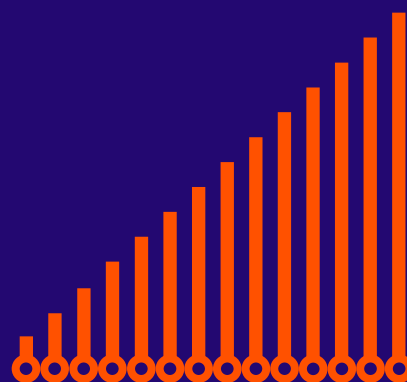
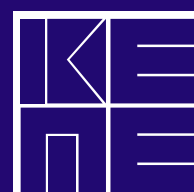


GREEK ECONOMIC OUTLOOK



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



GREEK

Economic Outlook

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Executive Summary

The Greek economy continues to surprise positively

Numerous data and analyses confirm that the Greek economy continues to surprise positively:

- **In terms of the growth rate**

International and domestic institutions have revised upwards the growth rate of the Greek economy for 2022. Indicatively, the IMF and EBRD now estimate a growth rate of 5.2%, the EU 4.9%, Oxford Economics 6.11%, S&P 5.6%, Moody's Analytics 5.7%, the Bank of Greece and the IOBE 6% and the National Bank of Greece 5.5-6%. At KEPE, we estimate a growth rate of 5.5%, compared to 4.3% in our previous estimate (see Section 1.3). Thus, in the midst of the energy crisis, the Greek economy is growing rapidly, almost twice the European average. Greece ranks among the most resilient economies on the planet, with the International Monetary Fund estimating that about 1/3 of the world economy will see at least 2 consecutive quarters of contraction this year and next.¹

- **In terms of the production model**

The Greek economy has also recently shown a gradual increase in its outward orientation, which tends to correct one of its most problematic features of the last decades, the domestic orientation of production as well as the dependence of a large share of firms on the state and on complex rules. At the same time, there is considerable innovation activity in firms and sectors, a development which also tends to mitigate a particularly problematic feature of the economy. **Investment and exports are being significantly boosted.** They are expected to reach an all-time high in 2022. Greece is attracting global investment giants (e.g., Digital Realty, Google, Amazon Web Services, Microsoft, Pfizer, Deloitte, Cisco, etc.), expanding into new markets, becoming more and more outward-looking. As an indication, the country exports, as a per-

centage of GDP, more than Italy, Spain and France. Real exports of goods have recorded a consistent upward trend, reaching, in the second quarter of the year, a record high for the period of historical data, exceeding by 75% the average quarterly volume of the entire pre-pandemic period since 1995. Moreover the export base has been diversifying significantly, recording a dramatic increase in exports of high-tech goods, which now approach rates of industrialized countries such as Germany.

- **In terms of the budget implementation**

The maintenance of a primary surplus in the State Budget in the 9-month period and a 13.7% **increase in tax revenues** are recorded in the provisional data on the execution of the State Budget, on a modified cash basis, for the period January–September 2022.² Overall, the data show that there is a deficit in the state budget balance of EUR 4,236 million against a target deficit of EUR 10,081 million included for the corresponding period of 2022 in the 2022 Budget Report and a deficit of EUR 10,150 million in the corresponding period of 2021. The primary outcome was a surplus of EUR 37 million, against a target for a primary deficit of EUR 5,943 million and a primary deficit of EUR 5,960 million for the same period in 2021. The amount of net state budget revenues amounted to EUR 44,008 million, an increase of EUR 5,203 million or 13.4% over the estimate for the corresponding period included in the 2022 Budget's explanatory report, despite the reduced revenues of the Public Investment Programme.

- **In terms of the government debt**

According to the 2023 Preliminary Draft Budget, the general government debt is estimated to stand at EUR 355,000 million or 169.1% as a percentage of GDP at the end of 2022, compared to EUR 353,389 million or 193.3% as a percentage of GDP in 2021, showing a **decrease of 24.2 percentage points compared to 2021.**³ In 2023, the general government debt is project-

1. See IMF, *World Economic Outlook*, October 2022, at: <<https://www.imf.org/en/Publications/WEO/Issues/2022/10/11/world-economic-outlook-october-2022#Data%20Tools>>.

2. See <<https://www.minfin.gr/web/guest/deltia-ekteleses-proupologismou>>.

3. See <<https://www.minfin.gr/web/guest/proupologismos>>.

ed to reach EUR 357,000 million or 161.6% as a share of GDP, a further decrease of 7.5 percentage points of GDP compared to 2021. This is essentially the **fastest reduction of public debt in the EU**, and this in a context of forced fiscal expansion.

- **In terms of unemployment reduction**

Unemployment is shrinking. It has already fallen by more than 5 points compared to 2019, **now approaching, on an annual basis, the 2010 level** (see section 3.1). This retreat is particularly evident among women and young people. At the same time, the number of employed people exceeds 4.1 million citizens. In Q2 2022, Greece recorded a higher number of employed persons than in the corresponding pre-pandemic quarter for 7 out of 10 sectors of economic activity, compared to 6 sectors in the euro area.

But inflation is not receding

Despite the above positive surprises, there are legitimate concerns stemming initially from inflation, which is tending to take on a “permanent” character (see section 1.2). At the national level, structural inflation (i.e., inflation excluding fuel and seasonal fruit and vegetables) reached 4.98% in September, now indicating that price increases has spread to all goods and services in the consumer’s “basket”. The same is true for the corresponding index of the Harmonised Index of Consumer Prices. The Harmonised Index of Consumer Prices excluding fuel and taxes stood at 5.2% for Greece in September, compared to 4% for the euro area average. **These figures are worrying both for their social impact and for their effect on the competitiveness of the Greek economy and, consequently, on exports.**

And interest rates are holding back growth

The rise in euro interest rates, which is directly related to the path of inflation, will be the number one risk in 2023 for the potential gnawing away of growth from 2.1% which is the official forecast of the draft Budget for 2023. The concern stems from the fact that the scope for interest rate hikes is large, as even after the two rate hikes (0.50% in July and 0.75% in September), real euro interest rates are still negative, so the ECB’s monetary policy remains expansionary. More specifically, the nominal increase in euro interest rates of 1.25% corresponds to real interest rates of -8.75% if inflation, which reached 10.1% in September in the euro area, is deducted. **Significant increases in interest rates are therefore expected.** However, this will primarily affect

countries such as Germany, France and Italy, who will see their economies slow down or go into recession, as they have been operating with low borrowing rates and marginally positive growth rates until now. Europe’s slowdown will not leave Greece unaffected, as the EU is its main trading partner, absorbing around 75% of total exports. The draft Budget reflects the impact by significantly slowing export growth from 9%, where it is expected this year, to 1.8% in 2023. It is clear that the 1.8% increase could become zero or turn into a decline depending on the recession in the rest of Europe, which would be driven by rising interest rates. **Tourism** will also be negatively affected by the recession in Europe, as large numbers of visitors come from Germany, England, France and Italy.

What will ultimately happen to the Greek economy in 2023 depends on 3 factors

- **1st factor: The size of the slowdown in Europe**

It is evident that the slowdown in European economies will also worsen the prospects for the Greek economy. Demand from abroad will fall and, obviously, this will negatively affect our exports. But investment will also slow down because of the rise in interest rates. **The greater the size of the recession in Europe, the stronger the negative impact on our economy and the more likely an eventual recession in Greece in 2023 will be.** Of course, the opposition to such a development comes from the Recovery and Resilience Fund and the NSRF. These two important tools, if used effectively, can act as a buffer against a possible reduction in demand, and therefore against a recession. The Recovery Fund, for example, can add around €3 billion in real terms to the level of GDP next year, thus limiting the impact of the expected slowdown.

- **2nd factor: The continued transformation of the economy**

The observed change in the country’s economic model with a focus on exports, investment and innovation has taken place under expansionary fiscal and monetary policies and at a time when Europe and international economies were characterized by growth. In 2023, however, such conditions will not exist. On the contrary, the deepening recession in Europe, the increased uncertainty due to rising interest rates and the upcoming (repeated?) elections in Greece are creating a negative climate. However, even in such a climate, the transformation of the economy should continue. Otherwise, the economy will once again enter a vicious circle. The country’s political forces should

commit themselves to ensuring that there is no return to “old habits”, where consumption, inward-looking, state-driven lending, non-transparent economic activity and electoral behaviour played a dominant role.

- **3rd factor: The strengthening of reforms**

Related to the above is the strengthening of reforms. Although considerable progress has been made in recent years, particularly in the digitization of public administration, Greece lags significantly behind in promoting reforms in the areas of product and service markets, especially in network markets, the tax system (reducing the tax burden, simplifying tax procedures and redefining the VAT system), labour and production (reducing employer and social security contributions) and justice. In particular, the justice sector lags significantly behind almost all other euro area countries. In Greece, the final resolution of a legal dispute for businesses takes more than 4.5 years (2020 data). This is the longest in the EU-27, more than double even compared to Portugal and Slovakia, which have modernized their systems. These two countries are

now approaching the European average (455 days). The long waiting time for judgments makes it difficult for Greek businesses and for the investment competitiveness of the economy. The fact that the judiciary is still in the “paper age” limits the capacity to handle the necessary number of cases, resulting in a 24th place in the EU for the resolution of civil and commercial cases. The delays generated in the courts of the first instance translate into three pending cases for every 100 citizens at the end of each year (21st place in the EU), given that it often takes 18 months for a civil or commercial case.

This means that the continuation and completion of structural reforms is a unique path for the recovery of the productive base, to fill the investment gap and thus boost productivity and sustainably increase incomes but, at the same time, to reduce the prices of goods.

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

1. Recent (macro-)economic developments

KEPE, *Greek Economic Outlook*, issue 49, 2022, pp. 6-13

1.1. The evolution of the aggregate demand components during a period of energy and geopolitical uncertainty

1.1.1. Introduction – The domestic & foreign demand for the 1st half of 2022

Yannis Panagopoulos

In this section, utilizing the existing macroeconomic data, we proceed to the analysis of the current developments of the 1st half of 2022. Based on the figures of Table 1.1.1, after the 1st quarter of 2021, we observe the end of negative percentage changes in all macroeconomic aggregates, which can be also interpreted as the end of the negative effects of the Covid-19 pandemic. Thus, according to this change we observe, the economic growth of the 1st half of 2022 was 7.85%, which is somewhat bigger than the analogous change in the 1st half of 2021 (6.60%). The difference for these two semesters is the recession of 1.8% at the 1st quarter of 2021, while in the corresponding quarter of 2022 we had 7.85% growth.

Regarding the factors that contributed to the GDP growth in the 1st half of 2022 (7.85%), we should point out the existence of positive rates of change in all individual macroeconomic factors. More specifically, the biggest positive percentage change was presented by exports of goods & services (15.3%), followed, in order of magnitude, by private consumption (11.45%), gross fixed capital formation (10.85%) and public consumption (0.35%). Special reference should be made to the high percentage, at the same time, for imports of goods & services, which, as it is known, has a negative contribution to GDP (16.8%).

On a quarterly basis –see the 2nd quarter of 2022– we have approximately the same picture. Specifically, exports of goods & services (20.8%), *private consumption* (11.0%), gross fixed capital formation (8.70%), and public consumption (0.8%) contributed, in order of magnitude, in this quarter, to the recorded GDP growth (7.7%) (Table 1.1.1.).

Additionally, for the 2nd quarter of 2022, domestic demand also records a similar trend (see Figure 1.1.1.a). Thus, based on the existing components of the recorded GDP growth (using seasonally adjusted data), *private consumption* looks to be the most positive component, with a percentage much higher than those of fixed capital investment and public consumption (7.66 versus 1.12 and 0.16, respectively).

On the issue of the participation of the domestic and foreign demand sector (i.e., the balance of goods and services) to the GDP growth, for the 2nd quarter of 2022, numbers are also positive (see Figure 1.1.1.b). Specifically, except for *the Change in Inventories* (-0.46), the contribution of the rest of the macroeconomic factors were all positive. Thus, the contribution of the balance of goods and services was positive (0.69), but mainly the domestic demand (7.66) had the biggest positive contribution of the GDP growth.

Regarding now the Economic Sentiment Index (ESI), as a future “proxy” of the demand, the expectations of households and businesses for the period 10/2021-8/2022 are recorded in Figure 1.1.2. It is obvious that the recorded trend of the ESI is relatively downward. This Index declined from 113.3 points in October 2021 to 101.5 points in August 2022. In conclusion, although the GDP growth has a clearly positive trend, the expectations of households and businesses do not fully share this optimism. In its relative pessimism, two main events play a decisive role: the continuation of the Russian invasion of Ukraine and the upward trend of energy prices internationally.

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 trade

The contribution of the foreign sector (exports minus imports) to GDP growth for the 1st half of 2022, as already mentioned above, is generally considered as positive. In more detail, we will refer here separately to the rate of change of goods and separately to the rate of change of services. Starting from the exports, it should be noted that *services*, which constitute the relatively smaller part of exports, showed a very large half-year-

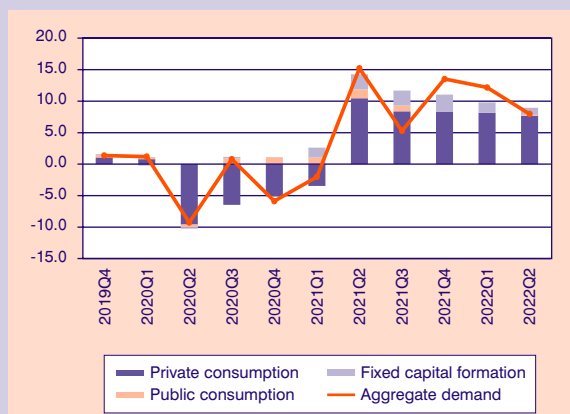
TABLE 1.1.1 Basic macroeconomic figures
(%, seasonally adjusted data, volumes)

	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	6months 2021	6months 2022
Private consumption	1.2	-14	-9.4	-7.3	-4.9	15.0	12.0	12.0	11.9	11.0	5.05	11.45
Public consumption	1.7	-2.1	4.8	5.7	5.4	6.2	4.2	-0.2	-0.1	0.8	5.80	0.35
Fixed capital formation	-2.10	-2.20	2.40	0.50	14.20	19.40	19.40	24.20	13.00	8.70	16.80	10.85
Aggregate demand*	0.34	-10.40	-3.73	-4.86	-0.89	13.87	9.47	11.64	10.59	8.22	6.49	9.41
Exports of goods and services	-2.80	-32.50	-36.80	-12.60	-2.00	26.10	49.60	24.00	9.80	20.80	12.05	15.30
Goods	2.49	-3.25	4.08	13.40	9.02	16.93	9.59	4.09	2.93	3.30	12.98	3.11
Services	-12.63	-57.80	-58.29	-39.95	-15.27	50.01	97.91	63.22	22.80	47.39	17.37	35.09
Imports of goods and services	0.3	-14.1	-6.9	-11	-5.2	20.9	19.5	33.3	18.1	15.5	7.85	16.80
Goods	-0.70	-11.66	-1.69	-3.20	-3.07	17.63	12.15	29.83	18.41	17.53	7.28	17.97
Services	4.60	-20.36	-20.38	-30.21	-12.55	30.14	41.67	43.55	15.97	9.34	8.79	12.65
ΔGDP	-1.4	-15.5	-10.8	-6.9	-1.8	15	11.7	8.3	8	7.7	6.60	7.85

Source: National Accounts (ELSTAT).

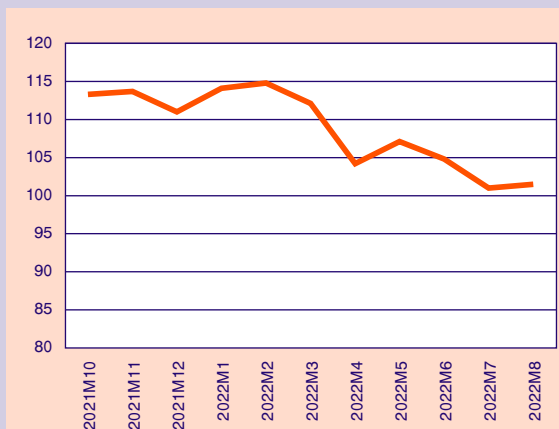
* Excluding change of inventories.

FIGURE 1.1.1a
Components of domestic demand



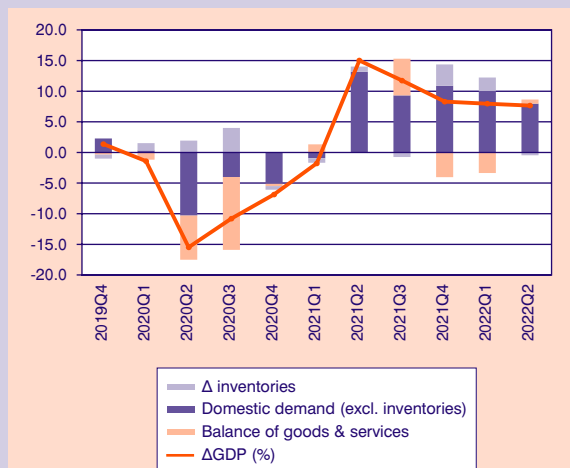
Source: National Accounts, ELSTAT, data processing by the author.

FIGURE 1.1.2
Index of Economic Sentiment (2021/10-2022/8)



Source: EUROSTAT.

FIGURE 1.1.1b
Domestic and net external demand (components)*



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

(*) The change of Inventories in 2020Q3 is an estimate by the author.

FIGURE 1.1.3
Components of external demand



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

ly increase of 35.09%, while *goods*, which were the largest part of exports, showed a much smaller annual growth of 3.11%. On the other hand, the imported *services* had a first half-yearly increase of 12.65%, while the imported *goods* had a smaller half-yearly increase of 17.97%.

As far as the contribution of the balance of goods and services to the GDP growth rate is concerned, we restate that for the 2nd quarter of 2022, it is 0.69 points,

in contrast to -0.08 points for the 2nd quarter of 2021. More analytically, we observe that the significant positive contribution of exports to GDP is estimated at 7.08 points, while on the other hand, the (negative) contribution of imports to GDP is 6.39 points. The return to “normality”, after the anomaly of the Covid-19 pandemic of 2020-21, is presented in Figure 1.1.3 with the recording of exports on the positive and imports on the negative contribution side of GDP. In other words, the change of trend and the return to “normality” is clearly visible in the corresponding histograms of imports and exports after the 1st quarter of 2021.

1.1.2. Private consumption and investment

Konstantinos Loizos

1.1.2.1. Private consumption

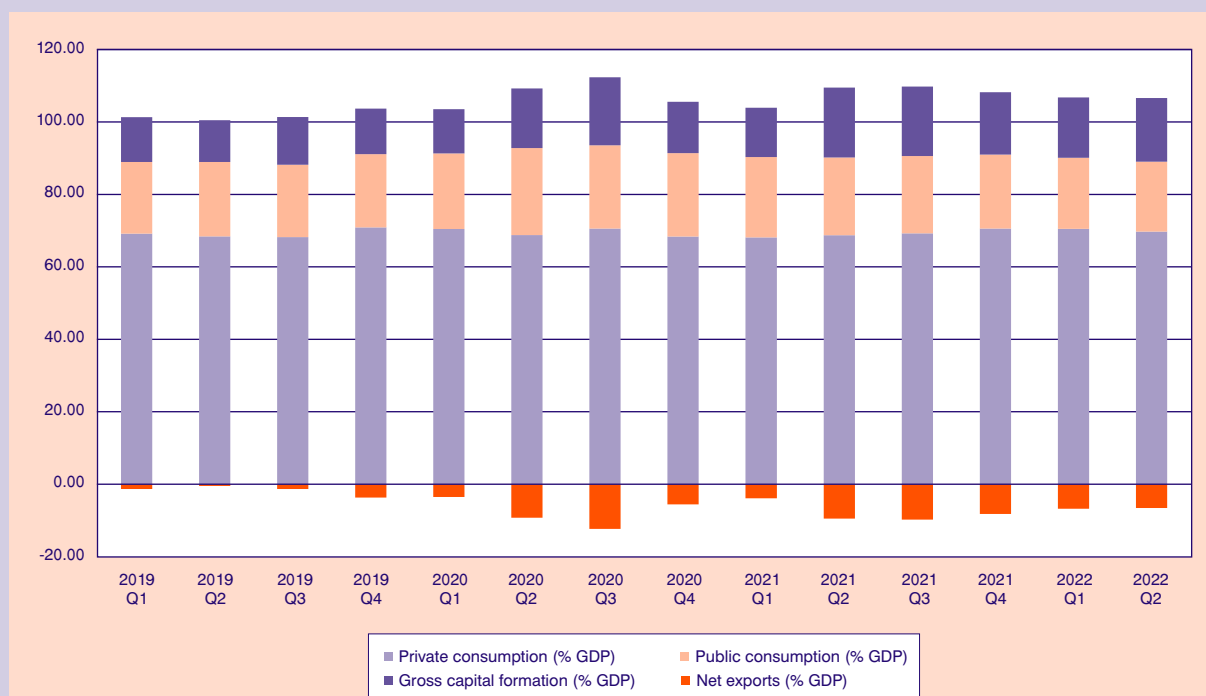
Rising trend but decreasing rates of change in private consumption

According to the quarterly seasonally adjusted National Accounts,¹ private consumption of households and NPISH² increased to 36,627 million euros in current prices in the second quarter of 2022 from 35,658 million euros during the first quarter and 33,889 million euros in the fourth quarter of 2021. Correspondingly, in terms of chain-linked volumes (reference year 2015) private consumption rose to 34,638 million euros in the second quarter from 33,907 million euros in the first quarter of 2022 and 33,027 million euros in the fourth quarter of 2021. In addition, percentage changes³

with respect to the previous quarter, based on seasonally adjusted chain-linked volumes, were positive in all quarters under examination, though decreasing, namely, 3% in the fourth quarter of 2021, 2.7% in the first quarter of 2022 and 2.2% in the second quarter of the same year. The same pattern holds in the evolution of percentage changes with respect to the corresponding quarter of the preceding year. In this case, percentage changes in private consumption take a value of 12% in the fourth quarter of 2021, 11.9% in the first quarter of 2022 and 11% in the second quarter of 2022. Those positive but decreasing percentage changes indicate a transitional period for the Greek economy, which has not fully suffered the consequences of the energy and geopolitical crises despite its ostensibly quick recovery from the long period of the pandemic at the beginning of the tourist season.

Private consumption, as a percentage of GDP, fluctuated around 70.27% on average during the three quar-

FIGURE 1.1.4
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.

1. Quarterly National Accounts, Press release, ELSTAT, September 7, 2022.

2. Non-profit institutions serving households.

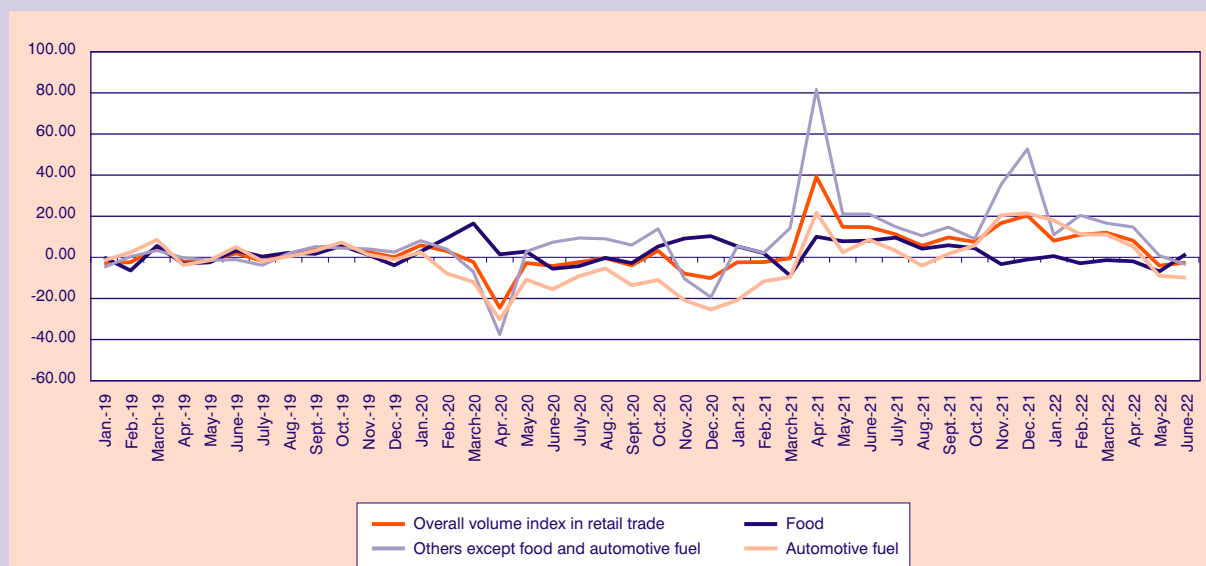
3. Percentage changes are calculated using the formula $\frac{X_t - X_{t-1}}{X_{t-1}}$.

ters under examination, being 70.57% of GDP in the last quarter of 2021, 70.50% of GDP in the first quarter of 2022 and 69.74% of GDP in the second quarter of the same year (See Figure 1.1.4). Public consumption, registering an average value of 19.79% over the three quarters, gradually decreased its share, amounting to 20.42% of GDP in the last quarter of 2021, 19.63% of GDP in the first quarter of 2022 and 19.31% of GDP in the second quarter of 2022. On the contrary, gross capital formation (fixed capital and changes in inventories) as a percentage of GDP fluctuated from 17.23% in the fourth quarter of 2021 to 16.65% in the first quarter of 2022 and 17.55% in the second quarter of 2022, with an average over the three quarters of 17.14% of GDP. Furthermore, net exports improved as a percentage of GDP from -8.22% in the fourth quarter of 2021 to -6.78% of GDP in the first quarter and -6.60% of GDP in the second quarter of 2022, with an average of -7.20% of GDP, taking into account all three quarters. Consequently, the rise in private consumption during the last three quarters was accompanied by decreasing rates of change along with a slight fall in its share in total expenditure, together with public consumption. To the contrary, the share of gross investment as a percentage of GDP showed a rising trend only during the second quarter of 2022, while the improvement in net exports as a percentage of GDP characterized all quarters under examination.

Declining trend in retail trade driven by automotive fuel

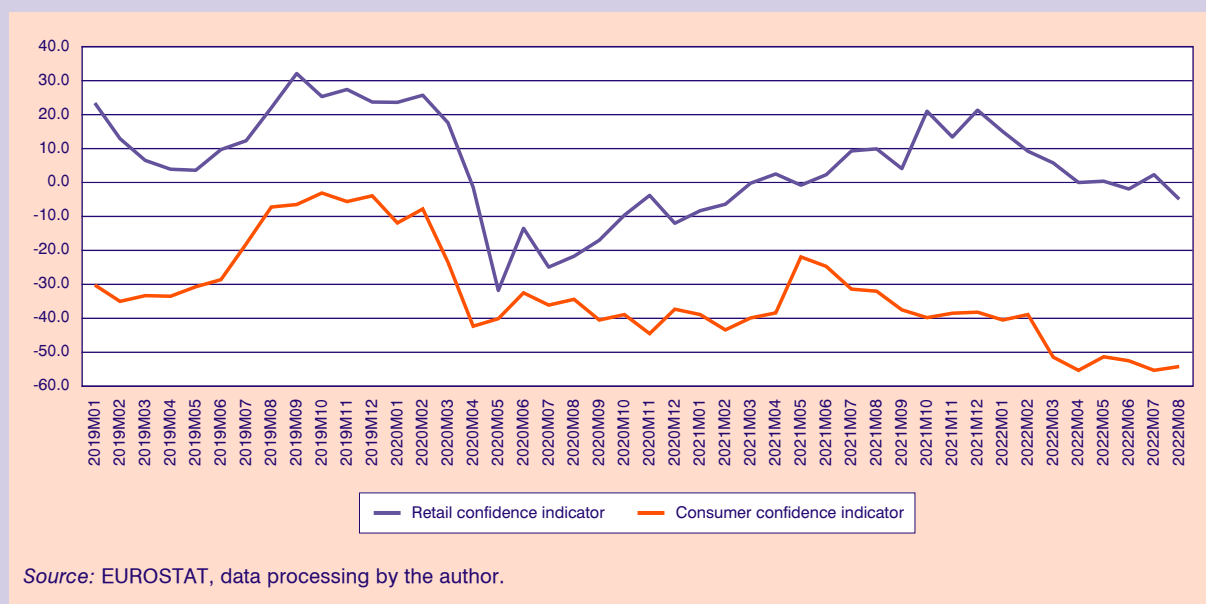
The evolution of retail trade in terms of percentage changes of the overall volume index was positive on average in the first semester of 2022 with respect to the corresponding months of the preceding year, based on ELSTAT monthly data (See Figure 1.1.5). However, despite positive percentage changes during the first four months of 2022 (8.12% in January, 10.96% in February, 11.98% in March and 8.17% in April), the overall volume index in retail trade showed negative percentage changes in May (-4.05%) and June (-2.55%). Food items exhibited a negative percentage change of -1.81% on average, with positive percentage changes only in January and June of 2022 (0.61% and 1.54%, respectively). On the contrary, automotive fuel showed the same pattern as the overall index, since significant positive percentage changes in the first four months of 2022, 11.40% on average, were followed by negative ones in May and June, -9.44% on average. Nevertheless, even in the first four months, those positive percentage changes decreased from 17.95% in January to 11.24% in February, 11.07% in March and 5.33% in April. Finally, in other items except food and automotive fuel, positive percentage changes are recorded, except in June, with an average of 10.01%. The general impression from this data is that retail trade, despite its general positive trend until April

FIGURE 1.1.5
Percentage changes in the seasonally adjusted overall volume index and the main sector indices in retail trade



Source: ELSTAT, data processing by the author.

FIGURE 1.1.6
Confidence indicators in retail trade



Source: EUROSTAT, data processing by the author.

2022, followed a downward trend in May and June. The main influence for this change in trend was the situation in the market for automotive fuel without food items and other items except food and automotive fuel being able to reverse this development. To the extent that the economy will be increasingly affected by the energy crisis, this finding does not come as a surprise.

Persistent pessimism in retail trade expectations

Published by EUROSTAT, confidence indicators (Figure 1.1.6) show the prevalence of pessimism in retail trade, which pertains both to consumers and businesses. Indeed, the retail confidence indicator follows a falling trend during the first eight months of 2022 with a small correction in May and July of 2022. Likewise, the consumer confidence indicator decreases significantly from February 2022 and thereafter, which does not reverse itself despite observed fluctuations in the three months of summer. This declining trend in consumers' expectations is confirmed as we observe the data from June 2021 when this significant trend reversal is first spotted.

1.1.2.2. Investment

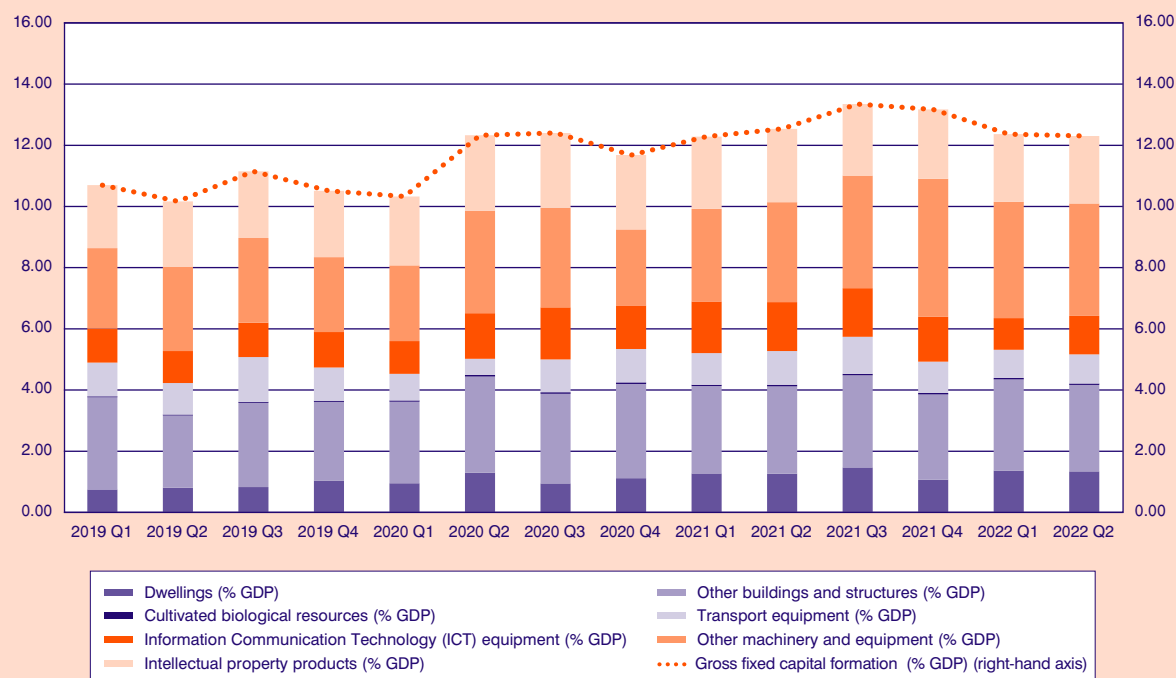
Fluctuations in gross investment without a clear trend

Gross fixed capital formation decreased from 6,325 million euros in current prices in the fourth quarter of 2021

to 6,253 million euros in the first quarter of 2022, while it increased to 6,463 million euros in the second quarter of the same year. On the contrary, in terms of chain-linked volumes, gross fixed capital formation increased from 6,059 million euros in the fourth quarter of 2021 to 6,285 million euros in the first quarter of 2022, while it decreased to 6,225 million euros in the second quarter of this 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, since positive percentage changes were 24.2% in the fourth quarter of 2021, 13% in the first quarter of 2022 and 8.7% in the second quarter, of 2022. In contrast, concerning percentage changes with respect to the preceding quarter we observe a fluctuation with values of 1.7% in the fourth quarter of 2021, 3.7% in the first quarter of 2022 and -1% in the second quarter of 2022, according to seasonally adjusted chain-linked volumes.

The evolution of investment (gross fixed capital formation) as a percentage of GDP (Figure 1.1.7) seems to have followed a downward trend in the last quarter of 2021 and the first two quarters of 2022, though this trend was less intense during the second quarter. The corresponding observed percentage changes with respect to the previous quarter were -1.32% in the fourth quarter of 2021, -6.13% in the first quarter of 2022, and -0.48% in the second quarter of 2022. However, in terms of the main components of gross investment, fluctuations rather than clear trends are the observed norm. Machinery and transport equipment as a percentage of GDP showed a positive percentage change of 8.12%

FIGURE 1.1.7
Gross fixed capital formation as a percentage of GDP (overall and by asset)
(seasonally adjusted data in current prices)



Source: ELSTAT, data processing by the author.

in the fourth quarter of 2021, a negative -17.69% in the first quarter of 2022 and again a positive one of 2.14% in the second quarter of the same year. To the contrary, percentage changes in buildings in general as a percentage of GDP showed the opposite signs in the corresponding quarters, namely, -13.96% in the fourth quarter of 2021, 12.73% in the first quarter of 2022 and -4.19% in the second quarter of 2022.

Machinery and transport equipment maintain their lead over buildings, with fluctuations

As it is evident from Figure 1.1.8, the share of machinery and transport equipment in total gross fixed capital formation remained high and fluctuated around 49.21% on average in the last quarter of 2021 and the first two quarters of 2022, as opposed to 32.77% for the buildings. However, an inspection of Figure 1.1.8 confirms our observation in the previous section concerning the fluctuations in the two main components of gross investment. In the first quarter of 2022, buildings increased their share in total gross investment from 29.28% in the last quarter of 2021 to 35.17%, while machinery and transport equipment lost in share from 53.17% to 46.62%, correspondingly. Nevertheless, in the second quarter,

machinery and transport equipment recovered, increasing its share to 47.85%, as opposed to a decreasing share for buildings of 33.86%. However, despite these fluctuations, machinery and transport equipment remained the main component of gross investment during the period under examination.

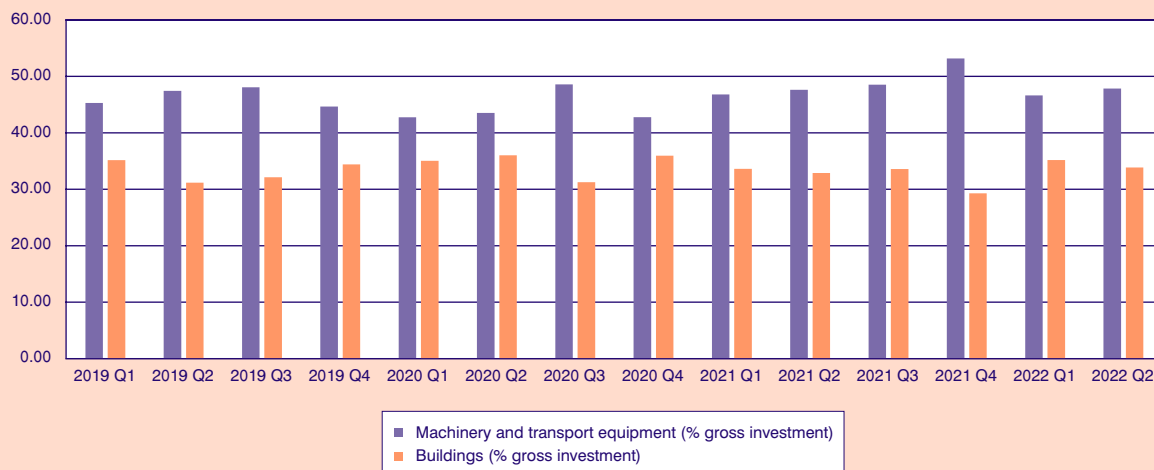
Pessimism in construction sector continues

The evolution of business expectations in the construction sector, despite fluctuations, indicates a downward trend, having as a starting point September of 2021. Indeed, even if the fluctuation of the construction confidence indicator, which returns to positive values in March 2022, could be characterized as “cautious optimism with uncertainty”, as we have noted in the previous issue of *Greek Economic Outlook*, the evolution of the indicator thereafter rather confirms pessimism in the construction sector.

1.1.2.3. Conclusions

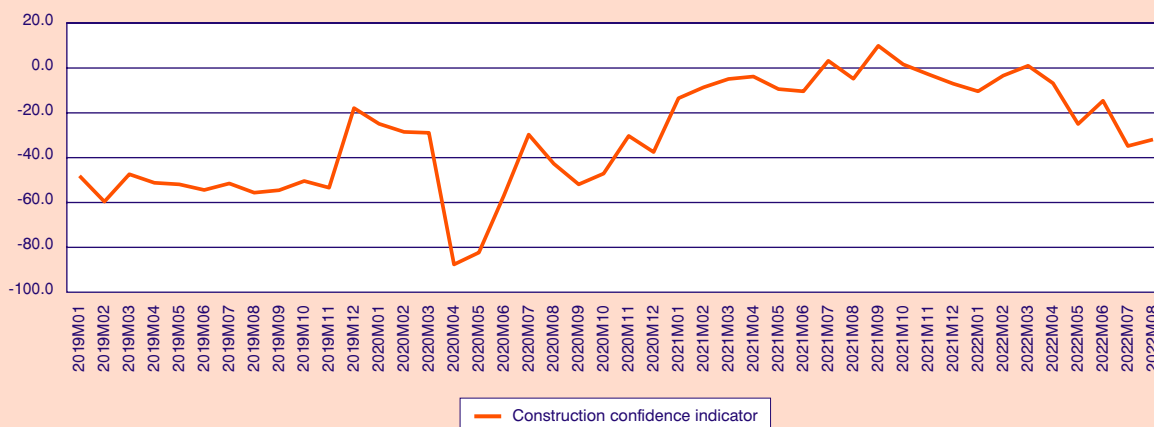
The above analysis indicates that the Greek economy as of the end of 2021 and especially during the first

FIGURE 1.1.8
Machinery, transport equipment and buildings as a percentage of gross fixed capital formation



Source: ELSTAT, data processing by the author.

FIGURE 1.1.9
Construction confidence indicator



Source: EUROSTAT, data processing by the author.

semester of 2022 came across the first repercussions of the energy and geopolitical crises. Indeed, while private consumption showed a rising trend because of the recovery from the pandemic and pending the tourist summer season, the rates of change in consumer expenditure were falling. The above are confirmed by the falling trends in retail trade with an emphasis in automotive fuel along with the retreat in expectations in retail trade, concerning both consumers and retailers. During this interval, we also observed fluctuations in gross investment without any clear trend,

while business expectations in the construction sector remain depressed. In conclusion, the Greek economy seems to be experiencing the first perturbations of a difficult imminent period marked by the energy crisis. It is notable that expectations, as depicted in the corresponding confidence indicators, despite covering the summer tourist season, did not show a reversal, as temporary as it might be, of this depressing climate. This is so despite the fact that the energy crisis is expected to affect the economy in a more profound way from autumn and thereafter.

1.2. The effect of high energy prices on inflation in Greece and the Euro area

Emilia Marsellou
Vassilis Lychnaras

Introduction

Inflationary pressures in Greece and the euro area continued to surge in September 2022 (12.0% and 10.0%, respectively) owing to extremely elevated energy prices as a consequence of the war in Ukraine. Both in Greece and the euro area, the highest contribution to the annual inflation rate came from the hikes in energy and food commodity prices. The ongoing upward trend in the energy commodity prices, and especially that of natural gas, has a significant impact on the surge of inflation, both directly, through the increase in final energy prices for consumers, and indirectly, through the increase in the cost of producing basic consumer goods. Efforts have recently been made at national and European levels to mitigate the effects of the energy crisis on households and businesses, as well as to deal with high energy prices and ensure energy sufficiency, especially during the winter season.

1.2.1. Greece

According to ELSTAT, in September 2022, headline inflation based on the National Consumer Price Index (hereinafter, CPI) stood at 12.0%, compared to 11.4% in August. The CPI recorded a monthly increase by 2.9% (m-o-m, %). Inflation based on the Harmonized CPI (hereinafter, HICP) recorded an annual increase of 12.1%, compared to 11.2% in August.

Core¹ national inflation increased at a slower pace, reaching 4.9% in September, compared to 4.2% in August. Similarly, core HICP inflation reached 7.0% in September, up from 5.8% in August.

The highest contribution to the annual Headline inflation rate in September came from Housing (+5.1 per-

centage points), Food and non-alcoholic beverages (+2.9 pp) and Transport (+1.9 pp).

More specifically, the annual increase of the General CPI in September 2022 by 12.0% is a combined result of the following changes in the price indices of sub-groups of goods and services. More specifically, increases were recorded by:

- +13.5% in the group Food and non-alcoholic beverages. This increase is mainly attributed to the rise in the prices of Bread and cereals (+18.4%), meat (+17.6%), fish (+4.2%), milk-cheese and eggs (+23.3%), oils and fats (+17.0%), vegetables (+8.7%), sugar-chocolate-sweets-ice cream (+6.2%), other foods (+12.6%), coffee-cocoa-tea (+14.3%), mineral water-soft drinks-fruit juices (+4.7%). The above increases were partially offset by fresh fruit (-4.4%).
- +2.0% in the Alcoholic beverages and tobacco group. This increase is mainly due to the rise in prices of (not served) alcoholic beverages (+4.7%).
- +3.5% in Clothing and Footwear, due to price increases in clothing and footwear.
- +35.4% in the Housing group. This increase is mainly due to the rise in prices of the following products and services: rentals for dwellings (+1.1%), services for the repair and maintenance of the dwelling (+4.3%), electricity (+30.5%), natural gas (+332.0%), and solid fuels (+16.1%).
- +9.3% in the Household equipment group. This increase is mainly due to the rise in prices of the following products and services: furniture and furnishings (+8.0%), household appliances and repairs (+5.8%), glass-tableware and household utensils (+6.8%), non-durable household articles (+14.6%) and domestic services (+3.5%).
- +14.2% in the Transport group. This increase is mainly due to price increases in the following products and services: New motor cars (+13.7%), second-hand motor cars (+15.9%), motorcycles (+6.9%), spare parts and accessories for motor cars (+9.9%), fuels and lubricants (+17.7%), maintenance and repair of motor cars – motor cycles (+2.3%), passenger transport by taxi (+32.9%), tickets for passenger transport by air (+58.7%), tickets for passenger transport by sea (+25.4%).

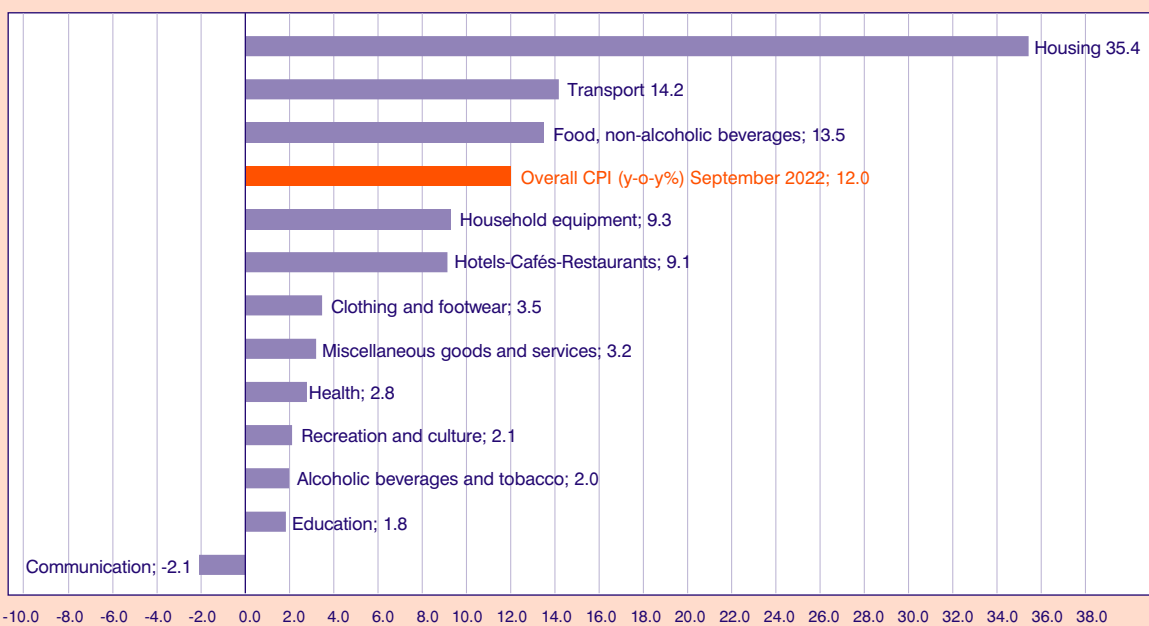
1. The Core Inflation Index is calculated from the Overall (Harmonized) Consumer Price Index excluding the divisions of Food and non-alcoholic beverages, Alcoholic beverages and tobacco and Energy prices.

TABLE 1.2.1 Inflation in Greece (%)

	National CPI	CPI (m-o-m, %)	Headline Inflation CPI (y-o-y, %)	Core Inflation	Harmonized Inflation HICP	Core HICP
2021:M9	102.2	2.4	2.2	2.4	1.9	0.2
2021:M10	103.8	1.5	3.4	1.5	2.8	0.4
2021:M11	104.2	0.5	4.8	0.5	4.0	0.7
2021:M12	105.0	0.7	5.1	0.7	4.4	1.1
2022:M1	104.7	-0.3	6.2	1.3	5.5	1.5
2022:M2	105.8	1.1	7.2	1.2	6.3	1.5
2022:M3	108.8	2.7	8.9	1.8	8.0	2.5
2022:M4	111.1	2.1	10.2	1.9	9.1	2.6
2022:M5	111.8	0.7	11.3	2.5	10.5	3.7
2022:M6	113.6	1.6	12.1	3.6	11.6	5.5
2022:M7	111.5	-1.8	11.6	3.6	11.3	5.5
2022:M8	111.2	-0.3	11.4	4.2	11.2	5.8
2022:M9	114.5	2.9	12.0	4.9	12.1	7.0

Source: ELSTAT, Eurostat.

**FIGURE 1.2.1
Annual % changes in National CPI sub-categories (September 2022)**



Source: ELSTAT.

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

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

Source: ELSTAT.

- +9.1% in the Hotels-Cafés-Restaurants group. This increase is mainly due to the rise in prices in Restaurants-confectioneries-café-buffets (+6.7%), and hotels-motels-inns (+25.8%).
- +2.8% in the Health group. This increase is mainly due to the increase in prices in pharmaceutical products (+5.9%), medical products (+4.1%), medical, dental and paramedical services (+1.3%) and hospital care (+0.6%).
- +3.2% in the Miscellaneous goods and services group. This increase is mainly due to the rise in prices of hairdressing salons and personal grooming establishments (+1.3%), and other appliances and articles for personal care (+6.7%).
- +2.1% in the Recreation and culture group. This increase is mainly due to the increase in prices in major durables for recreation and culture (+3.6%), small recreational items-flowers-pets (+2.8%), cinemas-theatres (+13.9%), stationary and drawing materials (+9.7%) and holiday packages (+12.0%). This increase was partially offset by the decrease in prices mainly in audiovisual and information processing equipment (-5.0%).
- +1.8% in the Education group. This increase is mainly due to the rise in prices of fees of primary (+2.1%) and secondary (+2.3%) education.

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

- -2.1% in the Communication group. This decrease is mainly due to the decrease in prices of mobile telephone equipment (-10.1%) and telephone services (-1.9%).

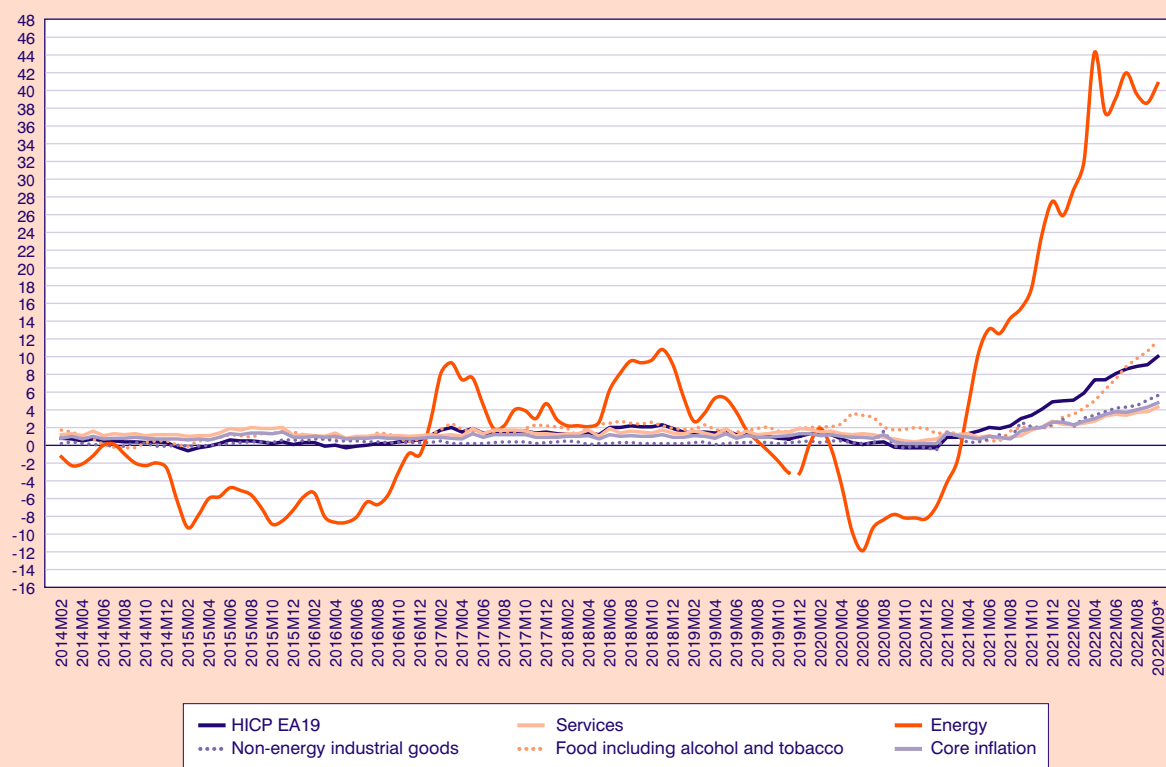
1.2.2. The Euro area

According to the flash estimates of Eurostat, inflation in the Euro area in September 2022 is expected to reach 10.0%, up from 9.1% in August and 8.9% in July. According to these estimates, core HICP inflation is expected to reach 4.8% in September 2022, higher than the 4.3% and 4.0% in August and July, respectively.

The highest annual rate of HICP inflation in the Euro area was recorded in the Energy sector (+40.8%), followed by the Food sector (+11.8%), Non-energy industrial products (+5.6%) and Services (+4.3%).

Among the Euro area countries, the highest annual rate of inflation was recorded in Estonia (+24.2%), Lithuania (+22.5%) and Latvia (+22.4%), while the lowest was in France (+6.2%), Malta (+7.3%) and Finland (+8.4%).

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



Source: Eurostat.
 * Flash Estimates.

1.2.3. Impact of high energy prices on CPI

As mentioned before, the continuous increase in energy prices had a significant impact on the inflation of our country. Under these circumstances, it is interesting to note the annual percentage change of the individual HICP of energy products in the country's domestic sector and its comparison with the corresponding Eurozone indices (Figure 1.2.3). As seen, during the first nine months of 2022, there is a significant annual percentage increase of the HICP, both in natural gas and electricity.² More specifically, and as for electricity, the index showed a steep annual percentage increase of 80% from March to May, while the increase in August reduced to 38.5% compared to the corresponding Eurozone average of 66.2%. Nevertheless, in September, the annual percentage increase was further reduced to 30.5%.³ Accordingly,

the annual percentage change of the index for natural gas showed strong fluctuations during the first nine months of 2022, a trend which is not recorded in the corresponding Eurozone index, which stood at much lower levels. Thus, the annual percentage increase in Greece followed an upward trend from June onwards, while in August, it reached 261.3%, much higher than the Eurozone average of 66.2%. In fact, in September, the annual percentage increase of the index reached 332%.

1.2.4. Evolution of energy product prices

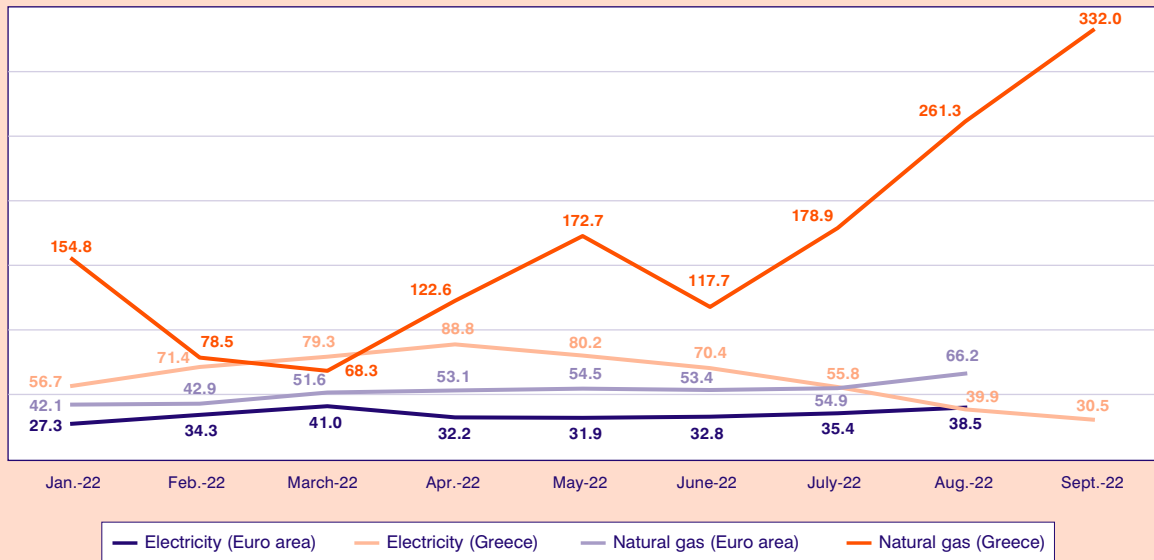
Considering the above changes, it is also interesting to examine the fluctuations of prices of the energy products in the respective periods, as well as the amount of the annual percentage change of these prices. Regarding the average monthly price of gas, and more

2. The recent data concerning the individual HICP of heating oil are not available, as the disposal of the fuel stopped from May to September.

3. Eurozone average data were not available at the time of writing.

FIGURE 1.2.3

HICP of energy products, annual percentage change, monthly data, January–September 2022



Source: Own processing of data from Eurostat.

specifically the Dutch TTF Natural Gas Futures⁴ (Figure 1.2.4), we observe the steep rise in 2022 prices compared to the corresponding prices in 2021. Especially in August 2022, the average price of natural gas reached €240/MWh, the highest price in recent years, while its annual percentage change rose to 377%. However, during September, a fluctuation in natural gas prices was recorded, leading to an encouraging downward trend towards the end of the month. Thus, the average monthly price stood at €189/MWh, and the annual percentage increase rose to 93%, much lower than in previous months. However, it has been noticed that TTF features affect the domestic market with a time lag, thus, the above decrease might have a favourable affect both on the natural gas HICP and the competitive prices of electricity from October onwards.

As is known, the large share of natural gas in the electricity generation mix of our country (about 40%) has a negative effect on electricity prices for consumers. At the same time, the energy generation by the country’s lignite-fired units, accompanied by negative

environmental effects, leads also to high production costs because of the high cost of carbon emission rights. Therefore, the evolution of CO₂ emissions prices is also a significant factor, especially today when lignite production is important for the country’s energy sufficiency and security. Figure 1.2.5 presents the evolution of this pricing during 2021-2022, as well as the annual percentage change. As shown, the price of carbon emission rights has significantly increased compared to the beginning of 2021, but lately, a more stable course has taken place, leading to a downward trend of the annual percentage change as well. The average price in August amounted to €81/ton of carbon dioxide emissions, while in September it fell to €66/ton. In fact, the price reached approximately last year’s level, i.e., September 2021, thus recording an annual percentage change of only 6%. In this case too, the reduction in price could contribute to the reduction of the cost of electricity generation in Greece.

Finally, regarding the cost of electricity in Greece, a substantial increase of the prices has taken place from

4. Due to the large trading volume on the Dutch Title Transfer Facility (TTF), these futures have been adopted as the main benchmark for the price of natural gas in the EU. However, under the new conditions created by the energy crisis, LNG transactions have increased significantly against natural gas through pipelines. Thus, TTF is no longer considered to be the most representative indicator of the average price of contracts. In this context, the European Commission intends to propose the creation of a new benchmark, combining the TTF with other indices.

FIGURE 1.2.4

Monthly average natural gas futures (left axis) and annual percentage change (right axis), monthly data, January 2021–September 2022

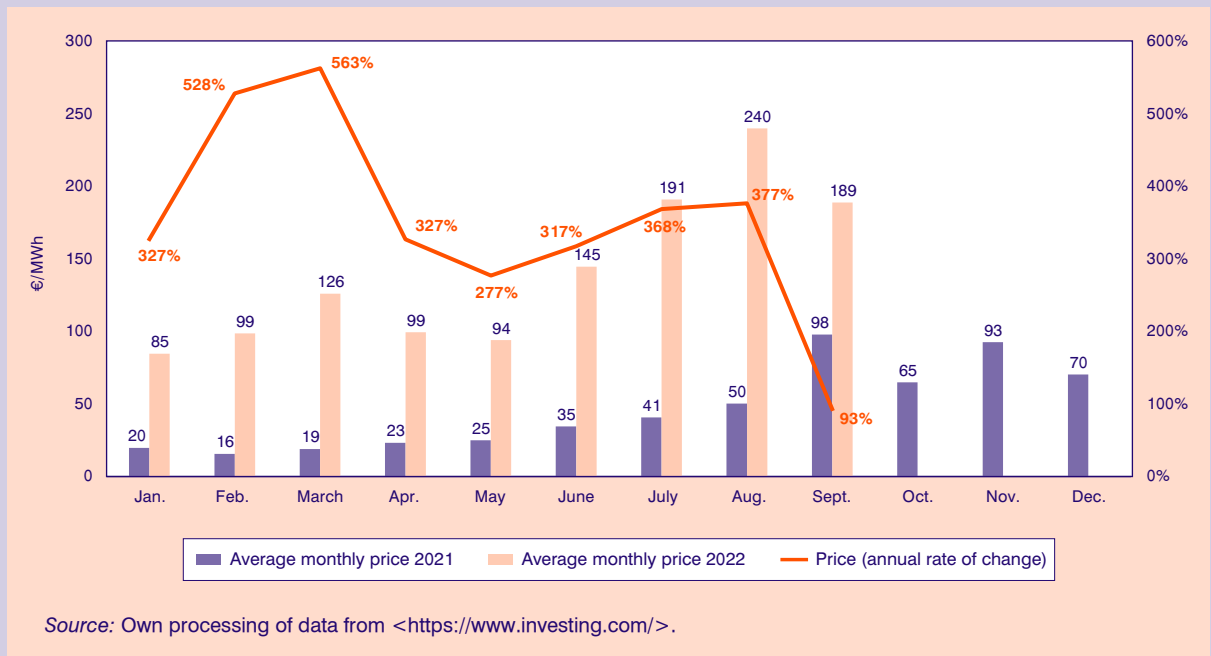
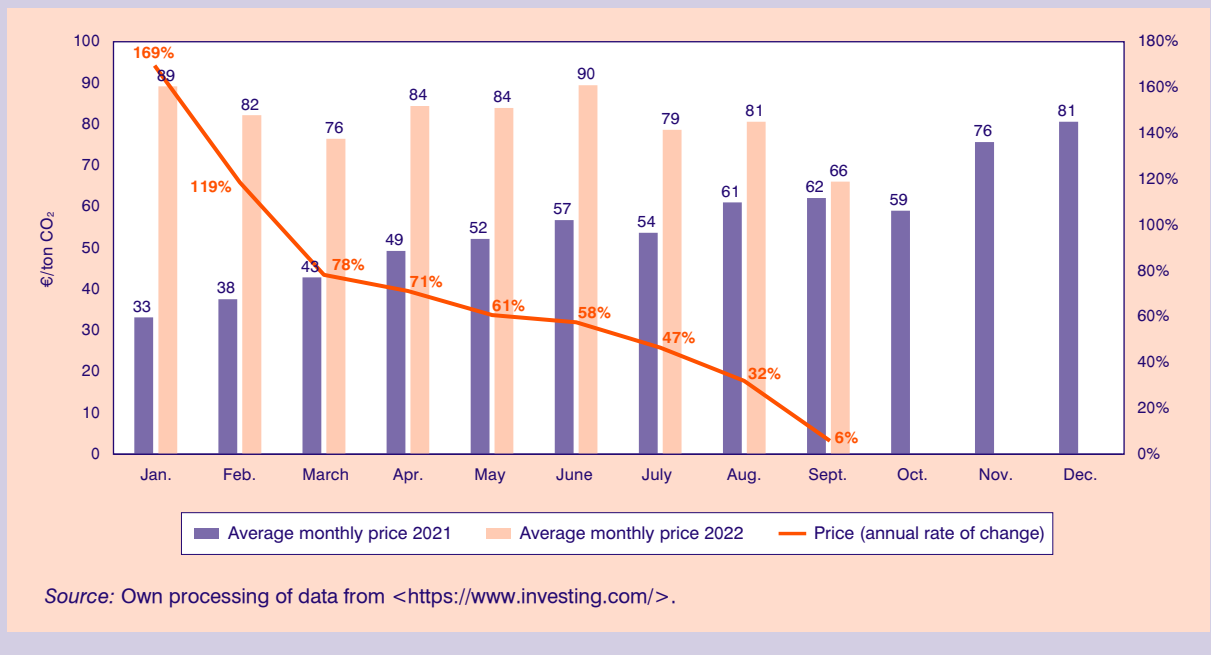


FIGURE 1.2.5

Monthly average carbon emissions futures (left axis) and annual percentage change (right axis), monthly data, January 2021 – September 2022

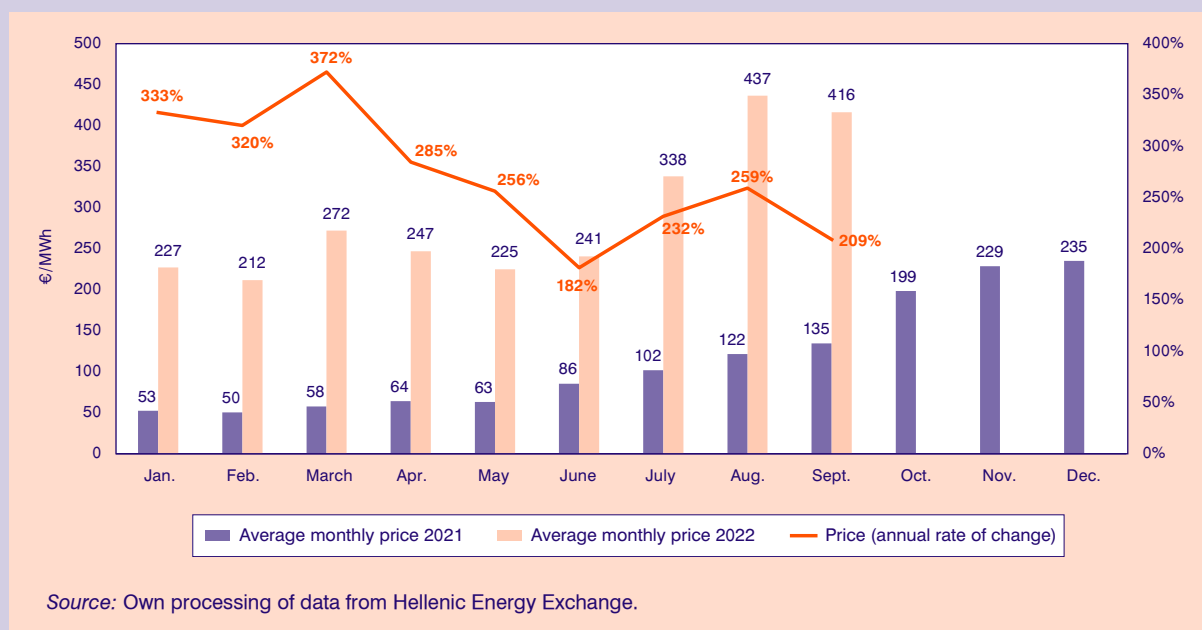


mid-2021, initially due to the restart of economic activity after the pandemic, while in 2022, this upward trend was further aggravated due to the consequences of the war in Ukraine on the global energy market. Figure

1.2.6 presents the evolution of monthly average spot prices of the Day-Ahead Market in the Hellenic Energy Exchange (HEX S.A.) during the last two years, as well as the percentage change on annual basis. In Au-

FIGURE 1.2.6

Monthly average electricity spot market prices of Day-Ahead Auctions (left axis) and annual percentage change (right axis), monthly data, January 2021 – September 2022



gust, the average price reached €437/MWh, the highest ever recorded, with an annual increase of about 260%. In September, prices exceeded €500/MWh initially, but a downward trend occurred by the end of the month. Thus, the average September price decreased to €416/MWh with an annual percentage increase of 209%.

1.2.5. European Commission initiatives to tackle the energy crisis

Aiming at mitigating the effects of the continuous rise in energy costs on households and businesses, but also at ensuring Europe’s energy security, the European Commission, during the last year, has introduced new initiatives dealing with such consequences. Hence, in October 2021, the Commission initiated a toolbox of measures that member states can use to address the impact of the sharp increases in energy prices.⁵ Addi-

tionally, in March 2022, it presented further guidelines to mitigate high energy prices of natural gas,⁶ while in May 2022, it set a series of additional short-term measures to tackle high energy prices and address possible supply disruptions from Russia.⁷

Moreover, aiming at adopting long-term strategies to manage disruptions in the global energy market, the European Commission presented, on May 18 of this year, the REPowerEU plan,⁸ concerning the transformation of Europe’s energy system and targeting both the gradual ending of the EU’s dependence on Russian fossil fuels and tackling the climate crisis. The REPowerEU plan introduces innovative measures that aim at energy savings, diversification of supplies, accelerating the rollout of renewables, reducing fossil fuel consumption in industry and transport, as well as realizing smart investments.

Finally, on September 14, the Commission presented a proposal for a Regulation to deal with high energy

5. European Commission, 2021. “Energy prices: Commission presents a toolbox of measures to tackle exceptional situation and its impacts”, Press release, 13 October 2021, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204>.

6. European Commission, 2022. “Commission outlines options to mitigate high energy prices with common gas purchases and minimum gas storage obligations”, Press release, 23 March 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_22_1936>.

7. European Commission, 2022. “Energy Markets: Commission presents short-term emergency measures and options for long-term improvements”, Press release, 18 May 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3140>.

8. European Commission, 2022. “REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition”, Press release, 18 May 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131>.

prices.⁹ The proposed interventions focus on (a) exceptional electricity demand reduction measures; (b) imposition of a temporary revenue cap on 'inframarginal' electricity producers, namely technologies with lower costs, such as renewables, nuclear and lignite that, in recent months, have been making exceptional revenues, with relatively stable operational costs and (c) establishing a temporary solidarity contribution on excess profits generated from activities in the oil, gas,

coal and refinery sectors. The scope is to redistribute the energy sector's surplus revenues to final customers in order to mitigate the impact of high retail electricity prices. These proposals were specified in the extraordinary Council of EU Energy Ministers on September 30,¹⁰ while the approval of the relevant Regulation is expected in October. At the same time, discussion about creating a new benchmark for the price of natural gas that will link TTF to other indices, as well has already started.

9. European Commission, 2022. "Energy prices: Commission proposes emergency market intervention to reduce bills for Europeans", Press release, 14 September 2022, Brussels, <https://ec.europa.eu/commission/presscorner/detail/en/ip_22_5489>.

10. European Commission, 2022. "Council agrees on emergency measures to reduce energy prices", Press release, 30 September 2022, Brussels, <<https://www.consilium.europa.eu/en/press/press-releases/2022/09/30/council-agrees-on-emergency-measures-to-reduce-energy-prices/>>.

The Council agreed on exceptional measures to reduce energy prices and, in particular (a) a voluntary overall reduction target of 10% of gross electricity consumption and a mandatory reduction target of 5% of the electricity consumption in peak hours, (b) a cap on the market revenues at €180/MWh for electricity generators that use the so-called inframarginal technologies to produce electricity and (c) a mandatory temporary solidarity contribution on taxable profits of businesses active in the crude petroleum, natural gas, coal, and refinery sectors, in the fiscal year starting in 2022 and/or 2023, which are above a 20% increase of the average yearly taxable profits since 2018. The measures will apply from 1 December 2022 to 31 December 2023, the reduction targets of energy consumption will be applicable until 31 March 2023 and the mandatory cap on market revenues until 30 June 2023.

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 updated short-term forecasts of KEPE concerning the evolution of the rate of change of real GDP in Greece for the year 2022,¹ based on 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 second quarter of 2022.

In the first half of 2022, which was characterized by significant turbulence in the European economy due to the war in Ukraine and its consequences for energy costs, inflation, and uncertainty, the Greek economy grew at high rates. The revised provisional *National Accounts* data for the first quarter of the year point to a real GDP growth rate of 8.0% on a y-o-y basis, while according to the latest provisional data for the second quarter, the corresponding growth rate of GDP reached 7.7%. To a certain extent, the performance of the Greek economy in the first half of 2022 reflects the positive impact on GDP from the gradual lifting of the restrictive measures that had been put in place to con-

tain the COVID-19 pandemic. Moreover, during this period, Greece managed to surpass pre-pandemic levels of activity, with the level of GDP in the period from January to June 2022 exceeding the corresponding figure of the first half of 2019 by 4.6% in real terms.

The above positive developments for Greece took place at a time of emerging new risks and significant disruptions for the European economy due to the war in Ukraine and the general aggravation of geopolitical tensions. In the second quarter of 2022, the uncertainty surrounding developments with respect to the war, soaring energy costs, strong inflationary pressures and disruptions in the operation of supply chains intensified concerns about the risk of serious consequences for the European economy. At the same time, during this period, the first adverse effects of these conditions on prices, production costs and indicators of economic climate and uncertainty were also felt in Greece. In the midst of these developments, the Greek economy received significant support from the adoption of new policy measures to deal with rising costs, as well as from the gradual implementation of the national Recovery and Resilience Fund projects.

The constantly changing environment and the high degree of uncertainty surrounding geopolitical and economic developments on many different fronts raise the difficulty of forecasting the course of real GDP in subsequent quarters.⁴ In this context, and bearing in mind the limitations arising from the prevailing conditions, Table 1.3.1. presents the updated econometric estimates for the rate of change of Greece's GDP in the year 2022, based on KEPE's factor model and incorporating data up to the second quarter of the year.⁵ According to these estimates, the average annual rate

1. The date of the forecast is September 26, 2022.

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.

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

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

Quarters	2022	
	2022Q3	2022Q4
Quarterly rate of change	2.83 [1.50, 4.18]	3.34 [0.73, 6.02]
Mean rate of change, 2nd half	3.09 [1.12 , 5.10]	
Mean annual rate of change*	5.45 [4.46 , 6.45]	

Note: Values in brackets indicate the lower and upper boundaries of the 95% confidence interval of the forecasts.

*The mean annual rate of change incorporates the officially available (provisional) data for the first two quarters of 2022, on a seasonally adjusted basis.

of change of the real GDP for 2022 is predicted at 5.5%, an estimate that constitutes an upward revision of the corresponding previous forecast of KEPE (4.3%). This more favorable assessment reflects the revision of provisional GDP data for the first quarter of the year and the better-than-expected performance of the economy in the second quarter. Regarding the forecast for the second half of 2022, this remains very close to KEPE's previous estimate, standing at 3.1% (from 3.2%) on average for this period on a y-o-y basis and at 2.8% and 3.3% (from 2.9% and 3.6%), respectively, for the third and fourth quarters of the year.

The above forecast suggests that the Greek economy will continue to grow through the rest of the year, although at a pace slower compared to the first two quarters. This assessment is compatible with the expected weakening of the positive effect of the lifting of restrictive measures that had been put in place to deal with the pandemic, and stems from the favourable development of most of the economic figures incorporated in the forecast, combined with a reversal in the course of some variables that already appear to have been significantly affected by the conditions mentioned above.

More specifically, for the second quarter of 2022, the observations on a non-seasonally and calendar-adjusted basis compared to the corresponding quarter of 2021 show a further large increase in private consumption, a strong recovery in exports of services and a continuation of the rising trend in fixed capital investment. At the same time, exports of goods also increased, but at a slower pace compared to previous years. Regarding the industry sector, the overall industrial production index registered a moderate increase, reflecting a

strengthening in all relevant sub-indices except energy. The turnover index in industry increased at high rates in all individual sub-categories referring to the domestic and foreign markets, a development that is, however, significantly related to the rise in the prices of industrial products. In wholesale trade, the turnover index showed a large increase, a development which is again linked to the rise in prices, while in the retail trade sector, the volume index increased in five of the eight relevant sub-categories, with the three subsectors in decline being *supermarkets*, *automotive fuel* and *food-beverages-tobacco*. A particularly strong recovery was observed for yet another quarter in the tourism sector, with travel receipts almost tripling compared to the corresponding quarter of the previous year, while developments were also favorable with regard to transport receipts, which continued to grow at a rapid pace.

Regarding the course of the domestic labor market, in the second quarter of 2022, a further improvement in conditions was observed, as the number of persons employed increased by 6.4% compared to the second quarter of the previous year and the number of unemployed persons decreased by 19.2%, respectively.

On the other hand, the growth in uncertainty had a clear effect on the yield of Greece's ten-year government bond, which, together with the spread against the corresponding German bond, marked a significant rise. At the same time, price data for the second quarter were indicative of the unfavorable developments in the cost of energy and the strong inflationary pressures that prevailed during this period. Specifically, large increases were observed in the Brent oil index and the European harmonized energy price index for Greece. A significant rise was also recorded in all in-

dicators reflecting input prices and production costs in the primary sector, industry and construction. At the same time, large increases were recorded in the consumer price index, especially in the categories of *housing* and *transport*, which are significantly affected by energy prices, while a considerable increase in the index was also observed in the categories of *durable goods-household appliances and services* and *hotels-café-restaurants*. In relation to the indicators reflecting agents' expectations and assessments regarding the economic climate in the country, developments in the second quarter of 2022, compared to the first quarter of the year, demonstrate a weakening of the economic climate in Greece and the EU, with business expectations in Greece nevertheless remaining relatively high, especially in the construction and industry sectors.

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. Geopolitical developments and the energy issue are currently the primary sources of concern for Europe and Greece, especially in view of the winter season. At the same time, and in connection with these issues, the course of the economy in the next period may be faced with serious consequences from a possible continuation of intense inflationary pressures and what this may entail for uncertainty, the loss of purchasing power of households, the cost of production and the course of interest rates. On the other hand, upside risks to the forecast include the strong recovery of Greece's tourism sector, which, according to the latest indications, continued in the third quarter of the year, the possibility of continuation of support measures against high energy prices on a scale compatible with meeting the fiscal targets, the implementation of projects and reforms within the context of the Recovery and Resilience Fund and the intensification of investments on energy saving and the reduction of energy dependence.

1.4. International trends hold back the stock market

Fotini Economou

1.4.1. Introduction

The fear that the global energy crisis may deteriorate, along with inflationary pressures and interest rate increases, create an uncertain investment climate, with the Athens Stock Exchange (ATHEX) ending the second quarter of 2022 with a negative sign for the majority of the stock indices. At the same time, the upward course of government bond yields continues, increasing the cost of borrowing for the Greek government.

In addition, the goal of returning to investment grade remains. In June 2022, the R&I rating agency upgraded the credit rating of the Greek economy to BB+ with a stable outlook, i.e., one step away from investment grade, in line with previous assessments by the international agencies Standard & Poor's, DBRS and SCOPE Ratings. Note that Moody's maintained the Ba3 rating for Greece with a stable outlook in the September 2022 review, and Fitch also maintained Greece's BB rating with a positive outlook in the July 2022 review.

This article presents the course of the Greek stock market during the eight months of 2022, with an emphasis on key stock market indices and data. In addition, the course of the bond market for the same period is presented. The last section of the article summarizes and concludes.

1.4.2. The course of the stock market during the eight months of 2022

The stock market continues to face multiple challenges, with the effects of the global energy crisis and inflationary pressures being reflected in the course of stock market indices.

According to ATHEX data for the eight months of 2022 (Table 1.4.1), the returns since the beginning of the year are negative for the majority of the stock indices. More specifically, the Athex Composite Share Price Index recorded losses of -4.14%, reaching 856.36 points on 31/8/2022 from 893.34 points at the end of December 2021. The course of the FTSE/Athex Large Cap

and Athex ESG Index was similar, recording losses of -4.11% and -4.37%, respectively. Mid- and small-caps recorded the biggest losses, with the Hellenic Mid & Small Cap Index, FTSE/Athex Mid Cap Index and FTSE/ATHEX Mid & Small Cap Factor-Weighted Index losing -7.60%, -9.00% and -10.50%, respectively, since the beginning of the year.

The majority of the sectoral indices also moved downwards for the same period, with the FTSE/Athex Utilities (-22.30%), FTSE/Athex Basic Resources (-22.55%), FTSE/Athex Food & Beverage (-23.15%), FTSE/Athex Personal Products (-28.35%) and FTSE/Athex Health Care (-33.61%) recording losses of more than 20%. Positive exceptions were the FTSE/Athex Insurance and FTSE/Athex Energy with significant positive returns of 53.26% and 27.95%, respectively.

According to ATHEX data (2022), 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 €56.06 billion at the end of August 2022, increased by 0.78% compared to the end of the previous month (€55.62 billion), reduced, however, compared to the end of December 2021, which was at €56.53 billion. The participation of foreign investors (with the participation of the Financial Stability Fund) was 63.90% at the end of August 2022, recording inflows of €93.63 million and 56.4% of total transactions in August 2022. The cash value of settled transactions reached €1,257.84 million in August 2022, increased by 16.61% compared to the previous month and by 25.23% compared to August 2021. In addition, the cash value of settled transactions of equities reached €1,238.50 million in August 2022, increased compared to the previous month, which was at €1,050.52 million, as well as compared to August 2021, which was at €972.39 million. Overall, the cash value of settled transactions of equities was increased for the eight months of 2022, €13,066.80 million from €12,087.49 million in the respective eight-month period of 2021.

Moreover, the uncertainty about the course of the stock market was also reflected in the levels of the KEPE GRIV implied volatility index, the so-called "fear" index, recording an increase since the beginning of 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. More specifically, the KEPE GRIV index reached 31.62% on 31/8/2022 from 28.19% on 29/7/2022. The

TABLE 1.4.1 Prices and returns for selected indices of the ATHEX (31/8/2022)

	31/8/2022	Year min	Year max	Year change (%)
FTSE/Athex Large Cap	2,060.62	1,853.39	2,384.15	-4.11%
Athex Composite Share Price Index	856.36	778.84	973.27	-4.14%
Athex ESG Index	969.11	867.88	1,131.24	-4.37%
Athex All Share Index	216.28	198.92	248.43	-5.99%
Hellenic Mid & Small Cap Index	1,268.57	1,181.80	1,451.84	-7.60%
FTSE/Athex Mid Cap Index	1,357.61	1,250.58	1,615.19	-9.00%
FTSE/ATHEX Mid & Small Cap Factor-Weighted Index	4,178.33	3,920.25	5,109.62	-10.50%
FTSE/Athex Insurance	3,057.35	1,994.86	3,171.11	53.26%
FTSE/Athex Energy	4,405.88	3,339.51	4,463.27	27.95%
FTSE/Athex Consumer Goods & Services	8,142.97	7,260.09	8,861.27	12.16%
FTSE/Athex Travel & Leisure	2,191.95	1,858.00	2,327.38	11.66%
FTSE/Athex Construction & Materials	2,999.99	2,533.53	3,209.28	0.71%
FTSE/Athex Industrial Goods & Services	3,678.12	3,065.29	4,306.76	-1.44%
FTSE/Athex Telecommunications	4,431.83	4,377.01	5,170.21	-2.50%
FTSE/Athex Banks	555.98	443.16	752.66	-3.30%
FTSE/Athex Technology	1,937.11	1,679.98	2,347.72	-9.77%
FTSE/Athex Financial Services	673.21	619.08	831.60	-10.12%
FTSE/ATHEX Real Estate	4,113.23	3,592.38	5,179.83	-14.52%
FTSE/Athex Retail	833.86	746.44	1,150.20	-15.29%
FTSE/Athex Utilities	4,002.56	3,692.82	5,208.71	-22.30%
FTSE/Athex Basic Resources	5,729.76	5,412.75	8,197.29	-22.55%
FTSE/Athex Food & Beverage	8,709.56	6,627.16	12,058.75	-23.15%
FTSE/Athex Personal Products	6,251.21	6,251.21	8,868.58	-28.35%
FTSE/Athex Health Care	366.81	305.68	611.35	-33.61%

Source: Daily official list of trading activity of the ATHEX (31/8/2022).

average daily value of the index increased in August 2022, reaching 31.16% from 26.93% in July 2022, with the index remaining below its historical average level (since January 2004) for the Greek market, which stands at 32.61%. The index increased compared to the end of 2021, when it was 28.10% on 12/31/2021, recording significant fluctuations within the year. The average daily value of the index also increased, reaching 31.16% in August 2022 from 30.67% in December 2021. The evolution of the index during the eight months of 2022 reflects an increase in uncertainty for the expected short-term course of the Greek market compared to the end of 2021, given the war in Ukraine,

the global energy crisis and the resulting inflationary pressures.

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

The unfavorable international situation could not leave the global bond market unaffected, leading to higher interest rates and increased borrowing costs for the Greek government. Note that in September 2022, the ECB increased its three key interest rates by 75 basis points with the aim of a timely return of inflation to the

ECB's medium-term target of 2%, following the previous increase by 50 basis points in July 2022.¹

There have been successful issues of Greek Government T-bills since the beginning of 2022 (Table 1.4.2). We are now out of the negative yield territory for all 13-, 26- and 52-week T-bills issued from June 2022 onwards, with higher rates compared to the end of 2021.

The course of the interest rates of the Greek Government benchmark bonds was also upward, as shown in Figure 1.4.1. According to Bank of Greece data, the average monthly yield of the Greek government bonds increased in August 2022, both compared to August 2021 and compared to December 2021 for all maturities, with the seven-year bond having the largest

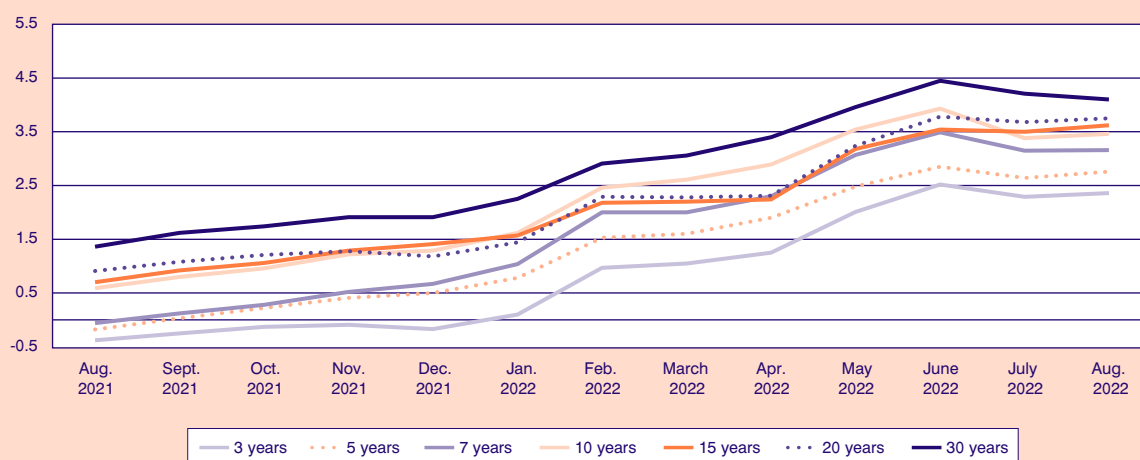
TABLE 1.4.2 Greek Government T-bills yields (issues from the end of 2021 to 7/9/2022)

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

Source: Ministry of Finance.

FIGURE 1.4.1

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



Source: Bank of Greece.

1. See <ECB Press Release of the 8th September 2022> and <ECB Press Release of the 21st July 2022>.

increase compared to August 2021. Note that, given the conditions, the most recent Greek government bond issue took place in July 2022, where the Greek government raised €1 billion from the issuance of five-year Floating Rate Notes, with the interest rate at three-month Euribor plus 123 basis points.

The corporate bond indices of the ATHEX also moved downwards. According to ATHEX data, the Hellenic Corporate Bond Price Index² recorded losses of -8.78% and the Hellenic Corporate Bond Index³ lost -6.97% in the eight months of 2022.⁴ However, for the same period, the cash value of settled transactions of corporate bonds increased, reaching €168.89 million in the eight months of 2022 from €131.76 million in the eight months of 2021. Note that the corporate bond market is of particular interest, with successful issues in 2022 as well, after a year of increased issuing activity of corporate bonds in 2021. Twenty corporate bonds are now traded in the corporate bond market of the ATHEX, while, in the first half of 2022, €200 million was raised from the issuance of two corporate bonds, with successful issuances continuing in July 2022. Although funds raised through corporate bond issues are lower compared to the first half of 2021, they constitute approximately 74% of the raised capital of the regulated market in the first half of 2022.⁵

1.4.4. Conclusions

The deterioration of international financial conditions and the concern about the course of the global economy have affected the course of the stock market and the bond market, as expected. The uncertainty regarding the course of the global energy crisis, inflationary pressures and interest rate increases were reflected in the course of the ATHEX, which completed the eight months of 2022 with negative returns for the majority of stock indices, while the returns of Greek Government T-bills and bonds increased. The significant issuance activity of the corporate bond market in 2021, with successful issues in 2022 as well, provides an alternative source of financing for businesses. In the current unfavorable international situation, the Greek capital market should promote growth, while facing successive challenges and intense uncertainty. At the same time, the goal of returning to investment grade remains, with Greece being close to achieving it.

References

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Athens Exchange Group, Monthly Statistics Bulletin AxiaNumbers, Securities Market, August 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.

4. Returns on 29/8/2022 according to the daily official list of trading activity of the ATHEX of 31/8/2022.

5. See ATHEX, Capital Raised, Securities Market 1st semester 2021 and 2022.

1.5. Recent developments and prospects of global economic activity: Slowing rates of economic recovery amid geopolitical, economic and climate disruptions

Aristotelis Koutroulis

The world is going through a period of major economic episodes. Russia's war on Ukraine, the sharp increase in the cost of living, the energy crisis in Europe and adverse climate changes have destabilized the global economy and significantly slowed the pace of economic recovery in most of the world's economies. Once again, economic policy is expected to play an important role in the restoration of economic normality.

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

Economic activity

The international economic environment exhibits destabilizing tendencies. The bleak outlook for the global economy reflects the economic impact of the continued war in Ukraine, the soaring cost of living amid strong inflationary pressures, and the significant slowdown in the recovery of the world's three largest economies, namely the US, China, and the Eurozone.

Regarding the war in Ukraine, so far, the worst-case scenario seems to be confirmed – months of unabated hostilities, repeated inflammatory statements by political leaders, recriminations of intransigence and broken lines of communication between Russia and the West. Given the role of Russia and Ukraine in the global production and supply of energy, food and other basic products, these developments have inevitably driven the corresponding international prices to historically high levels, increasing to unimaginable heights both the cost of producing goods and services and the cost of living in most regions of the world.

Accelerating inflation and stronger inflationary expectations have forced major central banks into a synchronized shift of their policies from an accommoda-

tive direction to a restrictive one. Although this policy seems necessary to temper inflationary expectations, it is expected to deteriorate financing conditions for households and businesses, and therefore, negatively affect overall spending for consumption and investment purposes.

It is noteworthy that the above developments have been recorded in an environment of multiple pending issues and high uncertainty. For example, despite the weakening of the Covid-19 disease, new waves of disease variants in China and the strict lockdowns to deal with them prevent the full restoration of normality in global value chains. At the same time, the high incidence of extreme weather events due to climate change appears to have adverse effects on global food production, resulting in shortages and upward pressure on prices. Finally, great concern has been caused by the sharp increase in public debt in most economies as high interest rates, the appreciation of the US dollar, and the need to support the economically weaker population groups are anything but conducive to the improvement of the fiscal position of the states and the smooth service of public debt.

Overall, the rate of expansion of the global economy in 2022 is expected to be limited to 3.0%, i.e., 3 percentage points lower than in 2021. As the general economic climate is not expected to improve immediately, the rate of growth of global GDP is estimated to decrease further, reaching approximately 2.5% in 2023 (see Table 1.5.1).

Inflation and Unemployment

Owing to excess demand, supply-side bottlenecks, and increases in energy prices and transport costs, inflation in many economies has been on the rise since the second half of 2021. With the outbreak of war, last March's large increases in international oil, gas and food prices played a catalytic role in sending inflation to levels well above central bank targets.

Over the last six months, inflationary pressures have widened as increased production and transport costs have added upward pressures to the prices of a wide range of products. The rise in nominal wages (e.g., in the USA and the UK) seems to have contributed to this development as well (OECD, 2022). According to estimates by the International Monetary Fund (IMF), the average annual rate of change of consumer prices in advanced (developing) economies is expected to reach 7.5% (11%) in 2022.

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

	2021*		2022**		2023**	
	IMF	OECD	IMF	OECD	IMF	OECD
World economy	6	5.8	3.2	3	2.7	2.2
Advanced economies	5.2	:	2.4	:	1.1	:
USA	5.7	5.7	1.6	1.5	1	0.5
Eurozone	5.2	5.2	3.1	3.1	0.5	0.3
Japan	1.7	1.7	1.7	1.6	1.6	1.4
United Kingdom	7.4	7.4	3.6	3.4	0.3	0
Developing economies	6.6	:	3.7	:	3.7	:
Brazil	4.6	4.9	2.8	2.5	1	0.8
Russia	4.7	4.7	-3.4	-5.5	-2.3	-4.5
India	8.7	8.7	6.8	6.9	4.9	5.7
China	8.1	8.1	3.2	3.2	4.4	4.7

Sources: IMF, *World Economic Outlook*, October 2022; OECD, *OECD Economic Outlook, Interim Report*, September 2022.

* Estimates, ** 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.

In 2023, inflation is expected to moderate, falling to 3.1% in advanced economies and to 6.1% in developing economies. This estimation reflects a combination of tighter monetary policy with slowing economic activity worldwide.

Despite the dull picture of the global economy, the conditions prevailing in labor markets around the world appear to be particularly positive. Indeed, in several member states of the Organization for Economic Co-operation & Development (OECD), unemployment rates have dropped to a twenty-year low. Equally low is the ratio of the number of unemployed people seeking a job to the total number of vacancies (OECD, 2022). According to IMF estimates, most European economies will register reductions in unemployment rates in 2022.

Nevertheless, economies appear to have exhausted the scope for further reductions in unemployment. With monetary tightening by most central banks and sharply lower global growth, unemployment rates are expected to trend upwards in 2023.

1.5.2. Global trade and commodity prices

The rate of the expansion of global trade (goods and services) is estimated to decline in 2022 (see Table 1.5.2). Among the factors that inhibited the expansion of international trade, the major one is related to the large slowdown of global production and the steep rise of energy prices. Subdued manufacturing activity, the slow restoration of the smooth functioning of global value chains, and the large appreciation of the US dollar have had a negative impact as well.

The rate of expansion of international trade is projected to stand at 2.5% in 2023. The factors that explain this moderation are related to the weak recovery of the global economy and the maintenance of international prices of energy and other basic products at high levels.

International commodity prices soared to record highs this year. This assessment primarily concerns energy (natural gas, oil, coal) and agricultural products, as basic metals prices have registered a slight decline.

TABLE 1.5.2 World trade volume¹
(annual percentage changes, goods and services)

		2021*	2022**	2023**
Volume of international trade		10.1	4.3	2.5
Imports	Advanced economies	9.5	6	2
	Developing economies	11.8	2.4	3
Exports	Advanced economies	8.7	4.2	2.5
	Developing economies	11.8	3.3	2.9

Source: IMF, *World Economic Outlook*, October 2022.

* Estimates, ** Projections.

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

Given the prices that prevail on futures markets, oil prices are projected to gradually decline in 2023. As for food commodities, variations of international prices will depend on weather conditions, the prices of raw materials widely used in agriculture, and the degree of compliance with international agreements regarding agricultural exports from Ukraine.

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2. Fiscal developments

KEPE, *Greek Economic Outlook*, issue 49, 2022, pp. 32-38

State Budget, public debt and fiscal figures perspectives

Elisavet I. Nitsi

2.1. The 2022 State Budget execution and the 2023 Preliminary Draft State Budget

The 2023 Preliminary Draft State Budget was recently submitted to the Greek Parliament. The Draft, in addition to the 2023 Budget, also contains estimations of both the macroeconomic figures and the execution of the 2022 Budget. Table 2.1.1 presents the State Budget data of 2022 and 2023 as well as the Medium-Term Fiscal Strategy Framework (MTFS) 2022–2025.

The 2022 State Budget execution

For the present year, 2022, and according to the data, the real Gross Domestic Product (GDP) growth rate of the country is estimated to reach 5.3%. This forecast of the Ministry of Finance is related to the better-than-expected performance of the Greek economy in the first half of the year, the revised upward estimate for annual tourism revenues and the increased amount of support measures to deal with the energy crisis. This estimate is higher than the forecasts of both the 2022 State Budget, by 0.8%, and the April 2022 Stability Program, by 2.2%. However, it should be noted that the GDP growth rate forecast in the 2022-2025 MTFS for 2022 amounted to 6.2%. It is, though, important to emphasize that the 2022-2025 MTFS was drawn up at a time when the geopolitical developments could not have been predicted, nor could the major energy and financial crises that followed with the surge in product prices; therefore, the presentation of these forecasts will not particularly weigh on the analysis that follows. However, the data of the execution of the 2021 State Budget from the excessive deficit procedure (EDP) of April 2022 will be used.

The 2022 fiscal figures of the Draft Budget of 2023 display a deviation from the 2022 Budget's forecasts,

as it was submitted. More specifically, revenues are expected at 61 billion euros (29% of GDP), increased by 5.5 billion euros or 10% compared to the 2022 Budget forecast, and 7.7 billion euros or 14.4% compared to 2021. This increase will mainly occur from VAT collection of 2.6 billion euros or 13.7%, revenue refunds of 870 million euros, transfers of 1.5 billion euros or 19.8% and personal income tax of 786 million euros or 7.6%. The increase in tax revenues is due in terms of VAT to the strong inflationary pressures that have arisen worldwide due to the energy crisis, which mainly affects indirect taxes and in particular VAT, while for income tax to the restart of the economy and the subsequent increase in economic activity that increased workers' incomes and therefore tax returns. Transfers are increased due to increased PIP revenues, as well as revenue collection from ANFAs and SMPs and EFSF interest refunds, which were not anticipated. Finally, refunds of unduly collected revenue are presented due to increased VAT refunds.

Accordingly, the expenditures are estimated at 72.5 billion euros (34.5% of GDP), increased by 6.8 billion euros or 10.5% from the 2022 Budget and 1.8 billion euros or 2.6% from 2021. This increase arises mainly from transfers, by 2.9 billion euros or 9.7%, non-allocated expenditure by 1.3 billion euros or 9.6% and purchases of goods and services, which doubled, showing an increase of 1.1 billion euros. This increase is primarily due to the increase in State Budget expenditures to deal with the energy crisis as a result of the adverse geopolitical developments. The urgency of these needs can also be seen from the fact that the allocation of additional funds was implemented with the passing of two supplementary budgets.

These discrepancies resulted in an increased estimate for the Primary State Budget deficit, according to the ESA, at 5.5 billion euros (2.6% of GDP), increased by 882 million euros or 19.1% compared to its 2022 Budget forecast, while it is half of the primary deficit of 2021, i.e., reduced by 6.4 billion euros or 53.7%. Accordingly, the estimated figures of the State Budget Balance according to the ESA of 2022 are expected to reach 11.5 billion euros (5.5% of GDP) and show a discrepancy of 1.3 billion euros or 13.1% and -5.9

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

	2021		2022		2023	
	DYE April 2022	Budget forecast 2022	MTFS 2022-2025	Preliminary Draft Budget Estimate 2023	MTFS 2022-2025	Preliminary Draft Budget forecast 2023
State Budget						
Net revenue	53,280	55,425	54,822	60,962	56,639	61,488
Taxes	48,243	50,055	49,433	54,608	53,057	56,190
From which:						
VAT	17,294	18,755	18,797	21,326	19,668	21,889
Excise taxes	6,686	7,067	7,009	7,113	7,122	7,143
Property taxes	2,645	2,503	2,578	2,381	2,541	2,380
Personal income tax	10,340	10,352	10,157	11,138	11,437	11,180
Business income tax	3,571	3,794	3,211	4,118	4,411	4,714
Other current taxes	2,169	2,213	2,404	2,345	2,465	2,402
Social contributions	55	55	55	55	55	55
Transfers	7,052	7,567	7,164	9,065	6,458	6,644
Sales of goods and services	598	665	726	819	828	936
Other current revenue	2,297	2,027	2,289	2,222	3,107	3,528
Sales of fixed assets	-1	13	26	19	183	16
Tax refunds	4,966	4,957	4,290	5,827	4,320	5,881

TABLE 2.1.1 (continued)

	2021		2022		2023	
	DYE	Budget forecast	MTFS	Preliminary Draft Budget	MTFS	Preliminary Draft
	April 2022	2022	2022-2025	Estimate 2023	2022-2025	Budget forecast 2023
Expenditure¹	70,661	65,594	62,994	72,464	62,571	69,411
Compensation of employees	13,494	13,599	13,468	13,659	13,997	13,672
Social benefits	269	221	198	446	184	398
Transfers	37,743	29,825	29,548	32,711	29,424	31,433
Purchases of goods and services	2,322	1,136	1,202	2,266	1,057	1,430
Subsidies	361	80	80	412	80	80
Interest payments (gross basis)	5,498	5,550	5,600	6,000	5,600	7,000
Other current expenditure	420	101	51	91	51	81
Non-allocated expenditure (without PIB)	8,916	13,922	11,665	15,259	11,565	15,110
Purchase of fixed assets	1,638	1,160	632	1,620	613	207
Public Investment Program (PIP)²						
Revenue	4,693	4,490	4,290	4,932	4,320	4,436
Expenditure	8,694	7,800	7,250	8,800	7,000	8,300
Recovery and Resilience Fund³	307	3,199	3,199	3,199	3,199	3,466
State Budget Primary Balance by ESA⁴	-11,884	-4,620	-2,572	-5,502	3,068	-938
% GDP	-6.5%	-2.5%	-1.4%	-2.6%	1.6%	-0.4%
State Budget Balance by ESA⁴	-17,382	-10,170	-8,172	-11,502	-3,932	-7,923
% GDP	-9.5%	-5.4%	-4.4%	-5.5%	-2.0%	-3.6%
GDP	182,830	187,278	184,658	209,943	194,564	220,974

Source: Preliminary Draft State Budget 2023, Ministry of Finance, State Budget Introductory Report 2022, Ministry of Finance, Medium-Term Fiscal Strategy 2022-2025, Ministry of Finance.

Notes:

1. The expenses of the central administration are analyzed according to the major categories of the p.d. 54/2018 (A' 103).
2. PIP revenues are included in transfers and other current revenues, while PIP expenses are included in appropriations under allocation.
3. The revenues of the Recovery and Resilience Fund are included in the transfers, while the corresponding expenses are included in the appropriations under allocation.
4. Deficit (-)/Surplus (+).

billion euros or -33.8%, respectively. It is important to mention that the expenditures of the Public Investment Program (PIP) have also increased by 1 billion euros or 12.8% compared to the Budget forecast and 106 million euros or 1.2% in relation to the expenditures for the 2021 PIP, but mainly because a disbursement from the Recovery and Resilience Fund of 3.20 billion euros or 1.5% of GDP is expected, which demonstrates that there is an investment orientation.

Preliminary Draft Budget 2023

Regarding the 2023 Preliminary Draft Budget, the macroeconomic forecast for the country's GDP growth rate is 2.1%, lower than 2022, though the Greek economy will continue to grow, due both to the increase in economic activity and to investment spending due to the resources flow into the Greek economy from the PIP and the Recovery and Resilience Fund (RRF). However, this forecast is higher than the Eurozone average (1.4% according to the spring forecasts and 0.9% according to the ECB's September 2022 forecasts). The lower expected growth of the Greek economy is due to the increased risks that arise mainly from the geopolitical developments and the development of the war in Ukraine both in terms of its duration and the sanctions imposed, as well as the conditions for supplying Europe with natural gas.

In fiscal terms, the Preliminary Draft foresees a significant reduction of the State Budget's deficits with a simultaneous increase of revenues and a reduction of expenditures compared to the estimates for 2022. The State Budget's primary result, according to the ESA, will be restricted to a deficit of 939 million euros (0.4% of GDP), while the total result will be 7.9 billion euros (3.6% of GDP), reduced by 4.6 billion euros or 83% and 3.6 billion euros or 31.1%, respectively.

More specifically, net revenues, expected to reach 61.5 billion euros (27.8% of GDP), are increased by 526 million euros or 0.9%. The increase in revenue is projected to come from an increase in VAT and Income tax collectability, mainly from businesses (563 million euros or 2.6% and 596 million euros or 14.5%, respectively), increases which, again, will come from the collection of indirect and direct taxes due to the increase in inflation from the energy and geopolitical crises. Expenditures will reach 69.5 billion (31.4% of GDP), reduced by 3.1 billion euros or 4.2% compared to the 2022 estimates from the 2023 State Budget Draft and will arise from Transfers (1.3 billion euros or 3.8% more than in 2022)

and, secondly, from Purchases of goods and services (836 million euros or 36.9%). In addition, 3.5 billion euros are expected from the Recovery and Resilience Fund, which will be used for the implementation of actions included in the National Recovery and Resilience Plan "Greece 2.0", as well as 8.3 billion euros from the PIP, mainly through the execution of programs that are part of the new NSRF 2021-2027.

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

According to the latest data available from the General Accounting Office,¹ for the second quarter of 2022, the Central Government's debt amounted to 394.18 billion euros, showing a decrease of 364 million euros (0.1%) compared to the previous quarter, while increased by 5.9 billion euros (1.5%) in relation to end of the year 2021 and 6.8 billion euros (1.8%) compared to the corresponding quarter of 2021. In addition, cash deposits decreased by 1.8 billion euros (9.5%) compared to the previous quarter, by 170 million euros (1.0%) compared to the end of 2021 and by 1.4 billion euros (7.7%) compared to the corresponding quarter of 2021.

The composition of Central Government debt in the second quarter of 2022 is presented in Table 2.2.1. The Central Government's debt is in fixed interest rate. There is a change in the composition of the debt in favor of fixed interest, both compared to the previous quarter (99.1% and 0.9%) and compared to the corresponding quarter of 2021 (98.5% and 3.5%, respectively). There is a corresponding change in favor of tradable debt over non-tradeable, which is 24.9% and 75.1%, respectively, during the period under review. Finally, the Central Administration's debt is entirely in euros, while in the previous period, it also had 0.5% in foreign currency. Finally, guarantees of the Greek State, amounting to 30.2 billion euros, showed a very small drop (350 million euros or 1.1%) compared to the previous quarter, after the significant increase in the previous period, while in comparison to the corresponding quarter of 2021 are approximately 40% more.

The distribution of the debt, based on its remaining duration in the first half of 2022, is reflected in Table 2.2.2. Short-term Greek government securities (with a maturity of less than one year) of the Greek State represent 16.4% of the total, against 10.3% from the medium-term securities (with a maturity of one to five years), and 73.3% from long-term issues (maturity after

1. Public Debt Bulletin, June 2022, General Accounting Office, Ministry of Finance.

TABLE 2.2.1 Central Government debt¹ (in million €)*

Period	2021 (B' quar.)	2021 (D' quar.)	2022 (A' quar.)	2022 (B' quar.)
Outstanding Central Government debt	387,328.87	388,337.41	394,547.18	394,182.48
Debt by type of interest rate				
Fixed rate ²	381,518.94	384,065.70	390,996.26	394,182.48
Floating rate ^{2,3}	5,809.93	4,271.74	3,550.92	0
Debt by way of trading				
Tradable	92,571.60	94,754.33	95,480.42	98,151.44
Non-Tradable	294,757.27	295,136.43	299,066.76	296,031.04
Debt by currency				
Eurozone	386,554.21	387,560.74	392,574.44	394,182.48
Non-eurozone currencies	774.66	1,165.01	1,972.74	0
Cash deposits of the H.R.⁴	18,484.40	17,230.10	18,856.30	17,059.4
Debt guaranteed by the Central Government	21,540.33	22,888.15	30,503.35	30,153.53

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. Including balance of dedicated cash buffer account, 15,697.3 million euros on 31/3/2021 & 30/6/2021.
- * Estimates.

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

Period	2021 (B' quar.)	2021 (D' quar.)	2022 (A' quar.)	2022 (B' quar.)
Total volume	387,328.87	388,337.41	394,547.18	394,182.48
Short-term (up to 1 year)	53,053.05	56,742.38	66,872.07	64,742.23
Medium-term (1 to 5 years)	43,327.99	42,084.97	37,280.81	40,446.51
Long-term (more than 5 years)	290,947.83	289,510.06	290,394.30	288,993.75

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

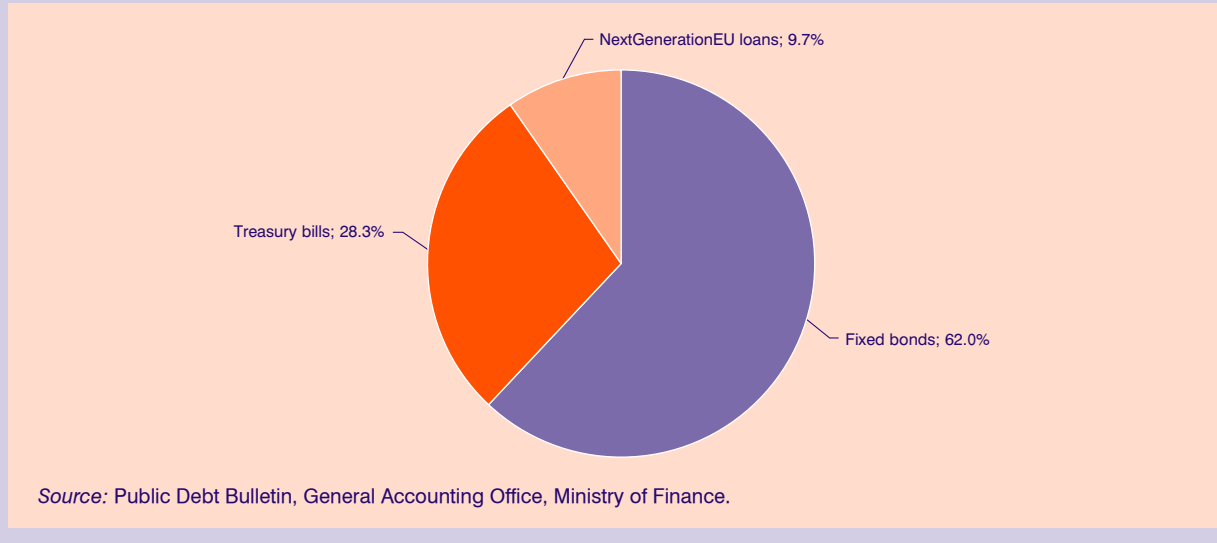
* It concerns the volume of bonds, treasury bills and short-term securities and not the total debt of the Central Administration.

five years) from 16.9%, 9.4% and 73.6%, respectively, which were in the previous quarter of 2022. Compared to the corresponding quarter of 2021, an increase in the share of short-term and medium-term securities and a corresponding reduction in long-term securities is exhibited.

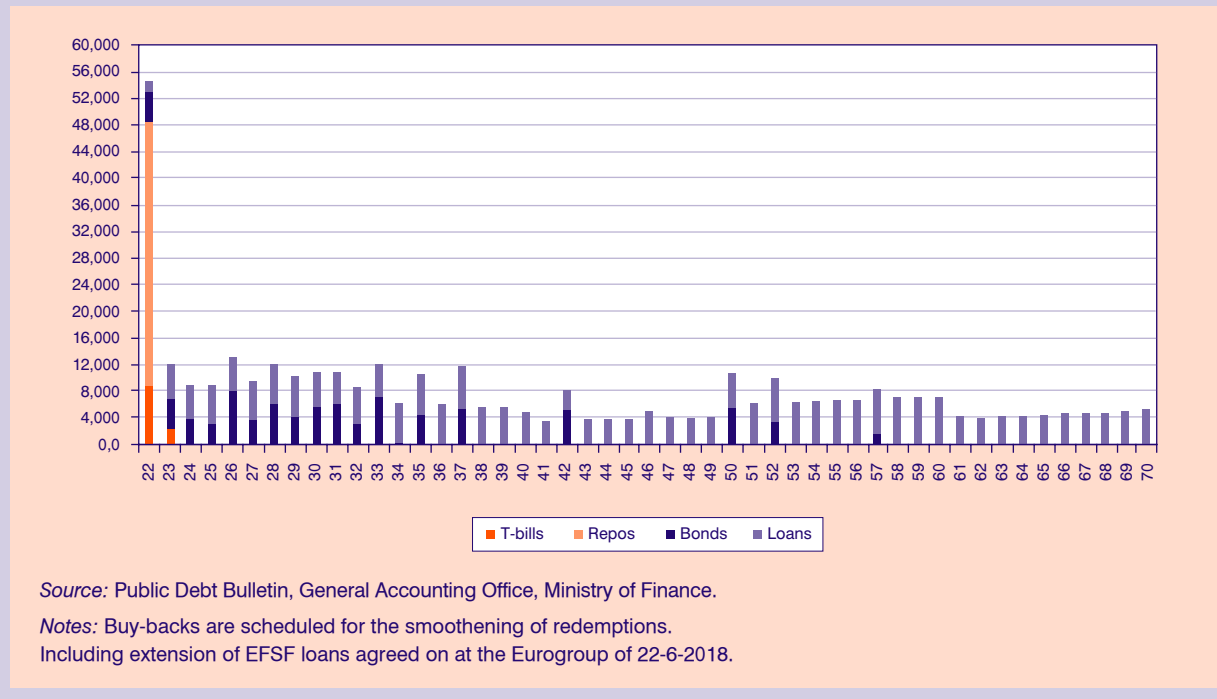
The average residual maturity of the total Central Government debt stood at 18.17 years, slightly decreased

from that of 18.98 years in the corresponding quarter of 2021. It should be noted that the average residual maturity of the total Central Government debt has tripled since the country's entry into the support mechanism, which amounted to 7.65 years in the second quarter of 2010. Furthermore, regarding the new borrowing of the Greek government during the reporting period, the weighted average maturity rose to 4.90 years, almost

GRAPH 2.2.1
Composition of new borrowing, A' Semester 2022



GRAPH 2.2.2
Redemption schedule of Budgetary Central Government Debt on 30/6/2022 (amounts in million euro)



half of that of 2021, which was 9.80 years, very close to the level of 4.05 years at which it had formed at the end of 2019.

The new borrowing for the first half of 2022 decomposes to 62% of treasury bills, 28.3% of fixed bonds and only 9.7% comes from the European recovery instrument NextGenerationEU (NGEU) (Graph 2.2.1).

Graph 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 current year (2022), 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.

2.3. Fiscal figures perspectives

The Draft State Budget of 2023 was drawn up under high uncertainty conditions, both in terms of geopolitical developments at the global level and the maintenance of fiscal balance. In this context, solutions are being sought regarding the challenges arising from the energy crisis, the inflationary pressure on households and businesses, the health crisis which, even if it has subsided, continues to burden the costs of the health system, as well as the increased costs for the necessary defense armor of the country.

The forecast for growth in 2023 at 2.1%, although very moderate compared to 2022 (5.3%), can be considered particularly optimistic because it is based on assumptions whose realization is doubtful. Key conditions are the weakening of inflationary pressures, the maintenance of demand, the promotion of significant investments through the Public Investment Program and the Recovery and Resilience Fund, as well as a partial normalization of the energy markets.

If, on the contrary, geopolitical challenges and the development of the war in Ukraine lead to further problems in the supply of natural gas to Europe, or perhaps even to a complete and prolonged interruption of the distribution of natural gas from Russia, it will signal higher natural gas prices in Europe for a longer period of time, the possibility of which could lead, in the absence of sufficient supply, to the European economy falling into recessionary conditions. That will result in increased energy and fuel prices, and, consequently, an even greater increase in inflation. This increase will slow down a series of indicators that are considered essential for the growth of the economy.

In this case, the resources of the Recovery and Resilience Fund and the investments of the PIP will not be enough to cover the difference. In addition, the decisions of the Eurogroup referring to targeted and not generalized actions to support the economy should be considered, which deprives many households and businesses of income to sustain demand and jobs, an attitude which leads the debate to a possible recession in the EU.

For fiscal figures, a tighter policy is foreseen, with increased revenues and cuts in expenditures, a forecast which is subject to the same assumptions as those of the macroeconomic forecasts. An increase in energy prices (natural gas, oil, electricity) will have to be subsidized by the country's budget if there is no unified energy policy from the EU. Correspondingly, a more general increase in inflationary pressures, with a further increase in the prices of necessities, as well as business inputs, will lead to an even greater increase in spending.

As for public debt, it is expected to increase slightly in nominal terms in 2023, but to decrease in debt-to-GDP terms, given the expected growth of the economy. However, this forecast also follows the assumptions about the growth of the economy.

3. Human resources and social policies

KEPE, *Greek Economic Outlook*, issue 49, 2022, pp. 39-45

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

This article focuses on labour market developments up to the second quarter of 2022 (2022Q2). The number of the employed continued to grow, overcoming setbacks caused by the pandemic. The employment rate reached the pre-crisis level, but mostly due to the reduction in the population size. There are differences in employment increases amongst different population groups defined by gender, age, citizenship, education, and industry. The reduction in the number of employed foreigners is alarming and, to some extent, is connected to a skills mismatch reported in the labour market concerning mainly low skilled individuals in tourism and construction. The number of the employed in hotels and restaurants exhibited a large increase over the past year without, however, managing to compensate fully for the losses suffered during the pandemic. On the other hand, the number of the employed in public administration decreased on an annual basis, putting an end to the upward movement, discussed in previous issues of the *Greek Economic Outlook*, associated with the efforts to manage the effects of the pandemic. As far as paid employment is concerned, the smaller than expected increase in the number of employees in June and July and the big reduction in August should be treated with caution. Overall, the rate of creating new paid jobs decreased, while at the same time, there were more conversions of full-time job contracts to flexible job contracts compared to 2021. Even though the unemployment rate went down to 12.4% in 2022Q2, women, youth aged 14-24, foreigners (mostly women) and individuals with low educational attainment continued to face more difficulties in getting a job.

3.1.2. Employment

The number of the employed aged 15-74 increased in 2022Q2 by 123.2 thousand (aged 15-64: +120 thousand), as expected, given the seasonal variation in economic activity. This is equal to a 3% increase and seems small compared to the respective quarters in 2017, 2018 and 2019 when increases ranged from 3.6% to 3.7%. On the other hand, compared to 2021Q2, the number of the employed went up by 251.9 thousand (aged 15-64: +246.7 thousand), representing an increase of 6.4%, which is far bigger than previous annual changes in the years preceding the pandemic. Coupled with the respective increase of 11.6% in 2022Q1 and the recovery of overall employment following the employment losses during the pandemic, one could conclude that recent developments in the labour market are positive as far as the number of the employed is concerned. The result of the above is an increase in the employment rate of people aged 25-64, i.e., the core of the employed, to 69.5%. The employment rate in 2022Q2 matches the respective figure in 2008Q2 and shows that employment is back to its pre-pandemic level. A more careful look reveals that this achievement is due to the faster decrease in the size of the population compared to the number of the employed,¹ but still, it is a point worth mentioning.

Looking for divergencies, the first one can be traced by gender. The number of employed men increased slower than the number of employed women on a quarterly basis (2.6% vs. 3.7%), that is, compared to the first quarter of 2022, but faster on an annual basis, i.e., compared to 2021Q2 (6.6% vs. 6.2%). This means that the seasonal variation favoured women, but men did slightly better in the four quarters that passed. The second divergence is associated with age. Comparing the number of employed youth aged 15-24 to the rest of the employed (25-74), it seems that the number of the former increased much faster both on a quarterly (13.6% vs. 2.6%) and on an annual basis (29.6% vs. 5.6%). Moreover, the number of employed youth has recovered from the losses during the pandemic. There

1. Had the size of the population remained the same as in 2008Q2, the employment rate of people 25-64 would be 63.6% in 2022Q2.

were 13.4 thousand more employed youth in 2022Q2 compared to 2019Q2. Even though the number of the employed aged 25-74 increased by 197.4 thousand, the percentage increase falls short compared to the one for youth (5.2% vs. 8.6%), because the number of the former, which goes to the denominator, is much larger.

The employment rate is considerably bigger for foreigners compared to natives: in 2022Q2, for the former, it was 53.9% and for the latter 45.8%; this represents an increase of 3% over the past year. Despite the high employment rate of foreigners and the increase on an annual basis, the number of employed foreigners went down by 12.4 thousand over the year. The increase in the employment rate was the result of a faster decrease in the size of their population, noted in the previous issue of the *Greek Economic Outlook*. The decrease was stronger among foreign women (-18.8% vs -4.3% for men). Similarly, the number of employed foreign men marginally increased (1%), while the respective number of women exhibited a strong decrease by 18.4%. It is likely that the respective reduction in the number of the foreign labour force, especially women, is already having adverse effects on firms' efforts to find suitable workers in certain industries, which could get worse in the future. One should not forget that foreigners have already migrated to a foreign country at least once. Thus, it is easier for them to leave if circumstances are not favourable either in terms of employment opportunities or in terms of working conditions.

The number of employed lower secondary education graduates exhibited the biggest increase (+14.1%) on a quarterly basis, followed by employed Master's or/and PhD holders (+3.7%). However, on an annual basis, the number of the latter increased by 15.1% and seems to continue the upward trend of period 2019-2021 discussed in the previous issue of the *Greek Economic Outlook* (a 31.6% increase during period 2019Q4-2021Q4). The number of the most educated employed individuals recorded the second biggest increase (+44.5 thousand), following upper secondary education graduates (+124.3 thousand) in the period 2021Q2-2022Q2. In any case, about half of the new jobs created over the past year were occupied by upper secondary education graduates. However, most new jobs were occupied by lower secondary education graduates on a quarterly basis. Moreover, employed individuals with a Master's or/and PhD exhibited the second biggest annual increase; one cannot be sure about the level of skills demanded in those jobs though. As a result of these developments, the

share of employed individuals with a Master's or/and PhD increased to 8.2% of total employed, up from 6% in 2019Q2, 4.3% in 2014Q2 and 2.2% in 2008Q2. It seems, then, that the composition of the employed has changed over time in favour of better educated individuals and against poorly educated ones, like, for example, primary school graduates, partly because of the general increase in educational attainment.

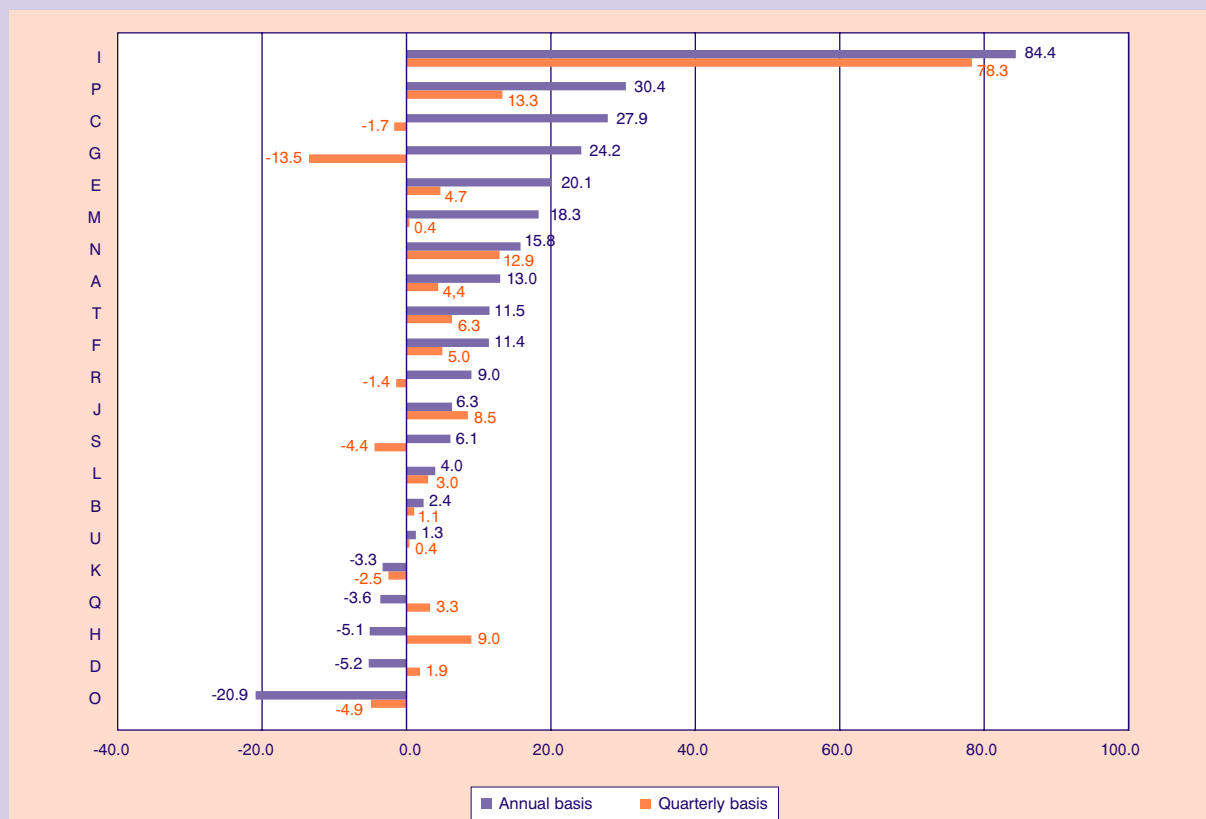
Industry

The number of employed individuals increased in 15 out of 21 industries on a quarterly basis (Graph 3.1.1). Most new jobs were created in *Accommodation and food service activities* (+78.3 thousand), followed by *Education* (+13.3 thousand) and *Administrative and support services* (+12.9 thousand). On the other hand, the number of the employed decreased the most in *Wholesale and retail trade, repair of motor vehicles and motorcycles* (-13.5 thousand). The number of the employed in *Accommodation and food service activities* also increased the most on an annual basis (+84.4 thousand), followed by *Education* (+30.4 thousand) and *Manufacturing* (+27.9 thousand). The increase in the number of employed in *Manufacturing* is a very positive outcome since it allows one to hope that the downward trend in employment in an industry that is associated with increased productivity and extroversion can be reversed. On the other end of the spectrum lies *Public administration and defense, compulsory social security* with 20.9 thousand fewer employed individuals compared to 2021Q2. Remember that in the previous issue of the *Greek Economic Outlook*, this industry exhibited the biggest increase in period 2019Q4-2020Q4 (+42.5 thousand). It seems, then, that the trend has been reversed following the weakening of the pandemic's effects.

As far as losses in the number of the employed during the pandemic are concerned, it seems that all industries have managed to recover, with three exceptions: *Accommodation and food service activities* (2.1 thousand fewer employed compared to 2019Q2), *Construction* (0.9 thousand fewer employed) and *Financial and insurance activities* (12.6 thousand fewer employed). The former two industries may have been affected to some extent by the lack of labour supply with the required skills, which was probably fueled by the reduction in the number of foreigners in the labour force, since demand was high.² The reduction of employment in the latter industry is likely the outcome of downsizing

2. According to ELSTAT, the turnover in *Accommodation and food service activities* increased in 2022Q2 by 150.7% on an annual basis, while the turnover in *Construction* has been increasing from 2021Q2 to 2022Q2.

GRAPH 3.1.1
Change in the number of the employed on an annual and quarterly basis



Source: Labour Force Survey, ELSTAT, KEPE processing.

Notes: A. Agriculture, forestry and fishing, B. Mining and quarrying, C. Manufacturing, D. Electricity, gas, steam and air conditioning supply, E. Water supply; sewerage, waste management and remediation activities, F. Construction, G. Wholesale and retail trade; repair of motor vehicles and motorcycles, H. Transportation and storage, I. Accommodation and food service activities, J. Information and communication, K. Financial and insurance activities, L. Real estate activities, M. Professional, scientific and technical activities, N. Administrative and support service activities, O. Public administration and defence; compulsory social security, P. Education, Q. Human health and social work activities, R. Arts, entertainment and recreation, S. Other service activities, T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use, U. Activities of extraterritorial organisations and bodies.

policies followed over the past few years to cut costs facilitated by technological advances. In any case, the number of the employed in the former two industries represented almost 99% of those employed in 2019Q2; the respective figure in the latter industry is 85%.

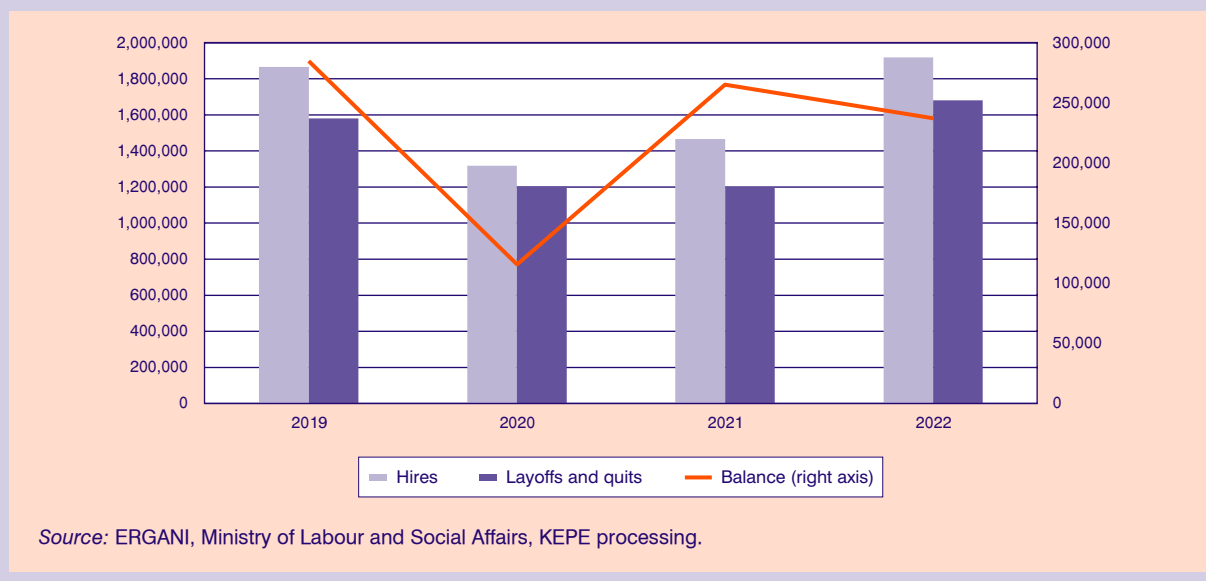
3.1.3. Paid employment

The reports from the information system ERGANI show that the balance of paid jobs remained positive from May until July 2022, which is typical for these months due to the seasonal reinforcement of economic activity, but it turned negative in August. In specific, despite positive net flows of paid jobs in June and July, these were significantly smaller than flows a year ago; there

were 54.4 thousand fewer jobs created in June and 21.4 thousand fewer jobs created in July compared to 2021. On the other hand, approximately 33.3 thousand paid jobs were lost in August, which is a record high. Overall, in the first eight months in 2022, some 237 thousand net jobs of paid employment were created, i.e., about 28 thousand fewer compared to the same period in 2021 (Graph 3.1.2). Similarly, hires until August went up by 30.9%, while quits and layoffs went down by 40%. Except for April, in the remaining months, the number of quits and layoffs (compared to the respective months in 2021) increased faster than the number of hires on an annual basis. There were 5% (or 14.5 thousand) fewer hires in July compared to 2021, while quits and layoffs in August were approximately 20% more compared to 2021.

GRAPH 3.1.2

Flows and balance of paid jobs from January to August of consecutive years



These remarks could signal that the labour market is suffering from fatigue. This could be the outcome of difficulties in finding suitable employees or/and of reduced demand for labour. This seems to be in accordance with the fact that most people were hired in April, setting a record. If hires were realised sooner than usual, anticipating a good tourist season (there were 96.2 thousand hires in *Accommodation and food service activities* in April), then one should not think too much of the poor results in June and July. However, the negative net flow of paid jobs in August could mean a premature ending of the tourist season. In this context, it should be mentioned that some 29.2 thousand jobs were lost in August from the food service activities and another 5.4 thousand were lost from accommodation services. A more detailed analysis could provide more information regarding the geographical or some other distribution (e.g., based on the firm size) of early quits and layoffs from tourism and point to specific fields of intervention (e.g., to expand the tourist season, make changes to policies to attract tourists, etc.). However, macroeconomic circumstances cannot be ignored, such as the high inflation rate combined with the anticipated energy crisis and the war in Ukraine, because they cause uncertainty and negative expectations for the near future.

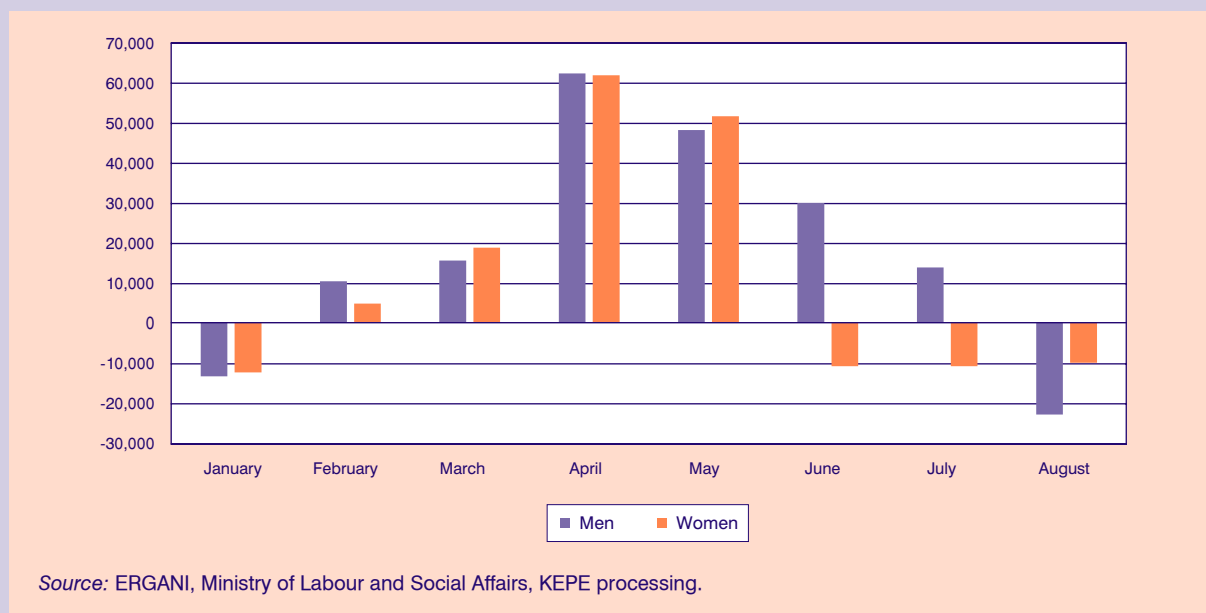
A more thorough look at the reduction of new paid jobs in the first eight months of 2022 reveals some degree of diversity amongst population groups. In particular, the reduction of new jobs comes mainly from women (Graph 3.1.3). The new jobs occupied by wom-

en in 2022 were fewer by 14.3% (or 15.5 thousand), while jobs occupied by men were fewer by 7.9% (or 152.4 thousand). The biggest losses for women compared to 2021 were reported in June (-33.9 thousand jobs). Variation in net new jobs was more pronounced amongst individuals aged 25-74. Paid job losses were the biggest in June (17.8 thousand), when in June 2021, approximately 37.5 thousand net jobs of paid employment were created. Young people aged 15-24 exhibited smaller variation in comparison, and in April, they occupied 2.3 thousand more paid jobs compared to the same month in 2021. On the other hand, the situation was reversed in August since more than 10 thousand jobs were lost in addition to those lost in August 2021. However, these losses were smaller than those suffered by individuals 25-74.

Hires under full-time job contracts represent the biggest share of new hires in the first eight months of 2022 (53.2%). The share of full-time hires is smaller than 2021 (57.4%), but bigger than previous years, approaching the 2014 level. An annual increase in hires under work-in-shifts contracts of 2.4 percentage points, to 9%, could signal increased uncertainty, but this figure is smaller than in previous years. It should be noted that the share of hires under work-in-shifts contracts reached 19% of the total in 2015 and has been dropping ever since.

The number of full-time job contracts that were converted to flexible job contracts until August 2022 went up by 55.6%, reaching 30,104. Approximately 73% of those involved conversions to part-time contracts.

GRAPH 3.1.3
Balance of paid employment flows by gender, 2022



Most conversions of full-time to work-in-shift job contracts without the consent of the employee were reported in May (904). It could be that there is a stabilisation of the labour market following the disruption by the pandemic in the preceding two years. In this context, it should be noted that there was an increase in the number of conversions from full-time to flexible job contracts by 33.6% in the first eight months of 2020 and a decline of 52.7% in 2021. However, this finding causes concern.

3.1.4. Unemployment

The unemployment rate in the second quarter of 2022 went down to 12.4% for individuals aged 15-74. The decrease corresponds to a decline in the number of unemployed, by 55.6 thousand in the last quarter and by 140.9 thousand over the past year, despite the labour force increase recorded. Typically, women face more difficulties in getting a job than men, so their unemployment rate stood at 16.6% in 2022Q2, compared to 9.1% for men. The number of unemployed men decreased faster than the number of unemployed women on a quarterly and an annual basis. This is reflected in the increased share of unemployed women in total unemployed by 3 percentage points over the past year (reaching 59.1%). Moreover, young people aged 15-24 face higher unemployment rates (32.3%), especially when they are females (38.8%). Despite differences in the evolution of the unemployed, the gender unem-

ployment differential has remained almost stable and close to 7.5 percentage points since 2021Q2.

The number of unemployed youth aged 15-24 also remained relatively stable on an annual basis, while it increased marginally (1%) in the last quarter. However, due to the increase in the labour force, the youth unemployment rate has fallen by approximately 6 percentage points since last year (2021Q2), from 38.2% to 32.3%. On the other hand, the number of unemployed individuals aged 25-74 decreased by 141.2 thousand on an annual basis and by 56.4 thousand on a quarterly basis. The unemployment rate stood at 11.3%. This age-related experience with respect to employment opportunities should serve as a spark to further explore this issue. Given the increase in the number of employed youth, a possible explanation of this divergence could be that the addition of new members to the pool of unemployed youth compensated for the reduction in their number due to exits from the pool towards employment. In any case, the unemployment differential between youth 15-24 and individuals aged 25-74 narrowed by 2.5 percentage points and by 1.2 percentage points compared to 2021Q2 and 2022Q2, respectively, causing some convergence.

The unemployment probability also differs across nationality groups. In 2022Q2, the unemployment rate stood at 12.1% for Greek nationals and at 20% for foreigners, i.e., individuals with non-Greek nationality, even though over the past year the number of the unemployed foreigners decreased faster (-33.6% vs.

-18%). There was a big difference between Greek and foreign women, who faced an unemployment rate of 29.8%, 13.8 percentage points bigger than that for Greek women. Note that the respective difference for men was much smaller, since foreign men were faced with a 3.4 percentage points higher unemployment rate compared to Greek men (12.4% vs. 9%). Part of these differences is due to different skills, but another part cannot but be attributed to the problematic integration of immigrants to the Greek labour market, which is reflected in the limited knowledge of the Greek language, insufficient information, failure to acknowledge degrees awarded abroad and certify skills, limited access to information on available jobs, etc.

The level of education can be used to approximate the level of skills a person possesses. Typically, more educated individuals have better employment prospects. Therefore, it is far from surprising that Masters' and/or PhD holders had the lowest unemployment rate (4.7%) in 2022Q2, followed by university graduates (9.2%) and technical vocational education (12.3%). However, the performance of highly educated individuals in terms of employment could mask the substitution of less educated with more educated individuals, i.e., overeducation, and should be further explored. Last but not least, unemployed university graduates are the group with the biggest percentage reduction over the past year (-23%), followed by technical vocational education graduates (-22.8%) and lower secondary education graduates (-20.1%). As far as the second group is concerned, exits from unemployment almost balance entries to employment, while in the third group, exits from unemployment are almost five times bigger than entries to employment. Considering the old age of most lower secondary education graduates, one tends to presume that exits from unemployment, to a large extent, coincide with exits from the labour force.

3.1.5. Labour market challenges

It is widely accepted that the labour market does not operate in a vacuum; it is rather an integral part of the Greek economy, which impacts and is affected by it. Therefore, the challenges facing the labour market are closely linked to the prospects of the economy and are

associated with the high cost of fuel (mostly natural gas³), which pushes the prices of goods (e.g., food and electricity) and services (e.g., transport costs) up and reduces the disposable income of all, including the employed.

To protect and support consumers and business, the Greek government subsidised part of the energy bill for vulnerable groups and provided fuel coupons, i.e., in effect subsidizing the cost of fuel. Moreover, in May 2022, the minimum wage was raised for the second time within this year to €832 (12 payments per year) which equals 952 PPS and ranks Greece in the 11th place amongst 21 member states with a national minimum wage in place.

Even though these interventions seem to be in the right direction, the biggest problem is that the prices of goods and services have been increasing unexpectedly fast since the beginning of 2022, although there has been a small de-escalation starting in June (June: 12.1%, July: 11.6%, August: 11.4%⁴). This means that real incomes are decreasing, especially incomes that cannot be adjusted systematically and timely, like wages and pensions. The European Trade Union Confederation (ETUC) estimates that those who get paid with the minimum wage in Greece saw their real wages decrease by 1.9% this year because of inflation.⁵

There are three more points that complicate the situation in Greece even further. The first one is that inflation seems to harm low-income households even more (Kanellopoulos, 2022⁶) because of the biggest weight goods and services exhibiting the highest price changes have on their basket, like food, fuel, and housing expenses. Given that wages are already low in Greece, a further reduction of purchasing power could intensify problems of material deprivation. The second point is that a disproportionate share of employed individuals is paid with the minimum wage in Greece. In a recent report for the minimum wage,⁷ KEPE estimates that the share of those paid with the minimum wage ranges from 20% to 33%, depending on the definition used. This means that a big part of the employed possibly cannot afford a further reduction in their purchasing power. The third point is that inflation has been higher in Greece compared to the Euro area average through-

3. Electricity is an input to production for firms and a consumer good for households.

4. See ELSTAT data in <<https://www.statistics.gr/el/statistics/-/publication/DKT87/->>.

5. <<https://www.etuc.org/en/pressrelease/record-fall-value-statutory-minimum-wages>>.

6. Kanellopoulos, N.K. (2022), The distributional impact of inflation, KEPE, *Greek Economic Outlook* 48, pp. 61-80.

7. KEPE (2022), Evaluating the current legislated legal minimum monthly and daily wage rate. KEPE. Report prepared for the Ministry of Labour and Social Affairs.

out 2022. This means that the cost competitiveness of the country is worsening as exports become more expensive.⁸

In any case, two questions must be answered to be able to predict developments in the labour market in the coming months. The first one is how big the effect of the restrictive monetary policy implemented by the ECB will be on the Greek economy. If interest rate increases lead, as expected, to a growth rate slowdown, then the demand for labour and the number of hires will likely decrease. Note that the European Commission⁹ revised its annual growth projections for 2022 in July this year to 4% (although KEPE recently revised its projections upwards to 5.5%¹⁰). In general, poor expectations about future circumstances limit business activity and, consequently, employment. Therefore, it

is necessary for the Greek state, so long as it does not overburden future generations with debt, to continue to support the most vulnerable population groups. In this context, measures that will cost €5.5 billion were announced at the Thessaloniki National Fair. They seem to be on the right track since they intend to support real income and boost private consumption and GDP.¹¹ Part of this support could be funded collectively at the European level, while it is important for the Greek economy to maintain its good growth prospects with additional investments. The second question is how effective the contribution of the RRF will be in transforming the production structure of Greece and in accelerating the growth rate through the best possible management and distribution of funds aiming at, among many others, creating sustainable and well-paid jobs.

8. The size of the decrease requires more in-depth analysis of the composition of exports and the relative change in their prices.

9. See <https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/greece/economic-forecast-greece_en>.

10. See <https://www.kepe.gr/index.php/el/deltia-typoy/item/3198-30_9_2022.html>.

11. These measures include an emergency income support for 2.3 million citizens, like the emergency check to compensate for high prices, which is a subsidy of €250 to those receiving very low pensions (<€800), long-term unemployed, beneficiaries of AMEA benefits and uninsured senior citizens under OPEKA; an increase of the students' benefit; an increase in the heating benefit and an expansion of the number of beneficiaries; an expansion of beneficiaries for the programme "Tourism for all"; a 40% reduction in social security contributions until the end of 2023 offered to firms converting part-time job contracts to permanent job contracts; the consolidation of the 3% reduction in social security contributions; the abolishment of the Special Solidarity Contribution, etc.

3.2. Food and energy household expenditures in Greece: General price trends and their relative weight on household budgets

Vlassis Missos

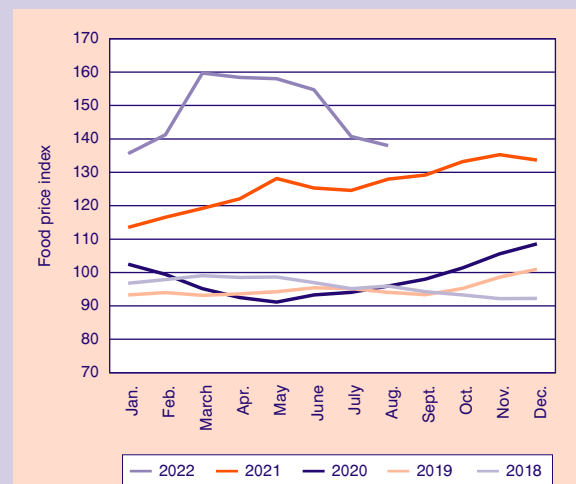
Global commodity price hikes that have been documented during 2022¹ have mostly affected a series of basic categories which concern products included in the daily consumption bundle that are necessary for the maintenance of minimum living standards. Among them, the cost of food and that of energy (household heating and lighting) are considered of utmost importance. The government measures of social distancing and the lockdowns authorized against the spread of COVID-19 did not go without problems. International supply chains were disrupted, causing the cost of international transportation to rise significantly, whereas a new series of price increases began immediately after the start of the war in Ukraine. The effects of such a sequence of overlapping events (economic crisis, pandemic and geopolitical tension) on the cost of living are more than apparent, not only in Greece, but also in the rest of the European Union.

A complete evaluation of the relative shares of contribution concerning the parameters causing inflationary pressures on consumer prices is a complex issue that requires the examination of a wide range of heterogeneous factors.² For example, the Food and Agriculture Organization (FAO) of the United Nations has warned of the multiple risks that emerge from the widespread droughts and the consequent limitation of arable lands, in contradistinction with the rising needs in food supplies.³ Among others, the FAO has reported on the

pre-War in Ukraine tendency of the cost of food to rise. Moreover, the close production linkages between the food and energy sectors (the products of the latter are considered as inputs to the former) create additional pressures towards price inflation.

Figure 3.2.1 depicts the monthly changes of the complex *food price index* published by the FAO for the period between 2018 (January) and 2022 (August). The index is based on calculations over a weighted average bundle, including five different groups of commodities (cereals, meat, sugar, dairy and vegetables). Obviously, the price tendency to increase has already been apparent from the second semester of 2020. Moreover, price increases were preserved throughout 2021 and escalated during 2022. In addition to food, energy (oil, coal, natural gas) prices have also been marked by increasing pressures, the exact quantification of which is a very complex process due to their markets' high var-

FIGURE 3.2.1
Food price index, Food and Agriculture Organization, monthly data, 2018-2022



Source: Food and Agriculture Organization. <<https://www.fao.org/worldfoodsituation/foodpricesindex/en/>>

1. See Commodity prices soar to highest level since 2008 over Russia supply fears, *Financial Times*, by Neil Hume, Tom Wilson & Emiko Terazono, 3 March 2022. <<https://www.ft.com/content/5753f4dd-1e8e-4159-a4e4-d232e4ad50ed>>

2. See How bad will the global food crisis get?, *Financial Times*, Chelsea Bruce-Lockhart & Emiko Terazono, 27 July, 2022. <<https://www.ft.com/content/e44db6b3-7266-4188-8d08-79d678a61146>>

3. See FAO. 2022, *The State of the World's Land and Water Resources for Food and Agriculture – Systems at breaking point. Main report*. Rome. <<https://doi.org/10.4060/cb9910en>>

iations.⁴ The persistent tendencies towards commodity price increases reflect several kinds of differentiated occasions, while they are indicative of the documented pressures on the cost of living and the household budgets.

Be that as it may, the tables and figures below present some of the main results from the microdata of the Household Budget Surveys (HBS) for Greece. Comparisons are made between the 2008 and 2020 surveys – the latest available to the public at the time the present article was written. HBS are sample surveys conducted annually by ELSTAT and refer to the private expenditures made by a great number of households, ordered in twelve different categories, each divided into many sub-categories. In general, from 2008 to 2020, the HBS documents a significant drop of the average monthly expenditures from €2,120.40 to €1,331.83 (estimated to 37.2%). During the years, the decreasing

rate of average household expenditures was not continuous, but it went through a short period of moderate increase (2016-2019). However, consumption inequality that was magnified during the period of deep recession was not counterbalanced.⁵

Among the changes documented by the HBS, an important one refers to the average level of food and energy expenditures as a percentage of overall household expenses. Tables 3.2.1 and 3.2.2 present the percentage share of these categories for a variety of different types of households, ordered by income quintile. The allocation of the overall number of households into income groups aims at emphasizing the differentiated responses that exist between them against the surge of the price level. This multiplicity of the different characteristics (income and demographic) of the households seems to constitute an important parameter that affects their behavior.

TABLE 3.2.1 Food as a percentage of overall household expenditures, per household type and income quintile, 2008 and 2020

Household type	Income quintiles											
	1st		2nd		3rd		4th		5th		Total	
	2008	2020	2008	2020	2008	2020	2008	2020	2008	2020	2008	2020
Single member	21.6%	26.8%	14.4%	23.6%	13.5%	19.3%	12.4%	15.5%	7.2%	15.2%	17.1%	23.1%
Two adults	27.1%	29.5%	23.7%	30.3%	19.0%	27.1%	15.6%	23.7%	12.3%	21.1%	19.5%	25.6%
More than two adults	21.4%	31.3%	21.9%	28.0%	19.6%	26.7%	18.6%	26.6%	14.3%	22.8%	17.1%	25.0%
One adult with dependent member	18.5%	26.1%	18.8%	20.6%	14.3%	19.0%	15.2%	20.2%	13.8%	16.8%	15.8%	20.8%
Two adults with dependent members	21.2%	27.4%	19.4%	28.0%	17.7%	25.1%	15.4%	23.3%	12.0%	19.5%	15.3%	22.6%
More than two adults with dependent members	27.5%	33.4%	22.5%	31.7%	18.9%	31.8%	20.0%	26.5%	14.0%	22.8%	17.1%	25.3%
Total	23.6%	27.7%	20.9%	27.1%	18.2%	25.0%	16.8%	23.8%	12.9%	20.8%	16.8%	23.9%

Source: ELSTAT, Household Budget Survey, author's calculations.

4. A widely used index for tracking international prices of energy commodities is the S&P GSPI, according to which prices have been heading upwards very rapidly since April 2020. In addition, the *fossil fuel index*, which is published by Our World in Data (<https://ourworldindata.org/grapher/fossil-fuel-price-index>), shows a data series of average prices, depicting that inflation pressures were already at work during the period 2019-2021.

5. See Kaplanoglou G. 2022, Consumption inequality and poverty in Greece: Evidence and lessons from a decade-long crisis, *Economic Analysis and Policy* 75, 244-261. <<https://doi.org/10.1016/j.eap.2022.05.003>>

TABLE 3.2.2 Energy as a percentage of overall household expenditures, per household type and income quintile, 2008 and 2020

Household type	Income quintiles											
	1st		2nd		3rd		4th		5th		Total	
	2008	2020	2008	2020	2008	2020	2008	2020	2008	2020	2008	2020
Single member	7.2%	12.0%	4.8%	10.1%	5.1%	8.1%	4.3%	6.9%	2.7%	4.9%	5.8%	10.0%
Two adults	8.8%	11.2%	8.0%	12.5%	6.3%	10.2%	5.1%	8.8%	4.2%	6.9%	6.5%	9.6%
More than two adults	6.9%	10.3%	6.5%	9.0%	6.1%	9.4%	5.2%	8.0%	4.2%	6.7%	5.0%	7.7%
One adult with dependent member	6.0%	7.1%	3.9%	6.1%	4.2%	5.5%	4.9%	5.7%	3.4%	4.4%	4.4%	5.9%
Two adults with dependent members	6.2%	8.2%	5.4%	7.6%	4.8%	7.4%	4.0%	6.3%	3.1%	5.3%	4.1%	6.2%
More than two adults with dependent members	8.6%	11.0%	6.2%	7.7%	5.2%	11.0%	5.2%	7.3%	4.0%	6.5%	4.7%	7.3%
Total	7.6%	11.0%	6.4%	9.9%	5.4%	8.7%	4.6%	7.4%	3.7%	6.0%	4.9%	7.9%

Source: ELSTAT, Household Budget Survey, author's calculations.

Table 3.2.1 shows the share of food expenditures, as a percentage of the overall household expenses. In the case of the first quintile, the greatest increase is documented for households comprised by more than two adults (9.9 percentage points, p.p.). Among those belonging to the second quintile, the most important relative change occurs at the single-member (9.3 p.p.) and at the multiple-membered households (more than two adults with dependent members, increase by 9.2 p.p.). In those of the third quintile, the most important increase is estimated for the case of the last type (by 12.2 p.p.). Moreover, in households belonging at the fourth quintile, the highest increase is calculated for the single-parent households (by 8 p.p.) and for those having more than two adults (by 8.1 p.p.). Lastly, among the households belonging at the highest, fifth, quintile, the most important change has been documented in households having more than two adults (8.8 p.p.) and in the those having more than two adults along with dependent members (8.8 p.p.).

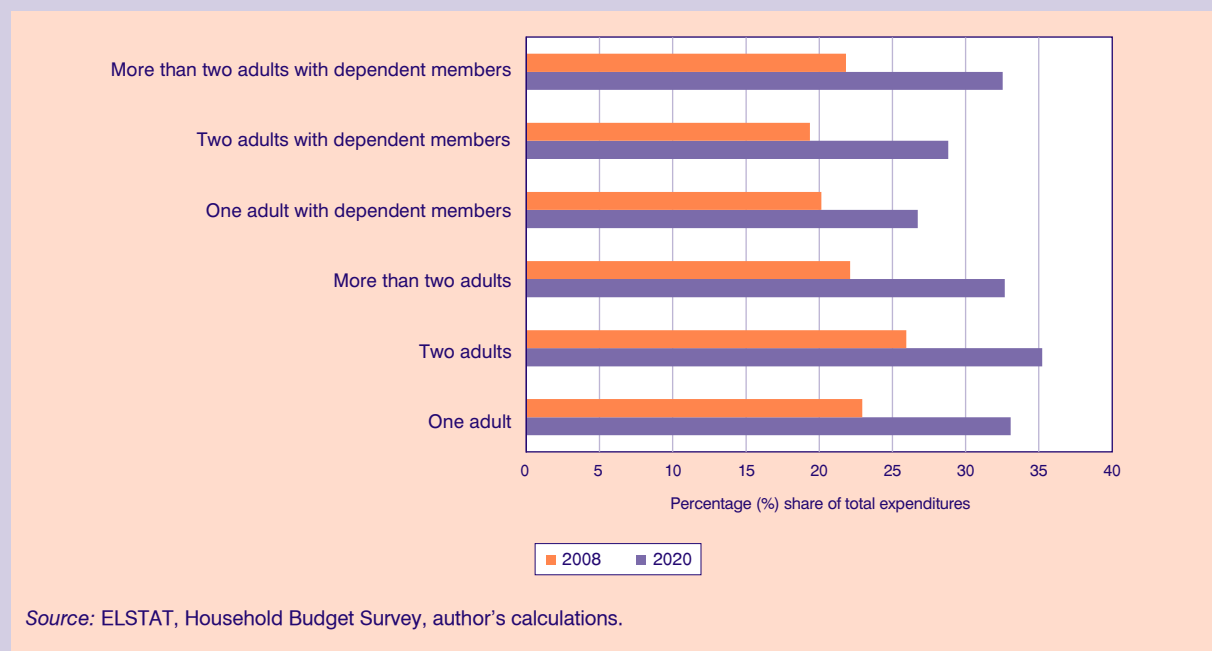
Furthermore, Table 3.2.2 depicts the energy costs for heating and lighting purposes as a percentage of the overall household budget. Among the households that belong to the first and second income quintiles, the

most important relative change is documented for the single-member ones, 4.8 p.p. and 5.3 p.p. respectively. Among those households in the third quintile, those most affected by the higher prices seem to be those having more than two adults with dependent members (5.8 p.p.). Lastly, among the households of the fourth and fifth quintiles, the biggest change is documented for those with two adults, 3.7 p.p. and 2.7 p.p. respectively.

The two tables show that the household budgets have unequally adjusted to the inflationary pressures that have been gradually evolving from the first quarter of 2020. Figure 3.2.2 gathers both consumption categories together, showing the relative change of their share as a percent of the overall household budget. The price increases that took place between 2008 and 2020 have changed the composition of the household consumption bundle and the general profile of the poorest group. HBS documents that the percentage shares of households have increased by 10 p.p. Nevertheless, the needs of each household type differ, and those belonging to the poorest groups seem to devote at least one-third of their total expenditures to food.

FIGURE 3.2.2

Average share of food and energy as a percentage of total household expenditures, 2008 and 2020



Source: ELSTAT, Household Budget Survey, author's calculations.

4. Reforms-Economic development

KEPE, *Greek Economic Outlook*, issue 49, 2022, pp. 50-55

4.1. Overview of the evolution of the international travel receipts and the average expenditure per trip for the period 2003-2022

Nikolaos Rodousakis

George Soklis

4.1.1. Introduction

According to data from the World Tourism Organization (UNWTO), the lifting of travel restrictions played a key role in effectively restarting tourism. Global tourism is therefore recovering, approaching the levels of 2019, with the recovery in Europe approaching 74% compared to the levels of 2019. In detail, in the first seven months of 2022 compared to 2021, European countries recorded an increase in arrivals by 190% compared to the corresponding period of 2021, with the strongest growth trends coming from the USA. As far as Greece is concerned, arrivals for the seven-month period January-July are close to -13% compared to the same period in 2019, with expectations speaking of a full recovery.

The purpose of this article is not to simply record the developments in the main parameters of the tourism sector, but to highlight some of the general characteristics and trends of Greek tourism, focusing on receipts and expenditures. So, after a reference to the current developments in tourism based on data from the Bank of Greece (BoG), then, based also on data from the BoG, we highlight some other characteristics regarding travel receipts and expenditures, and, finally, we summarize with the key findings of this brief article.

4.1.2. Travel balance, January-July 2022

According to the provisional data of the BoG, in the period January-July 2022, the travel balance showed a surplus of 7,710.1 million euros, compared to a surplus of 3,027.4 million euros in the corresponding period of

2021. An increase of 5,367.5 million euros or 154.2% was presented by travel receipts, which amounted to 8,849.4 million euros, while an increase of 684.8 million euros or 150.7% was also observed in travel payments, which amounted to 1,139.3 million euros. The increase in travel receipts was driven by a 191.4% increase in arrivals, as the average expenditure per trip fell by 13.6%. Net receipts from the provision of travel services offset the deficit in the goods balance by 36.7% and contributed 76.1% to the total net receipts from services.

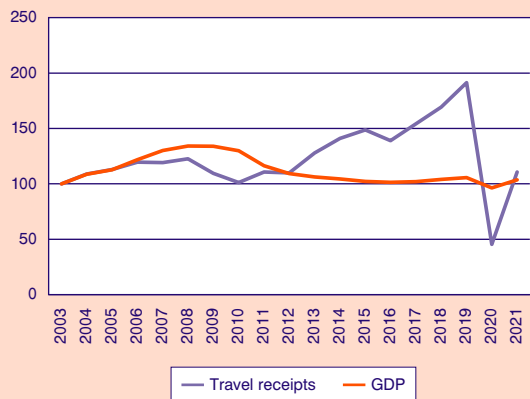
Focusing on travel receipts, the aforementioned increase is due to the 116.0% increase in receipts from residents of EU-27 countries, which amounted to €5,105.9 million, as well as receipts from residents of non-EU-27 countries by 230.1%, which amounted to 3,571.5 million euros. In more detail, receipts from residents of the Eurozone countries amounted to 4,056.3 million euros, increased by 119.9%, while receipts from residents of the EU-27 countries outside the Eurozone showed an increase of 102.0% and amounted to 1,049.6 million euros.

In particular, receipts from Germany increased by 127.4% and amounted to 1,636.7 million euros, while receipts from France increased by 87.6% and amounted to 659.7 million euros. From the countries outside the EU-27, receipts from the United Kingdom showed an increase of 342.8%, which amounted to 1,478.5 million euros. Receipts from the USA increased by 183.6% to 566.2 million euros, while those from Russia decreased by 52.8% to 16.6 million euros.

4.1.3. Overview of international travel receipts for the period 2003-2022

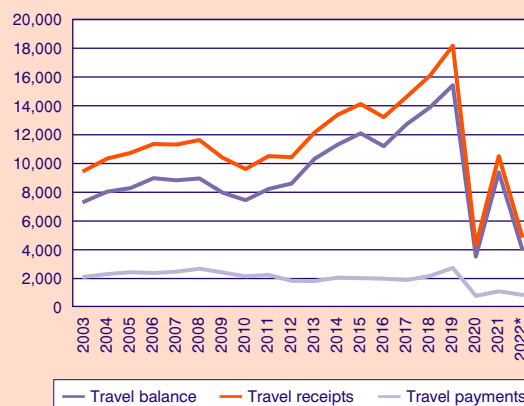
We begin our analysis by comparing the travel receipts with the Gross Domestic Product (GDP), for which we obtain data from the Hellenic Statistical Authority (ELSTAT). A first conclusion that can easily be drawn from Figure 4.1.1 is the strong upward trend of travel receipts, which is approaching the limits of doubling, from 9.6 billion in 2009 to 18.1 billion in 2019. On the contrary, in the same period, the GDP, after a sharp decrease, follows a long-term stable trajectory. The combination of these two findings leads to the conclusion that travel receipts have not been able to reverse the

FIGURE 4.1.1
Long-term evolution of international travel receipts and GDP; base (100) in 2003



Source: BoG, ELSTAT and own calculations.

FIGURE 4.1.2
Evolution of the travel balance, travel receipts and travel payments



Source: BoG and own calculations.

* Available data refers to the first semester.

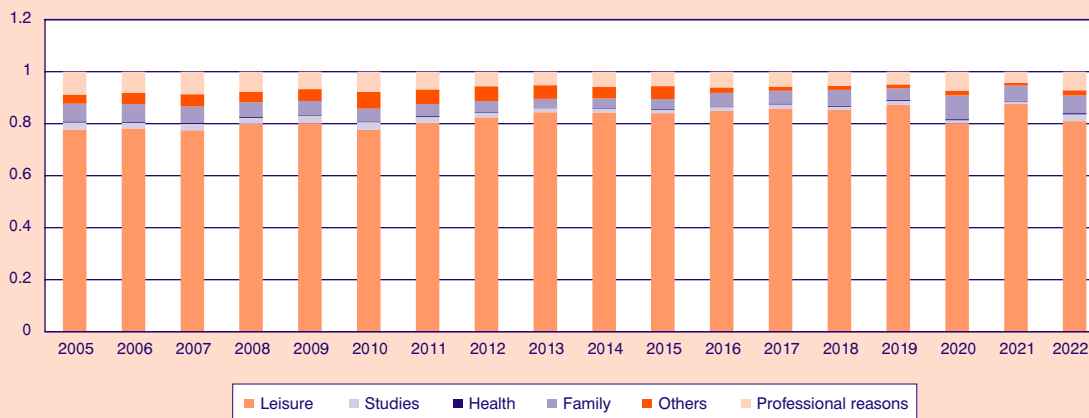
trend of the GDP and bring it back to the levels before the great recession of 2009. In addition, the question arises whether the policies followed after 2009 had the effect of ultimately changing the country's production model, to a certain extent, by increasing the participation rate of the tourism sector and inactivating, to a certain extent, the contribution of other sectors.

Furthermore, Figure 4.1.2 shows the evolution of the balance of travel services, travel receipts and travel payments over time. Looking at Figure 4.1.2, it is worth mentioning that, in contrast to the strong growth trends of travel receipts and the travel balance, travel payments

after 2008 show stabilization trends, with a small exception in 2019. This trend, however, was interrupted, as it happened for the other two figures, because of the COVID-19 pandemic (see the 2020-22 biennium). At this point, it should be noted that, although not apparent in Figure 4.1.2, there is an optimism, as we have already mentioned, that at the end of the year, the travel receipts will approach 2019 levels.

Observing, therefore, the impressive increase in travel receipts in the recent years, the question of "where do these receipts come from" is reasonable. Thus, Figure 4.1.3 shows the evolution over time of the percentage distribution of all international travel receipts by reason of travel

FIGURE 4.1.3
Evolution of the percentage distribution of all international travel receipts by reason of travel



Source: BoG and own calculations.

* As in Figure 4.1.2.

distribution of all travel receipts by reason of travel, specifically for leisure, study, health, family, personal and professional reasons. As one can easily see, the majority has to do with recreation, which should not surprise anyone. Moreover, the small percentages for study reasons and especially health reasons are noteworthy, while the decline in receipts for those coming for professional reasons after 2009 is also worth mentioning.

The analysis of the countries of origin of the travel receipts reveals the great contribution of the EU-27 coun-

tries and especially those of the Eurozone. Furthermore, as reflected by the years 2020-21, the pandemic appears to have reduced receipts from outside Europe and increased those from Europe (see Figure 4.1.4).

In terms of recent geopolitical developments, as shown in Figure 4.1.5, in contrast to Brexit and the increased receipts from the United Kingdom in the first half of 2022, the war between Russia and Ukraine appears to have negatively affected receipts from the Russia.

A distinct source of receipts that is seldom mentioned are the individual and organized groups of travelers.

FIGURE 4.1.4
Evolution of the percentage distribution of all international travel receipts by country of origin

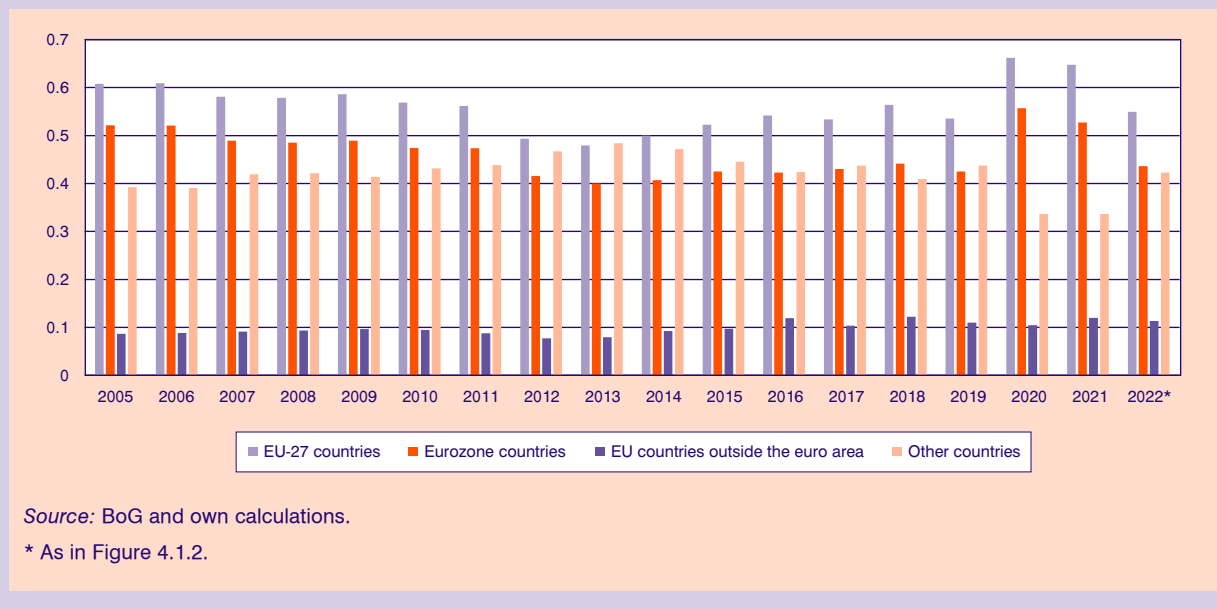


FIGURE 4.1.5
International travel receipts from Russia and the United Kingdom for the first half of 2019 and 2022

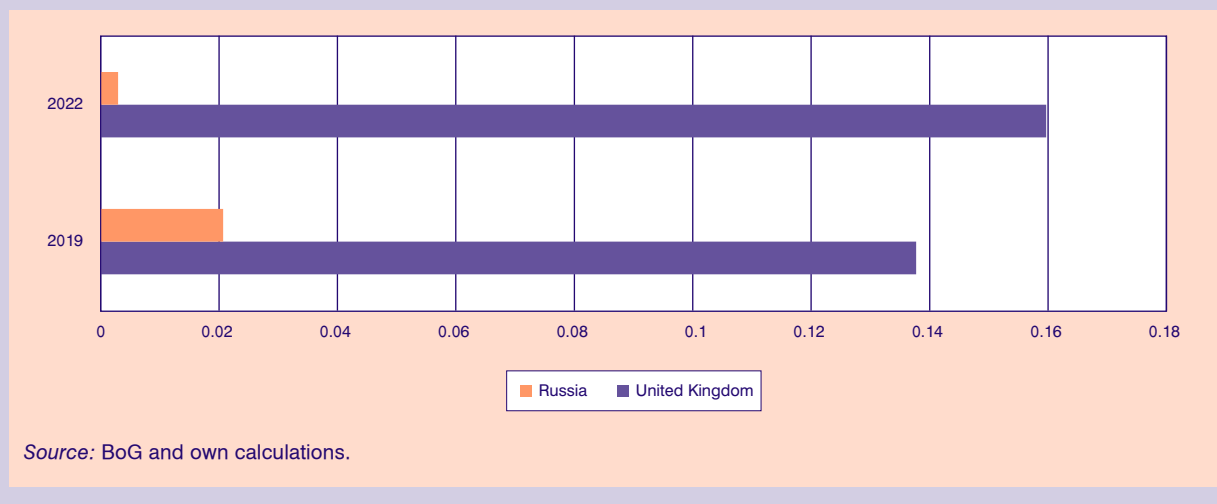
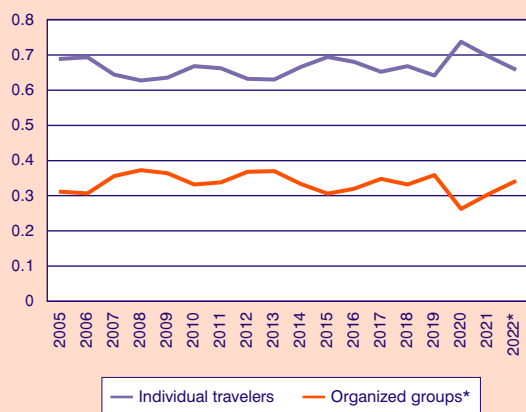
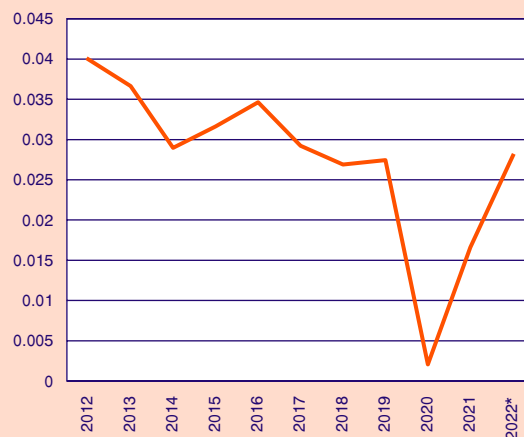


FIGURE 4.1.6
Long-term evolution of international travel receipts from individual travelers and organized groups



Source: BoG and own calculations.
 * As in Figure 4.1.2.

FIGURE 4.1.7
Long-term evolution of international travel receipts from cruises



Source: BoG and own calculations.
 * As in Figure 4.1.2.

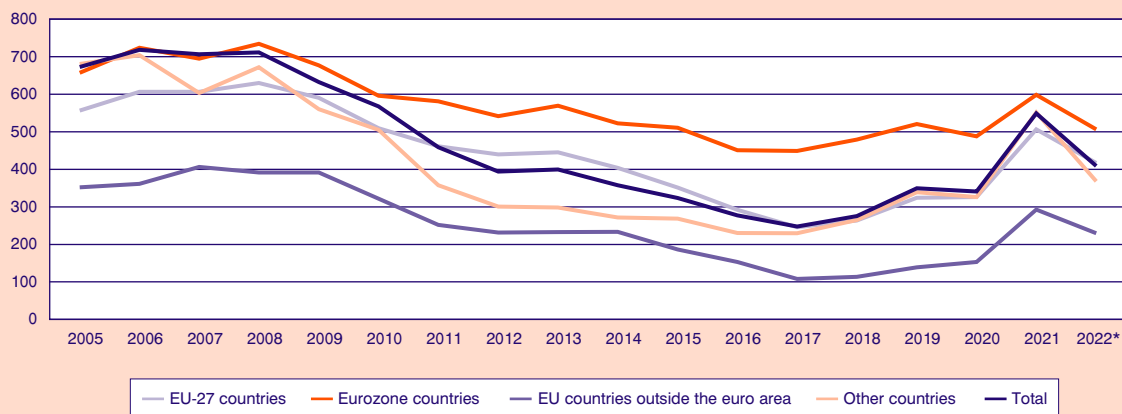
Figure 4.1.6 shows that the receipts from individual travelers outperform those of the organized groups. Regarding the outbreak of the pandemic, it appears that, initially, receipts from individual travelers increased in 2020, only to decline back to previous levels during 2021 and 2022.

Completing the analysis for the travel receipts, we could not avoid dealing with the receipts that come from cruises. From Figure 4.1.7, in addition to their downward trend, the reader can easily see the small participation of cruises in the total amount of travel receipts.

4.1.4. Overview of the average expenditure per trip 2003-2022

We saw in section 4.1.2 that the growth in travel receipts has come from the growth in arrivals and that the travel spending per trip for the first half of 2022 is down from the levels of last year. Apart from that, the most impressive finding that emerges from the examination of Figure 4.1.8 is the downward trend of travel receipts, regardless of whether they come from Europe or third countries. In the last five years, however, this trend has

FIGURE 4.1.8
Long-term evolution of the average expenditure per trip by country of origin



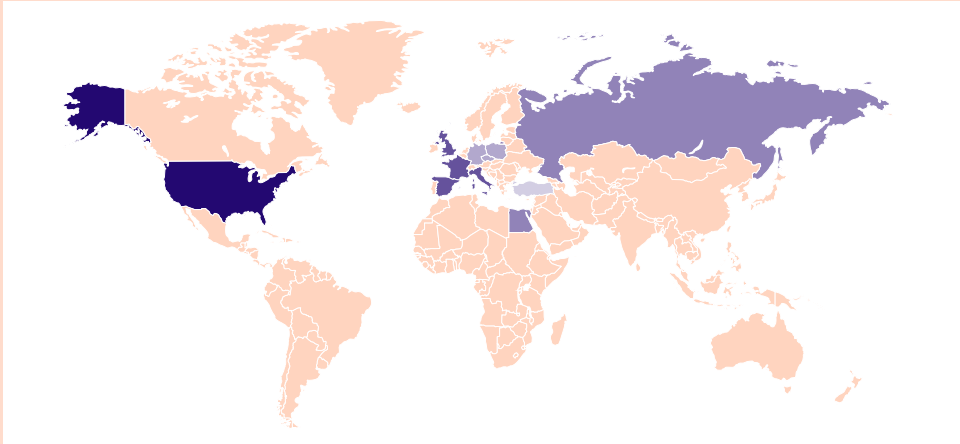
Source: BoG and own calculations.
 * As in Figure 4.1.2.

begun to reverse, with the data for 2022 currently unable to lead us to safe conclusions, due to the decisive role that the third quarter is expected to have in the results for the entire year.

Looking now at the leading countries in terms of average expenditure per trip for 2019 (Map 4.1.1), i.e., the last year for which data is available for the whole year

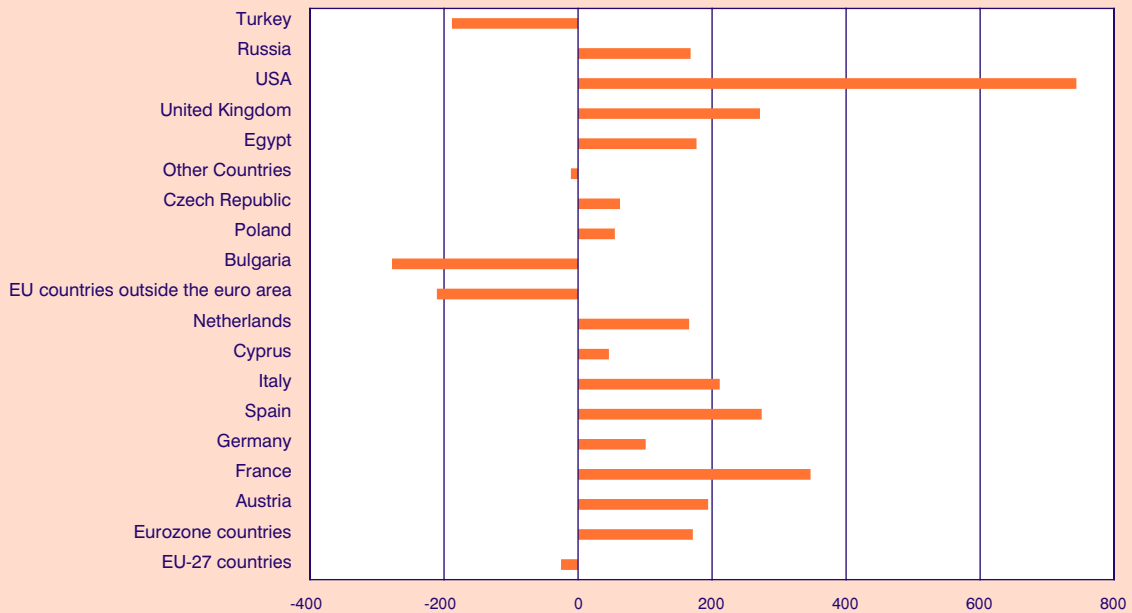
before the outbreak of the COVID-19 pandemic, we find that the country with the highest average travel expenditure is the USA, while neighboring Bulgaria was the opposite with the smallest. Bulgaria, as can easily be seen from Figure 4.1.9, seems to join the rest of the EU-27 countries in an average travel expenditure lower than the average.

MAP 4.1.1
Countries with the lowest and highest average expenditure per trip, for the year 2019



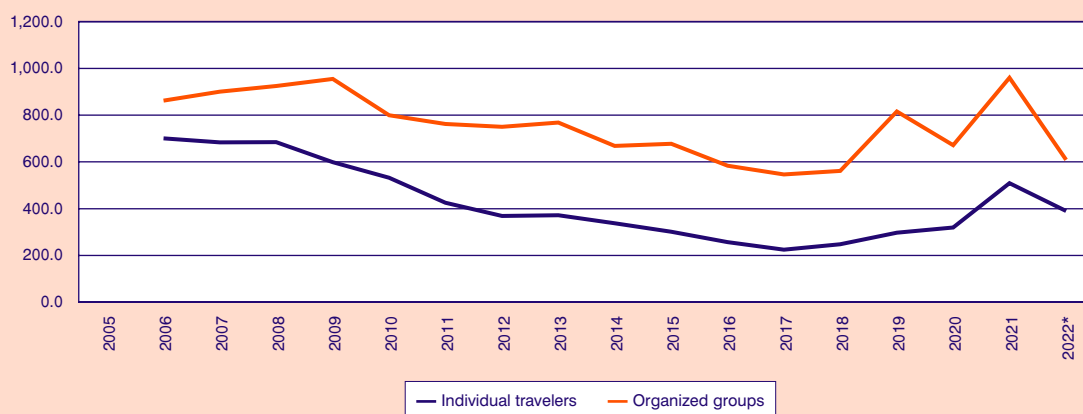
Source: BoG and own calculations.

FIGURE 4.1.9
Deviations by country of origin from the average expenditure per trip for the year 2019



Source: BoG and own calculations.

FIGURE 4.1.10
Evolution of the average expenditure per trip by individual travelers and organized groups



Source: BoG and own calculations.

* As in Figure 4.1.2.

Finally, regarding the temporal evolution of the average expenditure per trip of non-residents of the country, it appears, contrary to the findings of Figure 4.1.6, that related to international travel receipts, the average expenditure for organized trips exceeds the expenditure of individual travelers. See Figure 4.1.10.

4.1.5. Conclusions

The preceding analysis firstly demonstrates the strong upward trend of travel receipts in the last decade, which, if combined with the GDP trend for the corre-

sponding period, raises questions about the extent to which tourism can be the sector that determines the trend of the rest of the economy. From there on, about the travel receipts, it is worth emphasizing the great contribution of European countries and particularly the countries of the Eurozone, while cruises, despite their special position in the public debate, do not seem to have any contribution to travel receipts. Finally, regarding the average expenditure per trip of non-residents, the main finding and what should be of particular concern to tourism policy makers is its downward trend and how this can be reversed.

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The quest for economic development and growth through the aggregate supply

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Abstract

When an increase in the aggregate supply dominates changes occurring in the aggregate demand, then output increases and the price level decreases. This desirable outcome in the operation of the economy and in policy intervention appears to have occurred frequently in Greece during 2001-10, but less frequently afterwards (in 2011-21). The article describes this development, as well as the evolution of employment during 2001-22, and the evolution of consumer prices across products during the pandemic and the recent international supply-chain, food, and energy crises (in 2020-22). It also compares the turnover of domestic enterprises across sectors to the turnover observed prior to the pandemic and the other crises, providing potentially useful observations. With the country experiencing inflationary pressures and moving through successive crises (not to mention possible climate change crises), it is sensible to strengthen domestic production (i.e., expand the aggregate supply). Even if the expansion of the aggregate supply does not always dominate changes in the aggregate demand, it will mitigate inflationary pressures and hinder GDP reductions or advance GDP growth. The common good is served when decision makers and the society at large mull over, talk about, refine and accordingly implement new and old ideas or practices employed elsewhere in the direction of expanding the aggregate supply.

Keywords: *Aggregate supply and aggregate demand, GDP, Inflation, Pandemic and other global crises, Economic development planning.*

JEL classification: *E10, E31, I15, J21, M20*

1. Introduction

When viewed in a typical output-price setting, a country's economic situation and operation are typically described in terms of its aggregate demand and the aggregate supply. The aggregate demand (AD) captures the impact of domestic consumption, investments, government spending, the money supply, net exports and other economic flows with the rest of the world. On the other hand, the aggregate supply (AS) captures the impact of labor, other inputs, entrepreneurship, and the technologies that individual producers employ in the production of goods and services. (E.g., Siegel, 1960; Abel and Bernanke, 2001.)

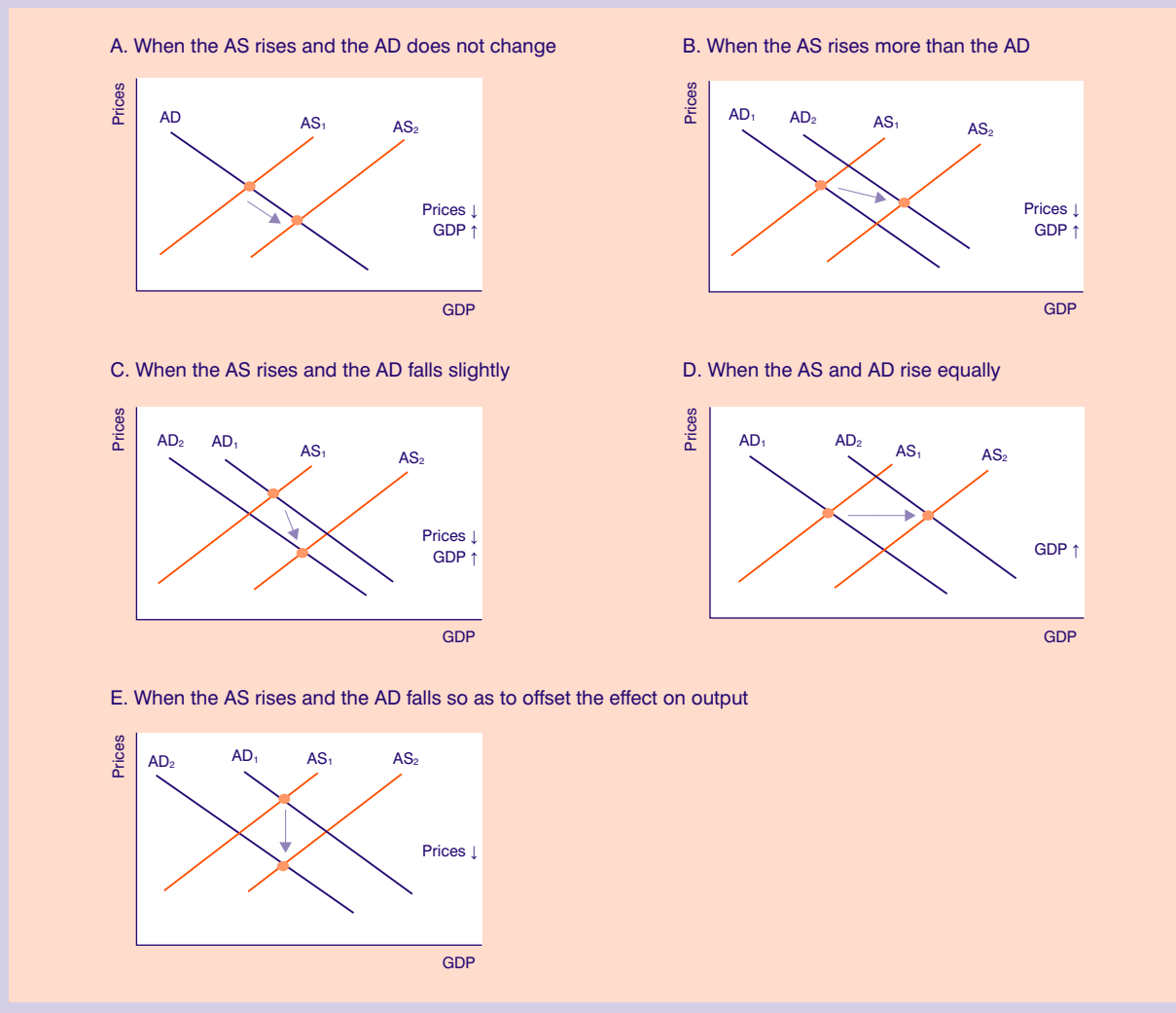
Depending on whether changes in the aggregate demand prevail over changes in the aggregate supply or vice versa, the quantity of output produced can move in the same or opposite direction as the price level. Specifically, when the aggregate supply increases more than the aggregate demand increases or decreases, then, *ceteris paribus*, output increases and the price level decreases, whereas when both shift equally, then either the output or the price level stays the same. (See Figure 1 and Figure 2.A.) By contrast, when an increase in (i.e., a rightward shift of) the aggregate demand dominates the right- or left-ward shift (i.e., a rise or fall) of the aggregate supply, then both output and the price level increase. When a decrease of the aggregate supply dominates the shift of the aggregate demand, then output decreases and the price level increases. When a decrease of the aggregate demand dominates the shift of the aggregate supply, then both

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

FIGURE 1

Select cases of aggregate supply (AS) increases and aggregate demand (AD) shifts and their impact on GDP and prices



output and the price level decrease.¹ (See Dornbusch and Fischer, 1994; and Figures 2.B-D.)

It turns out that a rise in the aggregate supply that dominates a shift of the aggregate demand is preferable to the other three developments as it causes output to rise,² prices to fall, and, hence, living standards to improve. In addition, lower prices make the country's goods and services more competitive. As we shall see, such simultaneous price falls and output rises in Greece used to occur frequently in the past, but are less frequent lately.

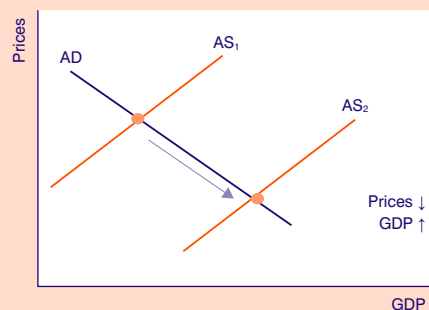
The article does not take part in the debate of competing schools of macroeconomic thought that promote the importance of either the aggregate supply side or the aggregate demand side in driving economic growth. (For instance, see Baumol and Blinder, 1986; Lucas, 1990.) Characteristically, it makes no reference to *government project multipliers* or *tax cuts*. It accepts that interventions both from the side of the aggregate supply and from the side of the aggregate demand may affect economic growth; and that interventions from either side may be combined

1. The working hypothesis is that the economy is far from the maximum level of output that can be produced in full employment: a reasonable assumption in view of Figure 3.

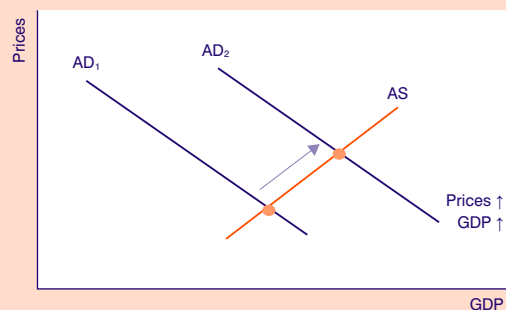
2. The widely used measure of output is the gross domestic product (GDP). Though far from being an ideal measure, it is the best measure we have at regular intervals.

FIGURE 2
The impact of a dominant aggregate supply (AS) or aggregate demand (AD) shift on GDP and prices

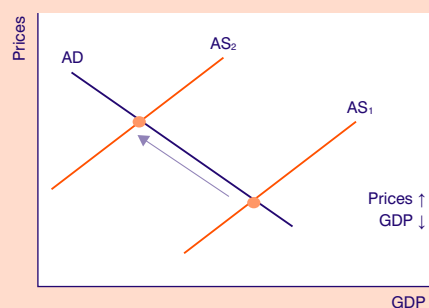
A. When a rise in the AS dominates changes in the AD



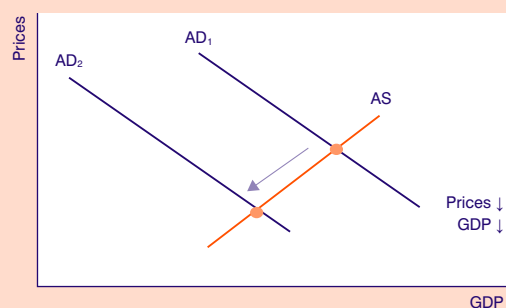
B. When a rise in the AD dominates changes in the AS



C. When a fall in the AS dominates changes in the AD



D. When a fall in the AD dominates changes in the AS



or feed into the other side. For instance, demand side policies in the form of investments may affect the improvement of production inputs and, over time, affect growth from the supply side.³

The rest of the article is organized as follows: Chapter 2 provides an overview of recent economic developments in Greece in terms of overall output and prices (developments running from 2001 to 2021). Chapter 3 discusses the prospect of high inflation rates and ways to contain it. Chapter 4 discusses the evolution of domestic prices across various groups of products during the novel coronavirus pandemic via data running up to the second quarter of 2022. Chapter 5 does the same with the evolution of employment and of turnover, and Chapter 6 concludes.

2. Overview of economic developments in Greece in terms of output and prices during 2001-21

In the years that followed Greece's accession to the euro (2001), the country's output continuously increased until 2009-10, at which time output reached the highest level in the country's history (Costelenos et al., 2007; Chalikias 2013). Subsequently, triggered by the turmoil of the global financial crisis and, in particular, due to the sovereign debt crisis (i.e., the inability of the Greek government to borrow at low interest rates in order to repay the public debt), and in the course of the bailout (i.e., the economic adjustment) programs, output shrank. It recovered in 2017-19, decreased once again in the first year of the pandemic (2020),⁴

3. It is a sequence of actions that to some extent reverses the order of things in the expression by which J.B. Say's law is often summarized, namely, that *the supply creates its own demand* (see Baumol, 1999).

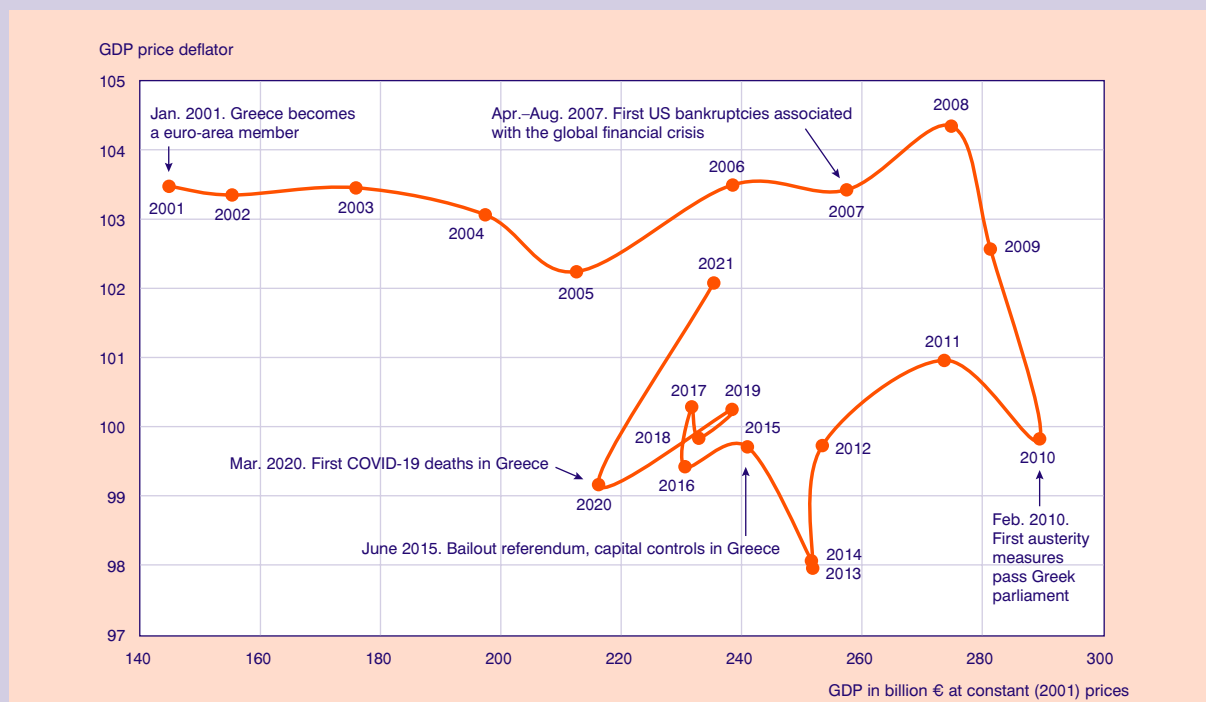
4. At the same time, a global supply-chain crisis occurred, and the global food situation worsened. E.g. Esper (2021), Raj et al. (2022), and the WFP (2022) of the UN.

and rebounded in the second year of the pandemic (2021), prior to the war in Ukraine, the international sanctions and countersanctions, and the energy crisis (2022).⁵ See Figure 3⁶.

The evolution of both output and prices suggests that:

- The first phase (2002-10) consisted of years in which increases in the aggregate supply dominated changes in the aggregate demand (in 2002, 2004-05, 2007, 2009-10), and years in which increases in the aggregate demand dominated changes in the aggregate supply (in 2003, 2006, 2008).
- The second phase (2011-16) consisted of years in which decreases in the aggregate demand dominated changes in the aggregate supply (in 2012-13, 2016), and years in which decreases in the aggregate supply dominated changes in the aggregate demand (in 2011, 2014-15). In 2014,
- the downturn was halted. However, the year that followed was packed with two electoral contests, a referendum, and capital controls, and the downturn deepened.
- The third phase (2017-19) consisted of years in which increases in the aggregate demand dominated changes in the aggregate supply (in 2017, 2019) and a year in which an increase in the aggregate supply dominated changes in the aggregate demand (2018).
- The fourth phase, that of the pandemic (2020-21), consisted of a year in which a decrease in the aggregate demand dominated changes in the aggregate supply (2020), followed by a year in which an increase in the aggregate demand dominated changes in the aggregate supply (2021). The pandemic continues through 2022. See Figure 4.

FIGURE 3
The evolution of output and prices in Greece from 2001 to 2021



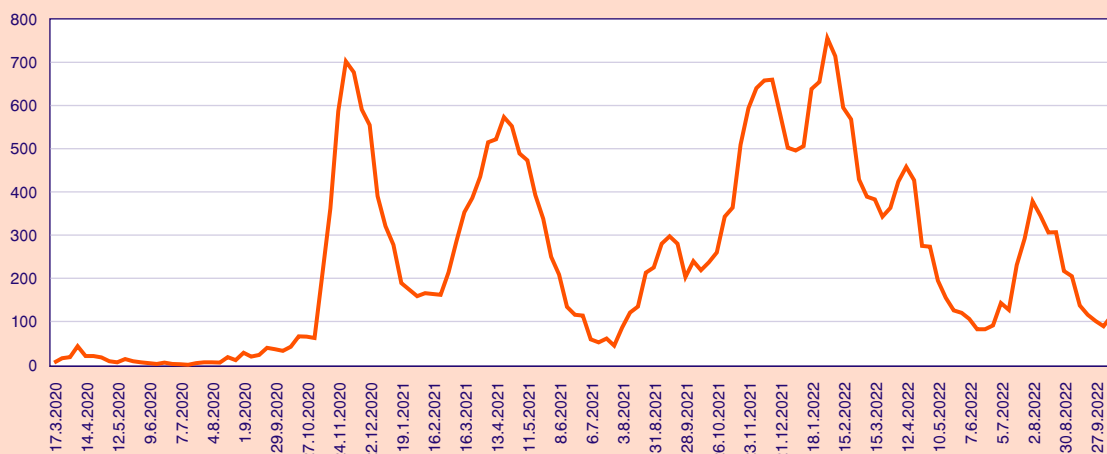
Source: Hellenic Statistical Authority (ELSTAT), own calculations.
A break occurs in the time series in 2010 (i.e., from 2010 onwards).

5. E.g., European Union (2022).

6. During the same period: employment dropped (in 2009) prior to the decrease in the real GDP (2010-11), rose intermittently (in 2014 and 2016), recovered in 2018, after the real GDP rose (in 2017), and fell again in the first year of the pandemic (2020) as did the real GDP.

FIGURE 4

The evolution of the pandemic in Greece in terms of weekly deaths, March 11, 2020 - October 11, 2022 (11.3.2020-11.10.2022)



Source: Johns Hopkins University, own calculations.

3. The prospects of high inflation and of reigning it in

Obviously, the upward shift in the aggregate demand during 2021, to some or to a considerable extent, included government spending to:

- help firms, households, vulnerable populations, and the society at large deal with the negative effects of the interventions taken to prevent the spread of the pandemic in the society, and
- affect economic and social recovery, and make the economy and society more sustainable, resilient and better prepared for future challenges and opportunities.

Yet, while reasonable and desirable, this government spending caused or contributed to a price increase – a rather small overall annual price increase in terms of the GDP deflator (one of the lowest in the EU-27) according to Eurostat.⁷

Currently (in 2022), new –and, perhaps, more intense– government spending for the same reasons, and in order to deal with the consequences of the war in Ukraine (especially the energy crisis), in all likelihood will bring about additional price increases. It is a foreseeable

side effect of the treatment employed, especially if the aggregate supply does not expand at the same or a higher pace. (See Box 1.)

This means that if in 2022 and in 2023 (a) the Greek government moves more actively than in the past and more actively than governments in other countries and/ or (b) the structure of the Greek economy allows for a smaller expansion of the aggregate supply compared to other countries, then, in all likelihood (c) the overall price increase in Greece will exceed the respective price increases in the said countries. In other words, if either (a) occurs or (b) is true, the government's reasonable, generally acceptable moves are likely to result in (c).⁸ To stress the point: This does not in any way imply that it is not appropriate for the government to resort to higher spending, but rather that a large price increase is likely to occur as a result.

If the inflation rate exceeds 2% across the Eurozone, then, in all likelihood, the European Central Bank (ECB) will intervene to curb the rate by shortening the rightward move of the aggregate demand. This will surely restrict the prospect of GDP growth.

In view of the above, it is necessary to expand the domestic production of goods and services (i.e., the ag-

7. <https://ec.europa.eu/eurostat/databrowser/view/teina110/default/table?lang=en>.

8. It seems that in the first half of 2022, the country exhibited the 8th highest price increase among the EU-27 member states in terms of the GDP deflator. See also footnote 7.

BOX 1

A note on aggregate supply-side interventions

Spending or legislating to:

- improve infrastructure, human capital, labor productivity, the flow of inputs/outputs along the supply-chain (also value-chain), and the dissemination of information across society as well as in the public and private sectors,
- raise the attractiveness of engaging in paid work activities,
- promote entrepreneurship,^a research and development, and a business friendly environment and ecosystem,
- deregulate or reduce red tape and state interventions in favor of market competition,^b and the creation of businesses,
- affect the organizational, managerial, production and marketing improvement of businesses and public bodies

may raise the aggregate demand contemporaneously, and (if successful) will raise the aggregate supply at a future date.

The Greek government's recovery and resilience plan has both a six-year legislation and spending horizon, and a long-term supply-side realization prospect (Hellenic Republic, 2021).

a. In the sense of the individual's ability to bring resources together in a new and efficient way, and organize things both differently and successfully.

b. Barring a small number of exceptions: e.g., cases of natural monopolies, the Government's or the EU Commission's centralized procurements.

aggregate supply) as much as possible to both temper inflation and raise the GDP. Even if it may not be easy to effectively and swiftly restructure most sectors of economic activity and the economy at large, it may be possible in some cases: conceivably in the production of a good or service with spare capacity, or by affecting one or two of the changes mentioned next to the bullets of Box 1, in a specific sector or region of the country with as little demand-side involvement as possible.⁹

Indeed, it may be appropriate to put into action new ideas, as well as ideas considered in the past with the same rationale: To preserve people's purchasing power

by, say, removing distortions of competition¹⁰ or by once again adding sales periods to the original two (summer and winter sales). Case in point, the introduction in 2013 of two brief sales periods (in spring and autumn) brought about price reductions that did not exist before (e.g., in 2012) and visibly differentiated the Greek Consumer Price Index (CPI) patterns from the respective EU patterns (see Figure 5).¹¹

In addition, in order to keep inflation low and raise real GDP, it may be appropriate to engage in coordinated purchases with other EU member states of, say, natural (fossil) gas and other fuels.¹²

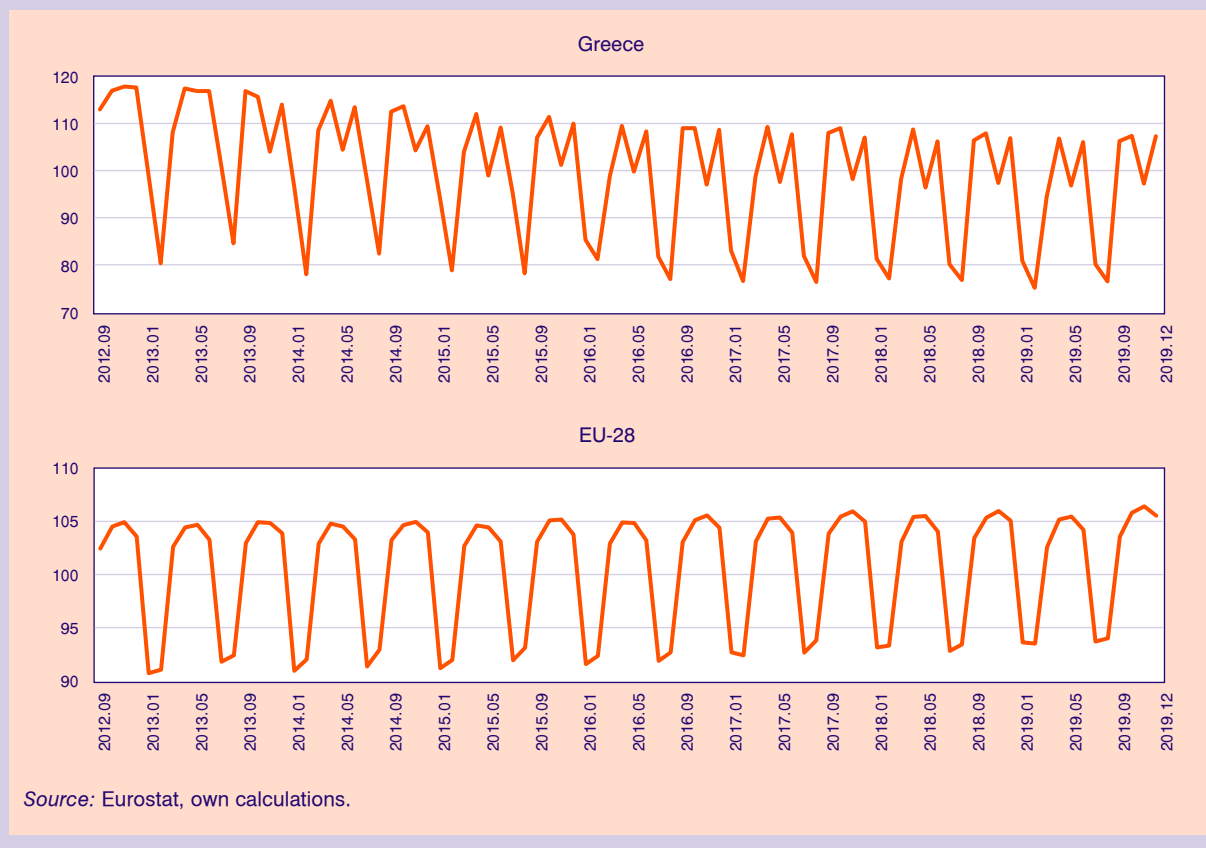
9. A number of projects that affect a rise in the aggregate supply may also affect a rise in the aggregate demand and, thus, produce an ambiguous price effect. For instance: (a) The extension of the tourist season (through the use of existing and new resources) may facilitate the provision of hosting services in Greece during winter (a mild winter by central and northern European standards) to people from colder climates through the energy crisis. (For more on the special tourism campaign associated with the attempt see Connolly, 2022). (b) Allowing the voluntary Sunday opening of small shops (bookshops, clothing shops, fruit shops, etc.), as already done with florists, restaurants, petrol stations and pastry shops (see Appendix 1).

10. For instance, the partial removal of fixed prices in the books industry during 2014-18 in Greece affected a price reduction and an expansion of the consumer's surplus (Kontolaimou et al., 2019; Prodromidis, 2020).

11. Professional and other social groups resented such interventions in the past and may resent them in the future. The State may choose to employ (or not employ) policies that raise overall welfare, and to compensate those hurt by the intervention.

12. As a purchasing party, the Greek government has pursued centralized procurement approaches to lower prices in the past. Currently, following the paradigm of the recent centralized COVID-19 vaccine procurement by the EU, the Greek government actively participates in the formulation of an EU-wide plan on the procurement of natural gas (see Liagou, 2022).

FIGURE 5
The monthly harmonized consumer price index in Greece and the EU-28 during 2012-19:
clothing & footwear (2015= 100)



4. Recent developments in domestic prices by product groups

Turning our attention to the recent evolution of natural gas prices and the prices of other goods and services sought by consumers (Figure 6):

- The prices of food and non-alcoholic beverages increased the most during the first year of the pandemic and a considerable portion of the second year of the pandemic, vis-à-vis the corresponding months of 2019:¹³ in particular, from May 2020 to the end of the year, and (again) from May 2021 onwards.¹⁴
- Housing prices¹⁵ exhibited an even higher increase from October 2021 to August 2022 (last month for which data exist at the time of writing the article).
- Transportation prices¹⁶ rose in October 2021 (see also footnote 15, it is no coincidence)¹⁷ and, again,

13. The comparison is carried out with respect to the same months of 2019 so as to isolate seasonal effects.

14. In both May 2020 and May 2021, travel restrictions and lockdowns eased. In Greece, the main tourist season commences at the end of spring.

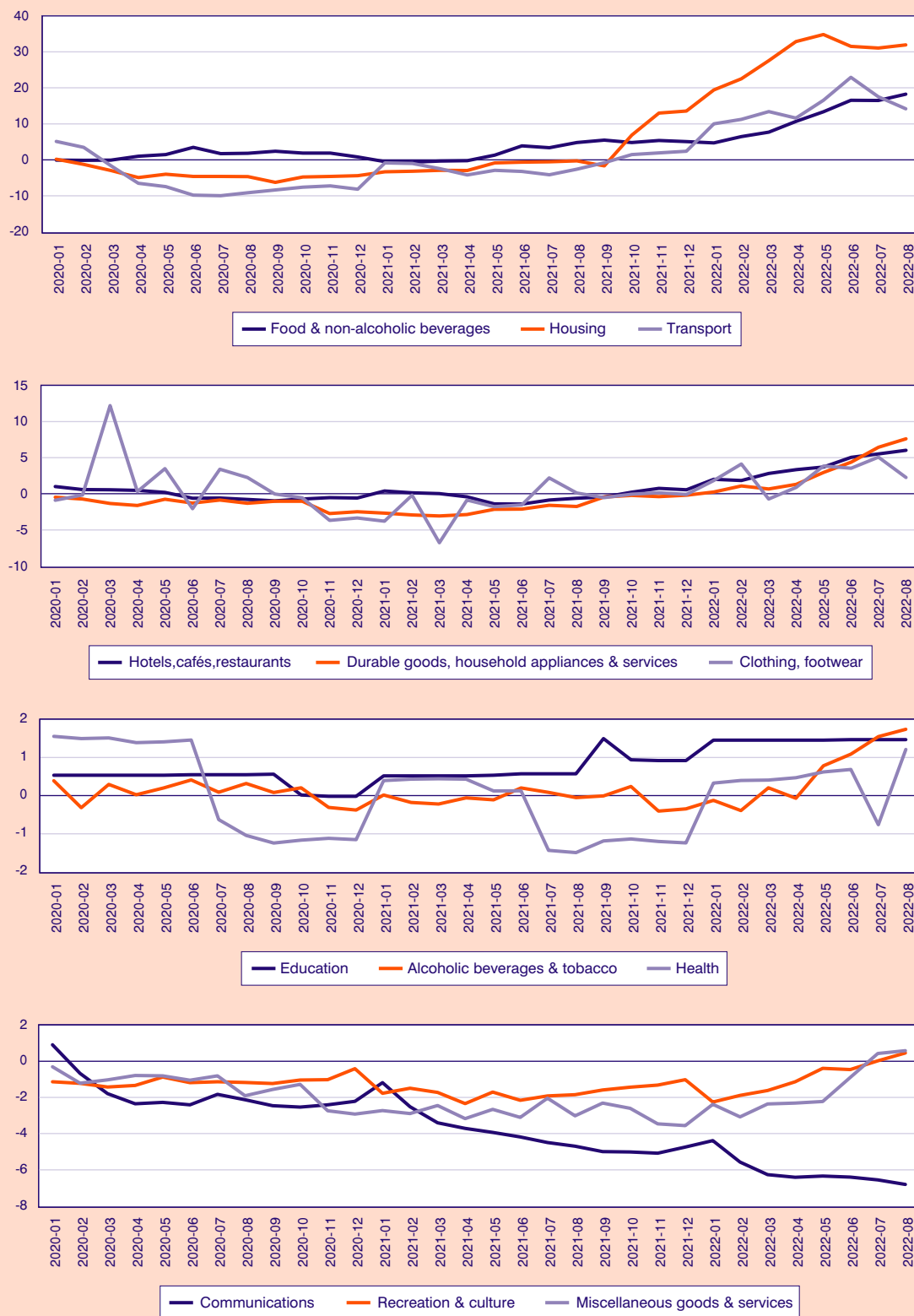
15. Housing prices depend on rents and expenses for electricity, gas, other fuels, water supply, etc., as well as for home repairs and maintenance. During the four-month period that preceded the war in Ukraine, housing price increases were attributed by ELSTAT to electricity, natural gas and heating oil bills.

16. Transportation prices depend on expenses for vehicles (purchases, repairs, maintenance, fuel, parking, tolls, road tax), the transportation of people and goods, and driving lessons. During the four-month period that preceded the war in Ukraine, transportation price increases were attributed by ELSTAT to expenses for new cars, fuel, lubricants and (to some extent) airline passenger tickets.

17. Crude oil prices increased in October 2021 as (a) increasing COVID-19 vaccination rates, loosening pandemic-related restrictions, and a growing economy resulted in global petroleum demand rising faster than petroleum supply and (b) global petroleum production increased slower than demand as per a specific policy of the Organization of Petroleum Exporting Countries.

FIGURE 6

The evolution of consumer price sub-indices during Jan. 2020 – Aug. 2022 (2020.01 – 2022.08), compared to the same months of 2019



Source: ELSTAT, own calculations.

from January 2022 onwards, surpassing the price increases for food and non-alcoholic beverages.

At the same time, the prices of other goods and services¹⁸ either moved upwards at a slower pace or (in the case of communication services)¹⁹ moved downwards. Overall, the developments –especially the energy crisis triggered by the war in Ukraine and by the EU sanctions to Russia and Russian countersanctions– caused the monthly CPI²⁰ in Greece to increase progressively by 5 to 11% in the first six months of 2022, compared to the corresponding pre-pandemic months of 2019.

5. The recent evolution of variables linked to production and to the aggregate supply

As the economy operated under (a) constraints either intended to prevent the spread of the pandemic in the society or associated with the disruption of the global supply chain (initially due to the pandemic, then due to sanctions and counter-sanctions in the wake of the war in Ukraine), and the slow return to some kind of normality (a return hindered by the pandemic's persistence), as well as (b) considerable stimulus interventions from the aggregate demand side,²¹ it seems that in the course of the first two quarters of 2022:

- Employment rose by 6 and 5% compared to the first and second quarters of 2019, respectively, and the unemployment rate fell (continued to fall) by 18 and 24%, respectively. (See Figure 7.)
- Employment rose in twelve of the 21 sectors of economic activity during both the first and the second quarters, fell in two sectors in both quarters, and rose in one quarter, but fell in the other quarter in seven sectors. (See Table 1. The classification and short descriptions of the various economic activities is supplied in Table 2.)
- The turnover of businesses and other corporations (i.e., the product of the price multiplied by the quantity sold) rose more than (a) the CPI in most industries of economic activity, and (b) the Producer Price Index (PPI) changed (increased or decreased) in twelve industries (namely, industries 01, 19, 21, 24, 27, 38, 51, 61, 62, 70, 78, 80).²² This suggests an expansion of output and demonstrates an element of dynamism.²³ (See Table 3.)

In addition, it appears that at least: (a) 16 industries achieved slightly higher turnover compared to the same period in 2019 (by 1-10% in one quarter, 3-45% in the other quarter); (b) eleven industries achieved higher turnover compared to the same period in 2019 (by 12-19% in one quarter, 13-32% in the other quarter);

18. Including (a) household equipment, furnishings, garden tools and equipment, and routine household maintenance; (b) leisure and cultural goods such as audiovisual equipment, computers (and their repairs), caravans, boats, horses, electronic and board and children's games, musical instruments and indoor recreation equipment, outdoor and sporting goods, garden products, flowers, pets, sports; leisure activities such as cinema, theater, concerts, museums, libraries, zoos, etc., newspapers, books, stationery, holiday packages, other cultural activities, TV license and subscriptions, DVD rentals, photo services, gambling; (c) other goods and services such as personal care items, jewelry, watches, hairdressing and other personal care services, childcare, care for the elderly and disabled, home care services, counselling, insurance premiums, financial and other services (for passports, ceremonies, lawyers, photocopies, real estate agencies, etc.).

19. They depend on expenses for postal and telephone services, as well as for telephone and facsimile equipment.

20. In contrast to the GDP deflator, a measure of overall price changes in the economy that takes into account that consumption and investment patterns may vary from one year to the next, the CPI is based on a fixed basket of goods and services and reflects movements in the prices of consumer goods and services only. Both figures are used as measures to calculate inflation. To the extent that the CPI does not take into account spending for military equipment and other government procurements, as well as spending from businesses or foreigners, it better approximates changes in the cost of living for residents. Indeed, the harmonized CPI across the EU constitutes the inflation measure that the ECB considers in order to intervene and maintain price stability. See also Oner (2017). From a statistical point of view, we are not yet able to engage in comparisons to the 2022 GDP deflator.

21. For instance, construction expenditures carried out this year with an eye to build roads and dams that will be completed in two or three years from now. Such interventions may affect the production of a higher level of output in the transport or agricultural or energy sector (i.e., the aggregate supply) in two or three years from now. See also footnote 3.

22. I.e., crop and animal production, hunting, etc.; the manufacture of coke and refined petroleum products; the manufacture of basic pharmaceutical products and pharmaceutical preparations; the manufacture of basic metals; the manufacture of electrical equipment; waste collection, treatment and disposal activities, as well as the recovery of materials; air transport; telecommunications; computer programming, consultancy and related activities; the activities of head offices and management consultancy activities; employment activities; security and investigation activities.

23. A shortage of data does not permit similar comparisons in 2/5 of all industries of economic activity. Among the remaining industries, there are cases in which the PPI fell or rose by less than 10% (industries 61, 62, 63, 78, 80), rose by 10-20% (industries 01, 50), rose by about 20% (industries 51, 53), rose by 20-30% (industry 53), rose by 30-50% (sectors C and E).

FIGURE 7

The evolution of labor force participants and non-participants aged 15 years or older (million people), 1st quarter 2001 – 2nd quarter of 2021 (2001.A – 2022.B)

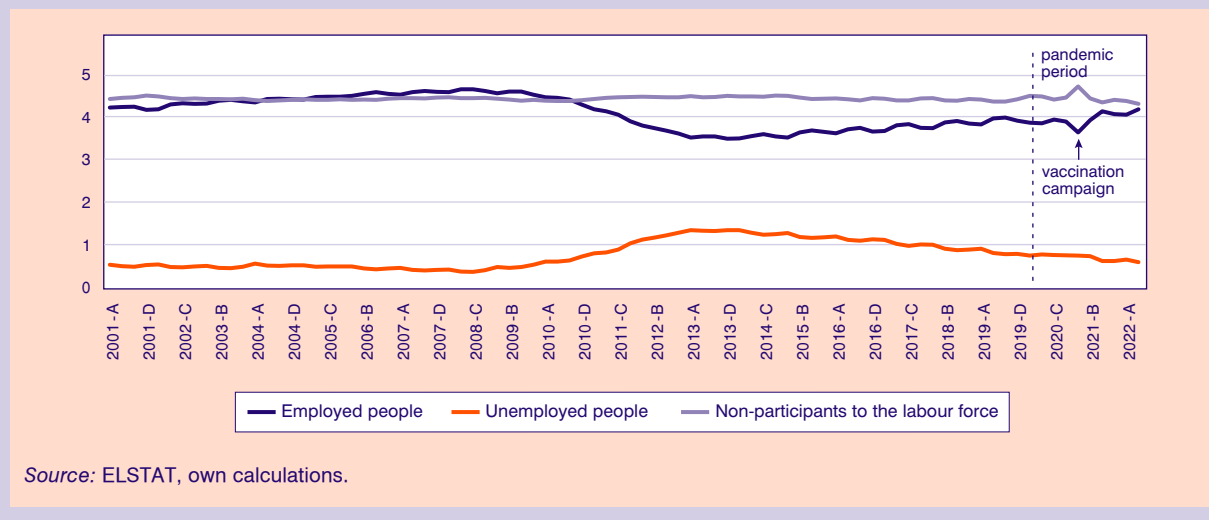


TABLE 1 The evolution of sectoral employment in Greece in terms of the figures of the first two quarters of 2022 compared to the corresponding figures of 2019 (NACE Rev. 2)

The sectors associated with codes A, B, etc. are listed in Table 2.

Sectors in which the number of employed people increased in one quarter and decreased in the other:

A, B, I, J, N (less than $\pm 5\%$), T, U (more than ± 5 and less than $\pm 15\%$).

Sectors in which the number of employed people increased during both quarters:

H (less than 5%), C, D, G, O, P (more than 5% and less than 15%),
L, M (more than 15%),
E (in one quarter less than 5%, in the other quarter more than 5% and less than $\pm 15\%$),
Q, R, S (in one quarter more than 5% and less than 15%, in the other quarter more than 15%).

Sectors in which the number of employed people decreased during both quarters

F (less than -5%),
K (more than -5% and less than -15%).

Source: ELSTAT, own calculations.

(c) eleven industries achieved much higher turnover compared to the same period in 2019 (by 20-28% in one quarter, 23-56% in the other quarter); (d) 24 sectors achieved very high turnover compared to the same

period in 2019 (by 31-95% in one quarter, 33-110% in the other quarter). At the same time, only seven industries achieved a lower turnover compared to the same period of 2019;²⁴ 13 industries reported lower turnover

24. The reasons vary. For instance, in one case, the development is attributed to the decision to phase-out the use of coal in the EU –a policy temporarily suspended in the summer of 2022 due to the energy crisis (Colonas, 2022). In another case, the development is attributed to the restructure of Energean PLC, an international hydrocarbon exploration and production company (Katzayiannaki, 2022). In a third case, the development is attributed to sanctions against Russia that hit domestic furriers (Reuters, 2022).

TABLE 2 The taxonomy of 21 sectors and 85 industries of economic activity (NACE Rev. 2)**A. Agriculture, forestry & fishing**

01 Crop & animal production, hunting, related service activities	02 Forestry & logging
	03 Fishing & aquaculture

B. Mining & quarrying

05 Mining of coal & lignite	08 Other mining & quarrying
06 Extraction of crude petroleum & natural gas	09 Mining support service activities
07 Mining of metal ores	

C. Manufacturing

10 Manufacture of food products	23 Manufacture of other non-metallic mineral products
11 Manufacture of beverages	24 Manufacture of basic metals
12 Manufacture of tobacco products	25 Manufacture of fabricated metal products, except machinery & equipment
13 Manufacture of textiles	26 Manufacture of computer, electronic & optical products
14 Manufacture of wearing apparel	27 Manufacture of electrical equipment
15 Manufacture of leather & related products	28 Manufacture of machinery & equipment not elsewhere classified
16 Manufacture of wood, products of wood & cork (except furniture), articles of straw, plaiting materials	29 Manufacture of motor vehicles, trailers & semi-trailers
17 Manufacture of paper & paper products	30 Manufacture of other transport equipment
18 Printing & reproduction of recorded media	31 Manufacture of furniture
19 Manufacture of coke & refined petroleum products	32 Other manufacturing
20 Manufacture of chemicals & chemical products	33 Repair & installation of machinery & equipment
21 Manufacture of basic pharmaceutical products & pharmaceutical preparations	
22 Manufacture of rubber & plastic products	

D. Electricity, gas, steam & air conditioning supply

35 (same as D)

E. Water supply, sewerage, waste management & remediation activities

36 Water collection, treatment & supply	39 Remediation activities & other waste management services
37 Sewerage	
38 Waste collection, treatment & disposal activities, recovery of materials	

F. Construction

41 Construction of buildings	43 Specialized construction activities
42 Civil engineering	

G. Wholesale, retail trade & repair of motor vehicles & motorcycles

45 Wholesale, retail trade & repair of motor vehicles & motorcycles	47 Retail trade, except of motor vehicles & motorcycles
46 Wholesale trade, except of motor vehicles & motorcycles	

H. Transportation & storage

49 Land transport & transport via pipelines	52 Warehousing & support activities for transportation
50 Water transport	53 Postal & courier activities
51 Air transport	

I. Accommodation and food service activities

55 Accommodation	56 Food & beverage service activities
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TABLE 2 (continued)

J. Information & communication	
58 Publishing activities	61 Telecommunications
59 Motion picture, video & television program production, sound recording & music publishing activities	62 Computer programming, consultancy & related activities
60 Programming & broadcasting activities	63 Information service activities
K. Financial & insurance activities	
64 Financial service activities, except insurance & pension funding	66 Activities auxiliary to financial services & insurance activities
65 Insurance, reinsurance & pension funding, except compulsory social security	
L. Real estate activities	
68 (same as L)	
M Professional, scientific & technical activities	
69 Legal & accounting activities	73 Advertising & market research
70 Activities of head offices, management consultancy activities	72 Scientific research & development
71 Architectural & engineering activities, technical testing & analysis	74 Other professional, scientific & technical activities
	75 Veterinary activities
N Administrative & support service	
77 Rental & leasing activities	80 Security & investigation activities
78 Employment activities	81 Services to buildings & landscape activities
79 Travel agency, tour operator reservation service & related activities	82 Office administrative, office support & other business support activities
O. Public administration & defense, compulsory social security	
84 (same as O)	
P. Education	
85 (same as P)	
Q. Human health & social work activities	
86 Human health activities	88 Social work activities without accommodation
87 Residential care activities	
R. Arts, entertainment & recreation	
90 Creative, arts & entertainment activities	92 Gambling & betting activities
91 Libraries, archives, museums, other cultural activities	93 Sports activities & amusement & recreation activities
S. Other service activities	
94 Activities of membership organizations	96 Other personal service activities
95 Repair of computers & personal and household goods	
T. Activities of households as employers of domestic personnel. Undifferentiated goods & services, production activities of private households for own use	
97 and 98 (same as T)	
U. Activities of extraterritorial organizations & bodies	
99 (same as U)	

TABLE 3 The evolution of annual turnover across industries in Greece in the first two quarters of 2022 compared to the corresponding figures of 2019 (NACE Rev. 2)

The industries associated with codes 01, 02, 03, etc. are listed in Table 2.

Industries in which turnover increased in both quarters, but in one quarter less than 10%:

08, 11, 12, 18, 37, 53,^a 55, 56, 74, 80,^b 82, 87, 90, 92, 94, 96.

Industries in which turnover increased in both quarters by:

10-20% 13, 23, 32, 33, 47, 50,^c 59, 60, 69, 73, 77.

20-30% 10, 28, 31, 39, 43, 45, 46, 71, 72, 86, 95.

30% or more 01, 02, 03, 16, 17, 19, 20, 21, 22, 24, 25, 26, 27, 29, 38, 41, 52, 62,^e 66, 70, 75, 78,^f 81, 85.

Industries in which turnover increased in one quarter but decreased in the other:

The increase was by less than 10%: 14, 58, 61, 68, 91.

The increase was by 10-20%: 36, 42, 49, 88.

The increase was by 30% or more: 07, 30, 51,^h 93.

Industries in which turnover decreased in both quarters:

05, 06, 09, 15, 63,ⁱ 65, 79.

a The PPI appears to have risen in the first and second quarters of 2022, respectively, by 21 and 22%, compared to 2019.

b The PPI appears to have risen in the first and second quarters of 2022, respectively, by about 0 and 2%, compared to 2019.

c The PPI appears to have risen in the first and second quarters of 2022, respectively, by 12 and 11%, compared to 2019.

d The PPI appears to have risen successively in the first six months of 2022, respectively, by 11, 13, 19, 22, 19 and 15% compared to 2019.

e The PPI appears to have fallen in the first and second quarters of 2022, respectively, by 2 and 1%, compared to 2019.

f The PPI appears to have risen in the first and second quarters of 2022, respectively, by 2 and 1%, compared to 2019.

g The PPI appears not to have changed in the first and second quarters of 2022 compared to 2019.

h The PPI appears to have risen in the first and second quarters of 2022, respectively, by 22 and 19%, compared to 2019.

i The PPI appears to have fallen in the first and second quarters of 2022 by 1%, compared to 2019.

In the underlined cases, the PPI appears to have successively risen in the first six months of 2022, respectively, by 31, 36, 46, 49, 42 and 40%, compared to 2019.

Source: ELSTAT, own calculations.

in one quarter and higher turnover in the other quarter (2-56% higher) compared to the same period in 2019; while in three industries (namely, industries 35, 64, 84) the corresponding figures were not comparable according to ELSTAT.

It is a fairly positive situation from a microeconomic point of view, consistent with an expanding aggregate demand.

Another interesting feature is that, while the patterns of employed and unemployed people by and large reflected each other (like opposite mirror images), and the figures of non-participants did not change much

over a long time (i.e., did not appear to respond to changes in either the number of employed or the number of unemployed); during the pandemic, employment and non-participation patterns began to clearly reflect each other like opposite mirror images. (See Figure 5.) To the extent that the flows of individuals among the three states (employment, unemployment, non-participation in the labor market) are more apparent than before, it might be better if future developments and interventions in any one of the three states were considered with an eye to take into account the likely effects on (or the responses from) the other two.

6. Conclusions – the road ahead

Recognizing that the country operates in an environment of successive international crises (financial, health, supply-chain, energy, climate, etc.) requires the formulation of a sustainable development plan involving distinct (preferably disconnected) key sectors to stimulate or raise production in the future. Ideally, aggregate demand side interventions will not be frequent or dominant, but will be employed in special circumstances (much like a *medicine or booster*) in order to facilitate crucial structural transformations or maintain a critical standard of living.

Ideally, decision makers and the society at large will mull over, talk about, and refine new and old ideas or practices employed elsewhere, in the direction of expanding the aggregate supply, and to move in the particular direction. The plan itself should point towards matching human and manmade capital across space and sectors that produce high added value, profitable goods and services that may be desired by foreign markets and stand out in international competition.²⁵ This ought to raise real national income and bring in the currency needed (a) to import goods and services that are costly to produce domestically and (b) to repay the debt.

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25. By contrast, the income generated by domestically consumed goods and services is constrained by the purchasing capacity of domestic buyers.

APPENDIX 1 The likely impact on prices and the GDP of deregulating Sunday shopping in Greece

EU law allows each member state to set its own policy concerning work on Sundays, so in 2012, a partial removal of the restriction was proposed in Greece in order to allow small shops to voluntarily operate on Sundays if the owner so wished. In 2013, the parliament devolved the particular deregulation decision to local authorities, and in 2017, it broadened the scope to include large retailers as well. In practice, in most areas of Greece, both large and most small retailers are generally closed on non-holiday Sundays.

If the deregulation regarding small shops were extended to many more areas across the country, then, *ceteris paribus*:

- A rise in the supply of goods on Sundays ought to lower prices throughout the week: With more and different shops open on Sundays to better meet the needs of consumers (so that they may shop for groceries and something to eat, buy a gift, etc.), the Sunday supply curve for goods ought to shift to the right, causing prices to fall on Sundays. With a corresponding decrease in the demand for such goods during the other days of the

week (as some needs are satisfied on Sundays), prices ought to fall on the other days as well. By contrast, the overall quantity of goods produced and sold is not expected to decrease.

- Based on the quantity theory of money in the form of Fisher's equation of exchange (1911), $M \times V = P \times Y$, where M is the amount of money in existence, V is the transaction velocity of money (i.e., the average number of times a unit of money turns over or changes hands to effectuate transactions in a year), P is the average price level, and Y is the total value of all items transacted (real income); allowing transactions and money to circulate on an extra day of the week (i.e. an increase in V) will increase money circulation and income generation in the course of the week. Ultimately, $P \times Y$, i.e., the nominal GDP will increase. Though the mechanics may push prices in the opposite way compared to the direction described in the previous paragraph, to the extent that Y is affected (however slightly), real income (output) ought to increase.

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