληνικής οικονομίας [Inflation As an Opportunity to Improve the Competitiveness of the Greek Economy]. *To Βήμα της Κυριακής*. February 13. Available online: https://www.tovima.gr/printed_post/o-plithorismos-os-eykairia-veltiosis-crtis-antagonistikotitas-crtis-ellinikis-oikonomias (accessed on 15 February 2024).
- Hardouvelis, Gikas A. 2021. Κρίση και χρηματοπιστωτικά ανοίγματα στην Ελλάδα [Crisis and financial exposures in Greece]. In *Υποχρεώσεις Χρηματοπιστωτικών Φορέων [Obligations of Financial Institutions]*. Edited by Association of Greek Commercialists. Athens: Νομική Βιβλιοθήκη, pp. 245–97. Available online: <https://hardouvelis.gr/el/gikas-hardouvelis-quot-krisi-kai-chrimatopistotika-anoigmata-stin-ellada-quot-meleti-gia-to-mellon-ton-trapezon> (accessed on 15 February 2024).
- Hellenic Republic, and PDMA (Public Debt Management Agency). 2019. Funding Strategy for 2020. December. Available online: <https://www.pdma.gr/en/?view=article&id=5901:funding-strategy-for-2020> (accessed on 15 February 2024).
- Hellenic Republic, and PDMA (Public Debt Management Agency). 2023. Funding Strategy for 2024. December 21. Available online: <https://www.pdma.gr/en/?view=article&id=5901:funding-strategy-for-2024> (accessed on 15 February 2024).
- IEA. 2021. *Global Energy Review 2021*. Paris: IEA. Available online: <https://www.iea.org/reports/global-energy-review-2021> (accessed on 15 February 2024).
- Kalogirou, Giannis, Aggelos Tsakanikas, Aimilia Protogerou, Panagiotis Panagiotopoulos, Evangelos Siokas, Georgios Siokas, and Dimitrios Stamatopoulos. 2021. *Η Ελλάδα που Μαθαίνει, Ερευνά, Καινοτομεί και Επιχειρεί [Greece That Learns, Researches, Innovates and Does Business]*. Athens: diaNEOsis. Available online: https://www.dianeosis.org/research/research_policy (accessed on 15 February 2024).
- Kalyvitis, Sarantis, Margarita Katsimi, and Thomas Moutos. 2018. *Εξαγωγές και Εξαγωγικές Επιχειρήσεις στην Ελλάδα [Exports and Export Businesses in Greece]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/2018/12/eksagoges-kai-eksagogikes-epixeiriseis-stin-ellada> (accessed on 15 February 2024).
- Koester, Gerrit, Frank Smets, and Chiara Osbat. 2021. *Understanding Low Inflation in the Euro Area from 2013 to 2019: Cyclical and Structural Drivers*. Frankfurt: European Central Bank. Available online: <https://data.europa.eu/doi/10.2866/869984> (accessed on 15 February 2024).
- Kostis, Kostas. 2018. *History's Spoiled Children: The Story of Modern Greece*. Oxford: Oxford University Press.
- Makantasi, Evmorfia (Fay), and Helias Valentis. 2020. *ΕΣΠΑ-Ένα Εν Μέρει Ανεκμετάλλευτο Αναπτυξιακό Κοινωνικό Εργαλείο [NSRF-A Partly Unutilized EU Development Instrument]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/2020/07/espa-ena-aneckmetaleyto-anaptyksiako-ergaleio> (accessed on 15 February 2024).
- Makantasi, Evmorfia (Fay), and Helias Valentis. 2021. *Η "Χρηματοδότηση Βάσει Αποτελεσμάτων" Ως Εργαλείο Κοινωνικής Πολιτικής [Results-Based Funding as a Social Policy Tool]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/2021/02/i-xrimatodotisi-vasei-apotelesmatwn-Ως-Εργαλείο-Κοινωνικής-Πολιτικής> (accessed on 15 February 2024).
- Matsaganis, Manos, Andrea Parma, and Alexandros Karakitsios. 2018. *Όψεις Κοινωνικής Κινητικότητας στην Ελλάδα της Κρίσης [Aspects of Social Mobility in Crisis Greece]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/2018/11/oi-epiptoseis-tis-krisis-sta-eisodimata-twn-ellinwn> (accessed on 15 February 2024).
- Mitsos, Michalis, and Odin Linardatou. 2019. *Ξένες Επενδύσεις, Παιδεία και Εξωστρέφεια: Πώς Σώθηκε Η Ιρλανδία [Foreign Investment, Education and Openness: How Ireland Was Saved]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/research/ameses-ksenes-ependyseis> (accessed on 15 February 2024).
- Moody's. 2023. Government of Greece-Ba1 Stable: Annual Credit Analysis. October 11. Available online: https://www.moodys.com/research/Government-of-Greece-Ba1-stable-Annual-credit-analysis-Issuer-In-Depth--PBC_1376383 (accessed on 15 February 2024).
- OECD. 2020. *OECD Tourism Trends and Policies 2020*. Paris: OECD Publishing. [CrossRef]
- OECD. 2023. *OECD Economic Outlook, Volume 2023 Issue 2*. Paris: OECD Publishing. [CrossRef]
- Pepelasis, Ioanna Sapfo, Ioannis Spyropoulos, Georgios Kokkotas, Dimitris Zisis, and Ioannis Besis. 2022. *Χαρτογράφηση Ελληνικού Οικοσυστήματος Νεοφυών Επιχειρήσεων [Mapping the Greek Start-up Business Ecosystem]*. Athens: diaNEOsis. Available online: <https://www.dianeosis.org/2022/01/oi-neofyeis-epixeiriseis-stin-ellada> (accessed on 15 February 2024).

- Pissarides, Christopher A., Dimitri Vayanos, Nikolaos Vettas, and Costas Meghir. 2020. Σχέδιο Ανάπτυξης για την Ελληνική Οικονομία [A Growth Strategy for the Greek Economy]. Available online: <https://www.government.gov.gr/schedio-anaptixis-gia-tin-elliniki-ikonomia> (accessed on 15 February 2024).
- Sharma, Ruchir. 2016. *The Rise and Fall of Nations: Forces of Change in the Post-Crisis World*. New York: W. W. Norton & Company.
- Standard & Poor's. 2023. Greece Upgraded To 'BBB-/A-3' On An Improved Budgetary Position; Outlook Stable. October 20. Available online: <https://www.disclosure.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/3074450> (accessed on 15 February 2024).
- Vaggelas, George. K., Athanasios Pallis, Christina Kontaxi, Giannis Soultanis, Vicky Loizou, Zoe Rimpa, Marios Nakas, and Panagiotis Markantonatos. 2021. Διαμόρφωση Στρατηγικής Ανάπτυξης Τουριστικών Λιμένων [Formulation of a Strategy for the Development of Tourist Ports]. Athens: diaNEOsis. Available online: https://www.dianeosis.org/research/cruise_industry_in_greece (accessed on 15 February 2024).

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.