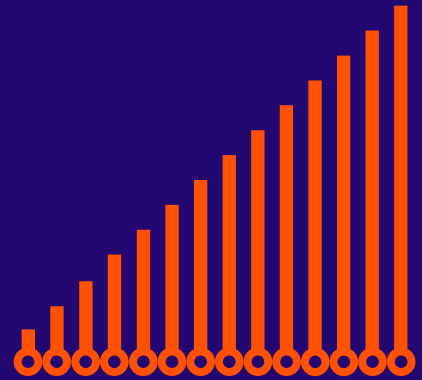
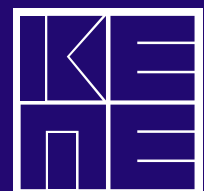


GREEK ECONOMIC OUTLOOK



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



GREEK

Economic Outlook

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**4.1. Recent developments in the digital and green transitions
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Executive Summary

The Greek economy continues to grow

Despite the adverse international environment, the Greek economy is relatively more dynamic than the other euro area countries. According to the projections of the factor model, the average annual rate of change in Greece's real Gross Domestic Product (GDP) is projected at 5.3% for the year 2022 and 2.2% for the year 2023 (see 1.3). This outlook stems from the favorable evolution of several of the economic variables incorporated in the forecast, combined with the now evident impact that current economic and geopolitical developments on many different fronts have on the path of certain variables. While the signs of a moderation in energy prices seem to be removing some of the more pessimistic scenarios for the European economy at the moment, geopolitical developments continue to pose serious risks. At the same time, it is difficult to predict the speed of the disinflationary process and hence the related effects on household purchasing power, production costs and interest rates, while in the case of Greece, these uncertainties are compounded by the possible effects of the electoral cycle. On the contrary, a positive impact on the country's growth prospects could be generated by a positive outcome in terms of the recovery of the investment grade of Greek government bonds, while a more favourable GDP development could be supported by the possibility of continuing to implement support measures for the economy on a scale compatible with fiscal targets, the implementation of Recovery and Resilience Fund projects and reforms and actions under the new NSRF 2021-2027, and the intensification of the investment activities related to the recovery and resilience of the Greek economy.

Inflation is decelerating

According to recent developments, inflation in both Greece and the Eurozone appears to be decelerating due to the decline in international energy prices (see section 1.2). As is well known, the evolution of the path of international energy prices (natural gas and crude oil) affects domestic inflation both directly, through the final energy prices for consumers, and indirectly, through the cost of production of basic consumer goods. However, the disinflationary deceleration is being held back by the continued upward price trend in the other components

of the CPI, especially in the food sector, a consequence of the past pass-through of energy price increases to the cost of production and transport of goods.

The budget is being implemented better than planned

The Budget execution is clearly improved from the 2023 projections, which is due to the significant growth of the Greek economy (section 2.1). As a result of the aforementioned economic growth, as well as inflation, the net revenues of the 2022 State Budget increased significantly. Specifically, this increase translates into more than half a percentage point of GDP and was driven by significant increases in goods prices that yielded significantly higher VAT, as well as by a significant increase in tourism receipts that returned to pre-pandemic levels. The increase in tax revenues was also partly due to higher income tax receipts from both individuals and corporations as the economy moved into normalcy in 2022 with a significant increase in economic activity and employment. At the same time, however, and due to the increased need for measures to provide relief to citizens, mainly from the energy burden, but also from the burden on vulnerable populations due to inflation, spending also increased compared to the same period of the previous year. These had an increase of 2.2% compared to 2021, while they also show a large discrepancy compared to the expenditure originally foreseen by the budget, as at the time of its submission, the major energy crisis and the ensuing global economic crisis were not expected, which forced the Greek government to take extraordinary measures to deal with them. This increase in expenditure was also due to the acquisition of fixed assets and, more specifically, to the arms programmes undertaken by Greece, which had been foreseen in all the relevant targets and estimates.

Public debt is falling

Greece's government debt was down by 5.3% in the third quarter compared with the second quarter of 2022 (section 2.2). This reduction was the largest debt reduction, on an annual basis, recorded in the EU. Nevertheless, Greek debt remains by far the highest in the EU, and a deceleration in inflation could easily

reverse the downward path of debt by leading to a significant cut in public spending.

The green and digital transition is progressing

Many domestic and international reports and indicators refer positively to the efforts of the Greek economy in the areas of green and digital transition.¹ In particular, in terms of green transition, the Greek economy is close to the EU-27 average and indeed well above it in the use of renewable energy sources for heating and cooling (section 4.1). However, it lags significantly behind in the use of RES in transport. Also, Greece still needs to do a lot to catch up with the European average in areas such as recycling, energy upgrading of buildings, the degree of sustainability of the agricultural sector, climate policies, green patents as well as investments in green food technologies.

More specifically, the Greek economy needs to focus on improving the green society sector, particularly in the areas of recycling, green buildings and green transport, and to intensify efforts to make the agricultural sector more environmentally friendly, while investing in food technology (foodtech) and increasing the number of green patents and climate actions in general. It is worth mentioning that, while Europe is generally considered a pioneer in the green transition, there are several parameters such as CO₂ emissions and the overall energy transition dimension in which it lags behind other regions of the world.

Regarding the digital transformation, it is noted that Greece has significantly delayed the start of digitisation and is rapidly losing ground to its partners. As a result, the gap it has to fill is so large that despite significant efforts towards digital transformation, which started with a significant delay and “thanks” to the pandemic, it does not seem to be catching up with the European average as quickly as would be desirable.

The risk of worsening social problems

The period of the Covid-19 pandemic had a strong impact on all EU economies (see section 3.2).² Thus, in Greece, the reaction of the poverty line was immediate

but marginal, falling by 0.34%, but with a significant increase in the poverty rate by two percentage points. The combination of a marginal drop in the threshold and a sharp rise in the rate leads to the conclusion that lower incomes were disproportionately affected than higher incomes.

The majority of households became recipients of a series of fringe benefits and allowances designed to compensate for the reduced income due to Covid-19. Although in some cases the one-off support appears quite significant, it was not sufficient to maintain the level of disposable income of the previous year. In particular, while the level of poverty thresholds in the EU recorded an average increase of 3.6% between 2019-2020, in Greece the decrease is estimated to have been on the order of 0.3%. As a consequence of the high fall in GDP, the disposable income of the lowest strata of the population recorded a disproportionate decline.

In conclusion, the social protection system, despite the continuous reforms made during the last seven years, 2016-22, continues to be very fragmented in terms of categories and number of benefits, with significant dispersion of resources and often with little targeted benefits, given that the poverty rate remains extremely high in Greece. Income criteria for the provision of benefits, combined with widespread tax evasion, create structural problems in the effective implementation of benefit policy. Obviously they should be maintained. But at the same time, a tax system is needed that does not create more problems than it solves. Tax and social security burdens must be rationalised so that they do not act as incentives for tax evasion and the transition to the black sector of the economy. One proposal in this direction is to indirectly manage income support for vulnerable groups by rearranging the level of VAT on different categories of goods and services. A reassessment of the rates and consumption items included in each of the categories included in the “basket” of the first three income deciles could contribute to improving the disposable income of the lower income classes and thus to reducing poverty in Greece.³

Moreover, maintaining benefits for a long time and not integrating them into a long-term social protec-

1. See also KEPE, Transformation Observatory Bulletin, No. 1/2023, “Digital Transition” and KEPE, News Analysis 1/2023, “Green and Digital Transition: positive developments, need for accelerated action” at <<https://www.kepe.gr/index.php/el/>>. (in Greek)

2. See also P. Liargovas, C. Goulas and N. Apostolopoulos (eds., 2022), *The Social Economic Impacts of the Covid-19 Pandemia on the Employees of the Private Sector*, KEPE-INE GSEE at <<https://www.kepe.gr/index.php/el/>>. (in Greek)

3. KEPE has carried out a study on this, which is available on its website. See V. Missos (2021), *The Effects of the System of Social Protection on Poverty and Inequality in Greece and the EU*, KEPE, Reports No. 82.

tion strategy risks affecting incentives, creating an addiction to dependence on the state and, ultimately, trapping households in low welfare and firms in low productivity. There is also a risk that the large number of subsidies could create distortions in the price mechanism and potentially send the wrong signals to consumers and producers.

What the Greek economy needs is to reduce its dependence on imports and increase exports. A policy of subsidies, which is based on vouchers or passes on products and services that are either imported or whose production is entirely dependent on imports, not only does not reduce the weaknesses of the Greek production model (twin deficits, dramatic over-indebtedness and cheap labour), but also leads private enterprises away from the production of internationally tradable goods, benefiting from the “given demand” that arises through such subsidy policies. The role of domestic firms in this case is mainly transactional

rather than productive. It is necessary to strengthen (through incentives) domestic supply chains in the private sector in order to reduce its dependence on imports.

Finally, the design of a medium-term subsidy policy strategy should take into account the limited fiscal space available to Greece, mainly due to high over-indebtedness, both now and in the future. It should not be forgotten that Greece has given the third highest budget support in the European Union for the energy crisis in 2022, around 6% of GDP. The need to safeguard the state’s resources will become much greater from 2024 onwards, when every year and for many years, strict budgetary targets will have to be met.

*Professor PANAGIOTIS LIARGOVAS
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Centre of Planning and Economic Research (KEPE)*

1. Recent (macro-)economic developments

KEPE, *Greek Economic Outlook*, issue 50, 2023, pp. 6-14

1.1. The evolution of the aggregate demand components during the energy price uncertainty

1.1.1. Introduction – The domestic and foreign demand

Yannis Panagopoulos

In this section, utilizing the existing recorded macroeconomic data, we proceed to the analysis of the current developments of the Greek economy after the official end of the Covid-19 pandemic. Based on the results of Table 1.1.1 (and Figure 1.1.1), the first observation from the data is the preservation of the positive economic “climate” in the economy from the second quarter of 2021 onwards. Of course, the quarterly growth of the economy, from the second quarter of 2021 up to the third quarter of 2022 continued, but with a declining pace from quarter to quarter. In detail, from 12.6% in the second quarter of 2021, the economy stood at 2.8% in the third quarter of 2022. Additionally, we also had the decline in the growth rate of the economy on a 9month basis. So, from the 9-month growth of 8.36% in 2021, we moved to a smaller growth of 5.92% in the corresponding period of 2022.

Concerning now the factors that contributed to the (declining) trend of the GDP growth, in the first 9months of 2022 (5.92%), on an annual basis (y-o-y), the existence of positive rates of change in most of its individual macroeconomic factors is recorded. More specifically, by diminishing value, the largest positive rate of change was recorded by fixed capital formation (10.23%), by exports of goods and services (9.9%) and by private consumption (9.6%) while public consumption continued its recorded, from the fourth quarter of 2021, negative change (-1,7%).

In quarterly terms (2022 Q3), we have approximately the same positive picture with relatively lower rates of change due to the gradual decline in rates, as we mentioned above, from the second quarter of 2021 onwards. The outcome simply differentiates –in relation to the 9-month period– only with respect to the order of

contribution of the individual macroeconomic factors. Thus, fixed capital formation remains first (7.7%) but is now followed by private consumption (6.2%) and then exports of goods and services (0.9%). On the other hand, government consumption continued its negative path as a percentage of change (-2.9%) (Table 1.1.1. and Figure 1.1.1).

A corresponding positive path is also recorded, in Q3 2022, in terms of the individual contribution of macroeconomic components of the domestic demand to the GDP (Figure 1.1.2). According to the seasonally adjusted data, private consumption was the most positive component of GDP change with a percentage clearly higher than that of fixed capital formation and the negative contribution of public consumption (4.24 versus 1.01 and -0.59, respectively).

Turning now to the relationship of the external and the internal demand sector to the GDP (international vs. domestic demand, respectively), during the third quarter of 2022, the comparatively more important positive role of domestic demand in the change in GDP (4.03) emerges. The change in inventories was also on a positive contributing path to GDP change, while the balance of goods and services has a negative contribution (1.33 and -1.95, respectively) (see Figure 1.1.3).

The course of the Economic Climate Index (ESI), as a future “proxy” of demand, like some other forecasting indicators, offers important information –regarding the behavior of both businesses and consumers– which can be valuable concerning the developments of the economy. It can also be used to predict immediate developments concerning the future growth path of GDP. In Figure 1.1.4, the trend of the ESI for almost the whole year (2022) is presented.

From the recorded trend of this Index, it is obvious that there is a relatively downward path. ESI declined from 114.4 points in January 2022 to 101.4 points in November 2022. In conclusion, although the picture of economic growth is positive, the expectations of households and businesses do not fully share this optimism. In this relative pessimism, two events seems to play a decisive role: the continuation of the Russian invasion of Ukraine and the volatility of the energy prices internationally.

TABLE 1.1.1 Basic macroeconomic figures
(%, seasonally adjusted data, volumes)

	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	9month 2021	9month 2022
Private consumption	-0.3	-14.2	-6	-9.5	-6.9	13.6	7.1	12.1	13.7	8.9	6.2	4.60	9.60
Public consumption	2.2	-2	4.4	5.1	3.4	4.4	3.3	-1.4	-0.9	-1.3	-2.9	3.70	-1.70
Fixed capital formation	1.20	-1.00	4.00	-0.20	13.20	20.60	16.40	29.70	13.20	9.80	7.70	16.73	10.23
Domestic demand*	0.33	-10.27	-2.54	-5.60	-2.55	12.22	6.95	11.28	10.81	6.76	4.14	5.54	7.24
Exports of goods and services	-1.20	-33.10	-37.20	-12.60	-0.70	28.70	52.80	26.00	10.00	18.80	0.90	26.93	9.90
Imports of goods and services	2.30	-15.70	-8.20	-8.50	-4.70	25.60	22.00	32.30	17.40	14.50	5.20	14.30	12.37
Δ GDP	-1.6	-15.6	-10.7	-6.8	-2.1	14.5	12.6	8.8	7.9	7.1	2.8	8.36	5.92

Source: National Accounts (ELSTAT).

*Excluding change of inventories.

FIGURE 1.1.1
Basic macroeconomic figures (%)
 (% , seasonally adjusted data, volumes)

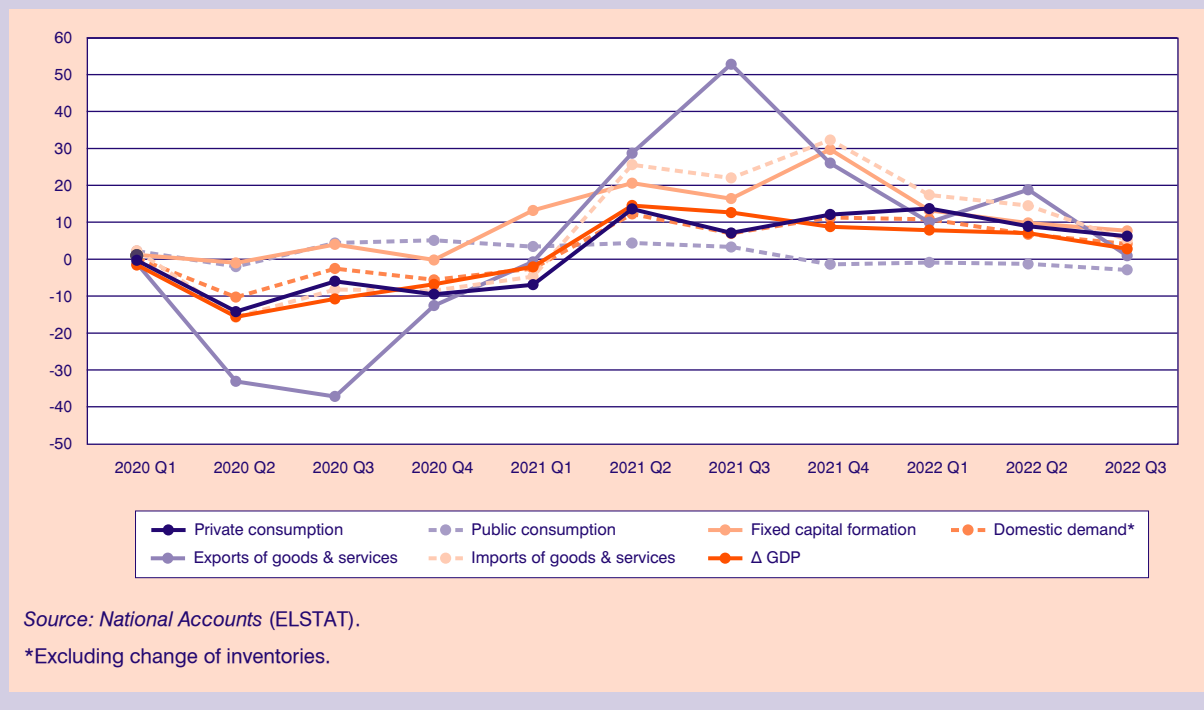


FIGURE 1.1.2
Components of domestic demand

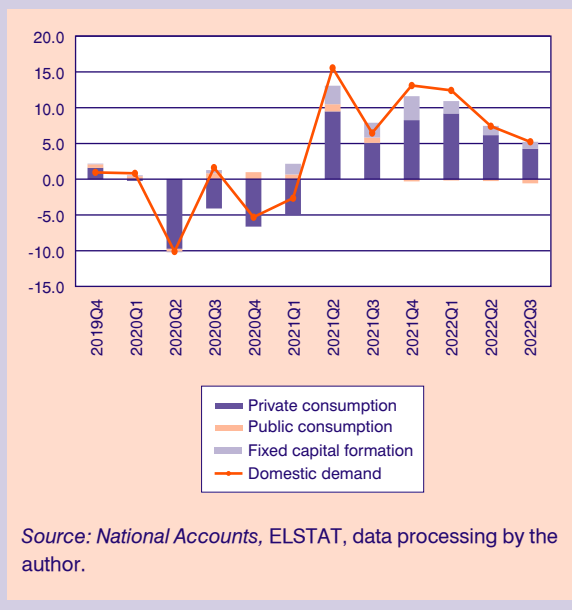


FIGURE 1.1.3
Domestic and net foreign demand

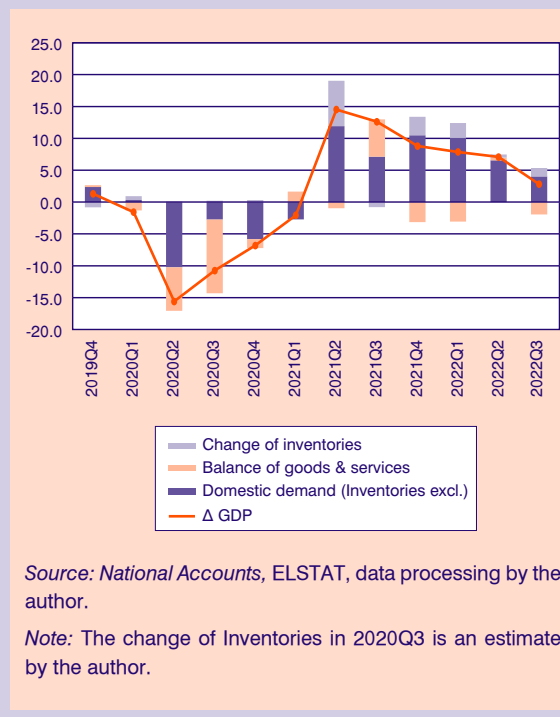
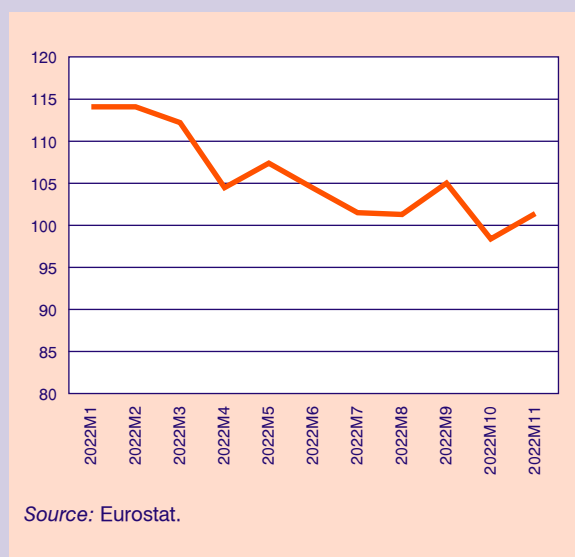


FIGURE 1.1.4
Economic Sentiment Index (ESI)



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

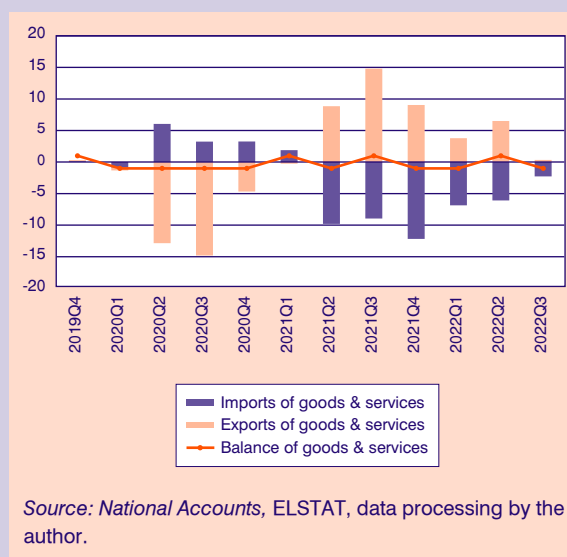
Balance of goods and services

The contribution of the external sector (exports minus imports) to GDP growth, for the third quarter of 2022, as already mentioned, appears with a negative sign (-1.95 points) and rather reflects the recent downward trend in economic growth, which, as shown in Figure 1.1.3, starts from the second quarter of 2021.

Commencing from the total exports, it should be noted that they increased slightly in the third quarter of 2022, at a rate of 0.90%. More specifically, services, which constitute the relatively smallest part of exports in billions of euros, showed an increase of 2.97% while goods, which were the largest part of exports, showed a slight decrease of -0.32% for the same period. As far as imports of goods and services are concerned, in contrast to the structure of exports, they are more balanced as a distribution, and we can report that they have increased by 5.20%. More specifically, imported services showed a decrease of -4.56% while, on the other hand, imported goods appeared with a quarterly increase of 8.65%.

Moreover, as can be seen from the corresponding histograms of Figure 1.1.5, after the first quarter of 2021, there is a reversal of the histograms of the two com-

FIGURE 1.1.5
Individual components of external demand



ponents with a very positive (as usual) contribution of the export components to GDP and the corresponding negative contribution of the import components to GDP for the following three quarters until the third quarter of 2022. Gradually, however, we can see the decrease of the two histograms close to zero in 2022 Q3 (as a contribution to GDP). As a cumulative effect of this development –imports and exports– is the continuation of the negative contribution of foreign demand to the GDP growth rate, which was interrupted only in the second quarter of 2022, that started in the fourth quarter of 2021 and lasts until the third quarter of 2022.

Next, the individual detailed presentation of private consumption and investment is presented.

1.1.2. Private consumption and investment

Konstantinos Loizos

1.1.2.1. Private consumption

Dwindling rates of change in consumption expenditure despite the tourist season

According to the quarterly, seasonally adjusted *National Accounts*,¹ private consumption of households and NPISH² increased from 34,708 million euros in current prices in the first quarter of 2022 to 35,506

1. *Quarterly National Accounts*, Press release, ELSTAT, December 7, 2022.

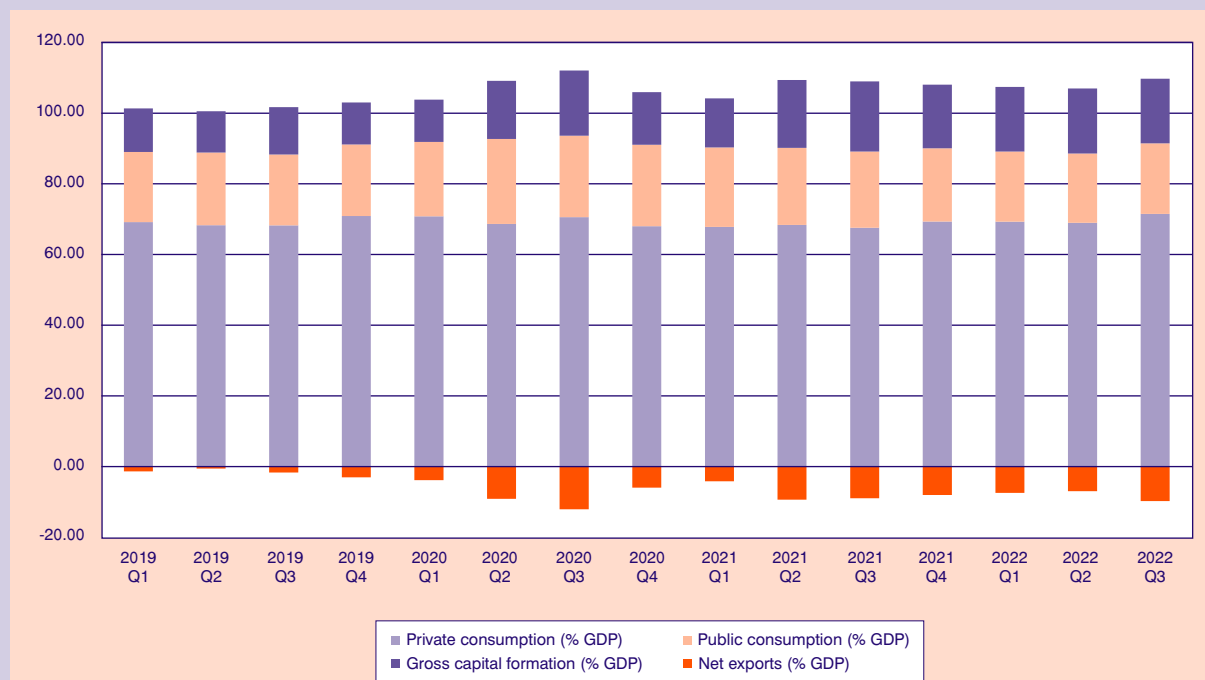
2. Non-profit institutions serving households.

million euros during the second quarter and 36,033 million euros in the third quarter of 2022. However, in terms of chain-linked volumes (reference year 2015), private consumption rose to 33,581 million euros in the second quarter from 33,503 million euros in the first quarter of 2022, but decreased to 33,538 million euros in the third quarter of 2022. Also, percentage changes³ with respect to the previous quarter, based on seasonally adjusted chain-linked volumes, were positive in the first two quarters of 2022 but have been decreasing since, from 2.9% in the first quarter of 2022 to 0.2% in the second quarter, while it assumed a negative value of -0.1% in the third quarter of the same year. On the other hand, we observe positive but dwindling percentage changes with respect to the corresponding quarter of the preceding year. In this case, a percentage change of 13.7% in the first quarter of 2022 is followed by percentage changes of 8.9% and 6.2% in the next two quarters.

Private consumption, as a percentage of GDP, was 69.91% on average during the first three quarters of 2022, being 69.28% of GDP in the first quarter, 68.97%

of GDP in the second quarter and 71.48% of GDP in the third quarter of 2022, according to Figure 1.1.6. Public consumption, which accounted for an average of 19.81% of total expenditure, fluctuated from 19.87% of GDP in the first quarter to 19.59% of GDP in the second quarter and 19.97% of GDP in the third quarter of 2022. Likewise, gross capital formation (fixed capital and changes in inventories) as a percentage of GDP fluctuated from 18.29% in the first quarter of 2022 to 18.41% in the second quarter and 18.31% in the third quarter of 2022, with an average over the three quarters of 18.34% of total expenditure. Finally, net exports did not show any remarkable trend since the balance of the trade deficit as a percentage of GDP decreased from -7.44% in the first quarter of 2022 to -6.97% of GDP in the second quarter, while it increased to -9.76% of GDP in the third quarter of 2022, with an average over the three quarters of -8.06% of GDP. Thus, despite the slightly positive effect of the tourist season on domestic consumption expenditure as a percentage of GDP, both private and public, at the expense of gross capital formation and the balance of trade, the percentage change in private consumption

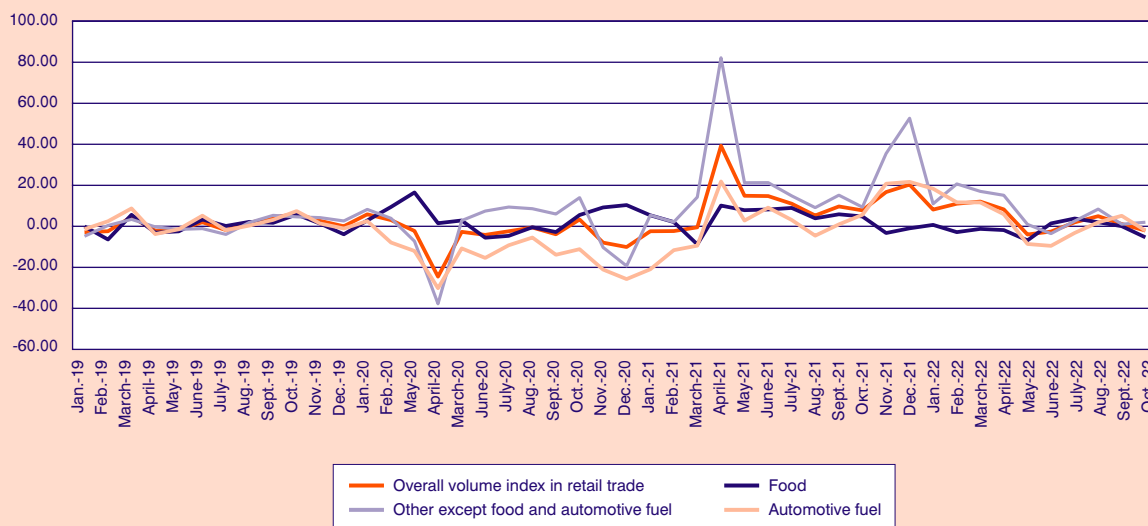
FIGURE 1.1.6
Evolution of private consumption and other components of demand as a percentage of GDP
(expenditure approach) (seasonally adjusted data in current prices)



Source: ELSTAT, data processing by the author.

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

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



Source: ELSTAT, data processing by the author.

expenditure fell. These declining percentage changes in consumption expenditure point to the beginning of a new, more difficult period for the economy, which will be marked by the effects of inflation and rising energy costs, notwithstanding the positive effect of the tourist season.

The decline in retail trade is slowing. Is it sustainable?

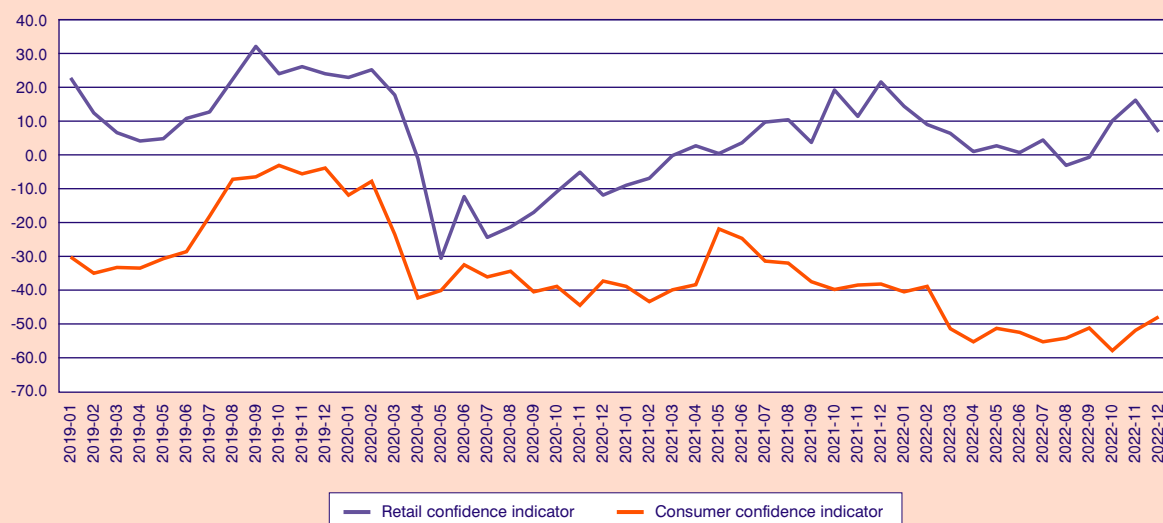
The evolution of retail trade in terms of percentage changes of the overall volume index was positive on average in the first ten months of 2022 with respect to the corresponding months of the preceding year (3.88%), based on ELSTAT monthly data (See Figure 1.1.7). Specifically, we observe positive percentage changes during the first four months of 2022 (8.16% in January, 11.02% in February, 12.05% in March and 8.25% in April), negative changes in May and June (-1.01% and -2.57%, correspondingly), positive changes in July (1.94%), August (4.96%) and September (1.11%) and a negative change in October (-2.10%). Nevertheless, average quarterly changes were positive (10.41% in the first quarter of 2022, 0.56% in the second quarter and 2.67% in the third quarter) with an average over the three quarters of 4.55%. However, food items had a negative percentage change on average both in the first ten months of 2022 (-1.02%) and in the first three quarters (-0.53%), given the significant negative value

in October 2022 (-5.38%) and despite positive percentage changes during the summer months and September. On the contrary, automotive fuel and other items had positive average changes throughout the period, except in the second quarter of 2022. In any case, the percentage change in the automotive fuel volume index was, on average, 3.12% in the first ten months of 2022, while for other items, the corresponding percentage was 7.51%. Nevertheless, we need to note the negative percentage change for automotive fuels in October (-2.09%), following the same pattern with food items and the overall volume index. The general conclusion to be drawn from this data is that retail trade, both in terms of its overall volume index and in terms of most of its components, showed positive trends in general during the period under examination, with a recovery after the negative trend in May-June. However, the subsequent fall after the summer season poses the question of whether this positive trend will be sustainable in the future, especially as the economy will be affected by the rising energy needs during the winter months.

Pessimism in retail trade expectations continues

Published by EUROSTAT, confidence indicators (Figure 1.1.8) show the continued pessimism in retail trade that pertains both to consumers and to businesses despite a short recovery of expectations in the last months of 2022. Consumers are more pessimistic than busi-

FIGURE 1.1.8
Confidence indicators in retail trade



Source: Eurostat, data processing by the author.

nesses, with expectations on average falling consistently from May 2021 to the end of 2022. This downward trend also seems to affect business expectations from December 2021 onwards. The fluctuation of consumer and business expectations in opposite directions in the last quarter of 2022 adds to the uncertainty about the future development of these indices.

1.1.2.2. Investment

Rising trend in gross investment

Gross fixed capital formation increased from 6,510 million euros in current prices in the first quarter of 2022 to 6,764 million euros in the second quarter and 7,043 million euros in the third quarter of that year. On the contrary, in terms of chain-linked volumes, gross fixed capital formation fell slightly, from 6,491 million euros in the first quarter of 2022 to 6,482 million euros in the second quarter, while it increased to 6,491 million euros in the third quarter of that year. As regarding percentage changes with respect to the corresponding quarter of the previous year, there is a rising trend, though at a decreasing rate. The relevant percentage changes were 13.2% in the first quarter, 9.8% in the second quarter and 7.7% in the third quarter of 2022. In contrast, concerning percentage changes with respect to the preceding quarter, we observe a fluctuation since a positive value of 3.5% in the first quarter is followed by a negative value of -0.1% in the sec-

ond quarter and, finally, a positive one of 0.1% in the third quarter of 2022, according to seasonally adjusted chain-linked volumes.

The evolution of investment (gross fixed capital formation) as a percentage of GDP (Figure 1.1.9), though decreasing in the first quarter of 2022, recovered in the next two quarters of 2022. The corresponding observed percentage changes with respect to the previous quarter were -5% in the first quarter of 2022, 1.11% in the second quarter and 6.34% in the third quarter of 2022. In terms of the main components of gross investment, the same pattern is followed by machinery and transport equipment as a percentage of GDP with a negative percentage change of -16.12% in the first quarter of 2022, but positive changes in the next two quarters (3.03% and 5.87%, correspondingly). A different pattern is observed in buildings, which, as a percentage of GDP, showed positive percentage changes in the first and third quarter (9.49% and 8.82%, correspondingly) but a negative change in the second quarter of 2022 (-0.8%). Therefore, gross fixed capital formation rises in general, driven by the developments in machinery and transport equipment.

Machinery and transport equipment maintain their lead over buildings in total gross investment

As Figure 1.1.10 depicts, the share of machinery and transport equipment in total gross fixed capital forma-

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

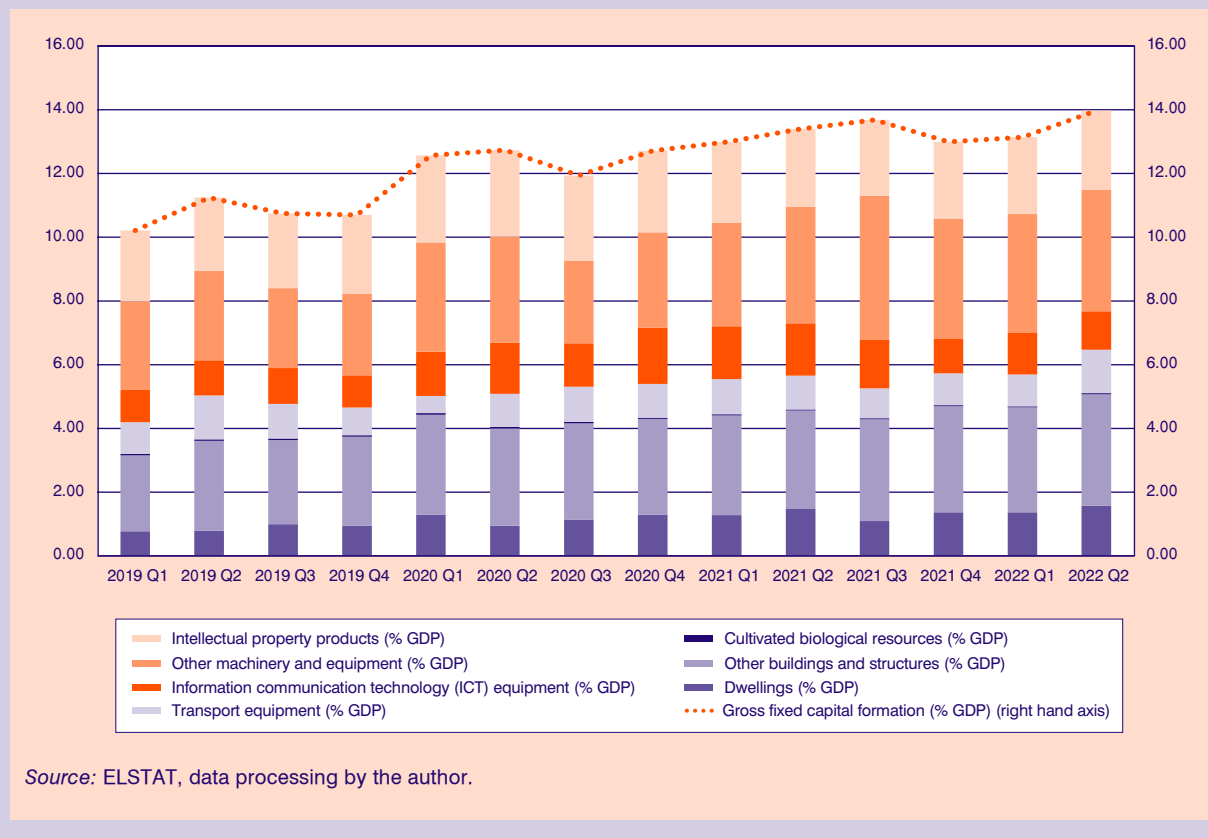
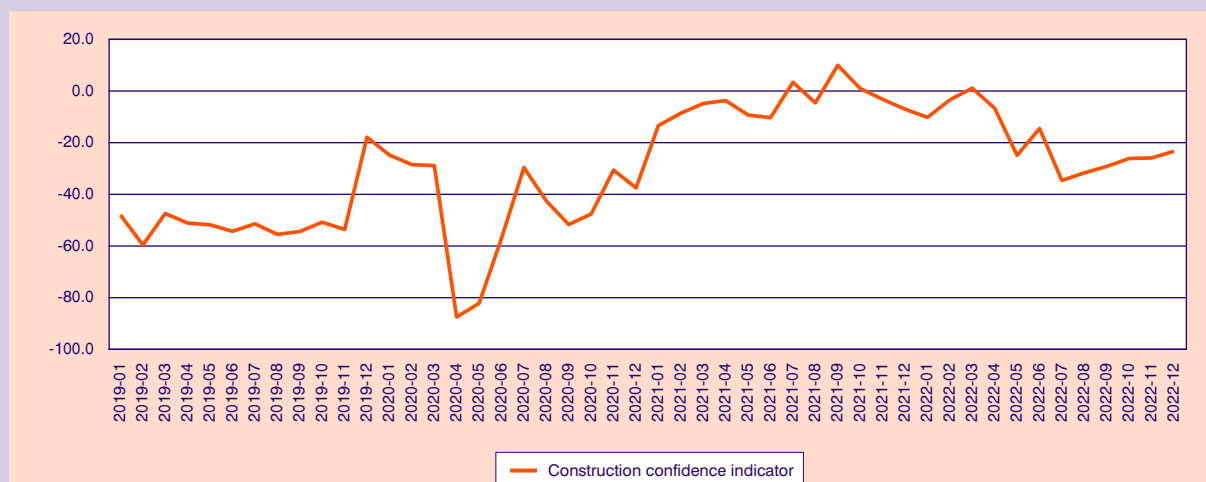


FIGURE 1.1.10
Machinery, transport equipment and buildings as a percentage of gross fixed capital formation



FIGURE 1.1.11
Construction confidence indicator



Source: Eurostat, data processing by the author.

tion is higher than the corresponding share for buildings. Specifically, the first one fluctuated around an average value of 45.56% for the first three quarters of 2022, while the second fluctuated around an average value of 35.98% over the same period. Hence, machinery and transport equipment remained the main component of gross investment in the period under examination.

Pessimism in construction sector is slowing

The evolution of business expectations in the construction sector, despite fluctuations, indicates a downward trend, having as a starting point September of 2021 and an end point of June 2022, since there is a recovery from July 2022 onwards. In this sense, it seems as if a period of “cautious optimism with uncertainty” has given its place to a new period characterized by a reverse trend. The resilience and longevity of this new phase will become apparent in the coming months.

1.1.2.3. Conclusions

The above analysis indicates that the Greek economy in the first three quarters of 2022 was characterized by positive performance, possibly because of the tourist season, though under the constraints imposed by the international environment of rising inflation and energy costs. The above is reflected in the evolution of consumption expenditure with generally positive but falling rates and in the positive developments concerning retail and gross capital formation indicators. However, expectation indices give conflicting signals, with pessimism persisting in the retail sector and some signs of a turnaround in the construction sector. In conclusion, the Greek economy, both in terms of expectations and in terms of consumption and investment demand, appears to be showing signs of resilience in the face of adverse international conditions, marked by geopolitical and energy uncertainties. Whether this is due to the impact of the tourist season, or whether this resilience will continue over the coming months, remains to be seen as we move through the difficult winter of 2023.

1.2. Recent developments of the inflation in Greece and the Euro area: The effects of declining energy prices and rising food prices

Emilia Marsellou
Vassilis Lychnaras

Introduction

According to recent developments, inflation in both Greece and the euro area is de-escalating due to the decline in international energy prices. As is well known, the evolution of the international prices of energy products (natural gas and crude oil) affects domestic inflation, both directly, through the final prices of energy for consumers, and indirectly, through the cost of production of basic consumer goods. However, the de-escalation in inflation is restrained by the ongoing upward trend in prices of the other CPI components, and in particular in the food sector, as a consequence of the previous effects of the increase of energy prices on production and transport costs.

1.2.1. Greece

According to the statistical data of ELSTAT, the average annual Consumer Price Index (hereinafter CPI) in 2022 increased on an annual basis by 9.6%, compared to an increase by 1.2% in 2021 and a decrease by -1.2% in 2020.

Based on the monthly data, the National CPI continued to decelerate for the third consecutive month and in December 2022 recorded a 7.2% y-o-y increase compared to 8.5% in November and 9.1% in October. Compared to the previous month November, it recorded a -0.5% m-o-m decrease, in November remained stable, while in October, decreased by -1.2% m-o-m (Table 1.2.1). Core inflation,¹ based on the National CPI, also de-escalated to 5.2% in December from 5.9% in November.

Based on the Harmonized CPI (hereinafter HICP), according to Eurostat's flash estimates in January 2023, inflation stood at 7.2%, lower than the 7.6% in December. Core inflation in January reached 6.5%, higher than the 5.9% in December.

The largest contribution to the annual percentage increase of the National CPI in December 2022 came from the Food and non-alcoholic beverages sector (+3.3 pp), the Transport sector (+1.2 pp) and the Hotels-Cafés-Restaurants sector (+0.72 pp).

More specifically, the annual increase of the National CPI by 7.2% in December 2022 is a combined result of the following changes in the price indices of sub-groups of goods and services. More specifically, increases were recorded as follows:

- +15.5% in the group Food and non-alcoholic beverages. This is due to the increase, mainly, in the prices of bread and cereals (+18.1%), meat (+17.8%), fish (+2.4%), milk-cheese and eggs (+25.6%), oils and fats (+21.7%), fruit (+2.7%), vegetables (+13.1%), sugar-chocolates-sweets-ice creams (+8.7%), food n.e.c. (+14.0%), coffee-cocoa-tea (+13.2%), mineral water-refreshments-fruit juices (+10.4%).
- +2.5% in the group Alcoholic beverages and tobacco. This is due to the increase, mainly, in the prices of (not served) alcoholic beverages (+6.4%).
- +5.4% in the group Clothing and footwear, due to the increase in the prices of clothing and footwear.
- +2.5% in the group Housing. This is due to the increase, mainly, in the prices of rentals for dwellings (+3.7%), services for the repair and maintenance of the dwelling (+4.4%), co-proprietor charges (+1.6%), natural gas (+50.0%), heating oil (+1.4%), solid fuels (+24.7%). This increase was partly offset by the decrease, mainly, in the prices of electricity (-8.8%).
- +11.3% in the group Household equipment. This is due to the increase, mainly, in the prices of furniture and furnishings (+6.9%), household appliances and repair (+6.6%), glassware-tableware and utensils of domestic use (+6.7%), non-durable household articles (+18.1%), domestic services (+6.3%).
- +2.8% in the group Health. This is due to the increase, mainly, in the prices of pharmaceutical

1. The Core Inflation Index is calculated from the Overall Consumer Price Index excluding the divisions of Food and non-alcoholic beverages, Alcoholic beverages and tobacco and Energy prices.

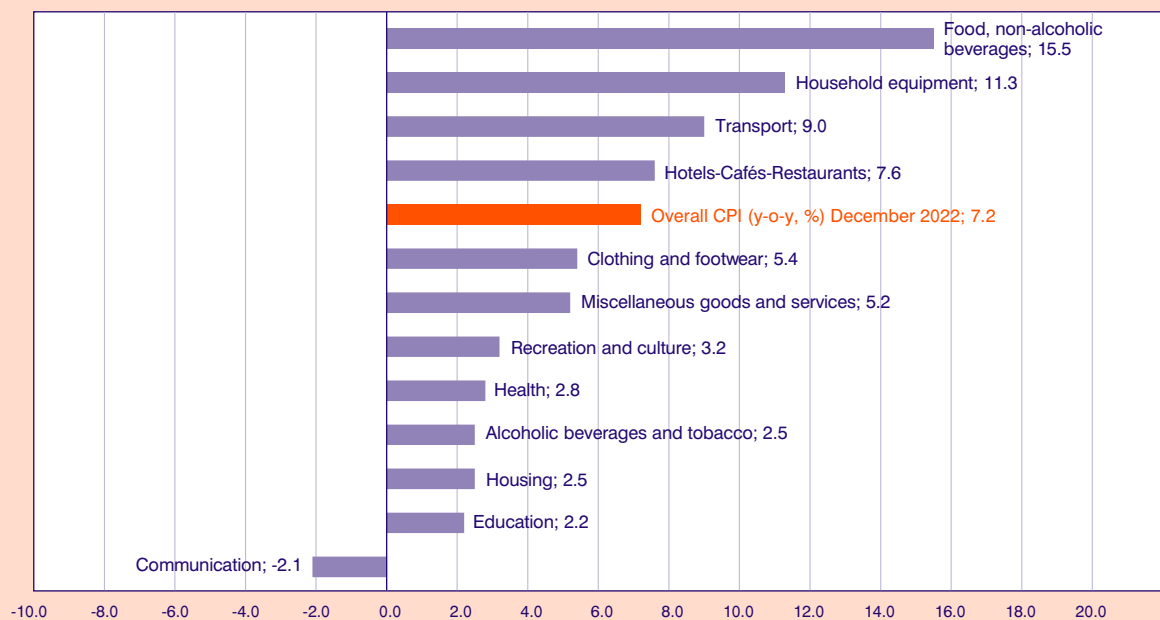
TABLE 1.2.1 Inflation in Greece (%)

	National CPI	CPI (m-o-m, %)	Headline Inflation CPI (y-o-y, %)	Core Inflation	Harmonized Inflation	Core Harmonized Inflation
2022M01	104.7	-0.3	6.2	1.3	5.5	1.5
2022M02	105.8	1.1	7.2	1.2	6.3	1.5
2022M03	108.8	2.7	8.9	1.8	8.0	2.5
2022M04	111.1	2.1	10.2	1.9	9.1	2.6
2022M05	111.8	0.7	11.3	2.5	10.5	3.7
2022M06	113.6	1.6	12.1	3.6	11.6	5.5
2022M07	111.5	-1.8	11.6	3.6	11.3	5.5
2022M08	111.2	-0.3	11.4	4.2	11.2	5.8
2022M09	114.5	2.9	12.0	4.9	12.1	6.9
2022M10	113.2	-1.2	9.1	5.2	9.5	6.6
2022M11	113.1	0.0	8.5	5.9	8.8	6.8
2022M12	112.5	-0.5	7.2	5.2	7.6	5.9
2023M01					7.2*	6.5*

Source: ELSTAT. *Eurostat: Flash Estimates.

FIGURE 1.2.1

Annual % changes in National CPI sub-categories (December 2022)



Source: ELSTAT.

TABLE 1.2.2 Annual % changes in National CPI sub-categories, January-December 2022

Groups of goods and services	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec
1 Food and non-alcoholic beverages	5.2	7.1	8.1	10.9	12.1	12.6	13.0	13.2	13.5	14.8	15.0	15.5
2 Alcoholic goods and tobacco	-0.1	-0.2	0.4	0.0	0.9	0.9	1.5	1.8	2.0	2.2	2.8	2.5
3 Clothing and footwear	7.0	5.6	6.5	1.6	5.6	4.6	3.4	2.7	3.5	5.4	10.9	5.4
4 Housing	22.6	25.4	29.9	35.2	35.0	31.5	30.9	31.4	35.4	11.2	4.8	2.5
5 Household equipment	3.0	4.1	3.7	4.2	5.1	6.5	8.2	9.5	9.3	10.6	11.0	11.3
6 Health	-0.1	0.0	0.0	0.0	0.5	0.6	0.7	2.7	2.8	2.7	2.8	2.8
7 Transport	11.1	12.2	15.4	15.4	18.8	25.0	20.6	16.0	14.2	13.8	14.5	9.0
8 Communication	-3.2	-3.1	-2.9	-2.7	-2.5	-2.3	-2.1	-2.2	-2.1	-2.0	-2.1	-2.1
9 Recreation and culture	-0.5	-0.4	0.1	1.2	1.3	1.7	2.0	2.3	2.1	2.5	2.7	3.2
10 Education	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.0	2.2	2.2
11 Hotels-Cafés-Restaurants	1.6	1.7	2.8	3.8	5.1	6.5	6.4	6.7	9.1	8.6	8.0	7.6
12 Miscellaneous goods and services	0.4	-0.2	0.1	0.9	0.4	2.3	2.5	3.7	3.2	4.2	4.9	5.2
General Index	6.2	7.2	8.9	10.2	11.3	12.1	11.6	11.4	12.0	9.1	8.5	7.2

Source: ELSTAT.

products (+6.0%), medical products (+2.7%), medical-dental and paramedical services (+1.5%), hospital care (+0.6%).

- +9.0% in the group Transport. This is due to the increase, mainly, in the prices of new motor cars (+11.1%), second-hand motor cars (+8.4%), motorcycles (+10.1%), spare parts and accessories for motor cars (+11.7%), fuels and lubricants (+8.6%), maintenance and repair of motor cars-motor cycles (+3.7%), passenger transport by taxi (+32.9%), tickets for passenger transport by air (+36.7%), tickets for passenger transport by sea (+26.7%).
- +3.2% in the group Recreation and culture. This is due to the increase, mainly, in the prices of major durables for recreation and culture (+3.8%), small recreational items-flowers-pets (+4.1%), cinemas-theatres (+14.5%), stationary and drawing materials (+9.3%), holiday packages (+13.2%). This increase was partly offset by the fall, mainly, in the prices of audiovisual and information processing equipment (-3.5%).
- +2.2% in the group Education. This is due to the increase, mainly, in the prices of fees of primary education (+2.6%) and fees of secondary education (+2.7%).
- +7.6% in the group Hotels-Cafés-Restaurants. This is due to the increase, mainly, in the prices of restaurants-confectioneries-café-buffets (+7.2%) and hotels-motels-inns (+12.6%).
- +5.2% in the group Miscellaneous goods and services. This is due to the increase, mainly, in the prices of hairdressing salons and personal grooming establishments (+2.8%), other appliances and articles for personal care (+10.9%).

On the other hand, prices decreased in the following group of goods and services:

- -2.1% in the group Communication. This is due to the decrease, mainly, in the prices of telephone services (-2.0%).

1.2.2. The Euro area

According to the flash estimates of Eurostat, inflation in the euro area in January 2023 continued its gradual de-escalation and stands at 8.5%, down from 9.2% and 10.1% in December and November 2022, respectively. Based on these estimates, core inflation in January remained stable, as in December, at 5.2%, slightly above the 5.0% in November and October 2022.

The highest annual rate of HICP inflation in the euro area is recorded in the Energy sector (+17.2%), however showing a significant de-escalation, followed by the Food sector (+14.1%) which continues an upward trend, the Non-energy industrial products sector (+6.9%) and the Service sector (+4.2%).

Among the euro area countries, the highest annual rates of inflation are recorded in Latvia (+21.6%), Estonia (+18.8%) and Lithuania (+18.4%), while the lowest annual rates of inflation are in Spain and Luxembourg (+5.8%), and Malta (+6.7%).

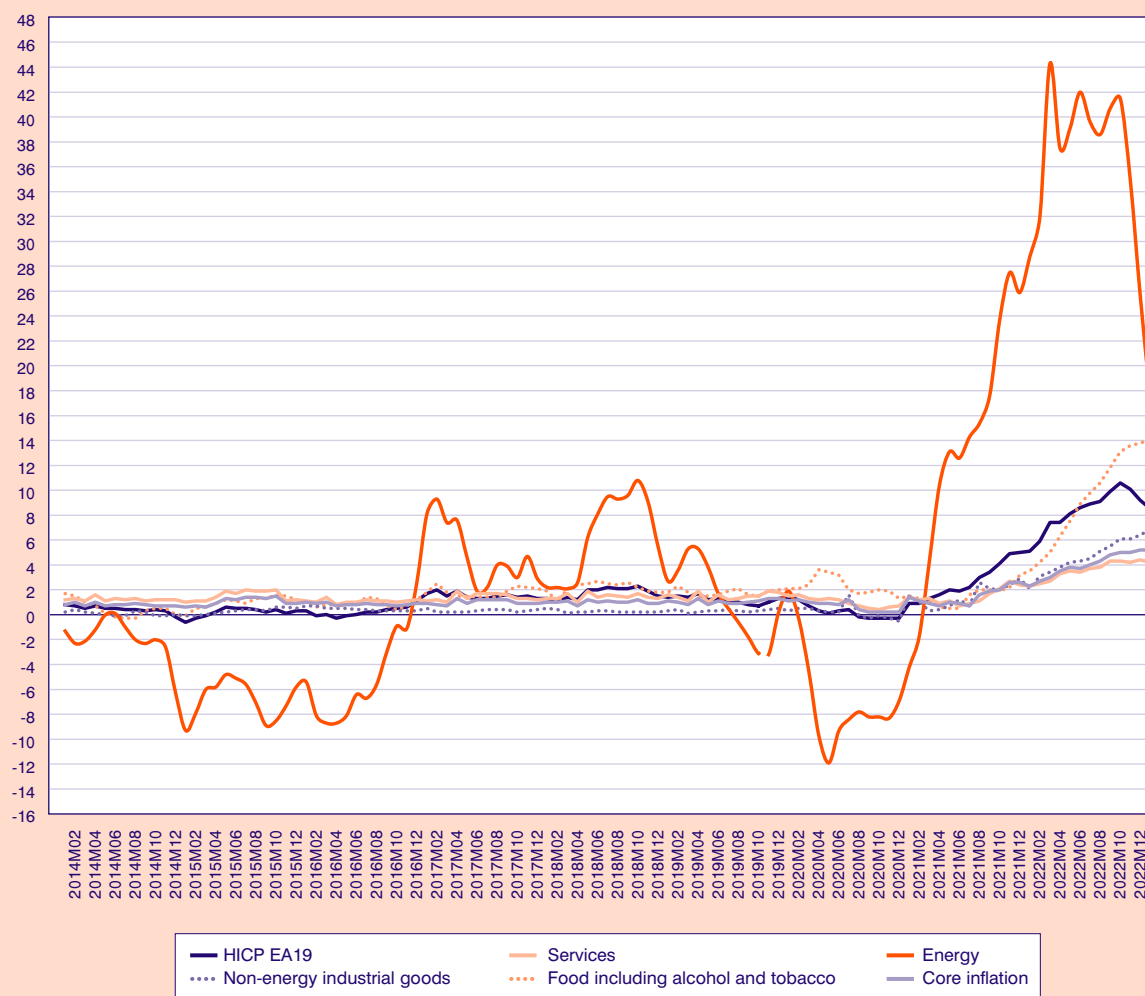
1.2.3. The impact of energy costs on CPI

As is known, energy prices have a significant effect on the inflation of our country. In this context, it would be interesting to analyse the annual percentage change of the individual HICP of energy products in the country's domestic sector and compare them with the corresponding Eurozone indices. Figures 1.2.3(a) to 1.2.3(c) present the above indices for electricity, natural gas, and heating gas oil, respectively, in 2022. As seen, during the first nine months of 2022, there is a significant annual percentage increase of the HICP, especially in natural gas. However, during the latest three months of the year, due to the downward trend of the energy prices, an important decrease in the indices took place. More specifically, and as for electricity, the index showed an annual percentage increase of 8.8% in December, much lower compared to the corresponding Eurozone average of 32.3%. Accordingly, the annual percentage change of the HICP for natural gas reached its peak in September. However, afterwards, the index decreased dramatically and reached 50% in December, compared to a Eurozone average of 51.9%. Finally, regarding the HICP for heating gas oil, the analysis for Greece should only focus on the disposal period of the fuel, i.e., from October to April. The annual percentage change of the index showed an upward trend until April 2022, when the disposal of the fuel stopped. However, since the beginning of the new disposal period in October, there has been a great decrease of the HICP for heating oil, reaching 1.4% in December, compared to the corresponding Eurozone average of 42.9%.

1.2.4. Evolution of energy product prices

As mentioned, the developments of the international energy commodity prices, as well as the price of carbon emissions rights, affect the surge of inflation, both directly, through the increase in final en-

FIGURE 1.2.2
HICP in the euro area, monthly data, annual % change



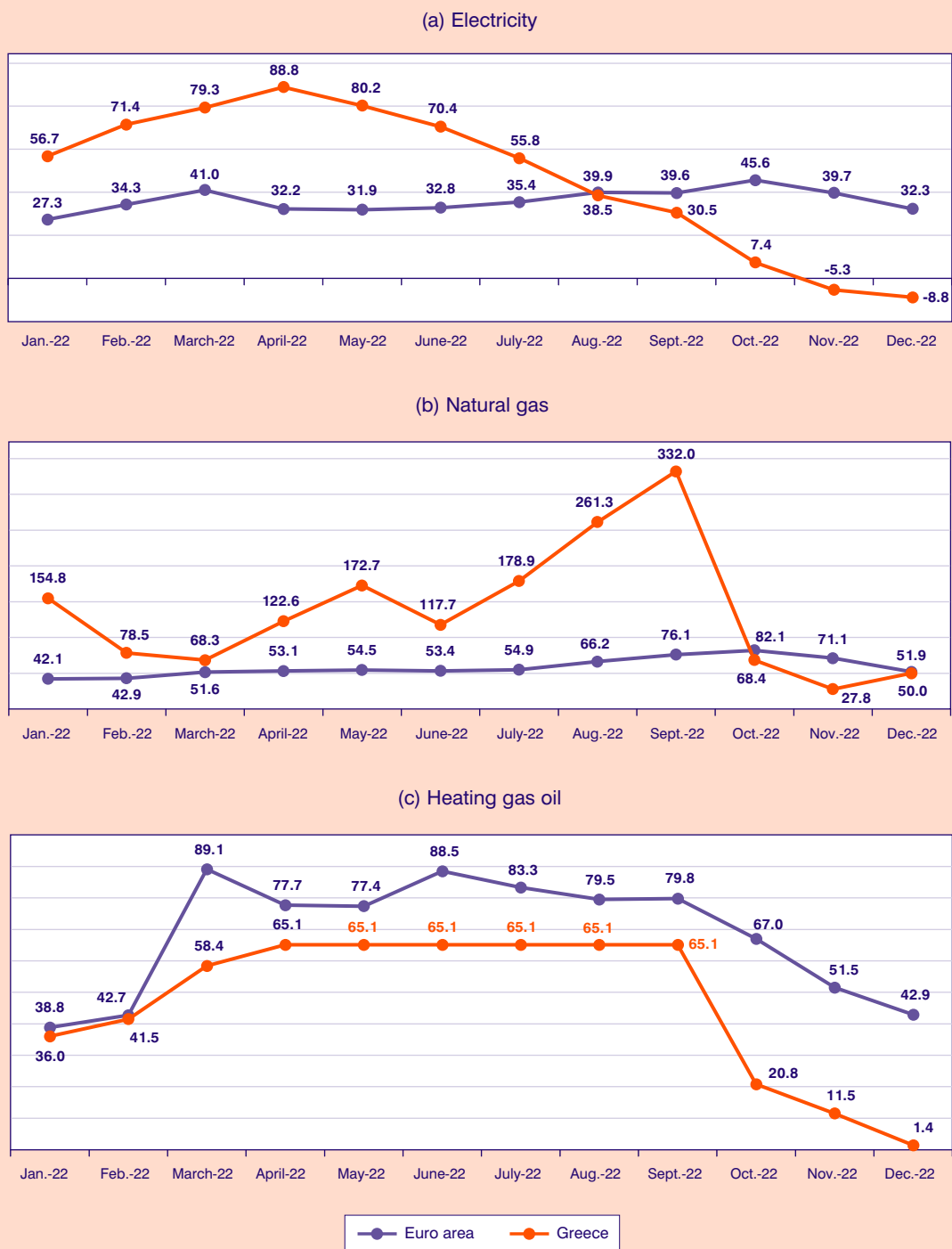
Source: Eurostat. *Flash Estimates.

ergy prices, and indirectly, through the increase in the cost of producing basic consumer goods. This chapter presents the fluctuations of these prices, for the period 2021-2022, as well as the annual percentage change of the prices in 2022. Regarding the average monthly price of natural gas, and more specifically the Dutch TTF Natural Gas Futures² (Figure 1.2.4), we observe that after the steep rise of the price until August 2022, when the average price of natural gas reached its peak (€240/MWh), there was

a significant downward pressure of the price until the end of the year. Thus, in December 2022, the average monthly price stood at €76.3/MWh, and the annual percentage increase was 8.5%, much lower than the rate in previous months. In our country, according to the current operating model of the natural gas market, the international price of the product is affecting the domestic market with a time lag of one month. Therefore, the normalization of the international price is expected to have a more favourable

2. Due to the large trading volume on the Dutch Title Transfer Facility (TTF), the price formed there, has been adopted until today as the main benchmark for the price of natural gas in the EU. However, under the new European market conditions, it is no longer considered to be the most representative indicator of the average price of contracts, and the European Commission is in the process of composing and implementing a new, more representative benchmark.

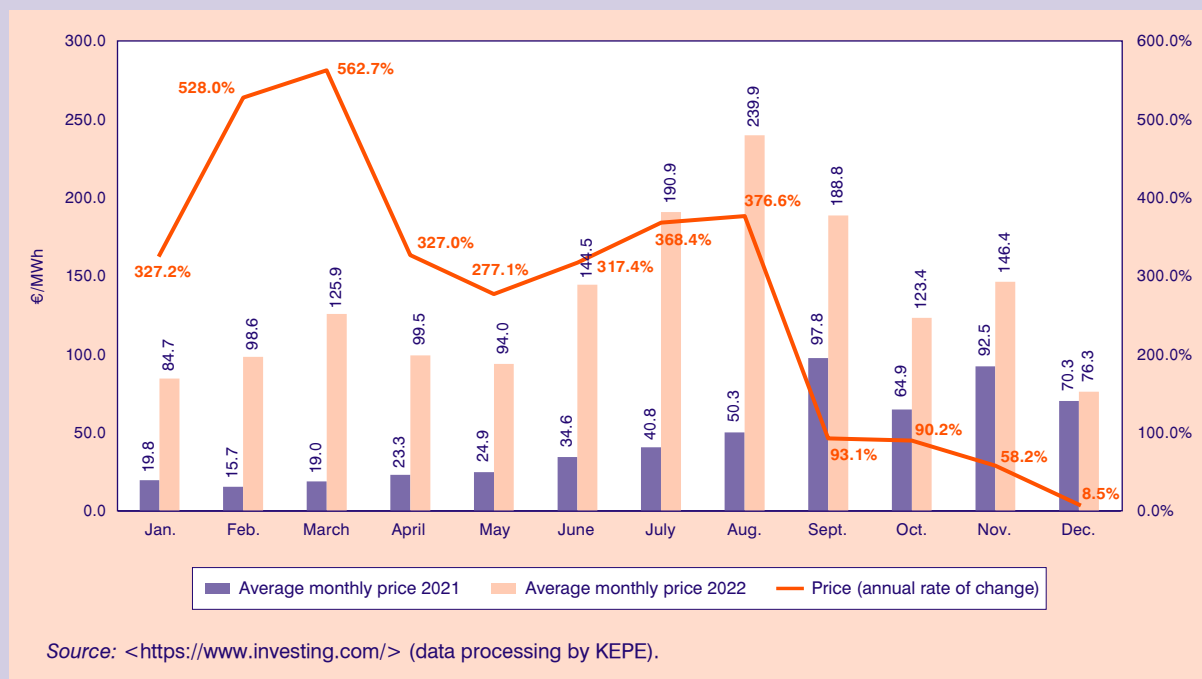
FIGURE 1.2.3
HICP of energy products, annual percentage change, 2022



Source: Eurostat (data processing by KEPE).

Note: The data concerning the individual HICP of heating gas oil for Greece for the period between May to September are notional, as the disposal of the fuel stops.

FIGURE 1.2.4
Monthly average natural gas futures (left axis) and annual percentage change (right axis), 2021-2022



effect both on the natural gas and electricity HICP in the coming months.

Similarly, the international price of crude oil also showed a downward trend after mid-2022. Figure 1.2.5 shows the evolution of the average monthly price of brent crude oil futures for the period 2021-2022 and its annual percentage change in 2022. We observe that after the significant increase in the price per barrel recorded until May 2022, the price followed a downward trend and reached €86/barrel in December, i.e., 10.5% higher compared to the corresponding month of 2021. As Greece is fully dependent on imports of petroleum products, this development had a direct positive effect on the domestic market and specifically on the prices of liquid fuels. Also, as mentioned above, the fall in the international price of crude oil had a favorable effect on the HICP of heating gas oil.

In addition to the above figures, another important parameter that also affects the domestic energy sector, as well as manufacturing, is the evolution of the CO₂ emissions allowance price. Figure 1.2.6 presents the monthly evolution of this price for the period 2021-2022, as well as the annual percentage change during 2022. As noted, the price of carbon emission rights has significantly increased since the beginning of 2021. However, it has stabilized during 2022. As a result, the

annual percentage change follows a decreasing trend. The average monthly price in December 2022 amounted to €79.4/ton of carbon dioxide emissions, with an annual percentage decrease of -1.5%.

As is known, the large share of natural gas in the electricity generation mix of our country, in combination with the market structure and operation, affects directly the formation of electricity market prices. At the same time, energy generation by the country's lignite-fired units, accompanied by negative environmental effects, leads also to high production costs, because of the high carbon emissions rights. As it is understood, these figures are the main parameters for determining the cost of electricity production in our country and, in combination with other parameters of the energy market, affect the daily wholesale prices of electricity. The recent de-escalation of the price of natural gas combined with the stabilisation in the prices of carbon emission allowances seems to have a positive effect on the evolution of electricity prices. Figure 1.2.7 presents the evolution of the monthly average spot prices of the Day-Ahead Market in the Hellenic Energy Exchange (HEEx S.A.) during the last two years, as well as the percentage change on annual basis in 2022. As seen, electricity prices in our country, during the last quarter of 2022, show a clear decrease compared to the previous period. In December 2022, the average

FIGURE 1.2.5
Monthly average Brent oil futures (left axis) and annual percentage change (right axis), 2021-2022

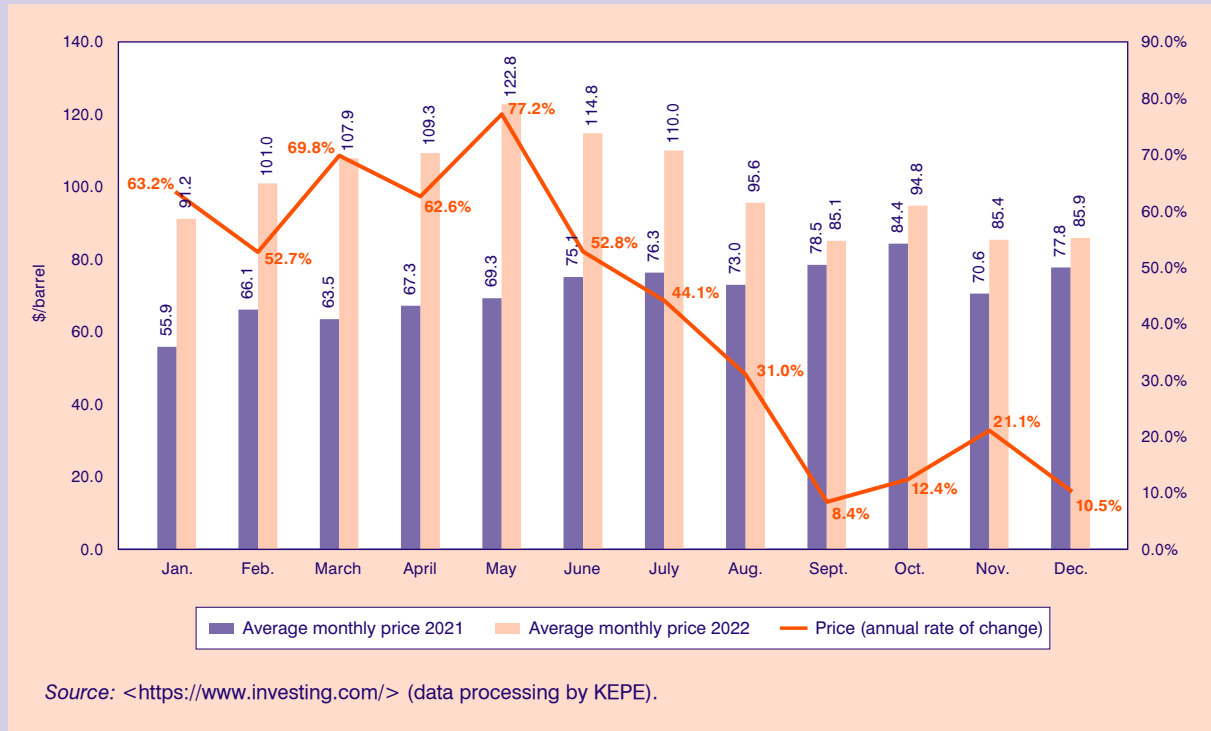


FIGURE 1.2.6
Monthly average carbon emissions futures (left axis) and annual percentage change (right axis), 2021-2022

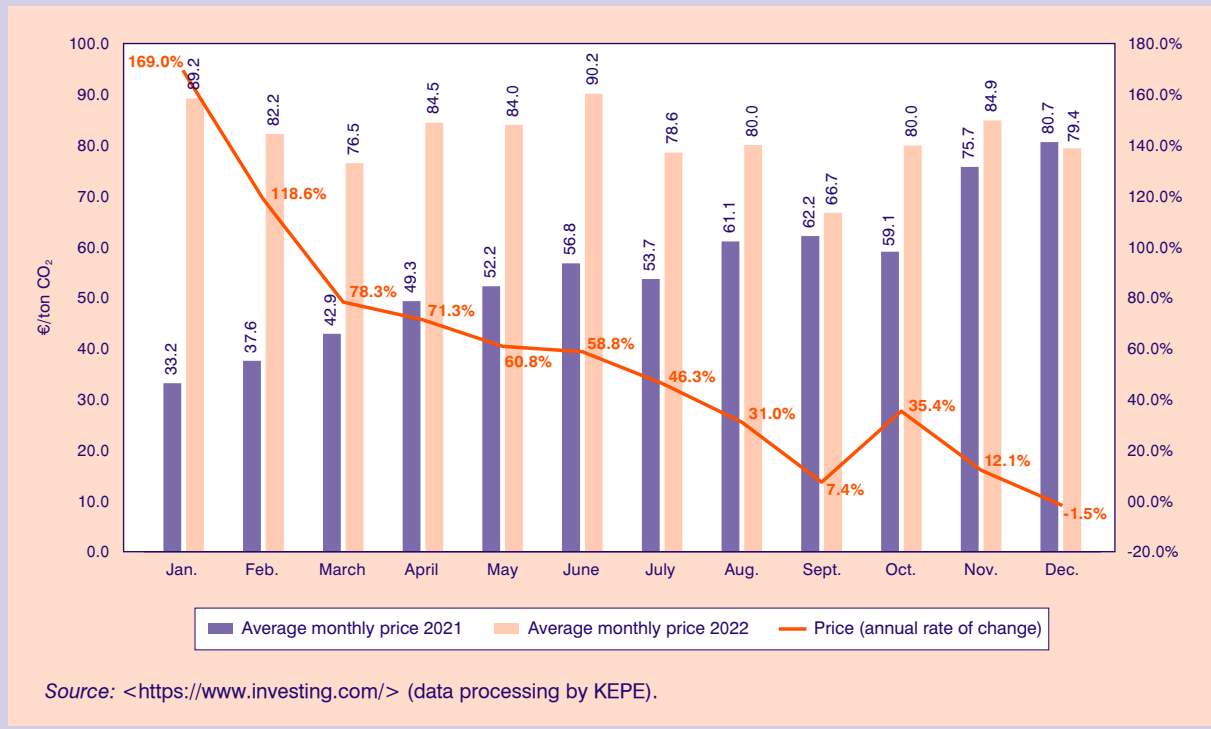
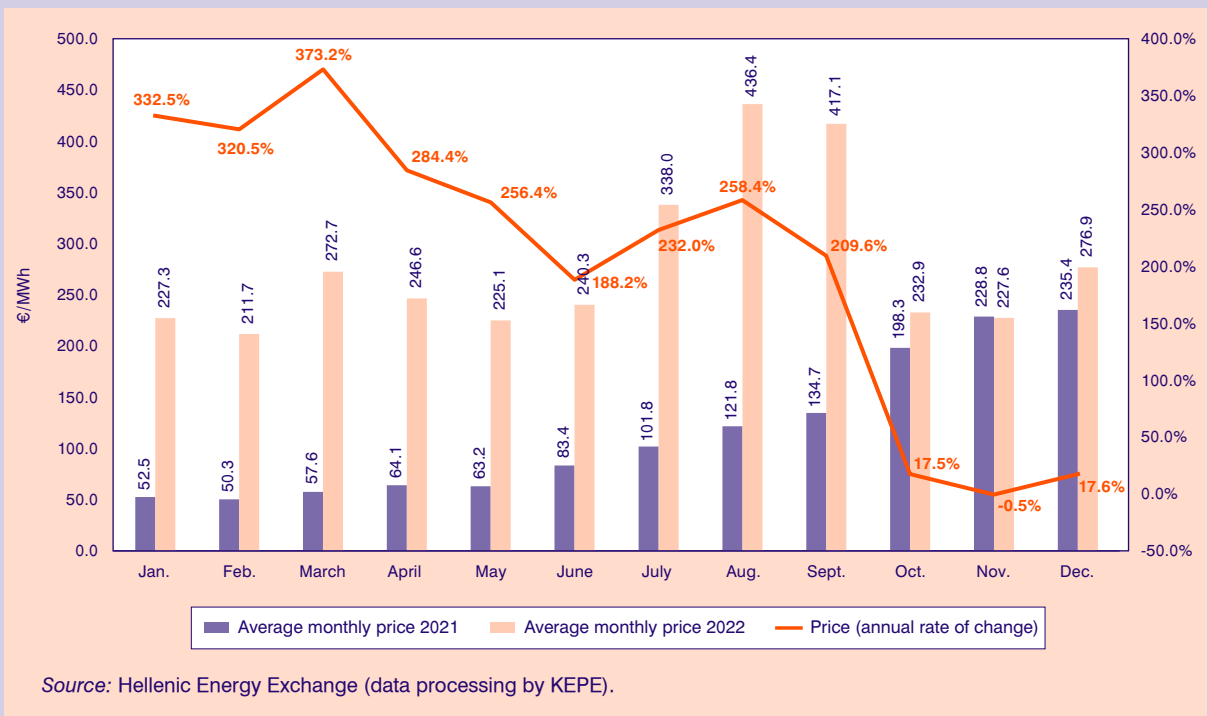


FIGURE 1.2.7
Monthly average electricity spot market prices of Day-Ahead Auctions (left axis)
and annual percentage change (right axis), 2021-2022



monthly price was €277/MWh, presenting an annual percentage increase of 17.6%.

Finally, as mentioned above, the fall in the international price of natural gas is affecting the domestic price of electricity with a time lag of one month. As a consequence, the recorded decrease in the price

of natural gas in December 2022 led to a decrease in the average price of electricity in January 2023. More specifically, the price in January stood at €192/MWh, decreased by 30.7% compared to the previous month, recording an annual percentage decrease of 15.6%.

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

Factor Model Economic Forecasting Unit
Ersi Athanassiou, Aristotelis Koutroulis,
Emilia Marsellou, Theodore Tsekeris

The current section presents the forecasts of KEPE concerning the evolution of the rate of change of real GDP in Greece in the fourth quarter of 2022 and in year 2023.¹ The forecast is conducted using KEPE's dynamic structural factor model.² The underlying time series database used to estimate the model and produce the forecasts includes 126 variables,³ covering the main aspects of economic activity in the country on a quarterly basis and spanning the period from the first quarter of 2000 up to the third quarter of 2022.

In the course of 2022, the Greek economy grew at a high rate, despite significant turbulence in the European economy due to the war in Ukraine and its consequences for energy costs, inflation, and uncertainty. According to the revised provisional *National Accounts* data, Greece's real GDP growth rate reached 7.9% in the first quarter and 7.1% in the second quarter of the year, on a y-o-y basis. In the third quarter of 2022, the economy expanded at a rate of 2.8%, confirming the previous forecast of KEPE and marking the phasing out of the boost to GDP from the lifting of the restrictive measures that had been put in place to contain the pandemic.

Entering the year 2023, the Greek economy is favored by the positive dynamics shown until recently by the main components of domestic demand (private consumption, fixed investment) and the activity of important sectors of the economy (industry, tourism, construction, etc.). At the same time, however, the country's economic prospects are confronted with the deterioration of the economic environment in Europe, together with the weight on domestic production costs, borrowing costs and household disposable income due to the energy crisis, inflationary pressures and the increase in interest rates. More recent data and information pointing to a significant reduction in energy costs, a gradual de-escalation of inflation and secure energy supply in Europe for 2023 seem to remove the risk of a deep recession in the EU that would have considerable implications for Greece as well. At the same time, significant support to the Greek economy continues to be provided by the implementation of measures to strengthen the disposable income of households and deal with rising costs, as well as by the gradual implementation of the national Recovery and Resilience Fund projects.

The constantly changing international environment and the high degree of uncertainty surrounding geopolitical and economic developments on many different fronts, coupled with the usual uncertainty surrounding any election season, raise the difficulty of forecasting the course of real GDP in subsequent quarters. With this reservation and bearing in mind the limitations arising from the prevailing conditions,⁴ Table 1.3.1. presents the econometric estimates for the rate of change of Greece's GDP up to the fourth quarter of year 2023.

1. The date of the forecast is January 19, 2023.

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

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

4. In previous issues of the *Greek Economic Outlook*, reference was made to certain limitations regarding the forecasting performance of the factor model under extraordinary circumstances that exert intense effects on economic activity. More specifically, the factor model employed does not involve the explicit estimation of any effects caused by policy measures (policy neutral model), while the model itself is not suitable for the direct analysis of the impact caused by major disturbances that create abnormal economic conditions and lead to sudden and extreme (away from the trend-determined course) shifts in GDP. Instead, the model implicitly takes into account any impact of such events or policy measures indirectly, via the incorporation of the economic variables updated to the most recent period of reference. In addition, the model's estimates rely on quarterly data with a hysteresis of one quarter, thus not mirroring any recent significant changes on a daily or weekly basis.

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

Quarters	2022		2023		
	2022Q4	2023Q1	2023Q2	2023Q3	2023Q4
Quarterly rate of change	3.26	2.82	3.90	0.18	1.98
Mean rate of change, 1 st half *	-	3.36		-	-
Mean rate of change, 1 nd half **	3.04	-	-	1.08	
Mean annual rate of change ***	5.25		2.22		

Notes: * The mean rate of change is not reported for the 1st half of 2022, since it does not incorporate a forecast. ** The mean rate of change for the 2nd half of 2022 incorporates the officially available (provisional) data for the 3rd quarter of 2022, on a seasonally adjusted basis. *** The mean annual rate of change for 2022 incorporates the officially available (provisional) data for the first three quarters of 2022, on a seasonally adjusted basis.

According to the estimates, the rate of change of GDP for the fourth quarter of 2022 is projected at 3.4% y-o-y, an estimate that is very close to the corresponding previous forecast of KEPE (3.3%). Regarding the average annual rate of change of GDP for the whole of 2022, the present estimate stands at 5.3%. This forecast represents a slight modification of the corresponding previous forecast of KEPE (5.5%), reflecting a small downward revision of ELSTAT's⁵ provisional figures for the growth rate of GDP in the first half of 2022.

Concerning the year 2023, forecasts on a quarterly basis show positive rates of change, with GDP growth estimated at 3.4% for the first half, 1.1% for the second half and 2.2% on average for the year as a whole. According to this forecast, the Greek economy will continue to grow, with the rate of expansion moderating, but remaining at a satisfactory level considering the difficult conjuncture. This estimation stems from the favorable development of several of the economic figures incorporated in the forecast, in combination with the now visible impact of the conditions mentioned above on the course of certain variables.

More specifically, for the third quarter of 2022, the observations on a non-seasonally and calendar-adjusted basis compared to the corresponding quarter of 2021 show that private consumption largely maintained its positive momentum, while fixed capital investment continued to display notable growth rates. At the same time, exports of services continued to grow, although at a pace much slower than in previous quarters, as expected due to the weakening of the positive effect

on GDP from the lifting of restrictive measures that had been put in place to contain the pandemic. Regarding the industry sector, the overall industrial production index registered a significant increase, reflecting a strengthening in all relevant sub-indices, while the turnover index in industry increased at high rates in all individual sub-categories referring to the domestic and foreign markets, a development which is, however, significantly related to the rise in the prices of industrial products. In the retail trade sector, the volume index increased in six of the eight relevant sub-categories, with the two subsectors in decline being *department stores* and *clothing-footwear*. In wholesale trade, the turnover index showed a large increase, a development which is again linked to the rise in prices. A strong recovery was observed for yet another quarter in the tourism sector, with travel receipts rising by 25.4% compared to the corresponding quarter of the previous year, while developments were also favorable with regard to the production index in construction and the relevant two sub-indices referring to *building construction* and *civil engineering*. Concerning the course of the domestic labor market, in the third quarter of 2022, a further improvement in conditions was observed, as the number of persons employed increased by 2.4% compared to the third quarter of the previous year and the number of unemployed persons decreased by 9.7%, respectively.

On the other hand, the persistence in uncertainty was reflected in the yield of Greece's ten-year government bond, which showed a small further increase compared

5. According to the most recent ELSTAT *Quarterly National Accounts* publication, dated December 7, 2022.

to the second quarter of 2022, although the spread against the corresponding German bond remained at about the same level. With regard to price data for the third quarter, developments were suggestive of the strong inflationary pressures that prevailed during this period, with indications, however, of a reversal of the upward trend in energy costs. Specifically, a significant rise was recorded in all indicators reflecting input prices and production costs, while large increases were also recorded in the consumer price index, especially in the categories of *housing* and *transport*, which are significantly affected by energy prices. At the same time, a considerable reduction was registered in the Brent oil price index, while, respectively, a small reduction was observed in the European harmonized energy price index for Greece. In relation to the indicators reflecting agents' expectations and assessments regarding the economic climate in the country, developments in the third quarter of 2022, compared to the second quarter of the year, demonstrate a weakening of the economic climate in Greece and the EU, a decline in business expectations in Greece in the industry and construction sectors, and a small improvement in expectations in retail trade.

Given the particular circumstances prevailing in the current conjuncture, the above forecast for the development of Greece's real GDP is subject to a significant degree of uncertainty. While indications of a de-escalation of energy prices currently seem to dispel certain more pessimistic scenarios regarding the path of the European economy, geopolitical developments continue to pose serious risks. At the same time, it is difficult to predict the speed of deceleration of inflation and, therefore, the relevant effects on household purchasing power, production costs and interest rates, while in the case of Greece, the potential effects of the electoral cycle are added to these uncertainties. On the other hand, upside risks to the forecast include a positive outcome with respect to the recovery of investment grade rating for Greek government bonds, the possibility of the continuation of government support measures on a scale compatible with meeting the fiscal targets, the implementation of reforms and projects within the context of the Recovery and Resilience Fund and the new NSRF 2021-2027, and the intensification of investments on energy saving and the reduction of energy dependence.

1.4. Positive return for the Greek stock market in 2022 amid challenges

Fotini Economou

1.4.1. Introduction

The year 2022 was one of multiple challenges for the international stock markets. The ongoing COVID-19 pandemic, the war in Ukraine, inflationary pressures, interest rate hikes and the energy crisis have created a stock market environment of turbulence and volatility, with these challenges still lying ahead. However, the Greek stock market, as captured by the Athex Composite Share Price Index, completed the year with a positive sign in terms of performance, despite the significant fluctuations recorded within the year, in contrast to major international stock markets, which recorded significant losses for 2022 amid ongoing challenges. The medium and small capitalization recorded negative returns, while the sectoral indices of the Athens Stock Exchange (ATHEX) presented a mixed picture. At the same time, the upward trend in interest rates and yields on government bonds increased the cost of borrowing for the Greek government in 2022, while the adverse international market conditions also affected the institutional management sector. At the same time, the goal of returning to investment grade remains, with Greece's rating just one step away from achieving it.

This article presents the course of the Greek stock market during 2022 with an emphasis on key stock market indices and data. In addition, the course of the bond market and the course of the institutional management sector for the year 2022 are presented. The last section of the article summarizes and concludes.

1.4.2. The course of the stock market in 2022

Even though the year started on a positive note despite concerns about the pandemic, Russia's invasion of Ukraine marked the beginning of a period of intense uncertainty for international markets, with the Athex Composite Share Price Index moving downwards, reaching 879.45 units at the end of March 2022. In the months that followed, volatility remained with the ener-

gy crisis, high inflation and interest rate hikes and the Athex Composite Share Price Index below 800 units by mid-July 2022. The energy crisis worsened in September 2022, with the Athex Composite Share Price Index reaching 792.90 units at the end of the month. The last quarter of the year recorded an upward trend in the market and the performance of the Athex Composite Share Price Index since the beginning of the year returned to a positive sign, in light of the decline in the price of natural gas, despite the ongoing challenges from the war in Ukraine and interest rate hikes by Central Banks. According to Athens Stock Exchange (ATHEX) data for 2022 (Table 1.4.1), the Athex Composite Share Price Index recorded a positive annual return of 4.08%, reaching 929.79 points on 30/12/2022 from 893.34 points at the end of December 2021. The course of the FTSE/ATHEX Large Cap and the ATHEX ESG Index was similar, recording returns of 4.78% and 4.37%, respectively. The picture is different for mid and small caps recording losses for 2022, with the Hellenic Index MID & Small Cap, FTSE/X.A. Mid Cap Index and FTSE/ATHEX Mid & Small Cap Factor-Weighted Index losing -0.57%, -5.39% and -5.85%, respectively.

The picture for the sectoral indices of the ATHEX is mixed, with specific sectors recording impressively high returns (FTSE/Athex Insurance with a return of 47.13% and FTSE/Athex Energy with a return of 46.07%) and others recording losses of even more than 20% (FTSE/Athex Health Care with losses of -24.18%, FTSE/Athex Personal Products with losses of -24.28% and FTSE/Athex Food & Beverage with losses of -25.29%). Note that the banking sector recorded a high positive return for the second year in a row (11.42% return in 2022 and 10.78% in 2021) given the improvement in bank asset quality.

According to ATHEX (2022) data, the market capitalization of the ATHEX (assets under custody of domestic and foreign investors in total listed equities with the participation of the Financial Stability Fund) reached €59.82 billion at the end of December 2022, increased by 5.82% compared to the end of 2021, which was €56.53 billion. The participation of foreign investors (with the participation of the Financial Stability Fund) remains high, reaching 63.61% at the end of December 2022, with foreign investors recording outflows of €13.75 million and 52.8% of total transactions in December 2022. The cash value of settled transactions reached €1,152.80 million in December 2022, increased by 7.44% compared to December 2021. More-

TABLE 1.4.1 Prices and returns for selected indices of the ATHEX (30/12/2022)

	30/12/2022	Year min	Year max	Year change (%)
FTSE/Athex Large Cap	2,251.51	1,853.39	2,384.15	4.78%
Athex ESG Index	1,057.67	867.88	1,131.24	4.37%
Athex Composite Share Price Index	929.79	778.84	973.27	4.08%
Athex All Share Index	230.24	198.92	248.43	0.08%
Hellenic Mid & Small Cap Index	1,365.14	1,171.10	1,451.84	-0.57%
FTSE/Athex Mid Cap Index	1,411.43	1,236.94	1,615.19	-5.39%
FTSE/ATHEX Mid & Small Cap Factor-Weighted Index	4,395.58	3,920.25	5,109.62	-5.85%
FTSE/Athex Insurance	2,935.06	1,994.86	3,171.11	47.13%
FTSE/Athex Energy	5,029.85	3,339.51	5,029.85	46.07%
FTSE/Athex Consumer Goods & Services	9,157.74	7,260.09	9,226.02	26.14%
FTSE/Athex Industrial Goods & Services	4,638.48	3,065.29	4,638.48	24.30%
FTSE/Athex Travel & Leisure	2,217.27	1,858.00	2,327.38	12.95%
FTSE/Athex Banks	640.56	443.16	752.66	11.42%
FTSE/Athex Construction & Materials	3,204.90	2,533.53	3,232.75	7.59%
FTSE/Athex Technology	2,054.23	1,679.98	2,347.72	-4.32%
FTSE/Athex Retail	901.21	713.86	1,150.20	-8.45%
FTSE/Athex Financial Services	685.41	605.58	831.60	-8.50%
FTSE/Athex Telecommunications	4,071.72	3,925.29	5,170.21	-10.43%
FTSE/Athex Utilities	4,598.77	3,692.82	5,208.71	-10.72%
FTSE/Athex Basic Resources	6,489.47	5,372.63	8,197.29	-12.28%
FTSE/ATHEX Real Estate	4,073.09	3,592.38	5,179.83	-15.36%
FTSE/Athex Health Care	418.89	305.68	611.35	-24.18%
FTSE/Athex Personal Products	6,606.34	5,953.26	8,868.58	-24.28%
FTSE/Athex Food & Beverage	8,466.37	6,627.16	12,058.75	-25.29%

Source: Daily official list of trading activity of the ATHEX 30/12/2022.

over, the cash value of settled transactions of equities increased in December 2022 at €1,130.74 million from €1,032.36 million in December 2021, also recording an increase in 2022, reaching €17,975.38 million from €17,491.65 million in 2021.

The fluctuations of the stock market and the consequent uncertainty about its course were also reflected in the values of the implied volatility index KEPE GRIV, the so-called “fear” index, in 2022. The KEPE GRIV index reflects the uncertainty of the derivatives market participants about the expected short-term course of the Greek market and is calculated on the basis of

the FTSE/ATHEX Large Cap options prices. The KEPE GRIV index decreased in December 2022, reaching 28.48% on 30/12/2022 from 31.52% on 30/11/2022. The index remained below its historical average level (since January 2004) for the Greek market, which stands at 32.58%. Moreover, the average daily value of the index decreased, reaching 29.77% in December 2022, from 33.07% in November 2022, as well as compared to December 2021, which was 30.67%. Note that the index reached its highest level for the year in March 2022, given the war in Ukraine and its consequences, followed by significant fluctuations and de-escalation during the last months of 2022, with the

uncertainty for the expected short-term course of the Greek market returning close to the level of December 2021 (28.10% on 31/12/2021).

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

Adverse conditions in the international markets also significantly affected the global bond market with Central Banks proceeding with interest rate increases in 2022. More specifically, the ECB increased its three key interest rates four times from July to December 2022 with the aim of a timely return of inflation to the ECB's medium-term target of 2%. Note that the ECB increased its three key interest rates by 50 basis points in December 2022, following the previous increases in October 2022 by 75 basis points, in September 2022 by 75 basis points and in July 2022 by 50 basis points.¹

A direct consequence of these unfavorable developments was the increase in borrowing costs for the Greek government. Examining the issues of Greek Government T-bills during 2022 (Table 1.4.2), it is observed that their yields went from negative to positive values for all 13-, 26- and 52-week T-bills issued since June 2022. The yields for all T-bills are higher compared to the end of 2021, with the largest increase recorded for the 52-week T-bills.

The interest rates of the Greek Government benchmark bonds also moved upwards (Figure 1.4.1). According to Bank of Greece data, the average monthly yield of the Greek government bonds increased in December 2022 compared to December 2021 for all maturities, with the three-year bond having the largest increase.

Finally, the corporate bond indices of the ATHEX also recorded losses. According to ATHEX data, the Hellenic Corporate Bond Price Index² recorded losses of -9.60% and the Hellenic Corporate Bond Index³ loss-

TABLE 1.4.2 Greek Government T-bills yields (issues from the end of 2021 to the end of 2022)

Auction date	13 weeks	Auction date	26 weeks	Auction date	52 weeks
2/11/2022	1.79%	28/12/2022	2.50%	7/12/2022	2.73%
5/10/2022	1.35%	30/11/2022	2.35%	7/9/2022	1.97%
3/8/2022	0.45%	26/10/2022	2.03%	8/6/2022	0.83%
6/7/2022	0.20%	28/9/2022	1.95%	9/3/2022	-0.23%
4/5/2022	-0.16%	24/8/2022	1.05%	8/12/2021	-0.40%
6/4/2022	-0.20%	27/7/2022	0.80%		
2/2/2022	-0.42%	29/6/2022	0.45%		
4/1/2022	-0.40%	1/6/2022	-0.03%		
3/11/2021	-0.43%	27/4/2022	-0.14%		
		30/3/2022	-0.20%		
		23/2/2022	-0.40%		
		26/1/2022	-0.43%		
		29/12/2021	-0.46%		

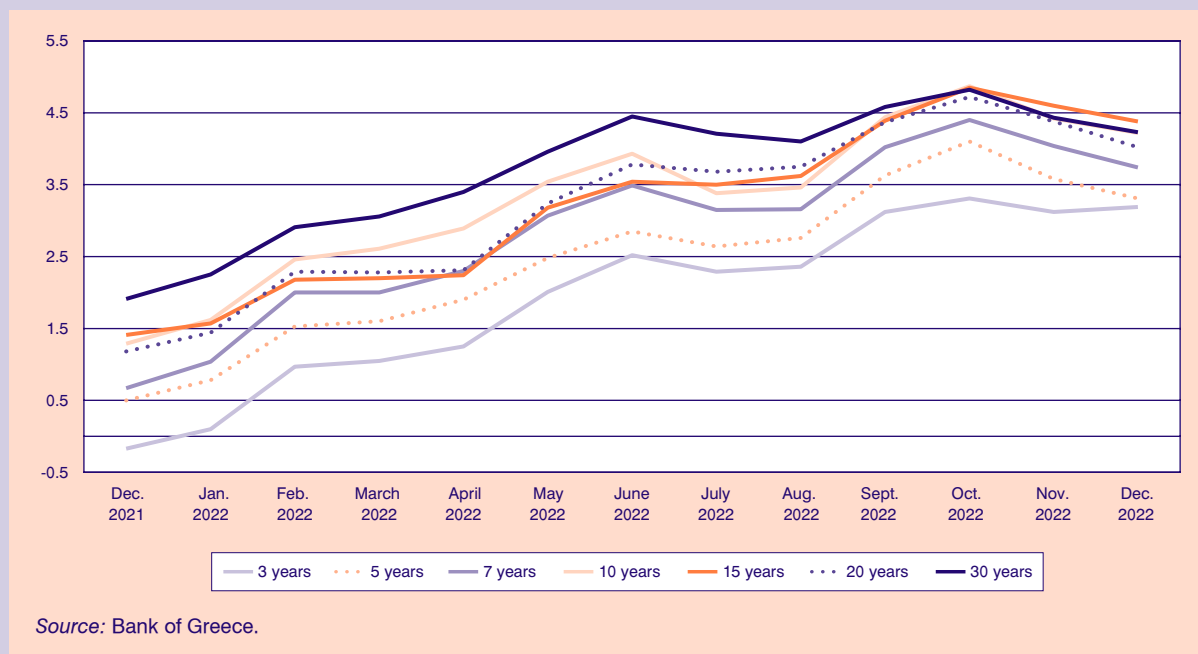
Source: Ministry of Finance.

1. See ECB Press Release of the 15th December 2022, ECB Press Release of the 27th October 2022, ECB Press Release of the 8th September 2022 and ECB Press Release of the 21st July 2022.

2. Based on the net price of each bond.

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

FIGURE 1.4.1
Monthly average yield (%) of Greek Government benchmark bonds (Dec. 2021 – Dec. 2022)
for maturities of 3, 5, 7, 10, 15, 20 and 30 years



es of -6.88% in 2022.⁴ Moreover, the cash value of settled transactions of corporate bonds decreased, reaching €242.33 million in 2022 from €245.42 million in 2021.

1.4.4. The course of the institutional management sector in 2022

The unfavorable situation in international markets inevitably affected the institutional management sector in 2022 as well. According to the Hellenic Fund and Asset Management Association (HFAMA) (2023) data, the total amount of funds under management amounted to €23 billion at the end of 2022, recording an increase of 3.67% compared to the end of 2021 and an increase of 5.04% compared to the previous quarter. The composition of these funds on 31/12/2022 concerned 47.3% in Undertakings for Collective Investment in Transferable Securities (UCITS), 32.8% in the Asset Management sector, 18.5% in Real Estate Investment Companies (REICs)⁵ and 1.3% in Alternative Investment Funds (AIFs).

More specifically, focusing on UCITS, there was a decrease in the total assets of UCITS managed by Greek Mutual Fund Management Companies by -2.2% from the beginning of 2022, reaching €10.88 billion on 31/12/2022 (€8.16 billion in UCITS Law 4099/12 and €2.72 billion in EU UCITS), despite the recorded increase by 7.3% compared to the previous quarter (Figure 1.4.2). Of these assets, 28% are bond funds, 25% balanced, 23% Funds of Funds, 15% equity, 5% specialist and 4% money market. Note that the inflows of funds to UCITS continued for the eleventh consecutive quarter, with total inflows of the last quarter of 2022 reaching €373.8 million. Moreover, according to HFAMA (2023) the total inflows since April 2020 are over €3.62 billion.

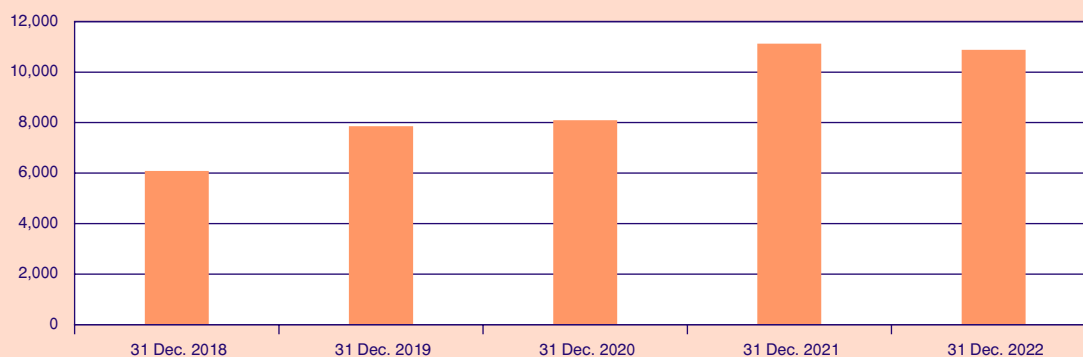
Also note that in 2022, losses in terms of returns were recorded in almost all UCITS categories, with the category of Equity Funds - Greece standing out positively, recording an average annual return⁶ of 3.95% and the small-sized category of Index Equity Funds recording a return of 4.56% (see HFAMA, 2023). Moreover, the Equity Funds - Greece assets decreased by -1.45% com-

4. Returns on 28/12/2022 according to the daily official list of trading activity of the ATHEX of 30/12/2022.

5. 30/6/2022 (latest published data), see Hellenic Fund and Asset Management Association (2023).

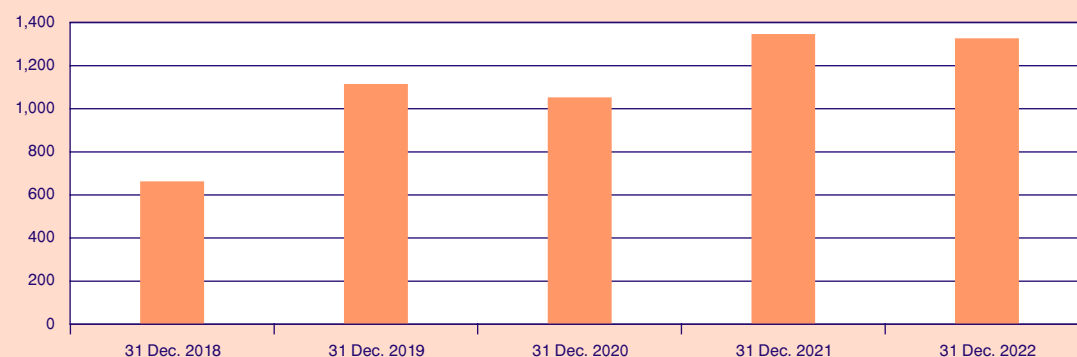
6. Annual average return of the UCITS category excluding UCITS activated within the year 2022.

FIGURE 1.4.2
Total assets under management of UCITS, million € (31/12/2018-31/12/2022)



Source: Hellenic Fund and Asset Management Association.

FIGURE 1.4.3
Equity Funds - Greece assets, million € (31/12/2018-31/12/2022)



Source: Hellenic Fund and Asset Management Association.

pared to the end of the previous year after an impressive increase of 27.90% recorded in 2021 (Figure 1.4.3).

1.4.5. Conclusions

The year 2022 was characterized by an explosive combination of adverse factors that inevitably affected the course of international money and capital markets, shaping an environment of increased uncertainty. The Athex Composite Share Price Index achieved a positive annual return amid multiple challenges at the international level. However, mid- and small-caps recorded losses, while the picture for the sectoral indices is mixed, recording not only impressive positive, but also negative returns in individual sectors. The deteriora-

tion of international financial conditions also affected the yields of T-bills and bonds, which moved upwards, while the institutional management sector could not remain unaffected either.

The challenges of 2022 persist with the international environment remaining unfavorable. The war in Ukraine continues with no end in sight. In addition, the energy crisis and inflationary pressures remain, while the pandemic has not yet been overcome. At the same time, the geopolitical challenges and the upcoming elections in Greece are additional factors of uncertainty for the Greek market. The expected return to investment grade will be a milestone for attracting investors and capital to the Athens Stock Exchange, while the Greek capital market should promote growth.

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1.5. Recent developments and prospects of the global economic activity: Weak pace of growth amid high inflation and monetary policy tightening

Aristotelis Koutroulis

The global economy is moving along a path of high inflationary pressures and weak growth rates. So far, monetary policy tightening around the world has prevented the creation of long-term inflationary expectations. However, the general economic climate, as shaped by the prolongation of the war in Ukraine, high energy and food prices and rising living costs are discouraging household consumption and business investment. Against this backdrop, global economic activity and international trade are estimated to decelerate sharply in 2023.

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

Economic activity

Confronted with strong economic and geopolitical disruptions, global GDP increased by 3% in 2022 (see Table 1.5.1). This is 3 percentage points below the 2021 growth rate, reflecting soaring energy prices, high inflation, and interest rate hikes across the globe. In the field of economic policy, the urgent need to lower inflation and anchor inflationary expectations has led to a rapid and synchronized monetary tightening worldwide, thereby driving up borrowing costs and worsening financial market conditions. Amid concerns about rising deficits and fiscal sustainability, the fiscal stance in 2022 turned slightly contractionary in a growing number of countries. However, fiscal consolidation paused in countries that were particularly hit by soaring energy prices.

The recovery of the global economy is expected to slow further in 2023, with global GDP rising by 2.5 percentage points (see Table 1.5.1). This estimation reflects the contractionary monetary and fiscal stance in most countries, tightening financial conditions, the overall negative impact from the continuation of the

war in Ukraine, and finally, the declining confidence of households and firms in the short-term prospects of the economy.

Inflation and Unemployment

In 2022, inflation registered a significant increase internationally, reaching historically high levels in both advanced and developing economies (see Table 1.5.2). According to international organizations, the surge in inflation was fueled by a combination of demand- and supply-side factors. Regarding the time sequence of events, the onset of inflationary pressures is traced to mid-2021 when production constraints and disruptions in international supply chains were combined with increasing demand. Upward price pressures increased further in 2022 as the war in Ukraine caused shortages of key intermediate goods and disruptions in the natural gas market, thereby leading to an escalation of inflation (OECD, 2022; World Bank, 2023).

The spillover of increased energy costs into prices of industrial goods and services pushed global core inflation up to 6%, causing short-term inflation expectations (one year ahead) to rise in most countries around the world. As for long-term inflation expectations (five years ahead), these have increased only marginally. The divergence between short-term and long-term inflation expectations suggests that households and firms perceive soaring prices as a short-lived phenomenon (World Bank, 2023).

Owing to weakening demand and easing commodity price pressures, inflation has entered a phase of gradual decline over the last months. During the course of the current year, monetary policy tightening, along with slowing economic activity and moderating commodity prices, is expected to exert a downward pressure on inflation. Nevertheless, for most economies, it will take more than a year before they return to a regime of price stability (World Bank, 2023).

In 2022, most advanced economies experienced a considerable improvement of labour market conditions, with unemployment falling to historically low rates (see Table 1.5.3). Significant progress in terms of employment recovery has also been achieved in large developing economies such as India and Brazil (OECD, 2022; UN, 2023). However, the total number of working hours globally remains below pre-pandemic levels, with low- and medium-skilled occupations suffering the largest shortfalls.

TABLE 1.5.1 Real Gross Domestic Product^{1,2}
(annual percentage changes)

	2021					2022*					2023**				
	IMF	EC	OECD	WB	UN	IMF	EC	OECD	WB	UN	IMF	EC	OECD	WB	UN
World economy	6.2	6	5.9	5.9	5.8	3.4	3.1	3.1	2.9	3	2.9	2.5	2.2	1.7	1.9
Advanced economies	5.4	5.6	:	5.3	5.2	2.7	2.7	:	2.5	2.6	1.2	0.9	:	0.5	0.4
USA	5.9	5.9	5.9	5.9	5.7	2	1.8	1.8	1.9	1.8	1.4	0.7	0.5	0.5	0.4
Eurozone	5.3	5.3	5.3	5.3	5.3	3.5	3.2	3.3	3.3	3.3	0.7	0.3	0.5	0	0.2
Japan	2.1	1.7	1.6	2.2	1.7	1.4	1.7	1.6	1.2	1.6	1.8	1.6	1.8	1	1.5
United Kingdom	7.6	7.5	7.5	:	7.4	4.1	4.2	4.4	:	4.3	-0.6	-0.9	-0.4	:	-0.8
Developing economies	6.7	6.3	:	6.7	6.7	3.9	3.4	:	3.4	3.9	4	3.8	:	3.4	3.9
Brazil	5	4.6	4.9	5	4.6	3.1	2.5	2.8	3	2.9	1.2	0.8	1.2	0.8	0.9
Russia	4.7	4.7	:	4.8	4.7	-2.2	-5.1	:	-3.5	-3.5	0.3	-3.2	:	-3.3	-2.9
India	8.7	8.3	8.7	8.7	8.9	6.8	6.9	6.6	6.9	6.4	6.1	6	5.7	6.6	5.8
China	8.4	8.1	8.1	8.1	8.1	3	3.4	3.3	2.7	3	5.2	4.5	4.6	4.3	4.8

Sources: IMF (2023); European Commission (2022); OECD (2022); United Nations (2023); World Bank (2023).

* Estimations, ** Projections.

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

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

TABLE 1.5.2 Inflation¹
(annual percentage changes)

	2021				2022*				2023**			
	IMF	EC	OECD	UN	IMF	EC	OECD	UN	IMF	EC	OECD	UN
World economy	4.7	:	:	:	8.8	:	:	:	6.6	:	:	:
Advanced economies	3.1	:	:	3.3	7.3	:	:	7.5	4.6	:	:	5.2
USA	:	4.7	4	4.7	:	7.9	6.2	8.1	:	3.4	3.5	4.8
Eurozone	:	2.6	2.6	2.6	:	8.5	8.3	8.1	:	6.1	6.8	6.2
Japan	:	-0.2	-0.2	-0.2	:	2.5	2.3	2	:	3.1	2	1.2
United Kingdom	:	2.5	2.6	2.6	:	7.9	8.9	9	:	7.5	6.6	7.8
Developing economies	5.9	:	:	6.6	9.9	:	:	10.8	8.1	:	:	8.5
Brazil	:	:	8.3	8.3	:	:	8.9	9.5	:	:	4.2	5.3
Russia	:	6.7	:	6.7	:	14.2	:	14.3	:	7.1	:	8.3
India	:	:	5.5	4.9	:	:	6.8	7.1	:	:	5	5.5
China	:	:	0.8	1	:	:	2	2.2	:	:	2.2	2.5

Sources: IMF (2023); European Commission (2022); OECD (2022); United Nations (2023).

* Estimations, ** Projections.

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

TABLE 1.5.3 Annual unemployment rates (Advanced economies)

	2021			2022*			2023**		
	EC	OECD	UN	EC	OECD	UN	EC	OECD	UN
USA	5.3	5.4	5.4	3.7	3.7	3.7	4.1	4.2	4.2
Eurozone	7.7	7.7	:	6.8	6.8	:	7.2	7.1	:
Japan	2.8	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.5
United Kingdom	4.5	4.5	4.5	3.8	3.7	3.7	4.4	4.3	4.4

Sources: European Commission (2022); OECD (2022); United Nations (2023).

* Estimations, ** Projections.

The combination of high inflation and tight labour market conditions has raised concerns about a wage-price spiral (i.e., mutually reinforcing increases in nominal wages and prices). However, many economists suggest that the emergence of an inflationary process of this kind under the current conjuncture of circumstances is not very likely. As the argument goes, the occurrence of a wage-price spiral would require high rates of nominal wage growth, strong inflationary expectations, low credibility and a passive stance on the part of monetary authorities (ILO, 2022; UN, 2023). So far, none of these conditions have been satisfied to the point to trigger a wage-price spiral: First, through their rapid reaction to high inflation, central banks have managed to maintain their credibility and contain long-term inflation expectations. Second, nominal wage growth rates remain far below inflation rates in most countries. Finally, given that real wage growth is outpaced by labour productivity growth, there is scope for certain nominal wage rises without triggering a spiral inflationary process (ILO, 2022).

1.5.2. World trade and commodity prices

In 2022, the rate of expansion of international trade (goods and services) softened by 5 percentage points (see Table 1.5.4). This deceleration is attributed to the worsening credit conditions, the erosion of real incomes, the increased transport costs, the shortages of key intermediate goods produced in Russia and Ukraine, and finally, the disruptions in Chinese manufacturing due to major lockdowns linked to Covid-19. Trade in goods registered the biggest slowdown, whereas trade in ser-

vices continued to recover rapidly thanks to the dynamic recovery of the global tourism industry (OECD, 2022; World Bank 2023; UN, 2023).

The momentum world trade had gathered in 2021 is expected to decline further this year with its rate of growth estimated to fall by 3 to 5 percentage points (see Table 1.5.4). While the recovery of international tourism will remain strong, the anticipated slowdown in global demand is expected to hinder trade performance.

Amid heightened geopolitical tensions and supply-side disruptions, international prices of most commodities hovered at historic highs during the summer of 2022. Towards the end of the year, international prices receded from their record highs due to slowing global demand.

The biggest price fluctuations were recorded in the international markets of energy products. For example, sharp increases in European natural gas prices last August were followed by significant declines due to weak demand and rising inventories in the autumn. Ups and downs were recorded in the prices of the base metals as well. As for food products, better-than-expected harvests and the recovery of agricultural exports from Ukraine put downward pressure on international prices.

In 2023, the international prices of basic commodities are projected to follow a downward trend. In particular, the average price of Brent crude oil is estimated to average at \$88 per barrel, compared to \$100 in 2022. Natural gas prices are also expected to fluctuate at lower levels due to a decrease in demand from households and due to the large increase in energy production from renewable sources. Basic metal prices

TABLE 1.5.4 World trade volume
(annual percentage changes, goods and services)

	2021				2022*				2023**			
	IMF	OECD	WB	UN	IMF	OECD	WB	UN	IMF	OECD	WB	UN
Volume of international trade (goods and services)	10.4	10	10.6	10.5	5.4	5.4	4	6	2.4	2.9	1.6	-0.4

Sources: IMF (2023); OECD (2022); United Nations (2023); World Bank (2023).

* Estimations, ** Projections.

es are expected to register a decline of around 15%. Finally, the international prices of agricultural products are expected to hover at lower levels, with the average decline reaching 5 percentage points (World Bank, 2023).

For countries that rely on imports of energy products and other basic commodities to cover their domestic needs, the reductions in international prices are always welcome. However, the international prices for energy, basic metals and agricultural products do not always coincide with the domestic prices of the corresponding goods. Variations in the exchange rates of national currencies against the US dollar can drive domestic prices changes to diametrically opposite directions relative to international prices. For example, while the international oil price expressed in US dollars last November fell by 5%, in terms of national currencies of advanced economies, the average oil price during the same period increased by 7% due to the appreciation of the US dollar (World Bank, 2023). Therefore, even if the forecasts for a gradual decline in the international

prices of basic commodities are confirmed, it remains quite uncertain whether commodity-importing countries will enjoy the same price declines in domestic terms.

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2. Fiscal developments

KEPE, *Greek Economic Outlook*, issue 50, 2023, pp. 38-46

State Budget, public debt and fiscal figures perspectives

Elisavet I. Nitsi

2.1. Execution of the 2022 State Budget

The 2022 State Budget execution, according to the most recent data of the General Accounting Office,¹ on a modified cash basis, shows a deficit of 11,656 million euros or 5.6% of Gross Domestic Product (GDP),² against 14,872 million euros or 8.2% of GDP in 2021, while it is much lower compared to the 2022 State Budget target of 13,400 million euros or 6.4% of GDP (Table 2.1.1). However, it was slightly higher than the target set by the 2023 State Budget, which had been estimated at 10,827 million euros or 5.8% of GDP. Accordingly, the primary balance is also deficient, as it reached 6,652 million euros or 3.2% of GDP, against a deficit of 14,872 million or 8.2% in 2021 and a target for primary surplus of 8,508 million or 4% of GDP based on the 2022 State Budget. The primary deficit is also slightly higher than the 2023 State Budget estimate, which was foreseen at 6,257 million euros or 3.3% of GDP (Table 2.1.1). It is more than obvious that the State Budget execution is clearly improved compared to the 2023 State Budget forecasts, due to the significant growth of the Greek economy, which is significantly higher than the Eurozone average. This growth exceeded the ominous forecasts due to the energy crisis and the inflationary pressures on energy and basic products, which created the need to take measures to address them and support citizens, especially the vulnerable. In addition, the recession of the Covid-19 pandemic played an important role, which led to the return of economic activity to normality and the significant increase in tourist traffic in the country.

Both economic recovery and inflation resulted in a significant increase in net revenues of the 2022 State Budget. At the same time, due to the increased needs for measures to relieve citizens mainly from the burden of price increases in energy, but also of goods, the expenditures also increased compared to the corresponding period of the previous year. More specifically, net revenue of the 2022 State Budget, amounting to 59,623 million euros or 28.4% of GDP, increased by 4,745 million euros or 8.7% compared to 2021, as well as the target set by the 2022 State Budget, which projected that revenues were set to reach 57,101 million euros, an increase of 2,522 million euros or 4.4%. This led to an upward revision of the revenue figures to 59,853 million euros in the latest estimate in the 2023 State Budget with the deviation narrowing to just 230 million euros. This increase came mainly from increased tax revenues, i.e., from 48,128 million euros in 2021, tax collection jumped to 55,217 million euros in 2022. More specifically, VAT collection increased from 17,431 million euros in 2021 to 21,584 million euros in 2022, i.e., an increase of 4,153 million euros or 23.8%. This increase translates to more than half a percentage point of GDP (0.7%) and came from the significant increases in the prices of goods that yield significantly higher VAT, as well as from the significant increase in tourism receipts that returned to the pre-pandemic levels. The increase in tax revenues is also partly due to the increase in income tax collection of both individuals and companies, as the economy returned to normality in 2022 with a significant increase in economic activity and employment, as well as the parallel increase in the minimum wage that led to increased incomes for employers and businesses.

As regards expenditures, these amounted to 71,279 million euros or 33.9% of GDP, showing an increase of 1,529 million euros or 2.2% compared to 2021. They also show a large discrepancy in relation to the expenditures initially predicted by the 2022 State Budget by 3,350 million euros or 4.9%, as during the period of its submission, the major energy crisis and the con-

1. The State Budget Execution Bulletin, December 2022, Ministry of Finance, January 2023.

2. According to the GDP projections for 2022 from the 2023 State Budget.

TABLE 2.1.1 State Budget 2022, million euros on a modified cash basis

	2021		2022	
	Outcome ¹	Outcome ¹	Budget forecasts 2022 ²	Budget estimates 2023 ³
State Budget				
Net Revenue	54,878	59,623	57,101	59,853
<i>Revenue</i>	59,981	65,775	62,058	65,846
<i>Taxes</i>	48,128	55,217	50,442	55,135
<i>From which:</i>				
<i>VAT</i>	17,431	21,584	18,738	21,306
<i>Excise taxes</i>	6,695	6,984	7,065	7,073
<i>Property taxes</i>	2,652	2,692	2,631	2,527
<i>Income tax</i>	14,697	17,012	15,683	16,681
<i>Social contributions</i>	55	56	55	55
<i>Transfers</i>	8,690	6,357	7,373	6,904
<i>Sales of goods and services</i>	611	883	2,104	782
<i>Other current revenue</i>	2,495	3,301	2,067	2,956
<i>Sales of fixed assets</i>	4	12	13	13
<i>Tax refunds</i>	5,103	6,153	4,957	5,993
Expenditure	69,750	71,279	67,929	73,253
<i>Compensation of employees</i>	13,494	13,640	13,610	13,694
<i>Social benefits</i>	281	391	221	368
<i>Transfers</i>	37,038	36,086	30,583	34,496
<i>Purchases of goods and services</i>	1,992	2,145	1,355	2,429
<i>Subsidies</i>	346	400	80	419
<i>Interest payments (gross basis)</i>	4,873	5,039	4,600	4,923
<i>Other current expenditure</i>	52	55	101	91
<i>Non-allocated expenditure (without PIP)</i>	0	0	2,923	1,671
<i>Purchase of Fixed Assets</i>	2,672	3,496	3,456	3,545
PIP				
<i>Revenue⁴</i>	4,569	3,581	4,000	4,459
<i>Expenditures</i>	8,694	8,182	7,800	8,800
Development and Resilience Fund				
<i>Revenue⁵</i>	2,310	1,718	3,436	1,718
<i>Expenditures</i>	307	2,843	3,199	2,816

TABLE 2.1.1 (continued)

	2021		2022	
	Outcome ¹	Outcome ¹	Budget forecasts 2022 ²	Budget estimates 2023 ³
State Budget Primary Balance ^{6,7,8,9}	-10,327	-6,652	-6,257	-8,508
% GDP	-5.68	-3.17	-3.34	-4.01
State Budget Balance ^{6,7,8,9}	-14,872	-11,656	-10,827	-13,400
% GDP	-8.17	-5.55	-5.78	-6.38
GDP ¹⁰	181,675	210,170	187,278	210,170

Source: Budget Introductory Report 2022 and 2023, Ministry of Finance.
State Budget Execution, General Accounting Office, Ministry of Finance, January 2023.

Notes:

1. The data for the revenues and expenditures of the State Budget for the years 2021 and 2022 are temporary and will be finalized with the ratification of the Revenue and Expenditure Report of the State for the fiscal years 2021 and 2022.
2. 2022 Budget estimates, adjusted to aggregate figures as depicted in the 2022 Budget Introductory Report.
3. 2022 Budget estimates, adjusted to aggregate figures as depicted in the 2023 Budget Introductory Report.
4. Development and Resilience Fund revenues are included in line "Transfers".
5. Public Investment Budget revenues are included in lines "Transfers" and "Other current revenues".
6. + surplus, - deficit.
7. Outcome includes the settlement program of previous years' arrears and pending pension applications.
8. Data is presented according to the new economic classification (Presidential Decree 54/2018).
9. The State Budget balance includes 5.8 million euros of expenditure, which were not accounted for at the time of publication of the bulletin.
10. The GDP estimate for 2022 as reflected in the estimates of the Introductory Report of the 2023 Budget.

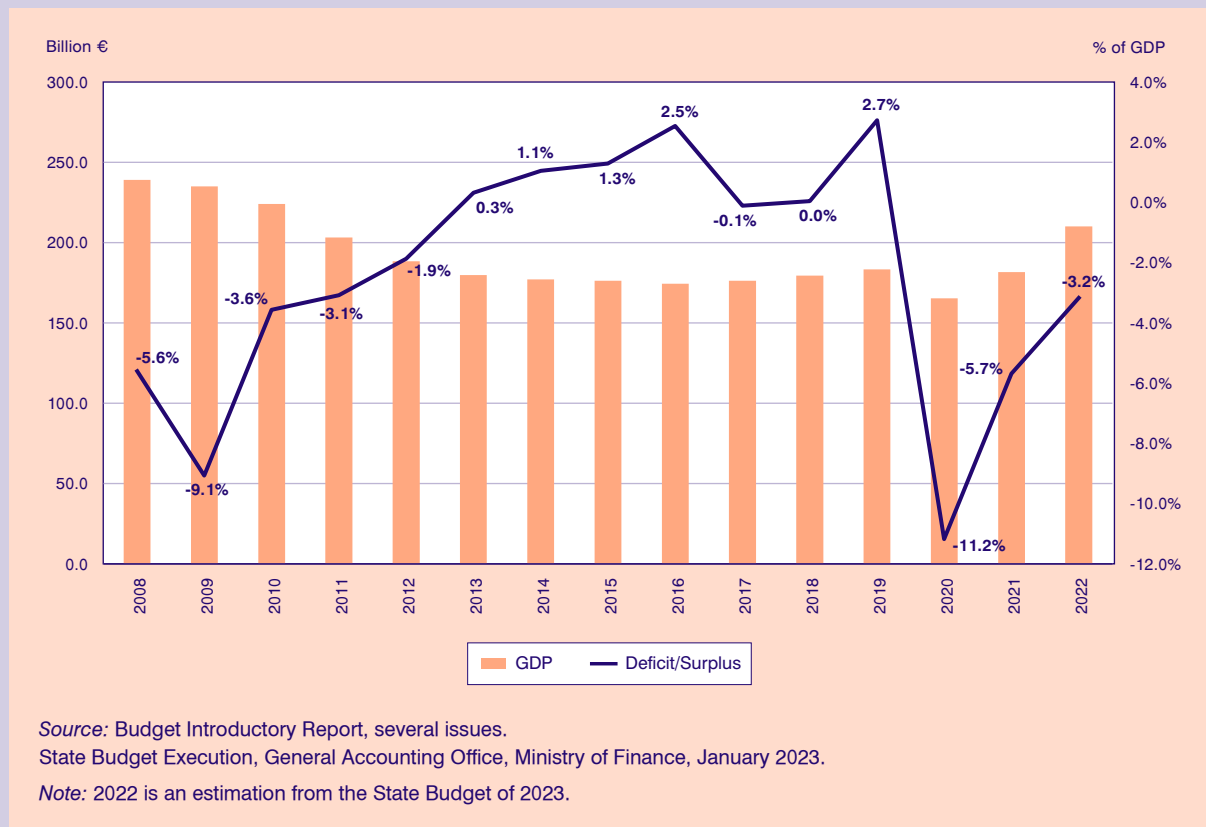
sequent global economic crisis were not expected, which forced the Greek government to take extraordinary measures to deal with them. This increase in expenditures came from the acquisition of fixed assets and more specifically from the equipment programs that our country undertook due to the significant geopolitical tensions in the south-eastern Mediterranean region (881 million euros or 34.9% compared to 2021), a fact that was foreseen in all the relevant targets and estimates. However, there is a decrease in expenditures compared to the 2023 State Budget estimate, in which they were estimated to reach 73,253 million euros or 36.2% of GDP. This reduction is mainly due to the under-execution of consumer spending amounting to 283 million euros and the non-absorption, within 2022, of part of the credits allocated from the reserve, due to procedural delays. The relevant obligations are undertaken as a matter of priority, again, in the next financial year, to make the relevant payments and avoid the accumulation of unpaid obligations.

The Public Investment Program (PIP) shows a significant decrease in both revenue and expenditures,

as revenues amount to 3,581 million euros or 1.7% of GDP, decreased by 988 million euros or 21.6% compared to the 2021 outcome, and 878 million euros or 19.7% against the target set in the 2022 State Budget. The deviation is smaller than the 2023 State Budget estimate and reaches 419 million euros or 10.5%. Respectively, expenditures, amounting to 8,182 million euros or 3.9% of GDP, are decreased by 512 million euros or 5.9% compared to 2021, and 618 million euros or 7% compared to the 2023 State Budget estimate, while they are increased compared to the 2022 State Budget target by 382 million euros or 4.9%. Moreover, from the Recovery and Resilience Fund, 2,843 million euros or 1.4% of GDP was spent in 2022, while revenues amounted to 1,718 million euros or 0.8% of GDP. Both expenditures and revenues are well below the 2022 State Budget estimates of 3,199 million euros and 3,436 million euros, respectively.

Overall, the improved course of revenues offset the increase in expenditures and significantly improved the fiscal outcome and the State Budget balance. Figure 2.1.1 shows the evolution of the primary deficit/surplus

FIGURE 2.1.1
Gross Domestic Product (GDP) and State Budget Primary Deficit/Surplus 2008-2020
(in % of GDP and billion €)



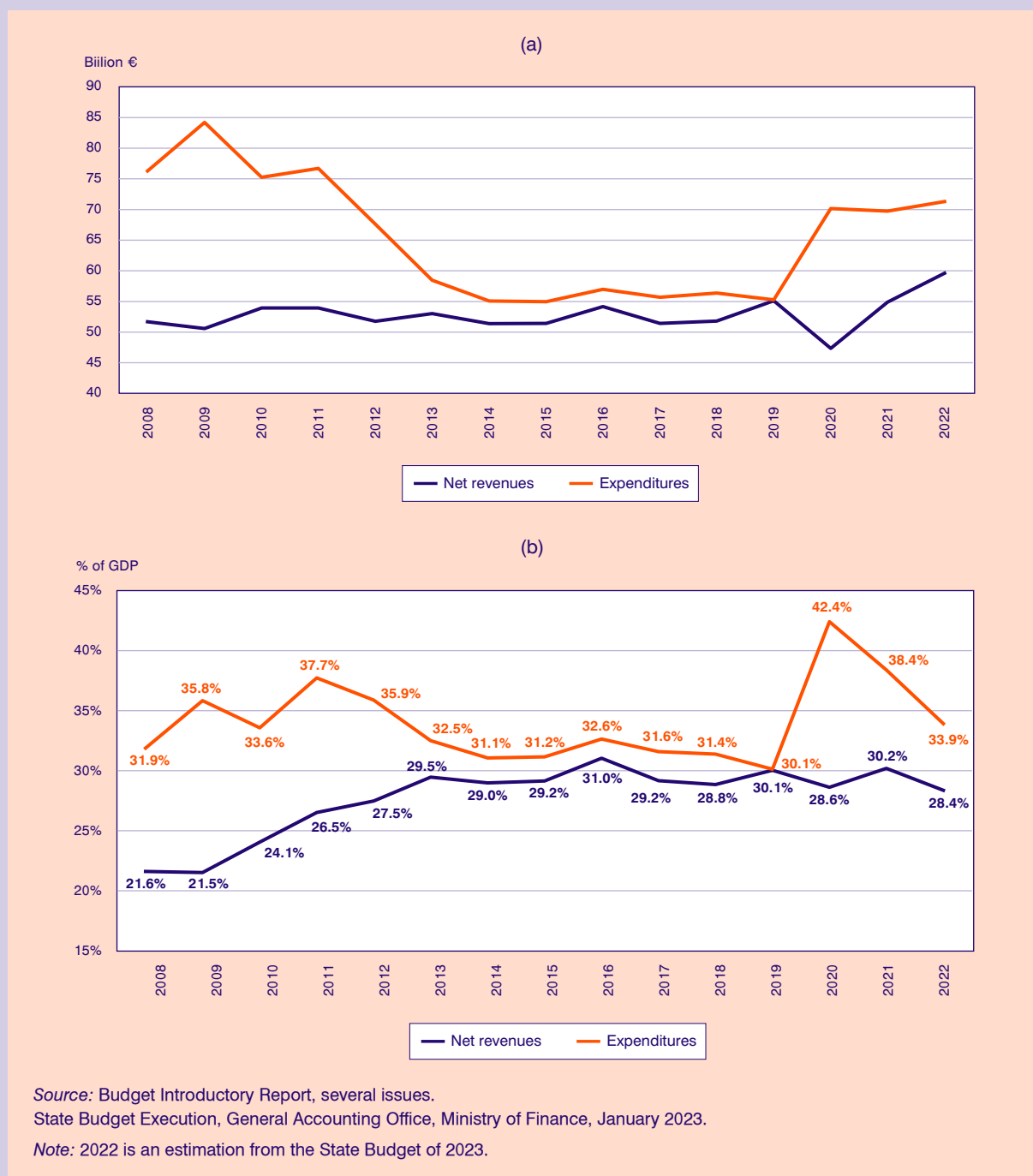
in the period 2008-2022 together with the evolution of the GDP. The period spans from 2008, before the debt crisis of the Greek economy, until the most recent data. From the figure it becomes clear that, in 2022, the estimate for the GDP shows significant growth and thus has recovered a significant part of the losses both from the pandemic and from the economic crisis, since it approaches the country's GDP in 2010, the year Greece joined the support mechanism. In addition, the primary balance deficit reached 3.2% of GDP in 2022.

Specifically, as shown in Figure 2.1.2, the State Budget revenues were maintained at the same level until 2015, with small variations per year. In 2016 revenues increased due to the significant increase in indirect taxes, and a modest further increase is expected in 2017. The expenditures show a significant reduction until 2014, with a particular decline in the years that the consolidation program included expenditure reduction measures –mainly reduction in wages and pensions in the public sector and operating costs– and relative stabilization in recent years, while an increase in 2017 is expected, mainly due to an increased need for subsidies to the

Unified Social Security Fund amounting to €15,989 million. It should be noted that although the expenditures in absolute levels have fallen by 34.5% since 2009 (Figure 2.1.2a), when the country entered the consolidation program to ensure the continuation of its lending, the discussions with the institutions have been in terms of expenditures as a percentage of GDP, as a comparable measure. Thus, the expenditures reduction in this period is only 4.3% of GDP, given that GDP has fallen by 25.6% from 2009 (Figure 2.1.2b).

The course of the State Budget's revenues and expenditures is very interesting too (Figure 2.1.2). Up to 2019, the year when revenues and expenditures are almost balanced (Figure 2.1.2a), revenues remained at the same level, with small fluctuations per year of around 50-55 billion euros, while expenditures showed a significant decrease until 2014, with a particular drop in the years when the consolidation program contained cost reduction measures, and a relative stabilization until 2019, around 55 billion euros. In 2020, due to the Covid-19 pandemic and the subsequent recession, as well as the measures taken to address the needs arising from it, revenues fell well below 50 billion

FIGURE 2.1.2
State Budget net revenues and expenditures 2008-2017 (in % of GDP and in billion €)



euros, while expenditures jumped to 70 billion euros. In 2021, revenues returned to 55 billion euros, and for the first time in 2022, they crossed the 55 billion euro mark, reaching 60 billion euros, while expenditures stabilized in the 2021-22 biennium at the high levels of 70 billion euros, due to the pandemic (in 2021) as well as the energy crisis and inflationary pressures (2022). It should be noted that more important than the absolute

size of revenue and expenditures are their prices as a percentage of GDP, so as to have a measure of comparison. Thus, while the reduction in spending as a percent of GDP in the period up to 2019 is very small, the increase in 2020 is particularly important as GDP reached the lowest level of the period under review. Conversely, revenues as a percentage of GDP increased from 21.6% of GDP in 2008 to 29.5% of GDP

in 2013 and stabilized around 30% of GDP in the rest of the period (Figure 2.1.2b).

Finally, it should be noted that the Harmonized Index of Consumer Prices (HCPI) in December 2022, compared to the corresponding Index of December 2021, showed an increase of 7.6%,³ while the average HCPI for the twelve months Jan–Dec 2022, compared to the corresponding Index for the twelve months Jan–Dec 2021, showed an increase of 9.3% compared to an increase of only 0.6% recorded during the corresponding comparison of the twelve months Jan–Dec 2021 with the twelve-month period Jan–Dec 2020, which demonstrates the surge in energy, product and transportation prices. This spike in prices has a significant impact on the disposable income of Greek households and the operating costs of businesses and has led to a reduction in

household consumption expenditure, investment and the volume of goods exports, losses for which efforts have been made to mitigate with measures received against the energy crisis and for the financial support of citizens and especially vulnerable households.

2.2. The evolution of Greek public debt, third quarter 2022

According to the latest data available from the General Accounting Office,⁴ for the third quarter of 2022, the Central Government's debt amounted to 393,489.34 million euros, showing a small reduction of approximately 693 million euros (0.2%) compared to the previous quarter, while it is increased by 5.1 billion euros (1.5%) in relation to end of the year 2021 and 6.7 billion

TABLE 2.2.1 Central Government debt¹ (in million €)*

Period	2021 (C' quar.)	2021 (D' quar.)	2022 (B' quar.)	2022 (C' quar.)
Outstanding Central Government debt	386,824.51	388,337.41	394,182.49	393,489.34
Debt by type of interest rate				
Fixed rate ²	382,182.62	384,065.70	394,182.49	393,489.34
Floating rate ³	4,641.89	4,271.71	0.00	0.00
Debt by way of trading				
Tradable	94,385.18	92,424.30	98,151.44	96,404.89
Non-Tradable	292,439.33	295,913.11	296,031.05	297,084.45
Debt by currency				
Eurozone	360,851.07	387,172.40	394,182.49	393,489.34
Non-eurozone currencies	4,013.51	1,165.01	0.00	0.00
Cash Deposits of the H.R.⁴	20,097.70	17,230.10	17,059.40	18,133.50
Debt guaranteed by the Central Government	21,385.48	22,888.15	30,151.53	29,960.98

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

Notes:

1. Central Government Debt differs from General Government Debt (Maastricht definition) by the amount of intra-sectoral debt holdings and other ESA '95 adjustments.

2. Fixed/floating ratio is calculated taking into account i) interest rate swap transactions, ii) the use of funding instruments by the ESM regarding the loans that have been granted to the Hellenic Republic and iii) the incorporation of the risk metrics of the EFSF's liability portfolio into the Greek debt portfolio.

3. Index-linked bonds are classified as floating rate bonds.

4. Included balance of dedicated cash buffer account, 15,697.3 million euros on 31/6/2022 and 30/9/2022.

* Estimates.

3. ELSTAT, Consumer Price Index, Press Release, 12 January 2023.

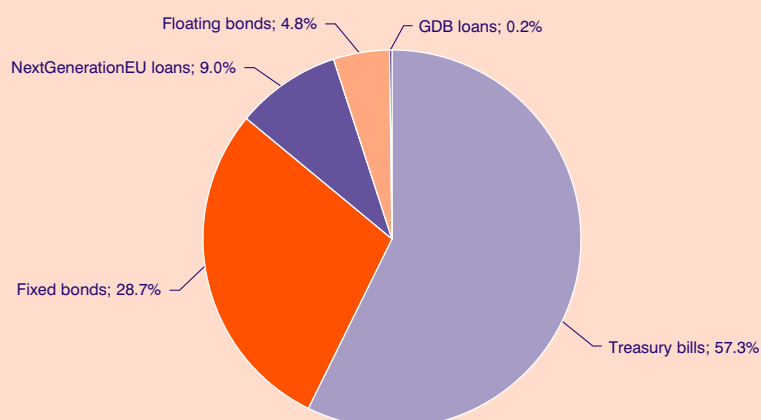
4. Public Debt Bulletin, September 2022, General Accounting Office, Ministry of Finance.

TABLE 2.2.2 Budgetary Central Government debt by residual maturity (amounts in million €)*

Period	2021 (C' quar.)	2021 (D' quar.)	2022 (B' quar.)	2022 (C' quar.)
Total volume	386,824.51	388,337.41	394,182.49	393,489.34
Short-term (up to 1 year)	52,186.90	56,742.38	64,742.23	63,665.41
Medium-term (1to 5 years)	44,858.30	42,084.94	40,446.51	40,485.46
Long-term (more than 5 years)	289,779.31	289,510.06	288,993.75	289,338.47

Source: General Accounting Office, Ministry of Finance.

**FIGURE 2.2.1
Composition of borrowing for the third quarter of 2022**



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

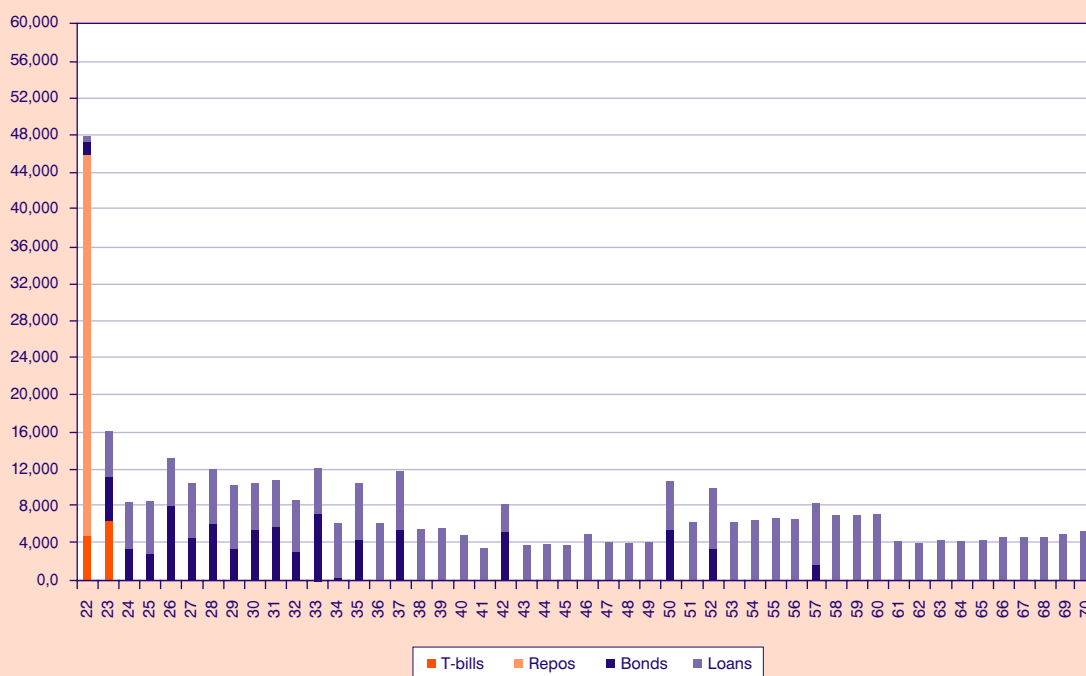
euros (0.4%) compared to the corresponding quarter of 2021. In addition, cash deposits showed an increase of 1.1 billion euros (6.3%) compared to the previous quarter and 903 million euros (1%) compared to the end of 2021, while they are 2 billion euros (14.3%) lower in relation to the corresponding quarter in 2021.

The composition of Central Government debt in the third quarter of 2022 is presented in Table 2.2.1 above. The Central Government debt was converted in its entirety into a fixed interest rate and into euros. Regarding the way of trading, the change in the composition of debt in favor of non-tradable debt, compared to tradable, was 24.5% and 75.5%, respectively, during the period under review. In addition, as regards the guarantees granted by the Greek State, they stabilized in the last quarter, since their upward trajectory

from the corresponding quarter of 2021 was particularly upward, as they included the “Hercules” program, the guarantees to deal with Covid-19 and the guarantees to the banks.

The distribution of debt, based on the residual maturity in the third quarter of 2022, is reflected in Table 2.2.2. Short-term Greek Government securities (with maturity of less than one year) represent 16.2% of the total, compared to 10.3% from the medium-term notes (with maturities of one to five years), and 73.5% from long-term issues (maturity after five years) from 16.4%, 10.3% and 73.3%, respectively, which was the previous quarter of 2022. Compared to the same quarter of 2021, an increase in the share of short-term and long-term securities is observed with a corresponding increase in the medium-term securities.

FIGURE 2.2.2
Redemption schedule of Budgetary Central Government debt on 30/9/2022
(amounts in million euros)



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

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

The average residual maturity of the total Central Government debt stood at 18.01 years, slightly reduced from that of 18.93 years in the corresponding quarter of 2021. Moreover, the average residual maturity of the total Central Government debt amounted to 5.01 years, almost half of the 9.80 years in 2021. The new borrowing for the third quarter of 2022 decomposes to 57.3% in Treasury bills, 28.7% in fixed bonds, 9% in NGEU loans, 4.8% in floating bonds and 0.2% in bonds coming from the Greek Development Bank (Figure 2.2.1 above).

Figure 2.2.2 shows the redemption schedule of the Central Government debt based on the latest published data. From the display of newer data, it seems that apart from the rest of the year (2022) and year 2023, the dispersion of the burden of redemption of public debt has now leveled, with few exceptions, at less than 12 billion euros per year until 2070.

In conclusion, the debt decreased compared to the second quarter of 2022, which demonstrates that the financing needs of the Greek economy in this period, although increased due to the energy crisis and the

inflationary pressure, as well as the financing needs of the measures to address them, were covered in a fiscally neutral way.

2.3. Fiscal figures perspectives

In an international environment of increased economic uncertainty and accelerating inflation, the expectations for 2023 are not very optimistic for both the Greek and the international economy. The country's growth is expected to slow down, reaching 1.8% from the 5.6% that is estimated to close in 2022. However, it will still be higher than the Eurozone average, which is expected to be just 0.2%. The Greek economy still has a positive outlook, mainly due to the funds from the Recovery and Resilience Fund that are expected to support economic activity, strengthen investments and exports, and reduce unemployment, which, together with the direct (minimum wage increase) and indirect (taxes and social security contributions reductions) wage increases, boost household disposable income. In addition, the country's credibility is also strength-

ened by the significant reduction in the debt-to-GDP ratio, mainly due to the growth realized in the last two years, as it is expected to fall below 160% of GDP at the end of 2023, giving the Greek economy a new dynamic in the international financial markets.

Regarding the 2023 State Budget execution, although the general escape clause of the Stability and Development Pact (which allows temporary deviation from the fiscal rules) will remain in force, it is estimated that the country will return to an environment of primary surpluses, despite the support measures for the society that have already been foreseen. An important aspect is the fact that the State Budget is not burdened by the continuous interest rate increases of the European Central Bank, as public debt has fixed interest rates and a long average duration, limiting refinancing needs.

However, the outlook for the Greek economy is currently facing external risks, given the uncertainties associated with the ongoing war in Ukraine as well as geopolitical tensions that are expected to maintain both the energy crisis and inflationary pressures. Although inflation is falling –as there appears to be a stabilization of energy and food prices and a slowdown in economic activity– in 2023 and is expected to decelerate to 5% from 9.7% in 2022, it is still reducing the disposable income.

Additionally, the effects of the increase in interest rates on the real economy, the possibility of untimely absorption of the Recovery and Resilience Fund funds and the potentially reduced tourism receipts due to the slowdown of the global economy are a source of

uncertainty for the State Budget execution. Additional exogenous risks for the Greek economy can potentially arise from natural disasters (fires, floods, etc.), which occur more and more frequently due to the climate crisis and negatively affect the Greek economy both in the short term (with economic and fiscal costs) and in the long term in terms of the sustainability of the high growth rates and the development potential of the tourism product.

In addition to exogenous factors, the structural weaknesses of the Greek economy with the ever-expanding external balance deficit, as the growth of recent years has led to a greater increase in imports than in exports, the high public debt, and the rate of unemployment which, although reduced, is still high are a source of uncertainty for the State Budget execution.

Finally, the pre-election period in which the country is entering is fraught with risks. There are likely to be consequences for the level of growth as well as for achieving the investment grade target, particularly if prolonged uncertainty is caused by double elections, delaying investment and weighing on the economic climate.

Based on the above, the possibility of interventions and state support for households and businesses is limited, and income support to mitigate the effects of the energy crisis and inflationary pressures should be targeted and temporary in nature and financed from the available fiscal space, maintaining a “restrictive” fiscal policy so as to create the necessary primary surpluses and not fuel inflationary pressures and contain the increase in borrowing costs.

3. Human resources and social policies

KEPE, *Greek Economic Outlook*, issue 50, 2023, pp. 47-53

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

The number of employed individuals continued to increase in the third quarter of 2022 (2022Q3). However, the analysis once again reveals big differences between groups. For instance, the number of employed men and youth aged 15-24 increased faster over the past year than employed women and individuals over 25. Moreover, while the number of employed individuals with a Master's or/and a PhD increased, the number of employed foreigners continued to decline, albeit at a slower pace than the population of foreigners. The number of paid employees exhibited an impressive increase and their share of the total employed has peaked. On the other hand, there were some signs of substitution between part-time and full-time employment, reducing the number of under-employed individuals and part-time employees who cannot find a full-time job.

The number of employees, based on evidence from ERGANI, continued to increase throughout 2022, but the positive balance of paid employment flows was smaller than 2021, despite the strong increase recorded in the first few months of the year, perhaps signalling that the expansion of paid employment has reached a saturation point. Nevertheless, most hires involved full-time jobs and, surprisingly, mostly youth aged 15-24. On the other hand, there should be some concern over the fact that over the past year a much larger number of full-time job contracts have been converted to work-in-shift job contracts without the consent of the employee.

In accordance with employment fluctuations, the unemployment rates dropped further, especially for women and people over 25. Stagnant unemployment prospects amongst youth, despite the overall increase

in employment opportunities, could be attributed to increased flows of youth towards the labour force. Lastly, there is a lot of uncertainty which, irrespective of its origins, could endanger economic growth and, consequently, hinder any further improvements in labour market performance. Therefore, policy makers should stay alert and prepare to meet any challenges that may arise.

3.1.2. Employment

The quantitative characteristics of employment

The number of employed individuals increased in 2022Q3. On a year-on-year basis (same quarter in consecutive years), the increase reached 96.3 thousand individuals, most of whom were male (63.2%). Moreover, the number of young employed individuals increased faster. The number of employed individuals aged 15-19 increased by 20.1% followed by individuals aged 20-24 (+17.5%). The only group whose number decreased were individuals aged 30-44. With respect to gender, employed men aged 20-24 increased by 20.5%, while employed women aged 15-19 increased by 28%.

Change in the number of the employed led to increases in employment rates; in 2022Q3, the employment rate for individuals aged 15-64 reached 61.9% (from 60.1% in 2021Q3), while for individuals over 15, the increase was smaller (from 45.4% in 2021Q3 to 46.6%). The difference between the two groups can probably be attributed to many people retiring at 65. Moreover, the employment rate for individuals aged 25-64 was even bigger, standing at 70.2%, since most participants have completed their studies by 25. This is likely the most suitable age group one should use to study the labour market, since it includes individuals who are mostly working. Note that according to Eurostat, the employment rate in the EU27 for the same age group stood at 77% in 2022Q3, while typically there were EU members with an employment rate above 85% (e.g., Sweden, Iceland and the Czech Republic). Despite the progress recorded in Greece, it still falls behind many EU27 member countries.

The employment rate for men continued to be higher, by 17.7 percentage points, than for women at the age group 15-64 (71.7% vs. 52.3%). The difference has expanded since 2014 with some fluctuation over the years. Also note that over the same period, the employment rate for men in the EU27 stood at 75.2%, i.e., less than 4 percentage points higher than the respective rate in Greece, while the employment rate for women in the EU27 stood at 65.2%, i.e., 13 percentage points higher than in Greece. This means that the divergence from the European average employment rate is due mostly to women. Italy and Romania are the only two countries that resemble Greece's gender difference in employment rates (18.8 percentage points and 16.6 percentage points, respectively). The remaining countries exhibit much smaller gender differences in employment.

The biggest share of employed individuals in 2022Q3 have completed upper secondary education (35.7%); upper technical vocational education graduates were the second largest group (20.8%). However, the latter group had the biggest decline in the number of employed individuals (-5.9%). On the contrary, the number of employed individuals who have completed other levels and types of education increased. The increase ranges from 1.5% for lower secondary education graduates to 10% for Master's and/or PhD holders. On the other hand, the number of employed who have completed primary education at most remained almost constant. Recall that the strong and systematic increase in the number of employed with a Master's degree and/or PhD has been pointed out in previous issues of the *Economic Outlook*. As a result, their share of the total employed has been increasing over the past 15 years, despite or because of the economic crisis. Specifically, it has increased from 2.2% in 2008Q3 to 3.8% in 2013Q3, 7.4% in 2021Q3 and 7.9% in 2022Q3. So long as this is due to the expansion of labour demand for high skilled individuals and not substituting low skilled for high skilled due to high unemployment, it is a positive development.

The employment rate of foreigners over 15 years old exceeded that of natives in 2022Q3 (57.3% vs. 46.3%). The difference was wider for men (20 percentage points) compared to women (4.7 percentage points) probably due to gender-specific retirement patterns. Moreover, the difference was wider in the third quarter of the year, possibly due to the segregation of foreigners in specific sectors whose economic activity exhibits greater seasonal volatility. Over the past year, employed Greek nationals increased by 113.5 thousand

while employed foreigners decreased by 15.9 thousand. However, since the population of foreigners has been decreasing faster than the number of employed foreigners, their employment rate has increased over the past year. Furthermore, the annual increase in the employment rate of foreigners was marginally bigger than for natives. For instance, the annual decrease in the population of foreigners reached -11%, when natives have increased over the same period by 0.2%. The situation is harsher amongst foreign women with a decrease in their population by -12.5% compared to -9% for men.

Employment by sector of economic activity fluctuated considerably. Over the past year, the number of the employed decreased in 5 out of 21 sectors. The biggest decrease was recorded in *Electricity, gas, steam and air conditioning supply* (-8.2%) which employs less than 1% of total. Employment in *Public administration and defence, mandatory social security* decreased by 3.9% (the sector employed 9% of total), ending a streak of expansionary quarters that were discussed in previous issues of the *Economic Outlook*. The biggest sectors in terms of employment have been almost stagnant. For instance, *Wholesale and retail trade, repair of motor vehicles and motorcycles* exhibited an annual increase of just 0.1%, while *Accommodation and food service activities* exhibited practically zero change in employment. On the contrary, the number of employed in *Manufacturing* increased by 2.2% (this is a big sector with high productivity compared to most others) and doubled in *Real estate activities*. Even though the latter sector is small by comparison, i.e., 0.3% of total employment, one cannot help but wonder about the size of the increase over the past year. Lastly, 12.5% more people were employed in *Education*, which represents approximately 7.8% of total employment, while another small sector (1% of total), i.e., *Water supply, sewerage, waste management and remediation activities*, exhibited a strong annual increase of 74%, exceeding 40 thousand employed individuals in total.

Based on monthly LFS data, one gets a crude preview of the analytical quarterly results that will follow. In the last three months of 2022 (October-December), the number of employed continued to rise on an annual basis (compare same month over consecutive years). There was some seasonal fluctuation monthly (compare consecutive months) since employment dropped in October but rose in the following two months. Overall, seasonally adjusted data suggest there was an increase in the number of employed over 15 years of age in the last three months of 2022,

by 65 thousand,¹ while monthly changes accumulated to 8.9 thousand fewer employed.²

The qualitative characteristics of employment

The quality of employment is equally important when investigating the course of the labour market. The first parameter to examine is the allocation of the employed across types of employment, i.e., what share of the employed are paid employees, self-employed

with or without employees and family workers (see Table 3.1.1). The number of paid employees recorded the biggest annual increase; it reached 2.97 million, approximately 135.8 thousand or 4.8% more people than 2021Q3. The number of people employed as family workers rose by 1.3%, while the number of people working as self-employed dropped considerably (-3.2% without employees and -3.8% with employees). The decline in the number of self-employed, hence the number of businesses, is not a good sign, and it does

TABLE 3.1.1 Qualitative characteristics of employment (age 15+)

	2021Q3	2022Q2	2022Q3	2021Q3-2022Q3	Δ(%)	2022Q2-2022Q3	Δ(%)
Type of employment							
Employed	4,118.3	4,167.2	4,216.0	97.7	2.4	48.8	1.2
Self-employed with personnel	330.7	313.0	318.0	-12.7	-3.8	5.0	1.6
Self-employed without personnel	831.6	804.4	804.7	-26.9	-3.2	0.3	0.0
Paid employee (wage or salary)	2,829.5	2,913.6	2,965.3	135.8	4.8	51.7	1.8
Family worker	126.5	136.2	128.1	1.6	1.3	-8.1	-5.9
Type of employment (hours)							
Full-time	3,783.0	3,816.8	3,910.5	127.5	3.4	93.7	2.5
Part-time	335.3	350.4	305.6	-29.7	-8.9	-44.8	-12.8
Could not find full-time job	170.4	172.9	146.0	-24.4	-14.3	-26.9	-15.6
Type of employment (duration)							
Open-ended contract	2,496.0	2,584.6	2,618.7	122.7	4.9	34.1	1.3
Fixed-term contract	333.5	329.0	346.6	13.1	3.9	17.6	5.3
Under-employment							
Total	183.9	191.7	161.8	-22.1	-12.0	-29.9	-15.6
Men	78.9	80.9	70.3	-8.6	-10.9	-10.6	-13.1
Women	105.0	110.8	91.4	-13.6	-13.0	-19.4	-17.5
Total (15-29)	22.8	23.3	21.9	-0.9	-3.9	-1.4	-6.0
Total (30+)	135.7	144.2	118.8	-16.9	-12.5	-25.4	-17.6

Source: Labour Force Survey, ELSTAT, KEPE processing.

Note: The numbers are in thousands, except for columns Δ(%), which are expressed in percentage points.

1. (Average number of employed in October-December 2022) – (Average number of employed in October-December 2021).

2. (Number of employed in December 2022) – (Number of employed in September 2022).

not correspond with the number of paid employees, unless the average size of business has gone up. Another possible explanation could be that paid employee hires greatly involved the public sector; unfortunately, there are no suitable data to check this hypothesis. Regardless, the shift of the labour force towards paid employment is impressive, especially since the share of paid employees peaked in 2022Q3, exceeding 70% of total employed.

The number of part-time employed presented in Table 3.1.1 decreased over the past year by 29.7 thousand people (-8.9%), while the number of full-time employed increased by 127.5 thousand persons (3.4%). These findings suggest that there was some substitution of full-time employed for part-time employed, which is beneficial to the employed given the higher monthly earnings associated with full-time employment, but at the expense of labour market flexibility. As expected, the share of part-time employees declined to 7.2%, almost an entire percentage point lower compared to 2021Q3. Moreover, the share of part-time employees who were unable to find a full-time job decreased to 47.8%, approaching the 2009Q3 level (46.5%). This development is undoubtedly positive.

The number of employees under open-ended contracts stood approximately at 2.6 million in 2022Q3, 122.7 thousand more than 2021Q3, and 34.1 thousand more than 2022Q2. The number of employees under a fixed-term contract has also increased. But, Table 3.1.1 shows that it was the number of open-ended contract employees that increased faster over the past year and the number of fixed-term contract employees that increased faster in the last quarter. It is likely that this is the result of seasonal effects due to some sectors hiring more people in the third quarter of the year, like tourism and education. Hence, the share of fixed-term contract employees is practically equal to 2021Q3 (11.7% vs. 11.8%).

Also, Table 3.1.1 reveals that the number of the under-employed dropped in 2022Q3, both in the past year (-14.1%) and in the last quarter (-14.9%). No wonder then that the share of under-employed over 15 years of age was reduced to 3.3% vs. 3.9% of total employed in 2021Q3. The majority of under-employed individuals were women (59.9% of total in 2022Q3), even though their share dropped over the past year.

In order to reach safe conclusions, new hires should be thoroughly explored. If it is the private sector that drives hires, then the increase in the number of the employed, the decrease in the number of part-time employed, as well as the decrease in the share of part-time employees who cannot find a full-time job and

the reduction of the number of under-employed are good news for the labour market. If, on the other hand, it is the public sector behind the above changes, then the situation could soon be reversed as fiscal margins diminish.

3.1.3. Developments in paid employment

Paid employment flows were positive throughout 2022 (see Table 3.1.2) according to the reports from the informational system ERGANI. Overall, some 72,847 new paid jobs were created, which means that the labour market under-performed compared to previous years. Also note that since 2014, when employment started to rise again, net new jobs never dropped below 99 thousand for the whole year. Especially compared to 2021, the reduction in net new jobs exceeded 45%. This could be a sign of fatigue and should be monitored closely in the following months. In any case, labour market mobility increased. This is evident from the number of hires and layoffs/quits in 2022, which is bigger than in previous years. The fact that layoffs/quits have increased by 33% in 2022 while hires increased by 21.5% has led to the reduced positive balance of paid employment flows.

Most new hires involved full-time paid job contracts in 2022 (51.1% of total). Approximately four out of ten new hires involved part-time job contracts (39.6%), while new work-in-shifts contracts represented 9.4% of total hires (up from 7.5% in 2021). As far as conversions of full-time job contracts to flexible job contracts are concerned (Table 3.1.3), following the decline in 2021, there was an increase of 33.7% in 2022; overall, 51,528 full-time contracts were converted. Most conversions, approximately three quarters, ended up being part-time contracts. However, conversions of full-time job contracts to work-in-shifts job contracts without the consent of the employee have multiplied by 2.6 times, from 1,288 in 2021 to 3,324 in 2022. This is an undesirable development because it entails greater uncertainty for the employee and lower earnings from work, on top of being unwelcome.

Paid employment flows for men and women were not that different compared to 2021. Net new jobs for women were 3 thousand fewer than men, but this difference is small compared to the decrease in the balance for both sexes by more than 45%. Overall, the balance was still positive for men and women, which means that more jobs were created (hires) than lost (layoffs/quits) over the year. On the contrary, there is a substantial change in the composition of net new jobs with respect to age. In 2022, over 76% of new paid jobs were occupied by youth aged

TABLE 3.1.2 Changes in paid employment flows

	2022		2021-2022			
	Hires	Layoffs/Quits	Hires $\Delta(N)$	$\Delta(\%)$	Layoffs/Quits $\Delta(N)$	$\Delta(\%)$
January	137,983	163,787	41,115	42.4	69,257	73.3
February	153,768	138,579	55,340	56.2	67,384	94.6
March	199,566	165,193	95,264	91.3	80,052	94.0
April	297,918	173,553	171,556	135.8	80,401	86.3
May	326,359	226,403	70,372	27.5	65,582	40.8
June	329,966	310,853	18,317	5.9	72,706	30.5
July	274,429	271,430	-14,464	-5.0	6,932	2.6
August	197,982	230,948	14,914	8.1	38,005	19.7
September	343,166	316,928	39,266	12.9	57,507	22.2
October	244,052	359,908	13,878	6.0	163,624	83.4
November	202,015	285,642	-775	-0.4	3,723	1.3
December	204,101	195,234	11,093	5.7	-372	-0.2
Total	2,911,305	2,838,458	515,876	21.5	704,801	33.0

Source: ERGANI, Ministry of Labour and Social Affairs, KEPE processing.

Note: $\Delta(N)$ represents changes in variables and $\Delta(\%)$, percentage changes in variables.

TABLE 3.1.3 Conversions of full-time job contracts to contracts of flexible employment

	2022	2021-2022	
	N	$\Delta(N)$	$\Delta(\%)$
Part-time employment	38,065	8,756	29.9
Work-in-shifts with the consent of the employee	10,139	2,205	27.8
Work-in-shifts without the consent of the employee	3,324	2,036	158.1
Total	51,528	12,997	33.7

Source: ERGANI, Ministry of Labour and Social Affairs, KEPE processing.

Note: $\Delta(N)$ represents changes in variables and $\Delta(\%)$ percentage changes in variables.

15-24 (55.6 thousand out of 72.8 thousand). The respective figure in 2021 was smaller than 50%. Maybe this was circumstantial. However, it could also represent a shift towards the youth and could merit more investigation.

3.1.4. Unemployment

The unemployment rate in the third quarter of 2022 dropped further to 11.8% for people aged 15-64, 11.6% for people over 15 years of age and 10.7% for

people aged 25-64. The decrease is evident on an annual and quarterly basis alike. In the latter case, the improvement is in accordance with the seasonal fluctuation of economic activity. Women and youth aged 15-24 continued to have fewer chances of finding a job compared to other groups. In particular, women faced a 6.7 percentage point higher unemployment rate than men in 2022Q3, while youth aged 15-24 faced an 18.5 percentage point higher unemployment rate than people over 25. These two groups also exhibited a bigger seasonal fluctuation. On a quarterly basis, the decrease in the women's unemployment rate reached 1.2 percentage points vs. 0.4 percentage points in the men's unemployment rate. On the other hand, youth 15-24 saw their unemployment rate drop by 3.2 percentage points compared to people over 25 who experienced a decrease of 0.7 percentage points. Over the past year, the reduction in the unemployment rate was double for women than men (1.8 percentage points vs. 0.9). On the contrary, youth 15-24 in 2022Q3 faced a 0.3 percentage point lower unemployment rate than the previous year, while individuals over 25 had a 2.6 percentage point lower unemployment rate compared to 2021Q3. Unsurprisingly, the gender unemployment gap narrowed over the past year, but the age unemployment gap widened.

The number of long-term unemployed decreased over the past year (-59.2 thousand) and in the last quarter (-20.9 thousand). Respectively, their share of total unemployed dropped by 3.5 percentage points on a year-on-year basis and increased by 0.3 percentage points in the last quarter because the number of the unemployed decreased faster than the number of long-term unemployed. In any case, long-term unemployment continues to represent an important feature of the Greek labour market, impacting the quality of human resources.

The most recent monthly LFS data recorded a small increase of the non-seasonally adjusted unemployment rate in October, November and December, but a stabilisation of the seasonally adjusted unemployment rate over the same months to 11.6%. Regardless, the unemployment rate is expected to drop further in the coming months once economic activity starts to expand in various sectors.

The wide difference between survey data for the unemployed, i.e., the LFS, and the administrative/census data collected by the Public Employment Service (DYPA) has often been a cause of concern. For instance, in December 2022, the difference exceeded 530 thousand individuals. In other words, according to the LFS, the number of the unemployed was

approximately half of what DYPA reports. There are some good reasons why there is such a discrepancy. However, one wonders if they are able to justify such a wide difference. The definition for the unemployed used by ELSTAT is widely accepted and adopted by research organisations around the world, even though an hour of paid employment during a week is enough to classify someone as employed. Perhaps an adjustment of the definition for unemployed used by DYPA to world standards would narrow the divergence, or a more efficient tracing of undeclared work that is reported in the LFS, but evades DYPA.

3.1.5. Labour market challenges

In the coming months, the labour market will be forced to cope with mostly exogenous challenges and heightened uncertainty. Parameters like the invasion of Ukraine, the adequate provision of fuels to compensate for the decrease in the use of natural gas and oil imported from Russia, the risk of food crisis and inadequate provision of raw materials for the agricultural sector and manufacturing, the evolution of the pandemic and the obstacles it may pose to the production process in China and elsewhere and the rising interest rates to fight soaring inflation constitute only some of the general exogenous risks facing Greece. One should also add specific exogenous risks like the geopolitical instability in the east Mediterranean Sea and migration flows that could increase unexpectedly.

Moreover, other parameters are expected to affect the performance of the Greek economy and, consequently, of the labour market, like the new tourist season that will soon start. If this year's demand for tourist services is strong or even exceeds last year's demand, in both quantitative (e.g., number of visitors, overnight stays, etc.) and qualitative terms (e.g., spending per visitor), then the demand for labour in tourism and other sectors linked to it is expected to strengthen and boost employment. Even more so, if the country manages to cope with job vacancies it faced in the past years. To that end, there should be timely actions on behalf of businesses and the state.

The inflation rate is expected to decrease in the following months after the record-setting level reached in 2022. Based on the most recent ELSTAT data, prices (i.e., the CPI) went up by 9.6% in 2022, eating away at the purchasing power of the consumers. International organisations estimate that inflation in Greece will de-escalate in 2023, even though forecasts differ. The European Commission (November 2022) expects

a 6% inflation rate for 2023;³ the IMF⁴ (October 2022) estimates 3.2%, while the OECD's⁵ model (November 2023) is somewhere in between, at 4.3%. Regardless, the loss in consumers' purchasing power will continue as long as inflation in 2023 exceeds pay rises. This could reduce domestic demand and increase the risk of poverty for vulnerable households while, at the same time, endangering employment's upward trend. Disproportionally adverse impacts on the Greek GDP by interest rate rises are expected to have similar effects on the economy and the labour market given the vulnerability of the economy due to its weak fiscal position (e.g., big debt to GDP ratio).

Another parameter that is expected to affect employment is the process towards setting the new minimum wage. This year the process was expedited and will be completed by March 10.⁶ Unavoidably, the intention to counterbalance part or all of the loss of purchasing

power over 2022 caused by inflation, especially for the low paid, will have a special role in the decision process. Recently, expectations of a big increase in the minimum wage that will approach the annual CPI increase were raised. According to recent KEPE⁷ reports, though, one should bear in mind that the size of the minimum wage and the level of employment are correlated, while the strength of this correlation differs, depending on GDP growth, firm size and sector. Therefore, decisions regarding the new minimum wage are likely to affect the evolution of employment in 2023.

Lastly, the allocation of funds from the Recovery and Resilience Fund (RRF) must be efficient. It is the only way to ensure the best possible utilisation of funds by investing in activities that have tangible benefits for the economy and the restructuring of the production process, and in strengthening employment with the creation of sustainable and well paid jobs.

3. European Commission forecasts can be found at: <https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/greece/economic-forecast-greece_en>.

4. IMF forecasts are available at: <<https://www.imf.org/en/Countries/GRC#countrydata>>.

5. OECD forecasts are available at: <<https://issuu.com/oecd.publishing/docs/greece-oecd-economic-outlook-projection-note-novem>>.

6. See: <<https://ypergasias.gov.gr/to-neo-chronodiagramma-gia-tin-thespsi-tou-katotatou-misthou-pou-tha-xekinisei-na-ischyei-apo-tin-1i-apriliou/>>.

7. See: <<https://ypergasias.gov.gr/wp-content/uploads/2022/04/8.1.-ΚΕΠΕ-ΕΚΘΕΣΗ-28.02.2022.pdf>>.

3.2. Basic features of income inequality and poverty in Greece, 2020

Vlassis Missos

The Survey on Income and Living Conditions (SILC) has been conducted since 2004 by the Greek Statistical Authority (ELSTAT) under the supervision of Eurostat. SILC is comprised of a series of microdata used to estimate the level of disposable income, inequality, and poverty in the population. The process of collecting and managing the information is based on a universally approved methodology¹ applied among the EU members. However, due to the significant time resources required for collecting and retrieving the information of an appropriate number of questionnaires, the publication of the EU-SILC surveys is subject to delays, and its availability is marked by considerable time-lags. During the period this article was written, the most recently published database refers to the SILC of 2021, which corresponds to household income earned during 2020. Hence the reported household incomes included in this SILC correspond to the year the Covid-19 pandemic broke out.

Aside from the level of income, the SILC also reports on a significant number of socio-economic and demographic characteristics that offer useful information on how social policy can be exercised to fit in the population's profile. The present article refers to key changes of the most widely known SILC variables. In addition, it presents the main results of some contemporary issues that refer to the population's responses to the effects of Covid-19 on their income level.²

Following the official definition, the annual poverty threshold or line is defined as 60% of the median disposable individual income. The relative poverty rate is calculated as the fraction of the total population that lives with less than the respective threshold, while the “poverty gap” is a ratio defined as the distance between the median income of the poor and the poverty line over the latter. In other words, the poverty gap measures the intensity of poverty, as it examines the difference of the income of the poor 50% from the poverty line.³

Figure 3.2.1 refers to these three magnitudes for the case of Greece, and specifically for the period spanning from 2002 to 2020. During these two decades, the Greek economy went through a phase of GDP growth (2002-2009), which was followed by a deep economic crisis and a contraction of income as well as employment (2010-2016). Then, after a short period of sluggish growth (2016-2019) and declining unemployment, the weak recovery trend was halted due to the spread of the Covid-19.⁴

During the first period (2002-2009), median income increased by 51%, and the poverty rate was reduced only moderately. These two elements combined lead to the conclusion that the high growth of income was mildly distributed for the benefit of the lower income strata. In the second phase, however, these two trends were completely reversed. As a consequence of the implemented policy mix, between 2010-2015, the poverty line fell by 37.3%, followed by a limited increase in the relative poverty rate.

The poverty line increase by 17%, that was documented during 2016-2019, failed to compensate fully for the previous contraction. During the same period, however, the poverty rate decreased considerably, by almost 3.7 percentage points (reaching 17.7% in 2019, the lowest level documented since SILC was first in-

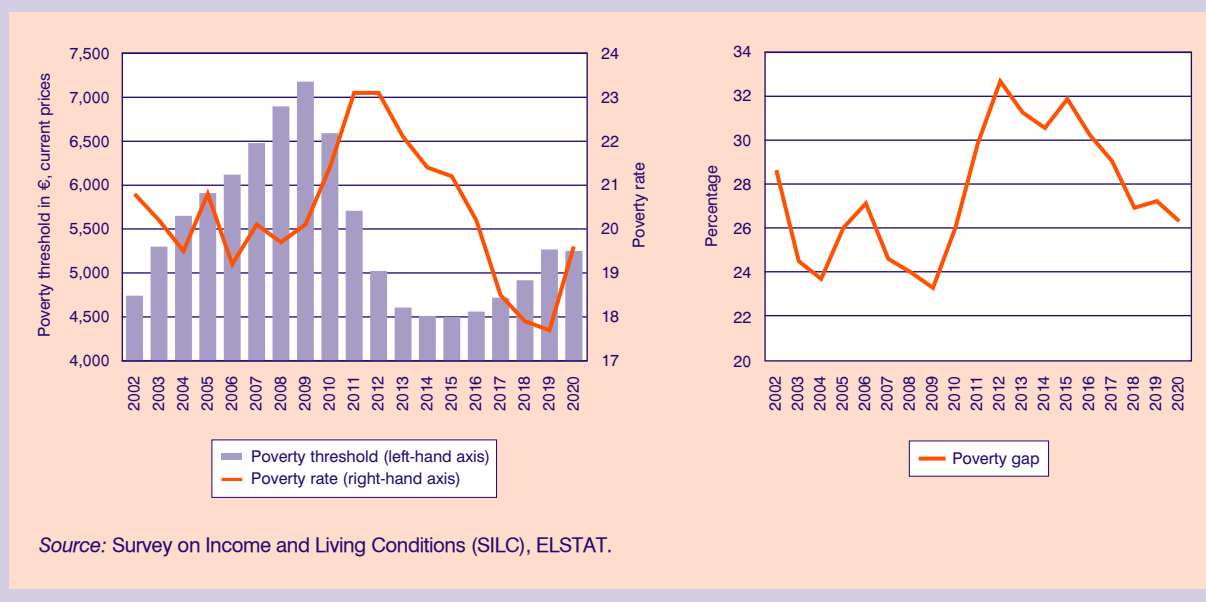
1. See Missos V. (2020), *The effects of the system of social protection on poverty and inequality in Greece and the EU* [in Greek: *Η επίδραση του συστήματος κοινωνικής προστασίας στην ανισότητα και φτώχεια στην Ελλάδα και στην ΕΕ*], Reports 82, Athens: Centre of Planning and Economic Research, <https://www.kepe.gr/index.php/en/research/recent-publications/reports/item/3137-ek_82_en.html>.

2. See Liargovas P., Goulas Ch., Apostolopoulos N., Anastadiadou S., Marsellou E., Missos V., and Rodousakis N. (2022), *The socio-economic impact of the Covid-19 pandemic on private sector employees* [in Greek: *Οι κοινωνικοοικονομικές επιπτώσεις της πανδημίας Covid-19 στους εργαζόμενους του ιδιωτικού τομέα*], Institute of Labour, GSEE and Centre of Planning and Economic Research.

3. See Papatheodorou Ch. and Missos V. (2013), *Structure and trends of poverty in Greece* [in Greek: *Δομή και Τάσεις της Φτώχειας στην Ελλάδα*], Report 9, Institute for Labour, GSEE.

4. See Missos V., Rodousakis N. and Soklis G. (2022), On measuring the impact of internal devaluation in Greece: Poverty, flexibility, migration and growthless employment, *World*, 3(2), 313-326, <<https://doi.org/10.3390/world3020017>>, and Vaitsos C. and Missos V. (2022), *Crises and challenges ahead: The new normal* [in Greek: *Κρίσεις και προκλήσεις: Η νέα κανονικότητα*], Athens: Patakis.

FIGURE 3.2.1
Poverty threshold (in €), poverty rate and poverty gap in Greece, 2002-2020



roduced). Undoubtedly, the period of the Covid-19 pandemic had a strong, serious impact on all EU economies. In Greece, the poverty line responded immediately but marginally, falling by 0.34%, resulting in an abrupt increase in the poverty rate by two percentage points in one year. The marginal drop in the poverty threshold and the sharp rise in the poverty rate lead to the conclusion that lower incomes were unequally affected by the lockdowns as well as by the measures of social distancing imposed to control the spread of the pandemic.

On the other hand, the poverty gap (shown at the right-hand side of Figure 3.2.1) follows the growth-crisis phases of the Greek economy. During 2002-2009, the poverty gap was folded back by 23.4%, which means that the level of disposable income that corresponds to the 50% of the poor is estimated to be less than 76.6% (i.e. 100% – 23.4%) of the poverty line.⁵ In 2012, the gap was considerably widened to 32.7%, showing the deterioration of the living conditions of the poor. In 2020, it was adjusted at 26.4%. Although its decline highlights a relative improvement in terms of inequality, the variation of the poverty line itself suggests that the income losses suffered by the poor are serious.⁶

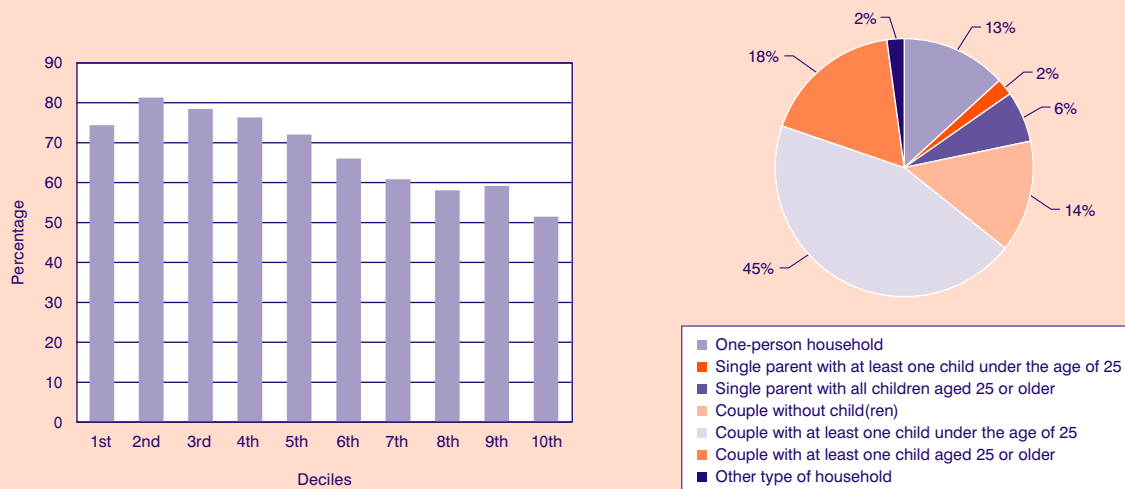
There is no doubt that during the period under consideration, household incomes significantly dropped, and the effects of internal devaluation and fiscal adjustment policies were felt more heavily by the lower income groups. On the other hand, to tackle the spread of Covid-19, countries across the EU implemented a range of restrictive policies such as lockdowns and restrictions on public transports, causing fluctuations and sharp GDP contractions. In Greece, the GDP declined abruptly by 8.8%, initiating a process of emergency social benefits, the greatest part of which was targeted to those population groups who suffered the most by the lockdowns.

Accordingly, most households became recipients of a series of emergency benefits designed to compensate for the reduction of income due to the policy measures against Covid-19. Households belonging to the lowest income groups received a significant fraction of the corresponding support, but even the top 10% seems to have also participated in this emergency benefit policy (see Figure 3.2.2). More than 70% of the population of the lowest five deciles became beneficiaries, while, in the higher income groups, the percentage of participation is estimated at 50%. Among all types of households that received emergency assistance, 45%

5. See chapter 12 in Vaitos C. and Missos V. (2018), *Real economy: Experiences of development, crisis and impoverishment in Greece* [in Greek: *Πραγματική Οικονομία: Εμπειρίες ανάπτυξης, κρίσης και φτωχοποίησης στην Ελλάδα*], Athens: Kritiki, pp. 383-386.

6. For example, since the poverty line in 2020 is estimated to be €5,251 and the poverty gap is at 26.4%, the individual disposable income of the poorest 50% is estimated to be less than €3,865 per year.

FIGURE 3.2.2
Percentage of households that received provisional benefits due to Covid-19 per income decile and type 2020, Greece



Source: Survey on Income and Living Conditions (SILC), ELSTAT.

TABLE 3.2.1 Allowances and benefits due to Covid-19 as a share of disposable income per household type and income group, 2020, Greece

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
One-person household	3.1%	2.1%	2.9%	2.3%	2.5%	1.4%	0.9%	1.8%	2.1%	0.5%
Single parent with at least one child under the age of 25	9.3%	12.5%	6.5%	7.4%	5.0%	1.8%	1.9%	2.7%	2.4%	1.0%
Single parent with all children aged 25 or older	7.1%	2.8%	2.7%	5.4%	3.0%	5.4%	4.0%	5.3%	4.5%	3.7%
Couple without any child(ren)	15.0%	3.3%	2.1%	1.4%	1.6%	2.7%	3.6%	1.6%	1.9%	1.2%
Couple with at least one child under the age of 25	28.6%	10.2%	13.2%	7.1%	6.2%	8.5%	6.8%	7.1%	4.2%	3.5%
Couple with at least one child aged 25 or older	23.2%	9.6%	7.8%	5.8%	4.9%	6.3%	4.8%	4.6%	4.6%	3.7%
Other type of household	2.9%	2.7%	10.1%	2.9%	5.2%	6.5%	4.4%	2.7%	3.6%	5.8%

Source: Survey on Income and Living Conditions (SILC), ELSTAT.

concerned “couples with at least one child under the age of 25”. On the other hand, “single parents with at least one child under the age of 25” cover 2% of the total households.

Table 3.2.1 shows the emergency Covid-19 benefits as a share of the overall disposable income, per household type and income group. Dividing the population into income deciles, it can be observed that

emergency benefits are concentrated to the poorest parts. In case of children or dependent members, the percentage of benefits due to Covid-19 is estimated to be more than 25%, while in the case of households belonging to the second income decile, the relevant percentage drops significantly below 10%.

Although in some cases the emergency aid appears significant, it was unable to maintain the level of disposable income. On average, between 2019-2020, poverty thresholds in the EU were increased by 3.6%. In Greece, it was reduced by 0.3%, mostly affecting the disposable income of the lower income groups.

4. Reforms-Economic development

KEPE, *Greek Economic Outlook*, issue 50, 2023, pp. 58-62

4.1 Recent developments in the digital and green transitions of the Greek economy

Athanasios Chymis

4.1.1. Introduction

The various crises that humanity faces, such as climate change, the pandemic, energy with accompanying food crises, inflation, etc., have made the digital and green transitions even more important and timely. These twin transitions are directly related to competitiveness, as all international organizations' reports agree that a competitive economy must achieve a high degree of digital and energy (green) transition.

4.1.2. Digital transition

According to the latest edition (2022) of the Digital Economy and Society Index (DESI), the Greek economy halted its rise in the ranking and remained 25th among the EU27 (Table 4.1.1). According to the index, this means that despite Greece's satisfactory progress

in the direction of digitization, the long distance that the Greek economy must cover makes it harder to move up ranks and approach the EU average given the simultaneously continuous and rapid progress towards digital transition of the rest of the EU partners. It is noted that the index data refer to the year 2021.

Table 4.1.2 focuses on the most important indicators of each of DESI's four dimensions, particularly on those that need further improvement. As far as *human capital* is concerned, the difference from the European average is the smallest. This is because the basic digital skills of the population are quite close to the EU average. In fact, within the 16-24 age group, basic digital skills reach 88%, well above the EU average of 71%.

Regarding *connectivity*, significant progress has been made in fixed very high-capacity networks (VHCN) coverage as well as 5G coverage, although the former still has a long way to go to reach the EU average. Greece also falls well behind in at least 100Mbps fixed broadband take-up (9%, while the EU average is 41%), at least 1Gbps take-up (<0.01%, the EU average being 7.58%), as well as in fiber to the premises (FTTP) coverage (20% vs. 50% the EU average).

The Greek economy also has a long way to go to reach the EU average in *Integration of digital technology*. Specifically, the percentage of small and medium

TABLE 4.1.1 Score and ranking of the Greek economy according to DESI 2022

Indicator	Greece		EU27	Best performer	
	Rank	Score	Average score	Country	Score
DESI	25	38.9	52.3	Finland	69.6
Human capital	22	40.1	45.7	Finland	71.4
Connectivity	22	49.6	59.9	Denmark	77.1
Integration of digital technology	22	26.6	36.1	Finland	59.1
Digital public services	26	39.4	67.3	Estonia	91.2

Source: Digital Economy and Society Index (DESI) 2022 Greece.

TABLE 4.1.2 Comparison between Greece and EU27 average on specific DESI 2022 indicators (data 2021)

	Greece	EU27
1. Human capital		
1.1 At least basic digital skills (% individuals)	52%	54%
1.2 Above basic digital skills (% individuals)	22%	26%
1.3 ICT specialists (% individuals in employment aged 15-74)	2.8	4.5
2. Connectivity		
2.1 Overall fixed broadband take-up (% households)	82%	78%
2.2 At least 100Mbps fixed broadband take-up (% households)	9%	41%
2.3 At least 1Gbps take-up (% households)	<0,01%	7,58%
2.4 Fixed very high-capacity network (VHCN) coverage (% households)	20%	70%
2.5 Fiber to the premises (FTTP) coverage (% households)	20%	50%
2.6 5G spectrum (assigned as a % of total harmonized 5G spectrum) (as of 4/2022)	99%	56%
2.7 5G coverage (% populated areas)	66%	66%
2.8 Mobile broadband take-up (% individuals)	76%	87%
2.9 Broadband price index (0-100)	58	73
3. Integration of digital technology		
3.1 SMEs with at least a basic level of digital intensity (% SME)	39%	55%
3.2 Cloud (% enterprises)	17%	34%
3.3 Artificial Intelligence (% enterprises)	4%	8%
3.4 ICT for environmental sustainability (% enterprises having medium/high intensity of green action through ICT)	65%	66%
3.5 SMEs selling online (% SMEs)	20%	18%
3.6 e-Commerce turnover (% SME turnover)	11%	12%
3.7 Selling online cross-border (% SMEs)	7%	9%
4. Digital public services		
4.1 e-Government users (% internet users)	69%	65%
4.2 Pre-filled forms (0-100)	45	64
4.4 Digital public services for citizens (0-100)	52	75
4.5 Digital public services for enterprises (0-100)	48	82
4.6 Open data	82%	81%

Source: Digital Economy and Society Index (DESI) 2022 Greece.

enterprises (SMEs) with at least a basic level of digital intensity, as well as the use of cloud computing and artificial intelligence by businesses score 39%, 17% and 4%, respectively, when the EU average is 55%, 34% and 8%. On the contrary, a slightly higher percentage of Greek SMEs sell online than the EU average.

Finally, despite the significant improvements in *digital public services*, the distance to the EU average remains long. The only indicator exceeding the EU average (69% vs. 65%) is the number of active users of e-government services. But the other three indicators: pre-filled forms, digital public services for citizens and

for businesses are still well behind the EU average (45, 52, and 48 vs. 64, 75, and 82, respectively).

4.1.3. Green transition

The news from the green transition is quite encouraging. According to the European Commission's Transitions Performance Index (TPI), 2021 edition (2020 data), the Greek economy, while lagging in the economic, social and governance transitions, ranks 10th in the environmental transition (Table 4.1.3). It is worth noting the significant progress in all 4 transitions,

which makes the 2nd best performance (behind Croatia) in the EU27 for the 2011-2020 period. The environmental transition indicator includes only a few dimensions of the multidimensional green transition, such as the reduction of greenhouse emissions, biodiversity, resource productivity and energy productivity.

Eurostat publishes every year the share of renewable energy sources (RES) in the final energy consumption of the member states. The most recent data refer to 2021 (Table 4.1.4). The Greek economy has managed to be close to the European average in the use of RES in energy consumption, while it lags sig-

TABLE 4.1.3 TPI, score and ranking of the Greek economy (2020 data)

	Greece		EU27 average		Best performer	
	Score	Rank	Score	Country	Score	
TPI	62.08	24	68.96	Denmark	78.36	
Economic	45.2	25	61.1	Ireland	76.1	
Social	70.9	25	77.5	Slovenia	85.9	
Environmental	65.5	10	65.0	Malta	74.4	
Governance	63.8	26	74.0	Luxembourg	85.0	
<i>Progress 2011-2020</i>	<i>11.0%</i>	<i>2</i>	<i>4.9%</i>	<i>Croatia</i>	<i>13.5%</i>	

Source: European Commission, 2022.

TABLE 4.1.4 RES share in gross final energy consumption

	Greece		EU27 average		Best performer	
	2020	2021	2020	2021	2020	2021
	%/rank	%/rank	%	%	%	%
RES in gross final energy consumption	21.7/13 th	21.9/12 th	22.0 ¹	21.8	Sweden 60.1	Sweden 62.6
RES in electricity consumption	35.9/13 th	35.9/13 th	37.4	37.5	Austria 78.2	Austria 76.2
RES in energy for heating and cooling	31.9/13 th	31.1/13 th	23.0	22.9	Sweden 66.4	Sweden 68.6
RES in transport activities	5.3/27 th	4.3/27 th	10.3 ²	9.1	Sweden 31.9	Sweden 30.4

Source: Eurostat, 2023.

Notes: 1. EU's target: 20%, Greece's target: 18%. 2. EU's and all countries' target: 10%

TABLE 4.1.5 The Green Future Index 2022

	Greece¹	Best performer	Best performer EU20
The Green Future Index	5.33 (22) (13)	Iceland 6.92	Denmark 6.55 (2)
Carbon emissions	6.61 (8) (3)	<i>Iceland 8.06</i>	<i>Finland 7.32 (2)</i>
CO ₂ emissions	6.7 (30) (10)	Iceland 10.0	Luxembourg 8.7 (8)
CO ₂ emissions growth	8.8 (6) (2)	Ukraine 10.0	Denmark 9.0 (3)
CO ₂ emissions growth in transport sector	8.0 (34) (10)	Norway 10.0	Sweden 9.9 (2)
CO ₂ emissions growth in industrial sector	4.6 (11) (1)	Iceland 10.0	Greece 4.6 (11)
GHG emissions growth in agriculture	5 (19) (5)	UAE 10.0	Finland 9.0 (2)
Energy transition	2.85 (56) (12)	<i>Ethiopia 7.18</i>	<i>Sweden 4.43 (18)</i>
Renewable energy production growth	3.3 (36) (7)	Kuwait 10.0	Luxembourg 5.9 (14)
Renewable energy contribution	2.8 (36) (8)	Uganda 10.0	Sweden 6.2 (13)
Nuclear energy production growth	1.0 (-)*	Japan 10.0	Belgium 5.6 (6)
Nuclear energy contribution	1.0 (-)*	France 10.0	France 10.0 (1)
Green society	5.06 (40) (19)	<i>S. Korea 7.04</i>	<i>Ireland 6.79 (3)</i>
Green buildings	6.1 (30) (12)	USA 10.0	Finland 8.5 (2)
Recycling efforts	4.8 (33) (15)	Germany 10.0	Germany 10.0 (1)
Net change in forestation	5.0 (40) (10)	Ireland 8.6	Ireland 8.6 (1)
Meat and dairy consumption	3.8 (51) (7)	Nigeria 10.0	Slovakia 5.7 (33)
Green transport	5.7 (34) (18)	Norway 10.0	Sweden 8.7 (3)
Clean innovation	5.83 (32) (12)	<i>Finland 7.67</i>	<i>Finland 7.67 (1)</i>
Green patents	2.7 (32) (17)	S. Korea 10.0	Finland 9.3 (3)
Cross-border clean energy investment	7.2 (28) (1)	Angola 10.0	Greece 7.2 (28)
Foodtech private investment	5.7 (39) (19)	Israel 10.0	Sweden 8.9 (3)
Climate policy	5.70 (25) (16)	<i>Denmark 8.12</i>	<i>Denmark 8.12 (1)</i>
Climate action	4.0 (37) (17)	Morocco 9.0	Many countries 7.0 (7)
Carbon capture and storage readiness	5.5 (20) (10)	USA 10.0	Denmark 7.7 (7)
Carbon pricing initiatives	7.0 (17) (11)	Many countries	Many countries 8.0 (1)
Sustainable agriculture policy/strategy	1.0 (57) (17)	Many countries	Many countries 9.0 (1)
Pandemic pivot	9.0 (2) (1)	India 10.0	Denmark, Greece 9 (2)

Source: MIT Technology Review Insights, 2022.

Note: 1. In the first parentheses is the ranking among 76 countries of the index, while in the second is the ranking among the 20 EU countries the index includes.

* Due to the large number of countries with the same score, ranking does not provide further information.

nificantly in the use of RES in transport activities. It is worth noting that in 2021, the use of RES in the EU slightly declined, with the most significant decrease in the use of RES in transport activities, which indicates the need to undertake further action in making transport greener.

A more thorough index is the Green Future Index (GFI) compiled by MIT, which includes 76 countries – 20 of which are EU member states – thus giving a global perspective of the green transition. The index includes data from many databases and the data in the 2022 edition refers to previous years (even before 2021). In the last (2022) edition, the Greek economy moved up 15 ranks to 22nd from 37th in the 2021 edition. This means that if it gains just two more ranks, it will enter the top 20, which, according to the Index, are the “green leaders.”

Table 4.1.5 shows that the Greek economy needs to focus on improving the sector of the green society, particularly recycling, green buildings and green transport, as well as intensifying efforts to improve the sustainability of agricultural policy, increase investments in foodtech, increase the number of green patents as well as undertake more actions for the climate in general. It is worth noting that while Europe is generally considered (and it is) a pioneer in the green transition, there are several parameters such as CO₂ emissions as well as the overall dimension of the energy transition in which it lags well behind other countries in the world.

Finally, given that the green transition (like the digital one) has a direct relationship with the competitiveness of the economy and the attraction of investments, the Renewable Energy Country Attractiveness Index (RECAI) deserves a short reference. According to the latest edition of the index (November 2022), which is compiled by Ernst & Young (EY), the Greek economy is continuously improving its performance, rising to 16th rank from 21st in the May edition among 40 countries. The index includes completed, current, planned and announced investments, considering policies that facilitate or hinder the promotion of RES, the quality of the infrastructure network, energy storage capacity, macroeconomic stability, and business climate in each economy. As noted in the report, significant steps have been taken in Greece to make the legislation friendly

to the expansion of investments in RES (EY, 2022).

4.1.4. Concluding remarks

In general, the reports and indicators presented refer positively to the efforts of the Greek economy in the areas of digital and green transition. However, as far as the digital transition is concerned, it is repeatedly noted that the country has significantly delayed the start of digitization, resulting in a rapid loss of ground compared to its partners. As a result, the gap to be filled is so large that despite significant efforts towards the digital transition, it does not seem to be approaching the European average as quickly as it would be desired.

Regarding green transition, the Greek economy is close to the average of the EU27, while in the use of RES for heating and cooling, it is well above it (Table 4.1.4). However, it lags significantly in the use of RES in transport. Also, the country still needs to do a lot to approach the EU average in several parameters such as recycling, energy upgrading of buildings, sustainability of the agricultural sector, climate policies, green patents as well as investments in green food technologies.

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