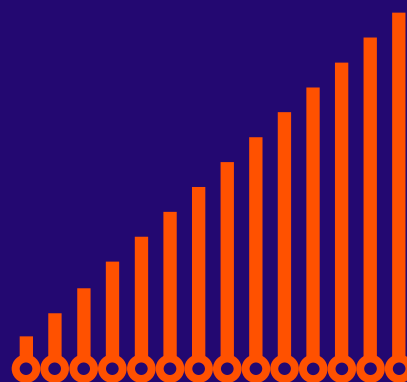
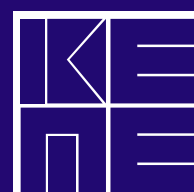


GREEK ECONOMIC OUTLOOK



- **Recent (macro-)economic developments**
- **Fiscal developments**
- **Human resources and social policies**
- **Special topics**



GREEK

Economic Outlook

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Executive Summary

Greece facing natural disasters

At the present juncture, Greece has been confronted with extreme natural phenomena, which, due to their unprecedented magnitude, will have significant economic consequences. The extent and time horizon over which the disasters, and in particular the floods in Thessaly, will affect GDP development cannot be estimated at this time. On the one hand, we do not know the initial economic footprint of the disasters and the time it will take to restore normality and productive activities to the affected areas. On the other hand, multiple domestic rehabilitation, support and solidarity mechanisms have been mobilised to assist the people affected and to repair the damage, and significant financial resources are to be made available from the European Union for the same purposes. Pending specific data on the above parameters, any assessment of the outlook for the Greek economy for the remainder of this year can only be based on the economic data currently available for the period before the disasters occurred.

The Greek economy remains on a growth path

Based on currently available data, the updated forecast of the Centre for Planning and Economic Research (KEPE) estimates the average annual rate of change of Greece's real Gross Domestic Product (GDP) for the year 2023 at 2.4% (see section 1.3), which is a slight upward revision of the corresponding previous forecast of KEPE (2.2%). While based on the latest available data incorporated in the above forecast, i.e., the data for the second quarter of 2023, the Greek economy remained firmly on track for satisfactory growth rates, and developments in key aggregates and indicators were mostly positive. The risks to the country's economic outlook are significant at the current juncture, not only because of the recent natural disasters, but also because of other factors related to the weak performance of the European economy and the economic downturn in the euro area. On the other hand, there are also several factors that can contribute to an improved outlook for Greece's GDP, such as the continued positive developments in the tourism sector, the use of the Recovery Fund and NSRF resources to strengthen productive investment, the strengthening of the resilience of the economy through the fulfil-

ment of fiscal targets and the recent upgrade of Greek government bonds to investment grade by S&P.

Despite recent geopolitical developments, the stock market is performing impressively

The first eight months of 2023 ended with impressive returns for the Greek stock market since the beginning of the year, with increased market capitalisation and transaction value (see section 1.4). With the aim of containing inflation, the ongoing interest rate hikes by the ECB continue to put pressure on the bond market, affecting the yields of new issues and the cost of borrowing for the Greek government. A milestone for the Greek economy was the recovery of the investment grade, which is expected to have positive effects on businesses, households, the stock market and the government through lower borrowing costs, increased liquidity and the attraction of new investment capital.

Inflation is falling

Regarding price developments, the decline in energy prices since the beginning of the year, combined with the restrictive monetary policy, have led to a deceleration of inflation internationally. However, inflationary pressures remain strong with core inflation remaining high in most economies of the world. According to OECD analysts, the persistence of core inflation is due to higher production costs and high profit margins in several productive sectors. There is also a significant differentiation between the price inflation of material goods and services, with upward pressures on the prices of the latter remaining strong due to a higher share of labour costs in the total costs of service industries.

However, its long stay in the Greek economy seems to be due to 'greedflation'

The analysis we conducted at KEPE shows that during the period 2021-2022 and especially for the period 2022q1-2022q4, which is characterized by strong exogenous inflationary pressures mainly in the energy sector, *unit profits* increased their contribution to domestic price increases as reflected in the percentage

increase in GDP deflator (section 1.2). Moreover, as we have seen, the drivers of the increase in unit profits (the gross operating surplus in the economy as a whole) were fuelled by increases in the (unit) net operating surplus of MFIs and unit gross income. These conditions provide evidence that firms *chose not to absorb the increases in energy costs by passing them on to product prices and, at the same time, boosted their net operating surplus.*

The results of the analysis add to a series of papers on other countries, the euro area and the USA. Various interpretations have been attributed to this phenomenon. Some firms may be increasing their prices to protect their profit margins. Given that in the initial phase of inflation there was excess demand, a price increase would not result in a loss of market share. According to another interpretation, some firms increase their profit margins in order to recover losses of previous years. Another possible reason lies in the attempt to create ‘cushions’ in an environment of high uncertainty. In a similar vein, some firms form expectations that inflation will continue and therefore discount increases in production costs by adjusting product prices accordingly. Finally, another interpretation focuses on ‘seller inflation’, i.e., the ability of some firms with a large market share to raise prices. In the current context, whatever the motivation behind the way in which firms set the prices of their products, this behaviour prolongs the monetary policy of high interest rates, risking a recession.

In any case, the challenge is to radically *tackle inflation and high price levels.* The government has from time to time announced various measures both to compensate for the losses in the living standards of citizens and to reduce the price of basic consumer goods. Indicative examples are the increases in the salaries and pensions of civil servants (but also in the minimum wage), the market pass, the compulsory shelf label for products with a ‘permanent’ price reduction of at least 5% for basic household products for a period of at least 6 months, the notification to the Ministry of Development of all price lists of super markets with a turnover of more than 90 million euros and the decisive strengthening of the control mechanisms.

Although useful, these measures are not enough to deliver a significant and lasting blow to inflation and increased price levels. This is probably because recent inflation is linked to business behaviour. Inevitably, the question arises whether competition in Greece is functioning effectively and fulfilling its task of self-regulation in a market often dominated by a small group of single digit players. In many respects, the concentration of an industry in the hands of a very small number of companies is not positive for consumers. The few, very

large firms that form an oligopoly are more likely to set higher prices, earn higher margins and pay lower wages. In addition, consumers have fewer choices. For example, how easy is it today for a small firm with a new brand to enter the market, find a place in the distribution network, compete for consumer preferences and use its presence to drive competition? ‘Greedflation’ is fuelled by oligopolies, whose inherent characteristics include limited competition, barriers to entry, price rigidity and ‘strategic’ behaviour by their members to maintain higher prices and profits.

In this respect, effective measures to radically tackle inflation and high price levels in Greece are those that strengthen the functioning of competition. In the past (2012, 2014, 2016), strengthening the competitive functioning of markets was promoted through the OECD’s “toolkit”. The OECD Toolkit examined the competitive conditions in 13 sectors of the Greek economy that accounted for 30.7% of the country’s gross value added and 35.2% of employment, from tourism to trade, food and specific manufacturing sectors. As a result, 2,312 laws and regulations were assessed, 1,276 of which were found to restrict competition, and 775 proposals were made. Is it time today to create a new ‘Greek toolkit’ by extending its application to other sectors of the economy where there are serious indications that competition is not working and healthy entrepreneurship is being hampered? KEPE and other research centres could contribute to such a national objective by studying and formulating proposals to enhance competition in individual sectors of the Greek economy.

The labour market is improving

In the first two quarters of 2023, the labour market picture improved further, according to the Labour Force Survey (section 3.1). The number of employed persons continued its upward trend and the number of unemployed persons decreased. Although the employment rate reached an all-time high, the number of people employed is still below the 2008 figure due to the decline in the population, an issue that may need to be brought into the labour market debate. The increase in employment seems to have mainly benefited women, young people and foreigners. Central Macedonia and Central Greece are the two regions with the largest increases in the number of people employed, while Western Greece also recorded a significant increase. The three sectors that have led the increase in employment over the last year are *transport and storage, human health and social work activities, and financial and insurance activities.* These are small sectors in terms

of employment. Furthermore, part-time employment has declined both in absolute terms and as a share of total employment, while underemployment has also been significantly reduced over the last year. However, it continues to be primarily a ‘women’s issue’.

Wage employment, which accounts for almost two-thirds of the employed, continued its upward trend in the first seven months of 2023, while positive data include the reduction in the conversion of full-time contracts into flexible employment contracts, and especially the restriction of conversions to rotational employment without the employee’s consent. Finally, the unemployment rate, although still higher for women and young people, is decreasing and the differences between groups are narrowing. The North and South Aegean Islands, Central Greece, Thessaly, West Macedonia and Central Macedonia show a consistent decline in unemployment. Recent legislative interventions are expected to affect the labour market. The direction of influence will depend on the size of the reaction they provoke and the degree of effectiveness of the control mechanisms.

Reducing economic inequalities as a priority

Addressing economic inequalities by promoting the level of productivity and inclusive growth in Greece remains a priority (section 3.2). In this direction, policy initiatives are faced with the double challenge of pursuing a wide range of policies that reduce inequalities and, at the same time, support productivity. Products

of higher quality and complexity are essential. Among others:

- Measures focusing on improving access to training to acquire relevant skills are needed to boost productivity and potentially reduce inequalities.
- Labour market reforms should aim to promote fair and inclusive employment by strengthening a framework of continuous social dialogue between employers and workers to ensure that workers receive decent wages (key principle - 6 - of the European Pillar of Social Rights).
- Strong social protection is essential to provide adequate coverage of social security and the services necessary to promote social cohesion by targeting small business.
- As long as repayment conditions are met, facilitating access to affordable finance and supporting small-scale entrepreneurship should be priorities. Financial inclusion through specific programmes can enable small businesses to invest in new technologies and innovative techniques.
- Specific initiatives to facilitate technology transfer and partnerships with other firms, including abroad, can expand the network and create links to promote exports.

*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 52, 2023, pp. 6-13

1.1. The evolution of the main components of demand in the electoral semester of 2023

1.1.1. Introduction – Domestic & external demand

Yannis Panagopoulos

In this section, utilizing the existing recorded macroeconomic data, we proceed to the analysis of the current developments concerning the 1st half of 2023. Starting from the results of Table 1.1.1, during the 1st quarter of 2023, we observe the existence of positive rates of change in individual macroeconomic aggregates excluding exports/imports of goods and public [government] consumption. There is also a slowdown in economic growth in the 1st half of 2023, which fell to 2.4%, while in the corresponding 1st half of 2022, it was clearly higher (7.5%). On a q-on-q basis, the economic growth, after the “peak” in the 2nd quarter of 2022 (14.8%), declined gradually –with the sole exception of 2022Q4– which leads us to the “low growth” level of the 1st quarter of 2023 (2.0%), followed by a small increase in the 2nd quarter (2.7%). It is, however, unknown if this decline will continue.

Regarding the factors that contributed to the GDP growth in the 1st half of 2023 (2.4%), it should be noted that from the discrete macroeconomic coefficients, gross fixed capital formation recorded the largest positive rate of change (8.1%), followed by, in order of size, exports of goods and services (3.6%), private consumption (2.9%) and public consumption (0.4%). Special mention should be made, for the same period, of the negative change in imports of goods and services which, as is known, under normal conditions, have a negative contribution to GDP (2.9%).

In terms of quarters –Q2 2023– we have approximately the same picture, but in a different order of importance, concerning the recorded GDP growth. Specifically, gross fixed capital formation (7.9%) was preceded by private consumption (3.2%), while exports of goods and services contributed almost nil (0.1%). Notewor-

thy for this quarter is the negative change in public consumption (-1.4%) (Table 1.1.1).

Domestic demand also recorded a similar trend in the 2nd quarter of 2023 (Figure 1.1.1). Thus, based on the existing macroeconomic components of the recorded GDP growth (using seasonally adjusted data), private consumption was the most positive component (2.22) followed by fixed capital formation (1.08), while government consumption was again the negative component (-0.26).

As regards the portion of the domestic vs. the external sectors of demand (i.e., the balance of goods and services) in GDP, for the 2nd quarter of 2023, things are relatively in favor of the first, mainly due to the domestic demand sector (Figure 1.1.2). Specifically, the negative contribution of both the change in inventories (-0.76) and the balance of goods and services (-0.23) were adequately offset by the positive contribution of domestic demand (2.78) in the GDP growth.

Regarding the course of the Economic Sentiment Index (ESI), as the future “proxy” of demand, the expectations of households and businesses for the period 1/2022-8/2023 are recorded in Figure 1.1.3. It is obvious that from the recorded trend of this index, there is a gradual upward move after November 2022. More analytically, while for several months (July 2022–November 2022) there was stagnation, around 101 points, from December of the same year, there was a gradual increase, reaching 111 points in August 2023 (111.7). In conclusion, the expectations of households and businesses, after entering 2023, show cautious optimism.

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

Balance of goods and services

The development of the external sector (percentage change in exports minus imports), for the 1st half of 2023, as already mentioned above, is generally slightly positive. Below we will refer separately to the rate of change of goods and to the rate of change of services. Starting with exports, let us underline that as far as services are

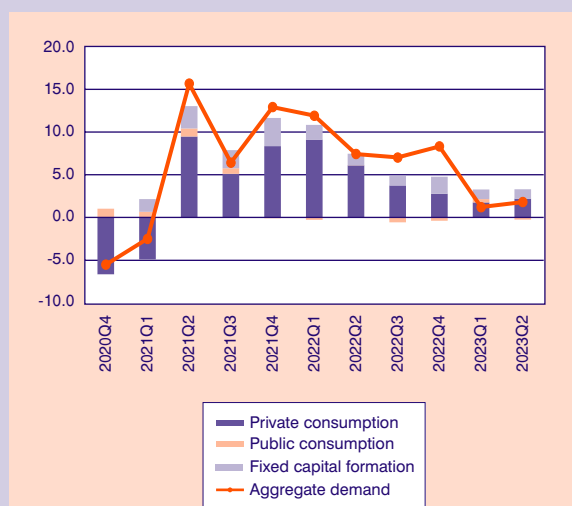
TABLE 1.1.1 Basic macroeconomic variables
(seasonally adjusted data)

	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	6 month 2022	6 month 2023
Private consumption	-7.0	13.6	7.1	12.3	13.6	8.8	5.5	4.0	2.5	3.2	11.2	2.9
Public consumption	3.4	4.0	3.0	-0.4	-1.4	0.1	-2.8	-1.9	2.1	-1.4	-0.7	0.4
Fixed capital formation	13.2	20.7	16.5	29.4	13.3	10.2	8.3	14.8	8.2	7.9	11.8	8.1
Aggregate demand*	-2.6	12.2	7.0	11.4	10.6	7.0	4.1	4.2	3.0	2.8	8.8	2.9
Exports of goods and services	-0.7	25.1	47.8	29.4	14.1	12.4	-2.7	-2.0	7.1	0.1	13.3	3.6
Goods	11.2	21.6	14.3	9.1	3.2	1.4	0.3	-2.8	10.7	-1.8	2.3	4.4
Services	-18.9	56.1	94.9	62.9	23.9	27.7	-2.1	-3.4	6.2	1.3	25.8	3.8
Imports of goods and services	-5.0	25.6	21.9	32.3	17.7	14.6	5.2	6.8	5.2	0.6	16.2	2.9
Goods	-1.9	24.9	16.8	29.8	17.7	16.2	8.4	4.3	2.9	-1.2	16.9	0.9
Services	-14.0	26.8	37.5	40.1	15.9	7.9	-5.2	12.9	11.8	6.1	11.9	8.9
ΔGDP	-1.9	14.8	12.4	8.6	8.0	7.1	4.1	4.8	2.0	2.7	7.5	2.4

Source: National Accounts, ELSTAT.

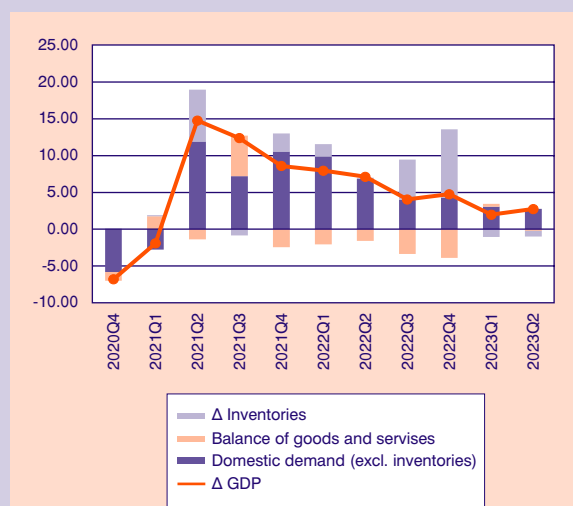
* Without change of Inventories.

FIGURE 1.1.1
Sub-components of domestic demand



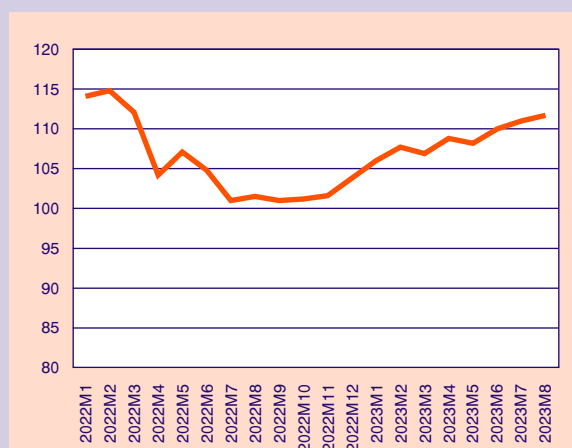
Source: National Accounts, ELSTAT, data processing by the author.

FIGURE 1.1.2
Domestic and net external demand



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

FIGURE 1.1.3
Economic Sentiment Index (1/2022-8/2023)



Source: Eurostat.

FIGURE 1.1.4
Sub-components of external demand



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

concerned, which constitute the relatively smaller part of exports, they showed a six-month increase of 3.8%, while goods, which were the largest part of exports, showed a slightly larger six-month increase of 4.4%. Imported services, on the other hand, had an average semi-annual increase of 8.9%, while imported goods had a very small semi-annual increase of 0.9%.

As far as the contribution of the balance of goods and services to the rate of change of GDP is concerned, let us repeat here that for the 2nd quarter of 2023, it stood

at -0.23 points, in contrast to -1.6 points for the 2nd quarter of 2022. More specifically, we had the almost zero contribution of exports to GDP estimated at 0.04 units while, on the other hand, we had the slightly negative contribution of imports to GDP estimated at -0.26 units. The overall picture, presented in Figure 1.1.4 with the corresponding export and import histograms, is that, after Q2 2022, we have a very small [positive/negative] contribution from both export/import components, which is virtually counter-eliminated in Q2 2023.

1.1.2. Private consumption and investment

Konstantinos Loizos

1.1.2.1. Private consumption

Rising trend for private consumption expenditure during the first semester of 2023

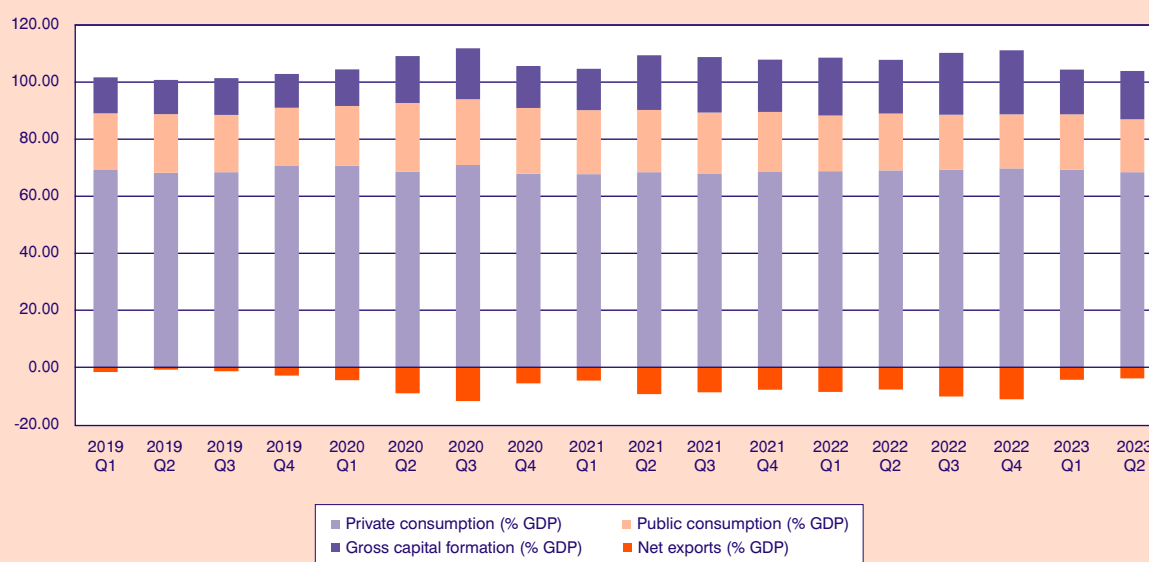
According to the quarterly, seasonally adjusted *National Accounts*¹, the private consumption of households and NPISH² increased from 37,407 million euros in current prices in the first quarter of 2023 to 38,019 million euros in the second quarter. Correspondingly, in terms of chain-linked volumes (reference year 2015), private consumption rose from 34,294 million euros in the first quarter to 34,602 million euros in the second quarter of 2023. In terms of percentage changes³ with respect to the previous quarter, based on seasonally adjusted chain-linked volumes, private consumption increased at a rate equal to 1.2% in the first quarter of 2023 and 0.9% in the second quarter, while with respect to the

corresponding quarter of the previous year the relevant growth rates were 2.5% and 3.2% correspondingly.

Private consumption, as a percentage of GDP, was 68.82% on average during the first semester of 2023, lower than its average in 2022 (69.19%), while public consumption was 18.97% of total expenditure (19.44% of GDP in 2022). On the other hand, gross capital formation (fixed capital and changes in inventories) was on average 16.35% of GDP, lower than the average value attained in 2022 (20.82% of GDP). Finally, the deficit in the trade balance decreased as a percentage of GDP from -9.45% on average in 2022 to -4.15% of GDP in the first semester of 2023. Therefore, during the first semester of 2023, private consumption expenditure followed a rising path both in current prices and in terms of chain-linked volumes. However, on average, the share of private consumption in GDP was slightly lower with respect to its share in 2022. The same holds true for the share in GDP of public consumption and gross investment; at the same time, the share of the trade deficit in GDP was reduced, as depicted in Figure 1.1.5.

FIGURE 1.1.5

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 6, 2023.

2. Non-profit institutions serving households.

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

Fluctuations but negative percentage changes on average in retail trade, mainly in automotive fuel and food items

The evolution of retail trade in terms of percentage changes of the overall volume index, despite monthly fluctuations, was negative on average in the first semester of 2023 with respect to the corresponding months of the preceding year, with a value of -3.2% based on ELSTAT monthly data (Figure 1.1.6). The corresponding average quarterly percentage changes were both negative, equalling to -2.55% in the first quarter and -3.90% in the second quarter. We observe the same trend in food items with an average negative percentage change in the first semester of 2023 of -3.14% and -4.15% and -2.13% for the first and second quarter correspondingly. The situation is slightly different for automotive fuel since the average in the first semester was just -0.57%, and the relevant quarters present both negative and positive values on average, namely, -5.49% in the first quarter and 4.35% in the second quarter. Furthermore, other items except fuel and food exhibited a positive average growth rate during the semester, of 5.01%, which comes from a strong positive percentage change in the first quarter (10.09%) and a small negative percentage

change (-0.07%) in the second quarter. In conclusion, retail trade, both in terms of the overall volume index and in most of its components, showed negative trends during the first semester of 2023 with the significant exception of other items except food and fuel.

Improvement of expectations in retail trade continues despite fluctuations

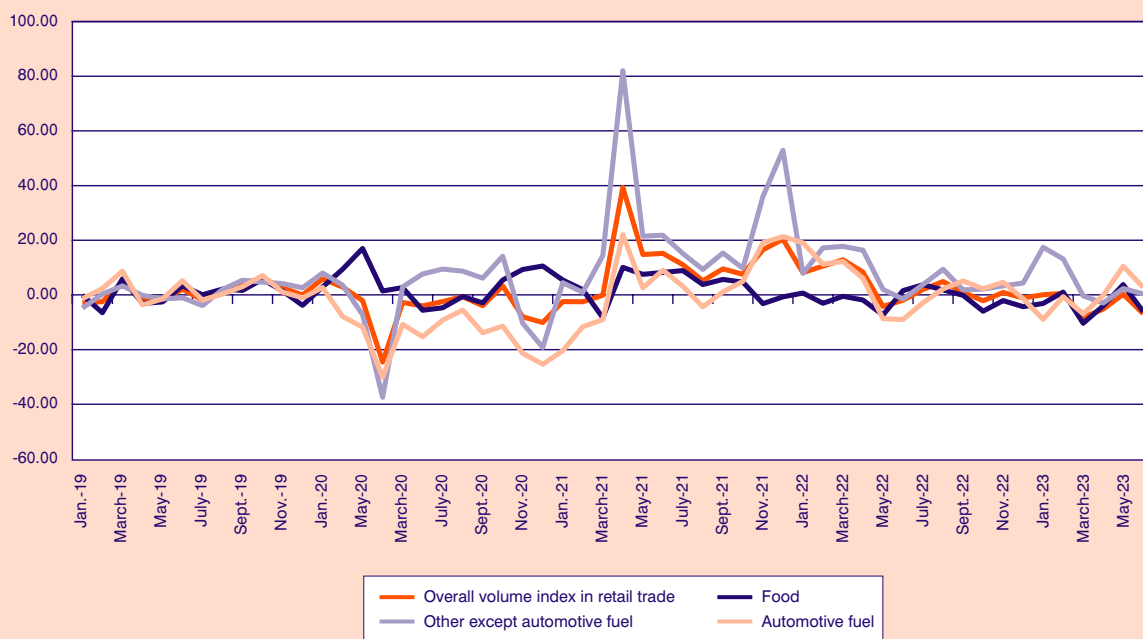
Published by Eurostat, confidence indicators (Figure 1.1.7) show that the improved climate in retail trade continues from the perspective of both consumers and enterprises. However, despite the entrenchment of this optimistic trend, which began in the third and fourth quarters of 2022, we should note the observed significant fluctuations in the two indices, which indicate the long-lasting uncertainty in the retail market.

1.1.2.2. Investment

In general, there is a rising trend in gross investment despite its falling share in GDP

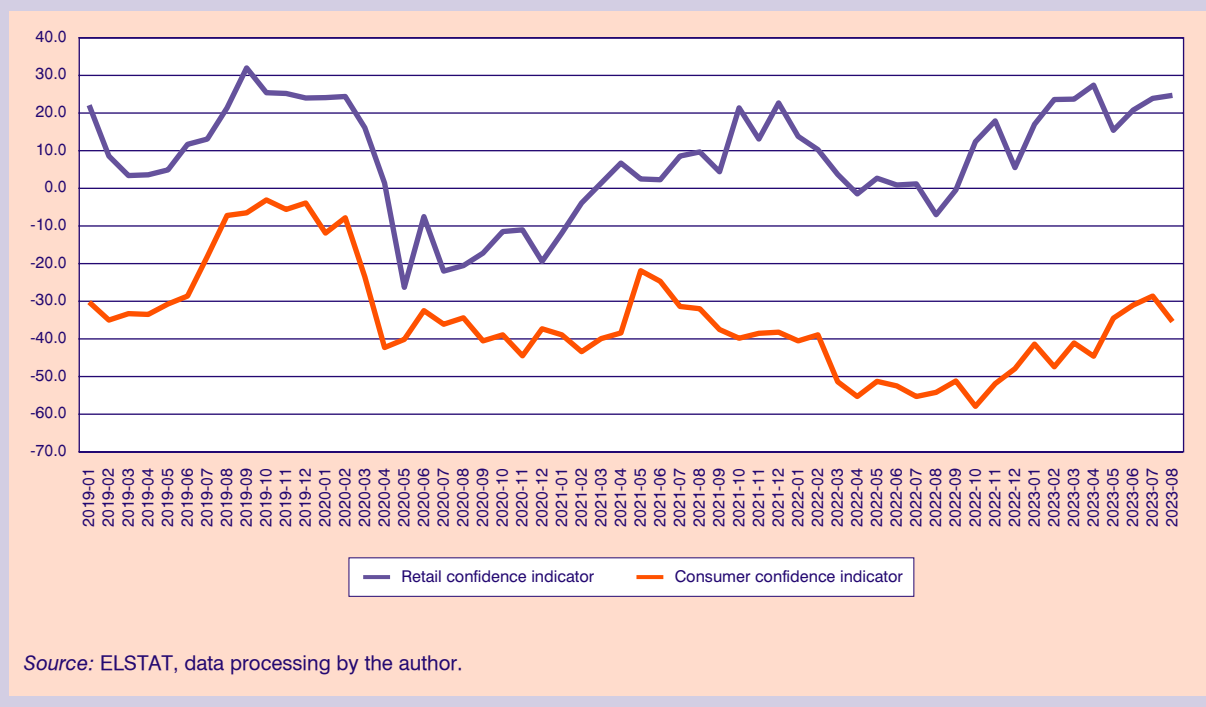
Gross fixed capital formation increased from 7,447 million euros in current prices in the first quarter of

FIGURE 1.1.6
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 1.1.7
Confidence indicators in retail trade



Source: ELSTAT, data processing by the author.

2023 to 7,569 million euros in the second quarter of the same year. A similar situation appears in terms of chain-linked volumes since gross fixed capital formation showed a slight increase from 7,031 million euros in the first quarter of 2023 to 7,056 million euros in the second quarter. Indeed, with respect to the corresponding quarter of the previous year, we note the existence of positive percentage changes: 8.2% for the first quarter and 7.9% for the second quarter. Furthermore, with respect to the previous quarter, a negative percentage change in the first quarter (-1.1%) became positive, equalling to 0.3% in the second quarter, according to seasonally adjusted chain-linked volumes.

Investment (gross fixed capital formation) as a percentage of GDP (Figure 1.1.8) fell in both of the two first quarters of 2023, with percentage changes with respect to the previous quarter equal to -7.51% in the first quarter and -1.25% in the second. In terms of the main components of gross investment as a percentage of GDP, machinery and transport equipment follow the same pattern with negative values in both the first quarter (-14.39%) and the second quarter of 2023 (-3.39%). Buildings as a percentage of GDP (both dwellings and other buildings and structures) showed a negative percentage change -4.46% in the first quarter, but a small positive percentage change (0.89%)

in the second quarter of 2023. The data presented in Figure 1.1.5 above might provide an explanation for the reduction observed in the share of investment in GDP since, at the same time, there is a corresponding fall in the external deficit and, therefore, a decline in domestic expenditure, which is now approaching the country's domestic product.

Recovery of the share of buildings in gross investment

As depicted by Figure 1.1.9, the share of buildings in gross investment rose even further, thus exceeding the share of machinery and transport equipment. Indeed, the share of buildings in gross investment increased from 41.44% in the first quarter of 2023 to 42.33% in the second quarter of the same year, while the corresponding percentages for machinery and transport equipment were 40.16% and 39.29% respectively. Given the, traditionally, significant contribution of buildings in reviving the Greek economy, this indication of dynamism on behalf of the construction sector is considered to be good news. On the other hand, one should not underestimate the role of machinery equipment in particular, in improving the productivity of Greek enterprises.

FIGURE 1.1.8
Gross fixed capital formation as a percentage of GDP
(overall and by asset) (seasonally adjusted data in current prices)

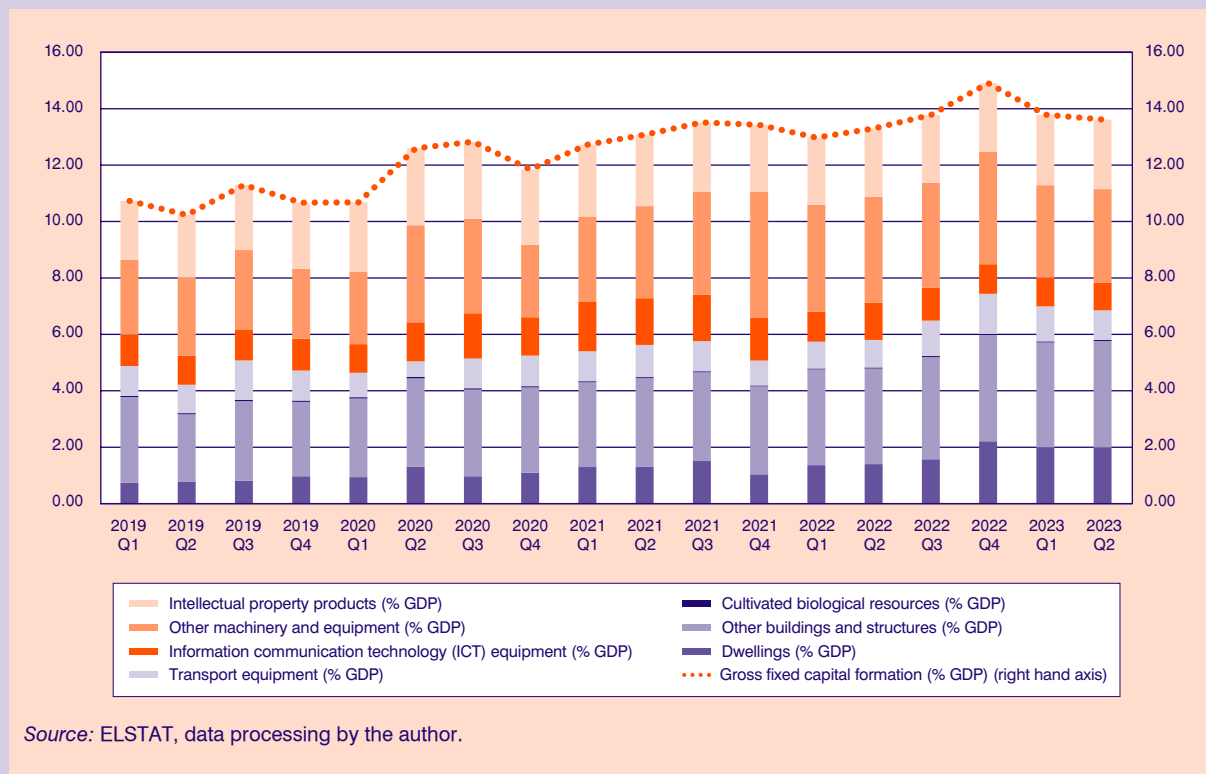
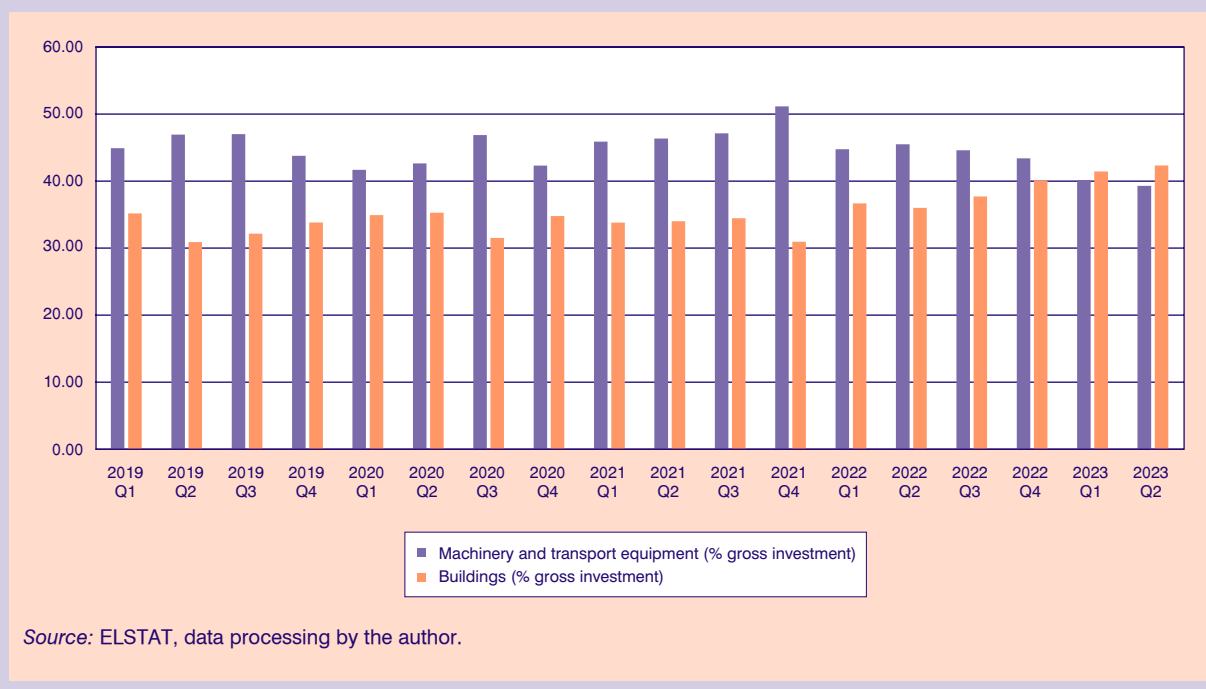


FIGURE 1.1.9
Machinery, transport equipment and buildings as a percentage of gross fixed capital formation



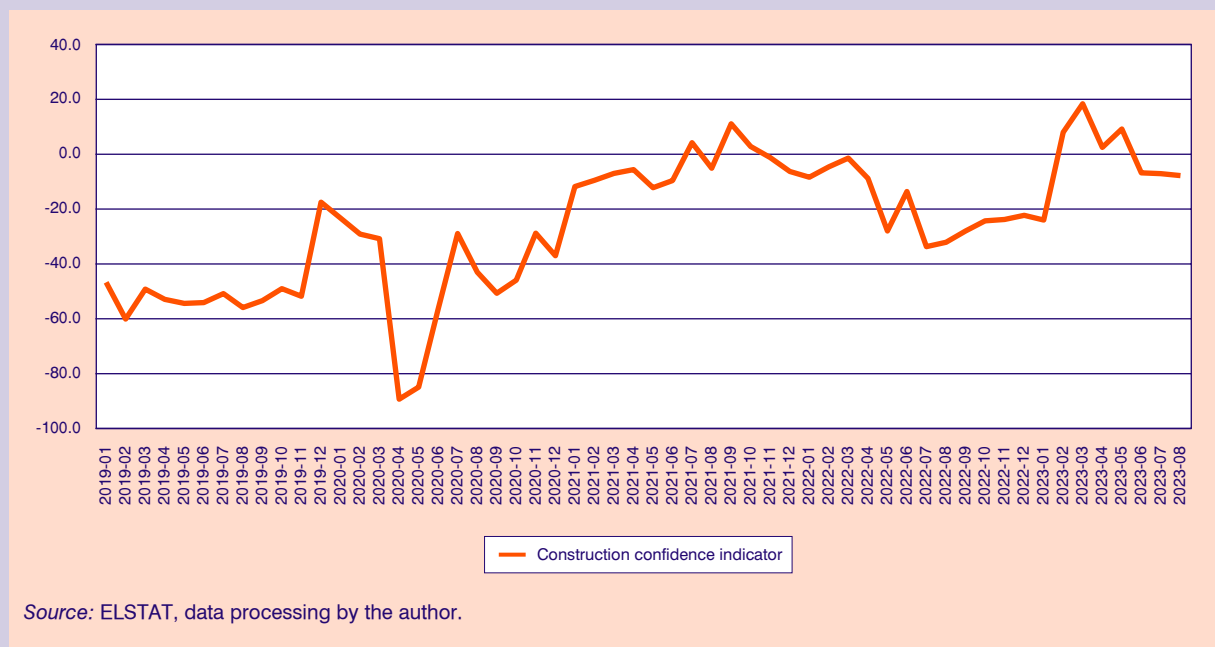
Are expectations in the construction sector becoming more pessimistic?

Despite the positive developments in terms of investment expenditure that we saw in the previous section, the evolution of business expectations in the construction sector is characterized by two distinct phases. The period that lasts until March 2023 presents an impressive rise of the respective confidence indicator. However, the period from April 2023 to August of the same year, which includes the parliamentary election process, showed an initial fall and subsequent relative stabilization at lower levels without fully canceling the overall rise of the previous period. Having in mind the dynamism of real expenditure, we can speculate that this development was the outcome of the uncertainty generated by the two successive elections and might not be an indication of a structural change in business sentiment.

1.1.2.3. Conclusions

From the preceding analysis, it seems that the Greek economy during the first semester of 2023, which included the successive elections of May and June, was characterized by rising trends both in private consumer spending and in private investment, while at the same time their share in GDP fell with respect to the previous period, since the trade deficit decreased as well. On the other hand, we need to notice both the fluctuations and the negative, on average, trend in the overall volume index in retail trade and most of its components during the same period. The same fluctuations, with a positive trend this time, were observed in the confidence indices in retail trade. If we consider, along with these trends, the fall in the construction confidence indicator after May 2023, we may conclude that the electoral process generated some uncertainty concerning the future prospects of the economy, which was reflected in the aforementioned indices, without affecting the performance of the real economy in terms of expenditure.

FIGURE 1.1.10
Construction confidence indicator



1.2. Recent inflation developments in Greece and the Eurozone

Emilia Marsellou

Introduction

Headline inflation in Greece in September 2023 reached 1.6%, falling below the European Central Bank's 2.0% target for the second time since June 2023. Core¹ inflation, however, remained elevated at 3.9%, above the headline index for the eighth consecutive month. Inflation in September was mainly fueled by rising Food prices, which had by far the largest positive contribution (2.0 percentage points), while held back by the significant negative contribution of the Housing group (-2.6 percentage points). In the Eurozone, inflation reached 4.3% (core inflation 4.5%). The Food, Alcohol and Tobacco group recorded the highest inflation, while Energy recorded the lowest. Greece had the third lowest inflation in the Eurozone, following the Netherlands (-0.3%) and Belgium (0.7%).

1.2.1. Greece

Based on monthly data, the National CPI in September 2023 registered an annual increase of 1.6% compared to 2.7% in August, falling below the 2.0% target of the European Central Bank. The National CPI increased 1.8% m-o-m in September, compared to no change in August and decreased 1.1% in July. On the other hand, core inflation (based on the National CPI) reached 3.9% compared to 5.3% in August, still above the headline index for the eighth consecutive month, implying that although exogenous inflationary pressures have eased significantly (in fossil fuels) inflation is fueled by pressures within the economy.

The evolution of the Harmonized CPI (HICP) is similar. Specifically, in September 2023, HICP inflation fell to 2.4%, down from 3.5% in August 2023, while core inflation reached 4.3%, down from 5.4% in August.

The largest contribution to the annual percentage increase of the National CPI in September 2023 came from the group of Food and non-alcoholic beverages

with 1.98 percentage points, followed by Hotels-Cafés-Restaurants with 0.58 p.p., Transportation with 0.41 p.p. and Health with 0.40 p.p. The Housing group contained inflation with a negative contribution of 2.58 p.p. due to the reduction of prices in electricity, natural gas and heating oil.

More specifically, the annual increase of the National CPI in September 2023 by 1.6% 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:

- 9.4% in the group Food and non-alcoholic beverages. This is mainly due to the increase in the prices of bread and cereals (4.8%), meat (8.4%), fish (4.1%), milk-cheese and eggs (6.7%), oils and fats (16.1%), fruit (13.9%), vegetables (17.7%), sugar-chocolates-sweets-ice creams (8.2%), food n.e.c. (9.1%), coffee-cocoa-tea (6.0%), mineral water-refreshments-fruit juices (13.9%).
- 2.5% in the group Alcoholic beverages and tobacco, mainly because of the increase in the prices of the not served alcoholic beverages (5.7%).
- 6.2% in the group Clothing and footwear, due to the increase in the prices of clothing and footwear.
- 3.7% in the group Household equipment. This is mainly due to the increase in the prices of household appliances and repair (2.0%), glassware-tableware and utensils of domestic use (5.4%), non-durable household articles (3.3%), domestic services (7.2%).
- 5.6% in the Health group mainly because of the increase in the prices of pharmaceutical products (11.8%), medical-dental and paramedical services (5.5%), hospital care (0.9%).
- 3.0% in the group Transport, mainly because of the increase in the prices of new motor cars (3.0%), secondhand motor cars (9.0%), spare parts and accessories for motor cars (6.6%), fuels and lubricants (0.9%), maintenance and repair of motor cars-motor cycles (5.3%), tickets for passenger transport by air (7.9%).
- 3.1% in the group Recreation and culture. This is due to the increase, mainly, in the prices of major durables for recreation and culture (2.2%), small

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

TABLE 1.2.1 Inflation in Greece (%)

	National CPI	CPI (m-o-m, %)	Headline inflation CPI (y-o-y, %)	Core inflation (y-o-y, %)	Harmonized inflation (y-o-y, %)	Core HICP (y-o-y, %)
2022M09	114.5	2.9	12.0	4.9	12.1	6.9
2022M10	113.2	-1.2	9.1	5.2	9.5	6.6
2022M11	113.1	0.0	8.5	5.9	8.8	6.8
2022M12	112.5	-0.5	7.2	5.2	7.6	5.9
2023M01	112.0	-0.5	7.0	6.0	7.3	6.5
2023M02	112.3	0.3	6.1	6.6	6.5	6.8
2023M03	113.7	1.2	4.6	6.7	5.4	7.0
2023M04	114.5	0.6	3.0	6.1	4.5	7.2
2023M05	114.9	0.4	2.8	6.7	4.1	7.3
2023M06	115.6	0.6	1.8	4.9	2.8	4.8
2023M07	114.3	-1.1	2.5	5.4	3.5	5.4
2023M08	114.3	0.0	2.7	5.3	3.5	5.4
2023M09	116.3	1.8	1.6	3.9	2.4	4.3

Source: ELSTAT, Eurostat.

recreational items-flowers-pets (5.8%), cinemas-theatres (10.6%), package holidays (9.1%).

- 3.0% in the group Education, mainly because of the increase in the prices of fees of primary education (3.8%), fees of secondary education (3.5%).
- 4.8% in the group Hotel-Cafés-Restaurants. This is mainly due to the increase in the prices of restaurants-confectioneries-cafes-buffets (5.6%).
- 2.4% in the group Miscellaneous goods and services. This is mainly due to the increase in the prices of hairdressing salons and personal grooming establishments (4.0%), other appliances and articles for personal care (1.8%), private insurance connected with health (5.7%), motor vehicle insurance (2.1%).

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

- -15.0% in the Housing group, mainly because of the decrease in the prices of electricity (-1.2%), natural gas (-82.0%), heating oil (-20.7%). This decrease was partly offset by the increase in the prices of rentals for dwellings (6.3%), services for the repair and maintenance of the dwelling (3.0%), solid fuels (19.2%).

- -3.1% in the Communication group, mainly because of the decrease in the prices of telephone services (-3.5%).

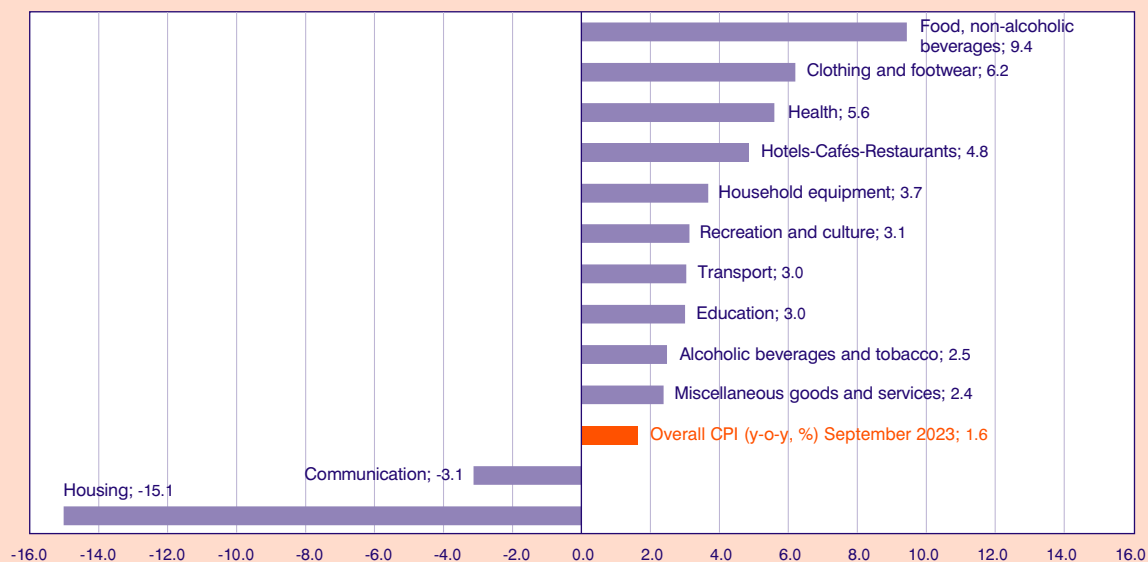
1.2.2. The euro area

According to Eurostat's flash estimates, in September 2023, inflation in the euro area showed further deceleration and reached 4.3% against 5.2% and 5.3% in August and July 2023, respectively. The core inflation in September reached 4.5%, compared to 5.3% and 5.5% in August and July 2023, respectively.

The highest annual rate of HICP in the euro area is still recorded in the Food sector (+8.8%), followed by the group of Services (+4.7%), and the group of Non-energy industrial products (4.2%). On the contrary, the group of Energy prices fell by -4.7%.

Among the Eurozone countries, the highest inflation was recorded in Slovakia (8.9%), Croatia (7.3%) and Slovenia (7.1%), while the lowest inflation was in the Netherlands with negative inflation (-0.3%), Belgium (0.7%) and Greece (2.4%).

FIGURE 1.2.1
Annual % changes in National CPI sub-categories (September 2023)



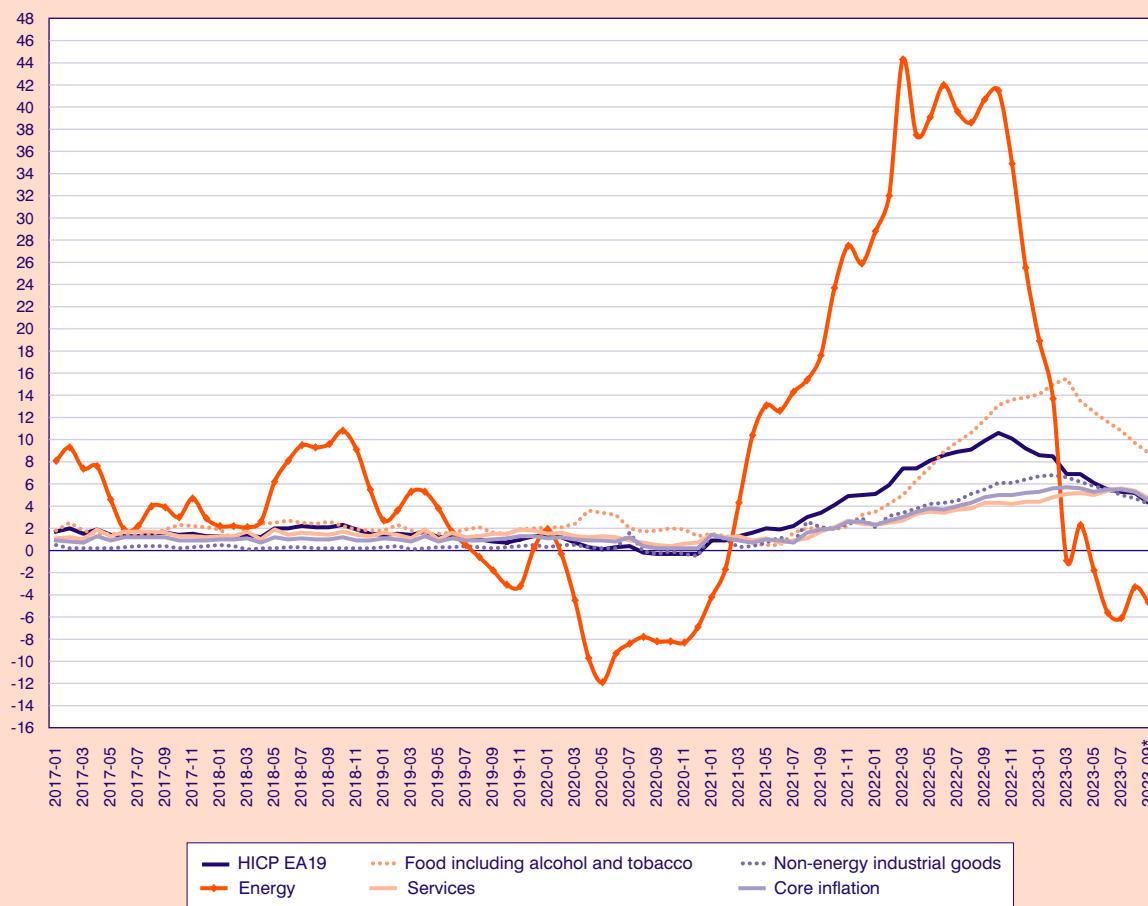
Source: ELSTAT.

TABLE 1.2.2 Annual % changes in National CPI sub-categories, January-September 2023

Groups of goods and services	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1 Food and non-alcoholic beverages	15.4	14.8	14.3	11.4	11.6	12.2	12.3	10.7	9.4
2 Alcoholic goods and tobacco	3.0	2.9	3.7	4.0	3.5	3.4	3.4	3.2	2.5
3 Clothing and footwear	6.5	7.1	14.4	5.6	11.8	5.9	5.2	6.9	6.2
4 Housing	-0.1	-4.9	-10.4	-13.4	-12.9	-11.7	-11.8	-12.6	-15.0
5 Household equipment	10.6	10.5	11.0	10.9	9.9	7.6	6.4	5.6	3.7
6 Health	2.9	5.3	5.6	6.5	7.8	7.7	7.8	5.9	5.6
7 Transport	8.1	6.5	1.9	1.4	-3.1	-7.6	-3.7	1.6	3.0
8 Communication	-1.3	-1.6	-1.9	-1.8	-2.3	-2.7	-2.8	-3.1	-3.1
9 Recreation and culture	3.4	3.5	2.9	3.7	3.3	3.6	3.5	3.3	3.1
10 Education	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.0
11 Hotel-Cafés-Restaurants	7.8	8.1	7.5	8.5	7.4	6.3	6.2	6.1	4.8
12 Miscellaneous goods and services	5.4	5.8	6.2	6.4	6.8	4.2	3.6	3.9	2.4
General Index	7.0	6.1	4.6	3.0	2.8	1.8	2.5	2.7	1.6

Source: ELSTAT.

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



Source: Eurostat.
 *Flash Estimates.

BOX 1

External and internal inflationary pressures in the Greek economy

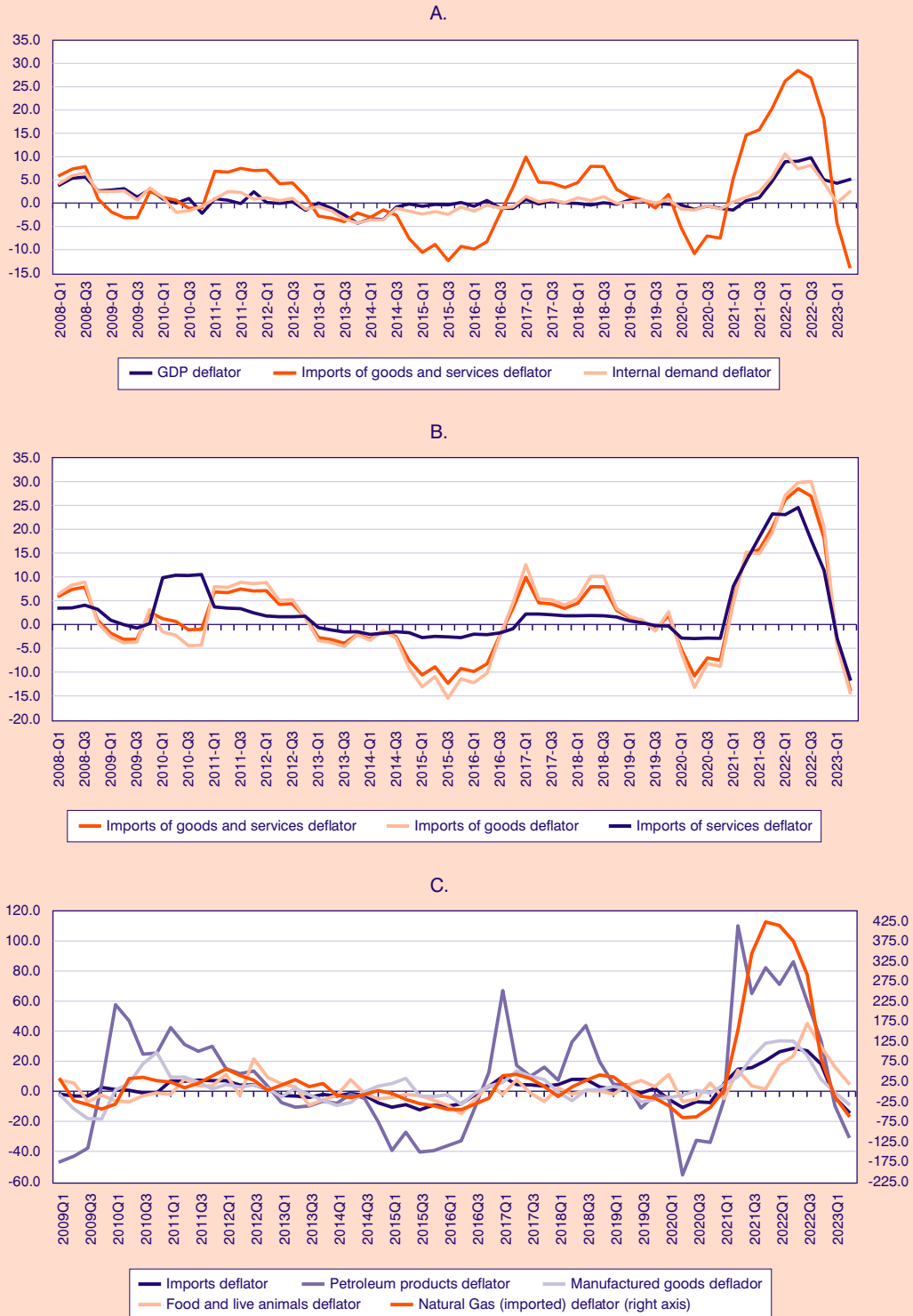
National accounts price and cost data can be used to track inflationary pressures arising from imported goods and services via the import deflator, while inflationary pressures arising from domestic factors are captured by the GDP deflator. In this Box, we first examine the external factors, and, second, the internal ones.

Figures 1 and 2 show the developments in the prices of basic imported goods in Greece and the euro area, respectively. We observe that the differences between Greece and the euro area are negligible and any differentiation at the present time mainly concerns the intensity of the changes rather than their direction.

Figures 1 and 2 show the sharp increase in the Import deflator (+5.2% y-o-y in 2021q1, peaking at +28.5% y-o-y in 2022q2, and since then following a decelerating course, reaching -13.7% y-o-y in 2023q2). These strong exogenous price pressures are transmitted to the GDP and internal demand deflator developments that recorded exceptionally high rates exceeding 10.0%. In addition, in Figures 1B and 2B, we observe that in Greece and the euro area, respectively, the increases in the prices of imported goods were higher than those of services. In Greece, however, the increases in the prices of imported services were significantly higher compared to those in

FIGURE 1 (Greece)

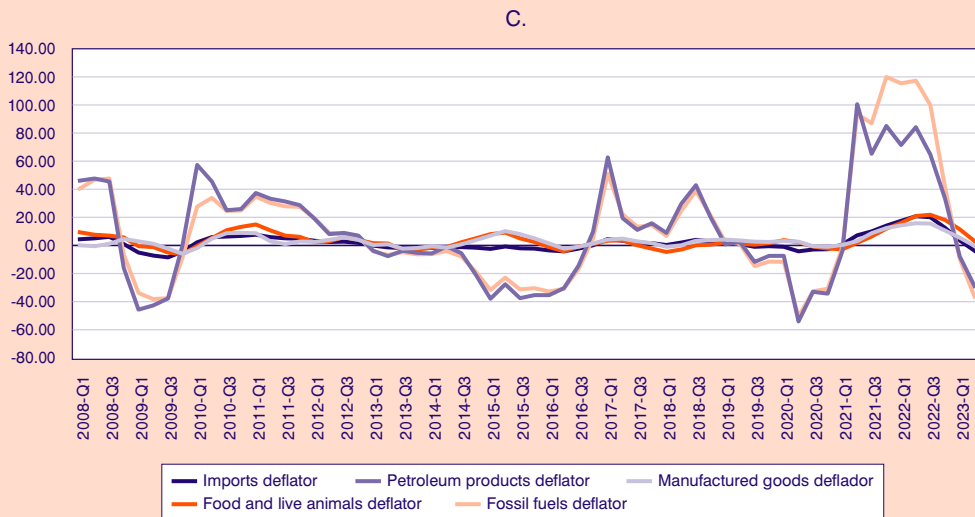
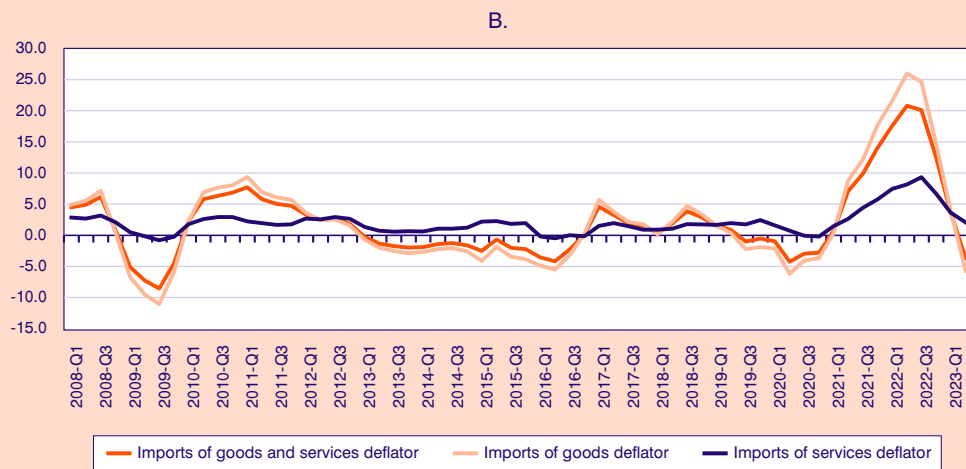
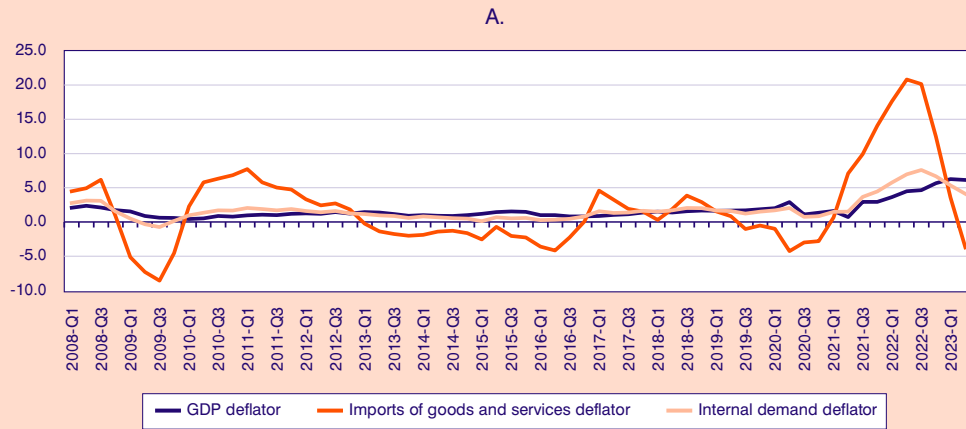
A) GDP, Imports and Internal demand deflators,
B) Deflator of imports, goods and services,
C) Deflators of basic categories of imported goods
(Annual percentage changes %, quarterly data)



Source: Eurostat, KEPE calculations.

FIGURE 2 (Euro area)

A) GDP, Imports and Internal demand deflators,
B) Deflator of imports, goods and services,
C) Deflators of basic categories of imported goods
(Annual percentage changes %, quarterly data)



Source: Eurostat, KEPE calculations.

the euro area. Finally, Figures 1C and 2C for Greece and the euro area reflect the “energy crisis” where among the main imported goods, the prices of fossil fuels were the ones that recorded by far the largest increases in the period 2021q2-2022q4. On the other hand, the GDP and domestic demand deflators are almost identical because they both relate to price developments at the domestic level.

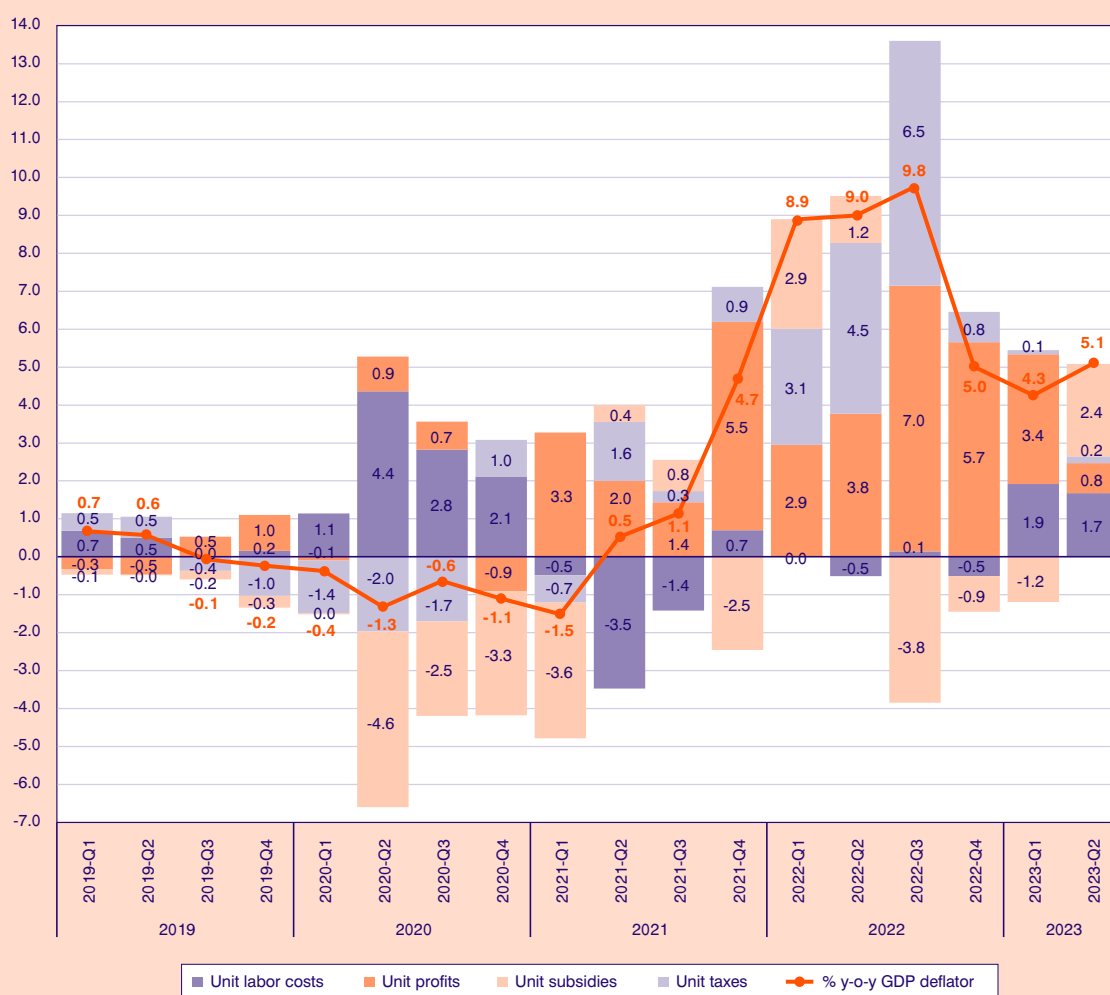
In this context, we attempt to investigate the contribution of each income category in shaping the final price of the product using the GDP deflator. Specifically, the GDP deflator is broken down into its components, and we calculate the contribution of each to its percentage change. Since GDP does not include

the value of intermediate consumption and therefore it is not possible to directly calculate the effect of changes in the prices of raw materials on the price of the product, we follow an indirect approach applied in a number of recent works [e.g., ECB (2006); Hahn (2019); Hahn (2021); Arce et al. (2023); Hahn (2023); Weber and Wasner (2023), among others]. According to this approach, income distribution is involved in the analysis, and through it, the behavior of enterprises is captured, i.e., the way enterprises choose to shape the prices of products under the pressure of increases in input prices. If the prices of energy or raw materials increase and, at the same time, a falling tendency of the contribution of the unit

FIGURE 3

GDP deflator decomposition

(Annual percentage changes %, p.p. contributions to annual percentage changes, quarterly data)



Source: Eurostat, KEPE calculations.

profit in the formation of prices is observed, this is an indication that enterprises are “absorbing” part or all of the increase in cost production. Otherwise, if the contribution of unit profit remains unchanged or increases, this implies that the price of the product has increased by the same amount as the increase in costs or even more (Hahn, 2023).

The GDP deflator can be decomposed into unit profits (gross operating surplus plus mixed income per unit of real GDP), unit labor costs, and taxes on production minus subsidies per unit of real GDP. Figure 3 presents the percentage point contributions of each component of GDP to the rate of change of the GDP deflator or core inflation.¹

Figure 3 shows the evolution of domestic inflation as it passes through two successive phases: the phase of falling prices due to the pandemic crisis, which lasted from the first quarter of 2020 to the first quarter of 2021, and the phase of rising prices where, due to the normalization of the pandemic after the vaccination of the population, economic and social activity resumed (2021q2), releasing several months of compressed consumption that resulted in supply chain bottlenecks. Inflation was reinforced by the energy crisis shocks following the war in Ukraine in February 2022, and peaked in 2022q3. Since then, inflation has been deescalating as increases in fossil fuel prices have weakened, and since the first two quarters of 2023, they have declined.

During the pandemic crisis, in 2020, domestic price increases were mainly driven by unit labor costs (with a contribution ranging between 1.1 and 4.4 percentage points) and secondarily by unit profits (positive contribution but significantly smaller, ranging between 0.7 and 0.9 p.p. with the exception of 2020q4). It is noted that these contributions were shaped to a large extent by state subsidies aiming to support employment and businesses affected by the Covid-19 pandemic, as can be seen from their rather large contribution (2.5-4.6 p.p.).²

This situation is reversed in the period 2021q1-2023q2. In this period, the contribution of unit profits is positive and particularly large in contrast to that of unit labor costs, which has a small (negative or posi-

tive) contribution. On average during this period, unit profits contributed to domestic inflation by 3.58 p.p., while unit labor costs had a negative contribution of -0.19 p.p. In 2022q3, the GDP deflator recorded the highest annual growth (9.8%), and unit profits contributed to this increase by 7.0 p.p. and unit labor costs by 0.1 p.p. In the first two quarters of 2023, unit labor costs increased their percentage point contributions: in the first quarter with 1.9 p.p. (up from the -0.5 in 2022q4 due to the subsidies) while unit profits remained well above with 3.4 p.p., and in the second quarter contributed slightly lower with 1.7 p.p., while unit profits with 0.8 p.p. It is noted that the government subsidies related to Covid-19 were suspended, and then resumed from 2022q3, after the Russian invasion of Ukraine and the dramatic increase in natural gas and oil prices, until 2023q1 when prices had sufficiently receded.

In what follows, we decompose the gross operating surplus into its components in order to identify those individual income accounts that drive the increases in the contribution of the unit gross operating surplus outlined before.

In the previous analysis, the account of the gross operating surplus and mixed income for the whole economy was used. However, this account is the sum of several income categories that are not directly related to the formation of prices in consumer goods and services such as a) the consumption of fixed capital, b) the net operating surplus from all institutional sectors [non-financial corporations (NFCs), financial corporations (FCs), households (HHs) and non-profit institutions serving households (NPISH), general government], c) mixed income, and d) rents, interest, and other income from corporate assets. Consequently, the concept of profits that better serves the purpose of this analysis is that of the net operating surplus of NFCs, which more closely approximates business profits (Haskel, 2023).

Figure 4 shows that the unit net operating surplus of NFCs and the unit mixed income in the two-year period 2021-2022 had the largest percentage point contributions to the growth rate of unit profits. However, the momentum of the former appeared to be

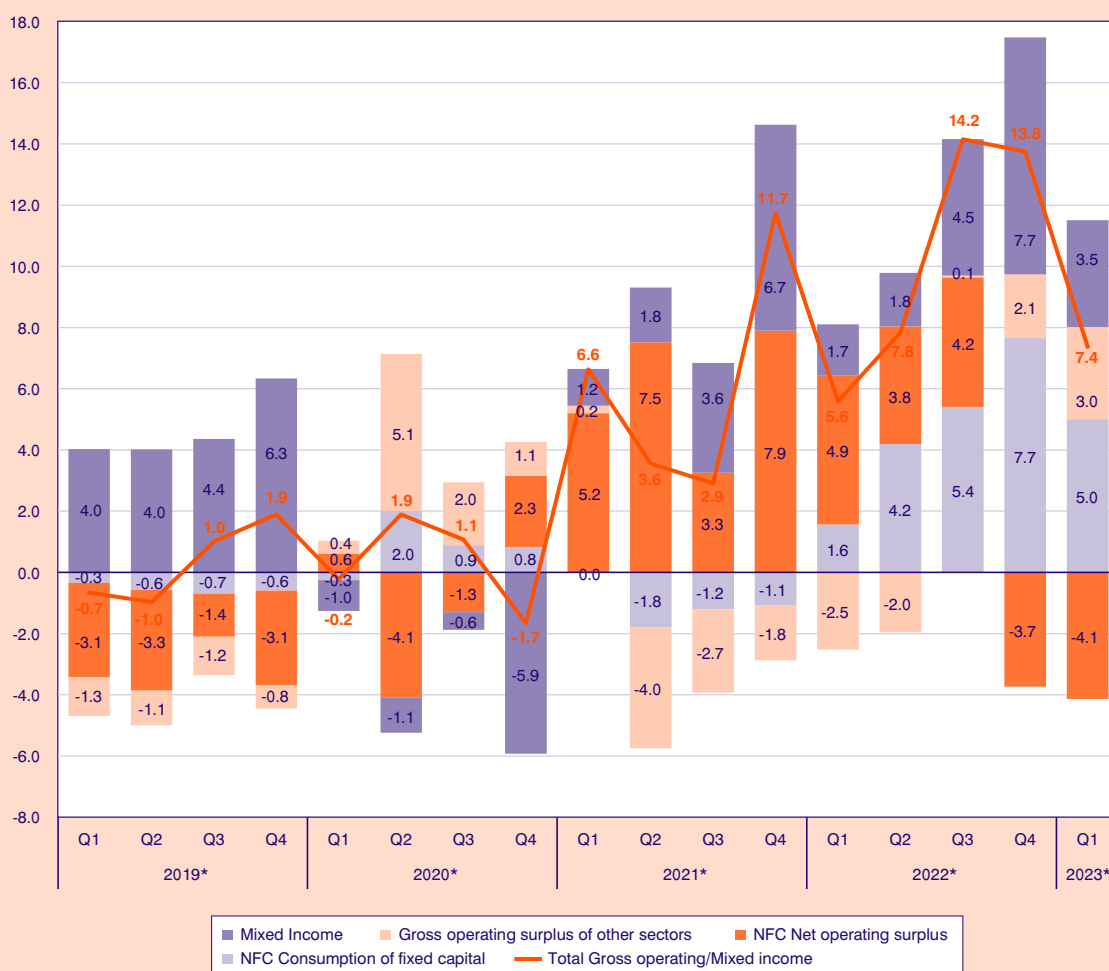
1. Due to the high correlation of the rate of change of the GDP deflator with indicators of core inflation, the income components of GDP are important determinants of core inflation (Hahn, 2023). There are a number of different definitions of core inflation (Clark 2001; Wynne 2008). The most common in the literature is inflation excluding Energy and inflation excluding Food, alcohol and tobacco.

2. The contribution appears negative because it is subtracted from the income categories. The income categories and their contributions appear larger because they include the subsidies.

FIGURE 4

Unit profits decomposition

(Annual percentage changes %, p.p. contributions to annual percentage changes, quarterly data)



Source: Eurostat, KEPE calculations.

* Provisional data.

running out in the last quarter of 2022, while that of the mixed income strengthened in both subsequent quarters for which there are available data. On the other hand, the percentage point contribution of the unit consumption of fixed capital has been particularly large over the period from 2022q1 until 2023q1. Cumulatively, for the period 2021-2022, the (unit) net operating surplus of NFCs contributed to 50.0% of the increase in unit profits, when, on average over the same period, it represents 17.4% of total profits, the (unit) mixed income contributed 43.7%, and the consumption of fixed capital 22.3%. In other words, the contribution of NFCs' unit profits and unit mixed income together account for 93.7% of the increase in total unit profits.

The analysis shows that during the period 2021-2022 and especially for the period 2022q1-2022q4, which is characterized by strong exogenous inflationary pressures mainly in the energy sector, unit profits increased their contribution to domestic price increases as reflected in the percentage increase of the GDP deflator. Moreover, as we have seen, the growth of unit profits (gross operating surplus in the economy as a whole) was driven by the NFCs net operating surplus and the mixed income per unit of real GDP. These conditions provide evidence that companies have chosen not to absorb increases in energy costs by passing them on to product prices and, at the same time, have strengthened their net operating surplus.

The results of the analysis add to a series of works on other countries, the euro area and the USA [Hahn (2021); Arce et al. (2023); Hahn (2023); Weber and Wasner (2023) among others]. There are several interpretations of the above observed behaviour. Some businesses may raise their prices to protect their profit margins. Since in the initial phase of inflation there was excess demand, a price increase would not result in a loss of market share. According to another interpretation, some companies increase their profit margins to recover losses from previous years. Another possible cause lies in the attempt to create “cushions” in an environment of high uncertainty. In a similar vein, some firms form expectations that inflation will continue and therefore discount increases in production costs by adjusting product prices accordingly. Finally, another interpretation focuses on the “seller’s inflation”, i.e., the ability of some companies with a large market share to raise prices (Weber and Wasner, 2023). In the current juncture, whatever the motivation behind enterprises’ pricing policy, this behaviour prolongs high interest rate policy and risks triggering an economic recession.

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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

At the current conjuncture, Greece has faced extreme natural phenomena, which due to their unprecedented scale will also have significant economic effects. The extent and the time frame in which the disasters, and especially the floods in Thessaly, will affect the development of the GDP of the Greek economy is not currently possible to estimate. On the one hand, we do not know the initial economic footprint of the disasters and the time it will take to restore normality and productive activities in the areas affected. On the other hand, multiple mechanisms have been mobilised to repair the damage and help those affected, and at the same time, significant financial resources from the European Union will be allocated for the same purposes.

Since we do not have concrete data in relation to these parameters, any assessment regarding the prospects of the Greek economy for the rest of this year can only be based on the economic data currently available and concerning the period before the occurrence of the disasters. According to these data, the Greek economy has remained on a trajectory of satisfactory growth rates, with the country's GDP in the first half of the year having increased by 2.4% as compared to the first half of 2022. This steady course, combined with positive indications regarding the development of key sectors and indicators, favors the assessment that, despite the new uncertainties and risks created by recent events, there will not be, in the short term, significant deviations from the dynamics reflected in the figures of the first half of the year.

Having noted the above, the current section presents the updated forecasts of KEPE concerning the evo-

lution of the rate of change of real GDP in Greece in 2023.¹ The forecast is conducted using KEPE's dynamic structural factor model.² The underlying time series database used to estimate the model and produce the forecasts includes 126 variables,³ covering the main aspects of economic activity in the country on a quarterly basis and spanning the period from the first quarter of 2000 up to the second quarter of 2023.

According to the econometric estimates, which are presented in Table 1.3.1, the average annual growth rate of the Greek economy for 2003 is estimated to reach 2.4%. This forecast represents a small upward revision of the previous forecast of KEPE (2.2%), reflecting the better-than-expected growth rate of the GDP in the second quarter of the year (2.7% as compared to the corresponding quarter of 2022). For the second half of 2023, the forecast remains on average quite close to KEPE's previous projection, standing at 2.4% (from 2.5%) compared to the corresponding period of 2022 and amounting to 3.1% and 1.6% for the third and fourth quarters of 2023, respectively. This outlook reflects the favorable developments observed until recently in several of the economic figures incorporated in the forecast.

More specifically, for the second quarter of 2023, the observations on a non-seasonally and calendar-adjusted basis compared to the corresponding quarter of 2022 reflect a further notable increase in private consumption, as well as a significant strengthening of fixed capital investment, driven mainly by the major increase of investment expenditure in housing and other constructions. In the external sector, the rise in exports of services continued, due to the significant increase in tourism receipts, while, on the contrary, there was an evident pressure on goods exports, due to the weakening of the economic environment in Europe. In the industry sector, the overall industrial production index registered an increase, reflecting a significant strengthening in the relevant sub-indices concerning capital goods and consumer goods, while in parallel, in these categories, there was also a rise in the turnover index in industry. In addition, positive develop-

1. The date of the forecast is September 28, 2023.

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

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

TABLE 1.3.1 Estimated real GDP rate of change in 2023 (% , y-o-y)

Quarters	2023	
	3 rd quarter	4 th quarter
Quarterly rate of change	3.11 [2.98 , 3.24]	1.60 [1.48 , 1.72]
Mean annual rate of change, 2 nd half	2.36 [2.23 , 2.48]	
Mean annual rate of change	2.36 [2.29 , 2.42]	

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 2023, on a seasonally adjusted basis.

ments were also recorded in the construction sector, in terms of the general production index in construction and both of the relevant sub-indices referring to *building construction* and *civil engineering*. Concerning the course of the domestic labor market, in the second quarter of 2023, a further improvement in conditions was observed, as the number of persons employed increased by 1.7% compared to the first quarter of the previous year and the number of unemployed persons decreased by 9.8%, respectively.

Concerning price data for the second quarter of 2023, developments were indicative of a further considerable fall in energy costs, as the Brent oil price index declined compared to the previous quarter, while a further decrease was observed in the European harmonized energy price index for Greece. At the same time, there was a continuation of the gradual decline in inflationary pressures, which, however, concerned part and not all of the basic categories of the consumer price index. In particular, a fall in prices or a slowdown in their rate of increase was observed in certain categories, such as those significantly affected by energy prices (housing, transport), while high inflationary pressures continued to be recorded in basic consumer good categories, such as *food and non-alcoholic beverages, clothing and footwear, durable goods, household appliances and services* and *health services*.

The above developments seem to have resulted overall in a further slight fall in uncertainty in Greece, as both the yield of Greece's ten-year government bond and the relevant spread against the corresponding German bond declined in the second quarter of 2023 as compared to the corresponding quarter of 2022.

In relation to the indicators reflecting agents' expectations and assessments regarding the economic climate in the country, developments in the second quarter of 2023, compared to the first quarter of the year, demonstrate an improvement of the economic climate in Greece, a weakening of the economic climate in the EU, and a strengthening in business expectations in Greece in the retail trade and construction sectors.

Despite the above mentioned –mostly– positive developments in key figures and indicators, the risks affecting the growth prospects of the Greek economy are currently significant, not only because of the recent natural disasters, but also due to other factors related to the geopolitical tensions, the weak performance of the European economy, the persistence of inflationary pressures, the effects of increased interest rates and the significant degree of uncertainty regarding developments in the energy and food markets. Based on certain more recent indications, the effects of the natural disasters in Greece and the unfavourable climate conditions in other EU countries are already inducing increases in food prices, while oil prices have increased considerably in recent months, with what these developments may imply for households' purchasing power and, therefore, for private consumption. On the other hand, there are several factors which can contribute to a more positive outlook for the Greek economy, such as the continuing significant growth of the tourism sector, the utilisation of the Recovery and Resilience Fund and the NSRF for the strengthening of productive investment, the enhancement of the resilience of the economy through the fulfillment of fiscal targets and the upgrade of Greece's credit rating to investment grade status.

1.4. Positive returns for the Greek stock market and the return to investment grade

Fotini Economou

1.4.1. Introduction

The eight months of 2023 ended, recording high positive returns as well as increased capitalization and transactions value for the Greek stock market. At the same time, the bond market remains under pressure from the continued rate hikes by the Central Banks. An important positive development of the last few months was the return of Greece to investment grade, with a number of expected positive effects for the real economy and the capital market.

This article provides a brief review of the course of the Greek stock market during the eight months of 2023 with an emphasis on key stock market indices and data. The course of the bond market for the same period is also presented. In addition, special reference is made to the return of Greece to investment grade and the recent upgrades by international credit rating agencies. The last section summarizes and concludes the article.

1.4.2. The course of the stock market during the eight months of 2023

According to ATHEX data for the eight months of 2023 (Table 1.4.1), the Athex Composite Share Price Index recorded high positive return of 41.16%, reaching 1,312.49 points on 31/8/2023 from 929.79 points at the end of December 2022. Impressively high returns were also recorded for the rest of the stock market indices during the eight months of 2023, with outstanding returns for the mid-caps and the FTSE/Athex Mid Cap Index, which recorded a return of 53.44%. The Hellenic Mid & Small Cap Index followed with a return of 44.75% and the FTSE/Athex Large Cap Index with a return of 41.33%. The sectoral indices also moved upwards, with FTSE/Athex Financial Services, FTSE/Athex Industrial Goods & Services, FTSE/Athex Consumer Goods & Services, FTSE/Athex Banks, FTSE/Athex Basic Resources and FTSE/Athex Technology recording impressive returns of over 50% (91.05%,

82.52%, 73.73%, 65.97%, 60.28% and 51.41%, respectively). The only exception was FTSE/Athex Telecommunications, which recorded losses of -5.14%.

According to ATHEX data (2023), 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 €80.08 billion at the end of August 2023, increased by 33.87% compared to the end of December 2022, which was €59.82 billion. The participation of foreign investors (with the participation of the Financial Stability Fund) remained high at 62.80% at the end of August 2023, recording outflows of €78.80 million and 62.30% of total transactions in August 2023. The cash value of settled transactions in August 2023 reached €2,278.73 million, recording an increase of 97.67% compared to December 2022, which was at €1,152.80 million, and of 81.16% compared to August 2022, which was at €1,257.84 million. The cash value of settled transactions of equities also increased, reaching €2,254.24 million compared to December 2022, which was at €1,130.74 million, and compared to August 2022, which was at €1,238.50 million. Moreover, the cash value of settled transactions of equities also increased for the eight months of 2023, reaching €17,491.18 million compared to the eight months of 2022, which was at €13,066.81 million.

The observed fluctuations of the stock market during the eight months of 2023 are also reflected in the evolution of the KEPE GRIV implied volatility index, the so-called “fear” index, during the eight months of 2023. 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 increased in August 2023, reaching 27.69% on 31/8/2023, from 23.45% on 31/7/2023. The evolution of the index indicates an increase in uncertainty for the expected short-term course of the Greek market compared to the end of the previous month. Nevertheless, the index ended the eight months of 2023 at a level slightly lower than that of December 2022, which was at 28.48% on 12/30/2022, with fluctuations within the period under review. Note that the average daily value of the index decreased, reaching 25.60% in August 2023, from 26.27% in July 2023. Moreover, the index remained below its historical average level (since January 2004) for the Greek market, which stands at 32.41%.

TABLE 1.4.1 Prices and returns for selected indices of the ATHEX (31/8/2023)

	31/8/2023	Year min	Year max	Year change (%)
FTSE/Athex Mid Cap Index	2,165.69	1,411.43	2,224.46	53.44%
Hellenic Mid & Small Cap Index	1,976.03	1,365.14	2,011.62	44.75%
FTSE/Athex Large Cap	3,182.11	2,250.77	3,280.71	41.33%
Athex ESG Index	1,494.21	1,057.52	1,541.00	41.27%
Athex Composite Share Price Index	1,312.49	929.79	1,351.68	41.16%
Athex All Share Index	307.64	231.11	314.56	33.62%
FTSE/ATHEX Mid & Small Cap Factor-Weighted Index	5,820.88	4,353.12	5,946.34	32.43%
FTSE/Athex Financial Services	1,309.48	672.72	1,514.55	91.05%
FTSE/Athex Industrial Goods & Services	8,466.33	4,603.86	8,651.06	82.52%
FTSE/Athex Consumer Goods & Services	15,909.68	8,974.47	16,184.74	73.73%
FTSE/Athex Banks	1,063.13	640.09	1,117.78	65.97%
FTSE/Athex Basic Resources	10,401.27	6,463.31	10,590.89	60.28%
FTSE/Athex Technology	3,110.21	2,047.81	3,121.69	51.41%
FTSE/Athex Construction & Materials	4,624.40	3,204.90	4,808.27	44.29%
FTSE/Athex Retail	1,290.27	901.21	1,375.58	43.17%
FTSE/Athex Travel & Leisure	2,890.27	2,196.17	3,038.64	30.35%
FTSE/Athex Utilities	5,638.43	4,598.77	6,190.27	22.61%
FTSE/Athex Food & Beverage	10,073.39	8,101.49	11,188.59	18.98%
FTSE/Athex Personal Products	7,709.82	6,441.87	8,386.11	16.70%
FTSE/Athex Health Care	467.29	387.42	504.88	11.55%
FTSE/ATHEX Real Estate	4,479.33	3,750.22	4,816.41	9.97%
FTSE/Athex Energy	5,436.14	4,780.16	5,856.79	8.08%
FTSE/Athex Telecommunications	3,862.34	3,511.53	4,415.99	-5.14%

Source: Daily official list of trading activity of the ATHEX (31/8/2023).

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

The bond market continues to be under pressure from continued interest rate hikes by Central Banks, with the European Central Bank (ECB) on 14 September 2023 carrying out its tenth consecutive increase in key interest rates since July 2022, with the aim of the timely return of inflation to the ECB's medium-term target of

2%.¹ After this development, the interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility increased to 4.50%, 4.75% and 4.00%, respectively.

These developments inevitably affect the yields of the new issues and the borrowing costs of the Greek Government. Examining the issues of Greek Government T-bills for the eight months of 2023 (Table 1.4.2), it is observed that their yields increased compared to the

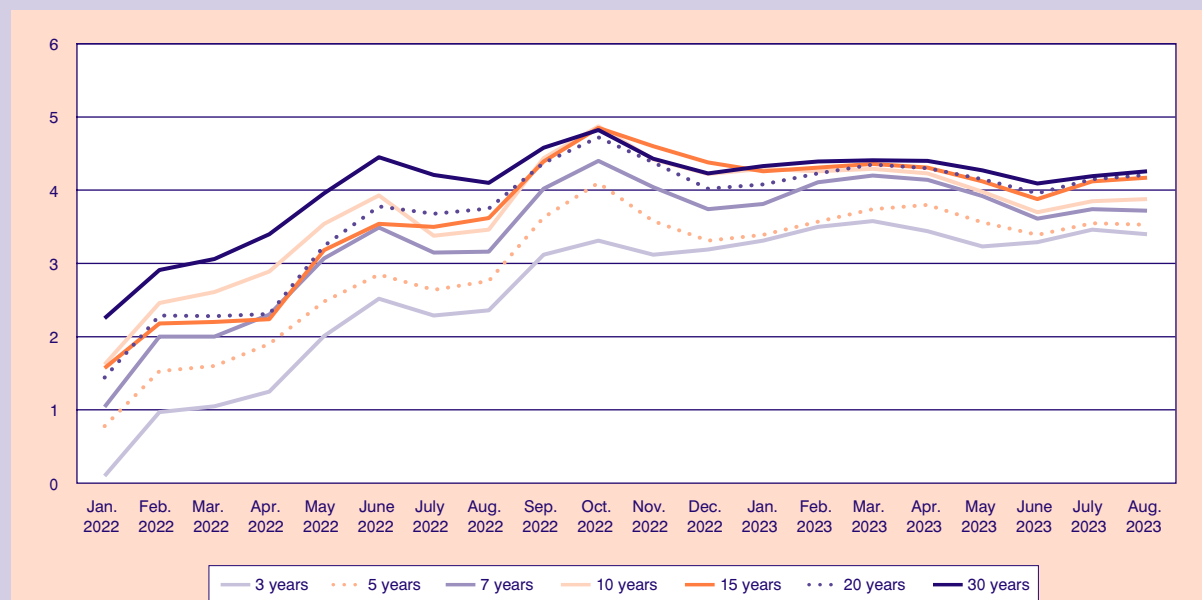
1. See ECB Press Release of the 14th September 2023.

TABLE 1.4.2 Greek Government T-bills yields (issues from the end of 2022 up to 6/9/2023)

Auction date	13 weeks	Auction date	26 weeks	Auction date	52 weeks
2/8/2023	3.72%	23/8/2023	3.83%	6/9/2023	3.81%
5/7/2023	3.59%	26/7/2023	3.80%	7/6/2023	3.84%
3/5/2023	3.20%	28/6/2023	3.65%	8/3/2023	3.75%
5/4/2023	3.04%	31/5/2023	3.50%	7/12/2022	2.73%
1/2/2023	2.47%	26/4/2023	3.50%		
4/1/2023	2.18%	29/3/2023	3.15%		
2/11/2022	1.79%	22/2/2023	3.07%		
		25/1/2023	2.40%		
		28/12/2022	2.50%		

Source: Ministry of Finance.

FIGURE 1.4.1
Monthly average yield (%) of Greek Government benchmark bonds (Jan. 2022 – Aug. 2023)
for maturities of 3, 5, 7, 10, 15, 20 and 30 years



Source: Bank of Greece.

end of 2022 for all 13-, 26- and 52-week T-bills, with the largest increase recorded for the 13-week T-bills. Focusing on the interest rates of the Greek Government benchmark bonds, according to Bank of Greece data for the same period (Figure 1.4.1 above), the average monthly yield of the Greek government bonds of August 2023 increased compared to December 2022 for the maturities of 3, 5, 20 and 30 years, while the average monthly yield of the Greek government bonds decreased compared to December 2022 for the maturities of 7, 10 and 15 years. Note the successful issue of the 15-year Greek Government bond in July 2023 (coupon 4.375%, re-offer yield 4.464%), through which the Greek Government raised €3.5 billion from the market.

Finally, the corporate bond indices of the ATHEX also moved upward. According to ATHEX data, the Hellenic Corporate Bond Price Index² recorded a return of 2.77% and the Hellenic Corporate Bond Index³ a return of 5.28% during the eight months of 2023.⁴ In addition, the cash value of settled transactions of corporate bonds increased in July and August of 2023 (€30.61 million and €15.35 million, respectively) compared to the respective months of 2022 (€20.44 million and €11.40 million, respectively). Nevertheless, the cash value of settled

transactions of corporate bonds of the eight months of 2023 decreased compared to the eight months of 2022, reaching €148.81 million from €168.88 million.

1.4.4. The return to investment grade

Greece's return to investment grade is now a fact, with international rating agencies gradually upgrading the country's credit rating (Table 1.4.3). The Japanese rating agency Rating and Investment Information (R&I) was the first to upgrade, on July 31, 2023, Greece to the investment grade BBB- with a stable outlook, from BB+ with a stable outlook.⁵ A few days later, on August 4, 2023, the German rating agency Scope Ratings followed by announcing the upgrade of Greece to the investment grade BBB- with a stable outlook, from BB+ with a positive outlook.⁶ Then, on September 8, 2023, the Canadian rating agency DBRS Morningstar became the first of the four ECB-accredited rating agencies to give Greece an investment grade of BBB (low) with a stable outlook, from BB (high) with a stable outlook.⁷ On September 15, 2023, the American rating agency Moody's also upgraded Greece by two notches to Ba1 with a stable outlook, just one notch below investment grade.⁸

TABLE 1.4.3 Credit rating

Rating Agency	Rating	Outlook	Date of last review
MOODY'S	Ba1	Stable	September 2023
FITCH	BB+	Stable	January 2023
STANDARD & POOR'S	BB+	Positive	April 2023
RATING AND INVESTMENT	BBB-	Stable	July 2023
DBRS	BBB(Low)	Stable	September 2023
SCOPE RATINGS	BBB-	Stable	August 2023

Source: Public Debt Management Agency (PDMA)-September 2023.

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 29/8/2023 according to the daily official list of trading activity of the ATHEX of 31/8/2023.

5. See Ministry of Economy and Finance for the announcement of Rating and Investment Information (R&I), 31/7/2023.

6. See Scope Ratings, 4/8/2023.

7. See DBRS Morningstar, 8/9/2023.

8. See Moody's, 15/9/2023.

The recovery of the investment grade is expected to have positive effects for the real economy and the capital market, expecting reduced borrowing costs, increased liquidity and inflow of investment funds, as this development makes Greek stocks and bonds eligible for a much larger investor audience. Especially at the current juncture, this development is expected to mitigate the negative effects suffered by Greek businesses and households from the consecutive interest rate hikes by the ECB. At the same time, the positive effects of the return to investment grade may also contribute to the return of the stock market to the developed markets, which is an important goal for the Athens Stock Exchange.

1.4.5. Conclusions

The eight months of 2023 ended with impressive returns for the Greek stock market since the beginning

of the year, increased capitalization and transactions value. With the aim of containing inflation, the continued interest rate hikes by the ECB continue to put pressure on the bond market, affecting yields on new issues and the cost of Greek government borrowing. A milestone for the Greek economy was the recovery of the investment grade, which is expected to have positive effects for businesses and households, the stock market and the government through reduced borrowing costs, increased liquidity and the attraction of new investment funds.

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1.5. Recent developments and prospects of global economic activity: Slowdown of global economic growth amid tight monetary policy

Aristotelis Koutroulis

The recovery of the Chinese economy along with the downward trending commodity and energy prices provided a significant boost to the global economy in the first half of the year. However, prolonged tight monetary policy, persistent inflation, and the gradual fading of the effects of China's return to normality are expected to weigh on annual global growth.

Despite tight monetary policy, the global economy recorded strong economic growth rates in the 1st half of this year owing to China's rebound and falling energy prices. However, the positive effect from the recovery in Chinese economic activity proved to be shorter than expected. On the other hand, persistent inflation at levels well above central banks' targets and high interest rates seem to have long-lasting (negative) effects on economic activity. Overall, these developments have created negative expectations, thereby resulting in downward trending confidence indicators of businesses and households. Indices of manufacturing production and new orders have embarked on a downward trend as well (OECD, 2023). Under these conditions, the annual growth rate of global GDP in 2023 is expected to slow down and reach 3% (see Table 1.5.1).

In the advanced world, European economies have experienced the largest slowdown, with growth rates hovering around the limits of economic stagnation (Eurozone and UK) and GDP contraction (Germany). In the Eurozone, poor economic performance is linked to high borrowing costs, the gradual withdrawal of fiscal support measures for households, low household and business confidence and the limitation of external demand due to the strengthening of the euro (ECB, 2023). In contrast to Europe, the economies of the US and Japan seem quite resilient. In the US, the marginal increase in the rate of economic growth reflects

the dynamism of domestic demand and the positive conditions that prevail in the labor market. In Japan, the economy's improved performance relative to 2022 is mainly attributed to the maintenance of loose monetary policy. Indeed, Japan is the only advanced economy whose monetary authorities have not raised key policy rates, thereby favouring the depreciation of the yen and the country's export performance.

After a lengthy period of lockdowns and production disruptions, the rebound of the Chinese economy has made the distinction between emerging and developing economies. However, low consumer confidence in the economy's prospects and significant problems in the real estate and the construction sectors create obstacles to the recovery of domestic demand and the overall return of the economy to the high growth rates of the recent past (ECB, 2023; OECD, 2003). At the same time, India and Brazil seem to maintain last year's growth momentum owing to specific national circumstances (e.g., good performance of the agricultural sector) (OECD, 2023). Finally, Russia is projected to register a (marginal) positive growth rate after a long period of GDP contraction caused by the war with Ukraine.

Regarding price developments, restrictive monetary policy along with downward trending energy prices have led to inflation moderation across most regions of the world (see Table 1.5.2). However, inflationary pressures persist as core inflation remains high. According to OECD analysts, the persistence of core inflation is due to increased production costs and large profit margins in several productive sectors. Another interesting feature of price developments is the large variation across the price inflation of material products and services with the upward pressures on the latter remaining stronger. This difference owes to the larger share of labour costs to the total production costs of services (OECD, 2023).

Labor market conditions in most advanced economies continue to be characterized by low unemployment and high vacancy rates. However, the degree of labour market tightness has been reduced, resulting in milder increases in nominal wages. In theory, minimum wage increases and inflation compensation counteract the efforts of the monetary authorities to deal with inflation. Nevertheless, the high profit margins observed in several sectors should allow business to absorb increased labour costs without increasing final prices (OECD, 2023).

TABLE 1.5.1 Real Gross Domestic Product
(annual percentage changes)

	2022*	2023**	2024**
World economy	3.3	3	2.7
USA	2.1	2.2	1.3
Euro Area	3.4	0.6	1.1
Japan	1	1.8	1
United Kingdom	4.1	0.3	0.8
Brazil	3	3.2	1.7
Russia	-2	0.8	0.9
India	7.2	6.3	6
China	3	5.1	4.6

Source: OECD (2023).

* Estimations, ** Projections.

TABLE 1.5.2 Inflation
(annual percentage changes)

	2022*	2023**	2024**
USA	6.3	3.8	2.6
Euro Area	8.4	5.5	3
Japan	2.5	3.1	2.1
United Kingdom	9.1	7.2	2.9
Brazil	9.3	4.9	3.6
Russia	13.7	5.2	5.2
India	6.7	5.3	4.8
China	1.9	0.5	1.3

Source: OECD (2023).

* Estimations, ** Projections.

As regards global trade, the international organizations project that the rate of the expansion of world trade in goods and services will slow down. This reflects, among other things, the decline in global GDP growth rates and the general shift of consumer spending to goods and services, which are less trade-intensive (ECB, 2023; OECD, 2003).

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2. Fiscal developments

KEPE, *Greek Economic Outlook*, issue 52, 2023, pp. 33-39

State Budget, public debt and fiscal figures perspectives

Elisavet I. Nitsi

2.1. The 2023 State Budget execution and the 2024 Preliminary Draft State Budget

The 2024 Preliminary Draft State Budget was recently submitted to the Greek Parliament. The Draft, in addition to the 2024 Budget, also contains estimations of both the macroeconomic figures and the execution of the 2023 Budget. Table 2.1.1 presents the State Budget data of 2023 and 2024.

The 2023 State Budget execution

For the present year, 2023, and according to the data, the country's real Gross Domestic Product (GDP) growth rate is estimated to reach 2.3%, according to the forecast of the 2023 Stability Program. This forecast of the Ministry of Finance is related to the increase in private consumption, investments, as well as the gradual shrinking of the current account deficit with the increase in exports of goods and services, as tourism receipts increased significantly. The recovery of the investment grade was particularly important, as it ensures the security of access to the markets, reduces the financing costs of the country and credit institutions, and is expected to significantly strengthen the attraction of foreign investments. This forecast is higher than the forecasts of the 2023 State Budget by 0.5%.

The 2022 fiscal figures of the 2024 Draft Budget display a deviation from the forecasts of the 2023 Budget forecasts, as it was submitted. The primary State Budget result, according to the ESA, is estimated to be a surplus of 1.1 billion euros (0.5% of GDP), against a deficit of 806 million euros, i.e., 1.9 billion euros more (0.9% of GDP) than was foreseen in the 2023 State Budget Introductory Report. Compared to 2022, when the pri-

mary deficit reached €2.4 billion (1.2% of GDP), the improvement amounts to €3.5 billion euros (1.7% of GDP). The State Budget overall result is estimated to be a deficit of 7.5 billion euros (3.4% of GDP), against a deficit of 7.8 billion euros, i.e., 281 million euros less (0.1% of GDP) than was foreseen in the 2023 State Budget Introductory Report. Compared to 2022, when the Central Government deficit reached €8.5 billion (4.1% of GDP), the improvement amounts to €973 million euros (0.7% of GDP).

More specifically, revenues are expected at 65.2 billion euros (29.1% of GDP), increased by 3.0 billion euros or 4.9% compared to the 2023 Budget forecast, and 3.6 billion euros or 5.8% compared to 2022. This increase will mainly occur from tax collection and more specifically from business income tax of 2.0 billion euros or 39.8%, personal income tax of 954 million euros or 8.4% and VAT of 925 million euros or 4.2%. On the contrary, transfers reduced revenue by 1.5 billion euros or 21.7%. The increase in tax revenues is due to the economy's restart and the subsequent increase in economic activity that, together with the increase in the minimum wage and all remunerations and transfers related to it, increased employee incomes and thus the tax yield. Moreover, the increase in tax revenues can also be attributed to tourism receipts, the increase in the use of credit cards and electronic transactions and the inflationary pressures following the global energy crisis.

Revenues from the Public Investment Program (PIP) decreased by 508 million euros or 11.1% compared to the 2024 Budget forecast, while they increased by 392 million euros or 10.7% from 2022. In contrast, the Recovery and Resilience Fund's revenue fell by €1.8 billion or 48.1% compared to the 2023 Budget forecast and by €773 million or 27.2% compared to 2022.

Accordingly, the expenditures are estimated at 72.7 billion euros (32.4% of GDP), increased by 2.8 billion euros or 4% from the 2022 Budget and 2.6 billion euros or 3.8% from 2022. This increase arises mainly from transfers, by 1.6 billion euros or 5.2%, and interest paid, by 1.6 billion euros or 23.6%, from the 2023 State Budget forecast, while from 2022, there is an increase in non-allocated expenditure by 1.9 billion eu-

TABLE 2.1.1 State Budget figures according to the European System of Accounts Methodology (ESA), million €

	2022	2023	2024
	DYE April 2022	Budget forecast 2023 ¹	Preliminary Draft Budget estimate 2024
			Preliminary Draft Budget forecast 2024
State Budget			
Net revenue	61,583	62,139	65,184
<i>Taxes from which:</i>	56,207	56,748	61,325
VAT	21,931	22,198	23,123
Excise taxes	7,009	7,117	7,108
Property taxes	2,497	2,380	2,540
Personal income tax	11,219	11,318	12,272
Business income tax	4,694	5,094	7,120
Other current taxes	2,321	2,375	2,345
Social contributions	56	55	56
Transfers	8,548	6,972	5,456
Sales of goods and services	721	837	824
Other current revenue	2,052	3,613	4,221
Sales of fixed assets	27	24	10
Tax refunds	6,028	6,110	6,707
Expenditure²	70,081	69,945	72,710
Compensation of employees	13,640	13,756	14,158
Social benefits	391	397	403
Transfers	34,564	31,620	33,250
Purchases of goods and services	2,133	1,431	2,153
Subsidies	400	80	180
Interest payments (gross basis)	6,107	7,000	8,650
Other current expenditure	55	81	96
Non-allocated expenditure (without PIB)	11,216	15,351	13,130
Purchase of fixed assets	1,573	229	689
Public Investment Program (PIP)³			
Revenue	3,666	4,566	4,058
Expenditure	8,182	8,300	8,750
Recovery and Resilience Fund¹			
Revenue	2,753	3,662	1,902
Expenditure	2,843	3,662	2,070

TABLE 2.1.1 (continued)

	2022	2023		2024
	DYE April 2022	Budget forecast 2023 ¹	Preliminary Draft Budget estimate 2024	Preliminary Draft Budget forecast 2024
State Budget Primary Balance by ESA⁴	-2,427	-806	1,112	2,853
% GDP	-1.2%	-0.4%	0.5%	1.2%
State Budget Balance by ESA⁴	-8,498	-7,806	-7,525	-5,947
% GDP	-4.1%	-3.5%	-3.4%	-2.5%
GDP	208,030	224,134	224,134	235,147

Sources: Preliminary Draft State Budget 2024, *Ministry of Finance*;
State Budget Introductory Report 2023, *Ministry of Finance*;
Stability Program 2023, *Ministry of Finance*.

Notes:

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

ros or 17.1% and by 2.5 billion euros or 41.6%. 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. Compared to 2022, urgent emergencies due to fires and floods increased appropriations under allocation. The allocation of these funds was implemented with the passing of two supplementary Budgets.

Finally, PIP expenditures increased by 450 million euros or 5.4% compared to the 2023 Budget estimate and 568 million euros or 6.9% compared to 2022, while expenditures of the Recovery and Resilience Fund are significantly reduced from 2022 expenditures (773 million euros or 27.2%), but mainly compared to the 2023 Budget forecast (1.6 billion euros or 43.5%).

Preliminary Draft Budget 2024

Regarding the 2024 Preliminary Draft Budget, the macroeconomic forecast for the country's GDP growth rate is 3%, higher than 2023 by 0.7%. However, it should be noted that this forecast is higher than the Eurozone average (1.3% according to the European Commission's summer forecasts and 0.9% according to the IMF forecasts). It seems that after the blow of the pandemic,

the Greek economy will continue to grow due to the increased economic activity, with a significant increase in investments, due to the resources of the PIP and the Recovery and Resilience Fund, despite the significant increase in inflation caused by the energy crisis. The growth perspective of the Greek economy is due to the credibility of the country's economic policy, which, with the successive upgrades of the credit rating by international rating agencies, shows the Greek economy's perspective, and its resistance to the continuous problems caused by the climate crisis.

In fiscal terms, the 2024 Preliminary Draft foresees a significant improvement of the State Budget's deficits with a simultaneous increase of revenues, even though expenditures tend to increase, but less than revenues, compared to the estimates for 2023. The State Budget's result, according to the ESA, will be restricted to a deficit of 5.9 billion euros (2.5% of GDP), reduced by 1.6 billion euros or 21%, while the primary result will be a surplus of 2.9 billion euros (1.2% of GDP), increased by 1.7 billion euros or 156.6%.

More specifically, net revenues, expected to reach 68.1 billion euros (29% of GDP), are increased by 3 billion euros or 4.5%. The increase in revenue is projected to come mainly due to the economy's projected

growth leading to increased VAT collectability, by 1.1 billion euros or 5% and transfers by 1.4 billion euros or 26.3%, mainly due to the increased, ESA-adjusted, revenues of the TAA by 1.2 billion euros and the co-financed part of the PIP by 274 million euros. Expenditures will reach 74.1 billion (31.5% of GDP), increased by 1.4 billion euros or 1.9% compared to the 2024 State Budget Draft estimates for 2023 and will arise primarily from non-allocated expenditures (2 billion euros or 15.1% more than in 2023) and, secondly, from purchases of goods and services (566 million euros or 82.1%). In addition, 3.6 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 8.5 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 2023

According to the latest data available from the General Accounting Office,¹ for the second quarter of 2023, the Central Government’s debt amounted to 404.7 billion euros, showing an increase of 3.2 billion euros (0.8%) compared to the previous quarter, while increased by 4.4 billion euros (1.1%) in relation to the end of the year 2022 and 10.5 billion euros (2.7%) compared to the corresponding quarter of 2022. In addition, cash deposits decreased compared to the previous quarter by 556.4 million euros (2.9%), by 858.5 million euros (4.6%) compared to the end of 2022 and by 2.6 billion euros (15.2%) compared to the corresponding quarter of 2022.

The composition of Central Government debt in the second quarter of 2023 is presented in Table 2.2.1.

TABLE 2.2.1 Central Government debt¹ (in million €)*

Period	2022 (B´ quar.)	2022 (D´ quar.)	2023 (A´ quar.)	2023 (B´ quar.)
Outstanding Central Government debt	394,182.48	400,275.64	401,528.24	404,685.60
Debt by type of interest rate				
Fixed rate ²	394,182.48	400,275.64	401,528.24	404,685.60
Floating rate ^{2,3}	0.00	0.00	0.00	0.00
Debt by way of trading				
Tradable	98,151.44	96,866.70	95,563.72	99,147.97
Non-Tradable	296,031.04	303,408.94	305,964.52	305,537.63
Debt by currency				
Eurozone	394,182.48	400,275.64	401,528.24	404,685.60
Non-Eurozone currencies	0.00	0.00	0.00	0.00
Cash deposits of the H.R.⁴	17,059.4	18,796.70	19,098.80	19,655.20
Debt guaranteed by the Central Government	30,153.53	29,631.20	29,339.40	29,432.30

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 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 31/3/2023 and 30/6/2023.

* Estimates.

1. Public Debt Bulletin, June 2023, General Accounting Office, Ministry of Finance.

The Central Government's debt was structured in fixed interest and euros. There is a change in the composition of debt in favor of negotiable debt over non-negotiable, compared to the previous quarter (3.6 billion or 3.8%) and to the end of 2022 (2.3 billion or 2.4%), as well as of the corresponding quarter of 2022 (1 billion or 1%). Finally, guarantees of the Greek State show a relative stability, at 29.4 billion euros, increased by 92 million euros (0.3%) compared to the previous quarter, while they are reduced by 721 million euros or 2.4% compared to the corresponding quarter of 2022.

The distribution of the debt, based on its remaining duration in the first half of 2023, is reflected in Table 2.2.2. Short-term Greek government securities (with a maturity of less than one year) represent 17.6% of the total, against 11.9% from the medium-term securities

(with a maturity of one to five years), and 70.3% from long-term issues (maturity after five years) from 17.0%, 11.8% and 71.2%, respectively, which were in the previous quarter of 2023. Compared to the corresponding quarter of 2022, 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 17.18 years, slightly decreased from that of 18.17 years in the corresponding quarter of 2022. 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

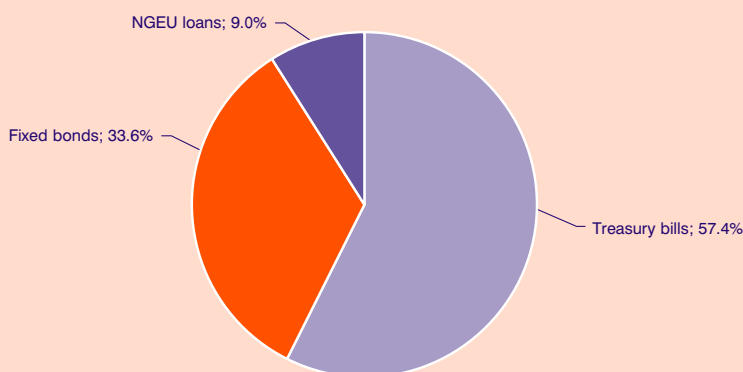
TABLE 2.2.2 Budgetary Central Government debt by residual maturity* (amounts in mil. €)

Period	2022 (B' quar.)	2022 (D' quar.)	2023 (A' quar.)	2023 (B' quar.)
Total volume	394,182.48	400,275.64	401,528.24	404,685.60
Short-term (up to 1 year)	64,742.23	68,876.94	68,241.03	71,385.66
Medium-term (1 to 5 years)	40,446.51	42,656.63	47,402.77	48,205.73
Long-term (more than 5 years)	288,993.75	288,742.07	285,884.44	285,094.21

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.

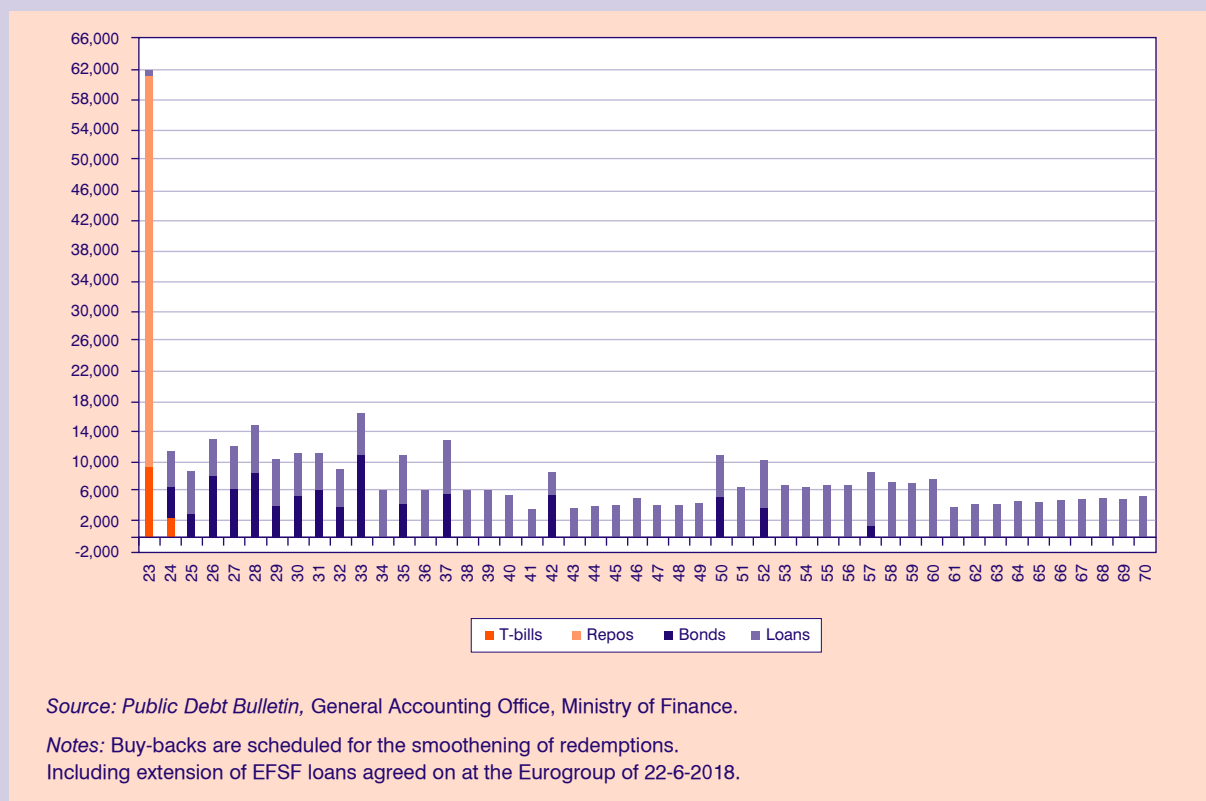
FIGURE 2.2.1
Composition of new borrowing, A' Semester 2023



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

FIGURE 2.2.2

Redemption schedule of Budgetary Central Government Debt on 30/6/2023 (amounts in million euro)



period, the weighted average maturity rose to 5.03 years, a decrease from the level of 5.53 years at which it had formed in 2022.

The new borrowing for the first half of 2023 decomposes to 57.4% of treasury bills, 33.6% of fixed bonds and only 9% 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 (2023), the dispersion of the burden of redemption of public debt has now leveled, with few exceptions, at less than 15 billion euros per year until 2070.

2.3. Fiscal figures perspectives

The 2024 Draft Budget was drawn up under the weight of the natural disasters that hit the country and demonstrated the need to deal with the consequences of climate change on a permanent basis. This acknowledgement leads to the inclusion of relevant funds in future Budgets so as to strengthen security with infrastructure projects and to strengthen civil protection

and prevention, as well as state aid. At the same time, however, it is also the first Budget drawn up after the recovery of the investment grade by the DBRS Ratings house, an achievement that came from the prudent fiscal policy and the reaction to the successive crises, i.e., energy, inflationary, etc.

The growth forecast for 2024 at 3%, higher than 2023 (2.3%), can be considered feasible, as the fiscal targets are adjusted to conditions of normality, structural reforms implemented in recent years are paying off and the accelerating implementation of the “Greece 2.0” plan is estimated to contribute to the achievement of the forecast for the growth rate of 2024. In addition, tackling tax evasion is an important goal for the country’s economic policy. Investments covered by grants and loans from the Recovery and Resilience Fund, with structural reforms in the areas of the green economy, digital transformation, business environment, export capacity, human capital and labor market are expected to lead to productivity growth of the economy and in assisting the transformation of the economy towards a production model of higher added value.

The possible faster de-escalation of inflation, the increase in tourist receipts, the effective utilization of the

resources of the Recovery and Resilience Fund, the strengthening of the competitiveness of the financial system, as well as the upgrading of the credit rating to investment grade from the other rating agencies too (Standard & Poor's Global Ratings upgraded the credit of the country, at the end of October showing confidence in the Greek economy), could also have an upward effect on the growth rate. Finally, the rapid restoration of productive activity, with an emphasis on agricultural production, as well as the infrastructure of the areas affected by the recent floods, is considered important in this direction.

An important new geopolitical factor that could negatively affect the global economy is the crisis in the Middle East and the possible ground operation of the Israeli forces in the Gaza Strip, especially if, in addition to Israel and the Palestinians, other powers are also involved, such as Iran, Lebanon, Turkey, etc. The war in Israel could also create chain economic effects on the Greek economy. The prices of energy, oil and

natural gas are likely to increase significantly, depending on the duration of the war and on the range of countries that may be involved. Such an increase would also lead to a further increase in food prices, resulting not in the reduction of inflation expected by the Budget, but, on the contrary, in its increase. The Greek economy would also be affected by the reduction of its exports to the region (exports to Israel have increased significantly recently), as well as by the limitation of both imports and tourism. The above would lead, if not to a recession, at least to a restriction of the expected growth.

As for public debt, this is expected to deescalate to 152.2% of GDP in 2024. Although the debt-to-GDP ratio is decreasing, in nominal terms the debt shows a stabilizing trend, albeit with an upward trend. This is due to the growth of the Greek economy and not to the reduction of the debt. Of course, this forecast also follows the assumptions for the growth of the economy.

3. Human resources and social policies

KEPE, *Greek Economic Outlook*, issue 52, 2023, pp. 40-46

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

Labour Force Survey (LFS) data show that labour market conditions improved further in the first six months of 2023. The number of employed individuals continued to rise while the number of the unemployed dropped. Although the employment rate reached an historical high, the number of employed individuals still falls short compared to 2008 due to the declining population; this is highly relevant when it comes to the labour market. The increase in employment seems to have favoured mostly women, youth, and foreigners. The biggest increases in the number of the employed are reported in Central Macedonia and Sterea Ellada. Over the past year, i.e., from the second quarter of 2022 until the second quarter of 2023, three small industries in terms of employment stood out: *transportation and storage*; *human health and social work activities*; and *financial and insurance activities*. Moreover, the number of the part-time employed declined, also as a share of total employment, while under-employment shrank over the past year. Regardless, it is still a bigger problem for women than men.

Paid employment, which involves two-thirds of the employed, continued to expand in the first seven months of 2023, according to the ERGANI reports. The decline in the number of conversions of full-time job contracts to flexible types of job contracts, especially the drop in the number of conversions to work-in-shifts job contracts without the consent of the employee, is a bonus. Finally, the unemployment rate is still higher for women and youth, but the differences between groups has gotten smaller. North Aegean Islands, South Aegean

Islands, Sterea Ellada, Thessaly, West Macedonia and Central Macedonia exhibited consistent reductions in the unemployment rate. Recent legislative interventions are expected to impact the labour market. The direction and size of that impact is unclear yet as it is associated with the size of the reactions caused and the effectiveness of the monitoring mechanism.

3.1.2. Employment

The number of the employed aged 15-64 reached 4.121 million in the second quarter of 2023, an increase of 144 thousand compared to the first quarter and 64.3 thousand compared to the second quarter of 2022. Hence, we can safely conclude that employment continues to expand, staying the course that began in 2014, despite the temporary fall in the first quarter of 2021 due to the coronavirus (see Graph 3.1.1). Similarly, the employment rate for people 15-64 reached 62.4%, which is the biggest rate of the last twenty years. While the employment rate was bigger than it had been before the 2009 crisis, the number of employed individuals still fell short of 2009 levels by 376 thousand.

This discrepancy is justified if we examine the evolution of the population aged 15-64; it has been declining consistently following the maximum value reached in the first quarter of 2008 (7.368 million). In particular, the size of the population has shrunk since 2008 by 10.3%, which is equal to 762 thousand fewer persons. This means that while employment is expanding, and that is a good thing, we should probably start considering the evolution of the population when discussing labour market prospects. The fact that over the past year the decrease in the size of the population has come from Greek citizens is alarming, because it is probably harder to reverse. Given that what matters for the labour market is the size of the labour force,¹ a reduction in the population must be compensated for by an increase in the participation rate. However, par-

1. The size of the population is an important determinant of aggregate demand for goods and services and, consequently, of GDP, especially in a country like Greece where demand heavily depends on private consumption. (Panagopoulos, Y. and Loizos, K. [2023]. The evolution of aggregate demand components as we return to normality. KEPE, *Economic Outlook* 51: 7-14).

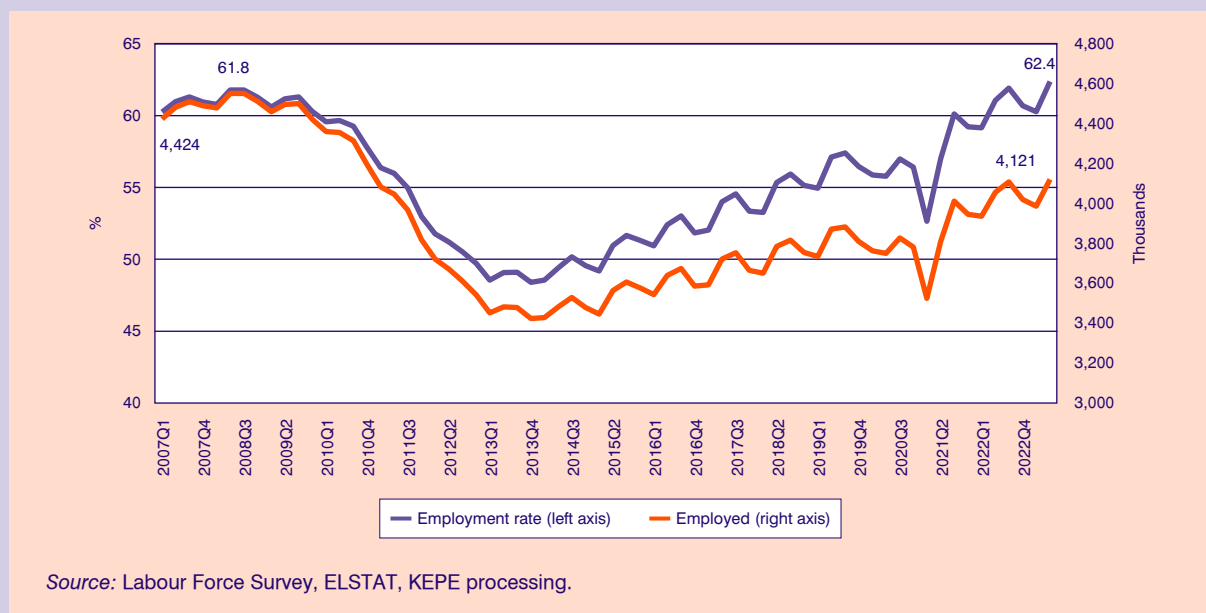
participation rates are typically low in Greece, especially amongst women.²

The annual increase in employment was not spread equally between men and women. Of the total 64.3 thousand new jobs, 82.7% were occupied by women, which corresponds to more than 53 thousand new jobs since the second quarter of 2022, while men barely occupied 11 thousand new jobs. As a result, the employment rate for men is still higher than for women in the second quarter of 2023 (71.3% vs. 53.5%), but the gap has narrowed by one percentage point compared to 2022. Likewise, youth aged 15-29 occupied 40.8 thousand new jobs while persons aged 30-64 occupied only 23.5 thousand new jobs. This is equal to a 7.6% increase in the number of employed youths vs. only a 0.7% increase in the number of the employed aged 30-64. Even though the employment rate of the latter group is still double that of youths, mostly because youth tend to study full-time until at least the age of 24, the age gap declined by one percentage point over the past year (35.5 percentage points).

With respect to ethnic origin, while most new jobs were occupied by natives (76.9%), the increase in the number of employed foreigners was eight times bigger than of natives (10.4% vs. 1.3%) over the past year. The number of employed foreign women exhibited the biggest annual increase (21.4%) since the second quarter of 2022, leading to a considerable increase in their rate of employment by 4.5 percentage points. Moreover, the difference between foreigner's and natives' employment rates continued to be wider amongst men (approximately 20 percentage points) compared to women (4 percentage points). Therefore, Greek men constitute a potential pool of labour force participants (additional to women of all ethnic groups) even though that could possibly involve providing motives to prolong their stay in the labour market.³

Total employment includes employed people over the age of 15. Their number expanded on an annual basis by 69.3 thousand people.⁴ Most of those new jobs were created in Central Macedonia (15.7 thou-

GRAPH 3.1.1
The evolution of the employment rate and the number of the employed aged 15-64



2. According to Eurostat data the participation rate for women (men) aged 15-64 stood at 61.4% (77.5%) in Greece vs. 69.5% (79.4%) in the EU-27 in 2022.

3. An analysis of the employment rate could reveal that this is associated with the retirement age of every group. However, the data used here do not allow such an analysis.

4. Notice that this number is slightly different than people aged 15-64 since people over the age of 65 are also included.

GRAPH 3.1.2

Annual and quarterly evolution of the number of employed by industry, 2022Q2-2023Q2, 2023Q1-2023Q2 (in thousands)



Source: Labour Force Survey, ELSTAT, KEPE processing.

Note: 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.

sand or 22.7% of total new jobs) and Sterea Ellada (11 thousand or 15.9% of total), while new jobs in Attica amounted to barely 2.3 thousand. The biggest relative increase was recorded in West Macedonia (8%), but due to its small size, the contribution to the total of new jobs was limited, i.e., just 10.1% of the total. On the contrary, the number of employed persons declined in two regions over the year; approximately 1000 jobs were lost in Thessaly and 300 more in the North Aegean islands. Attica is still the biggest employer with 37.1% of total employed residing there in the second quarter of 2023, while the North Aegean and the Ionian islands are the smallest regional labour markets, accounting for less than 2% of total employment. The employment rate decreased in two regions over the year (the North Aegean and Thessaly) while the biggest increases were recorded in the South Aegean and West Macedonia. Finally, the South Aegean and the Ionian islands are the two regions most affected by seasonal fluctuations of economic activity, mostly tourism. The former region reported a 42% increase in the number of the employed since the first quarter of 2023, corresponding to 45.3 thousand new jobs, while the

latter region reported a 25.2% increase, which equals 16 thousand new jobs. On the other hand, the number of the employed fell since the first quarter of 2023 in Attica and West Greece.

None of the big industries in terms of employment, like agriculture or manufacturing, exhibited a significant increase over the past year. *Accommodation and food service activities*, the fourth biggest employer, exhibited the biggest increase in the number of employed people, which, however, did not exceed 3.2%. Due to its size, though, this small increase translates into 30.8 thousand new jobs (see Graph 3.1.2). Amongst the industries that contributed the most new jobs are *transportation and storage* with 26 thousand new jobs (37.5% of total), *human health and social work activities* with 14.8 thousand new jobs (21.4% of total) and *financial and insurance activities* with 14.6 thousand (21.1% of total). On the other hand, since the second quarter of 2022, 25.1 thousand jobs were lost in *wholesale and retail trade, repair of motor vehicles and motorcycles* and 10.9 thousand more in *arts, entertainment, and recreation*. As a result, the share of the employed in

trade decreased by 0.9 percentage points over the past year to 16.5% of the total.

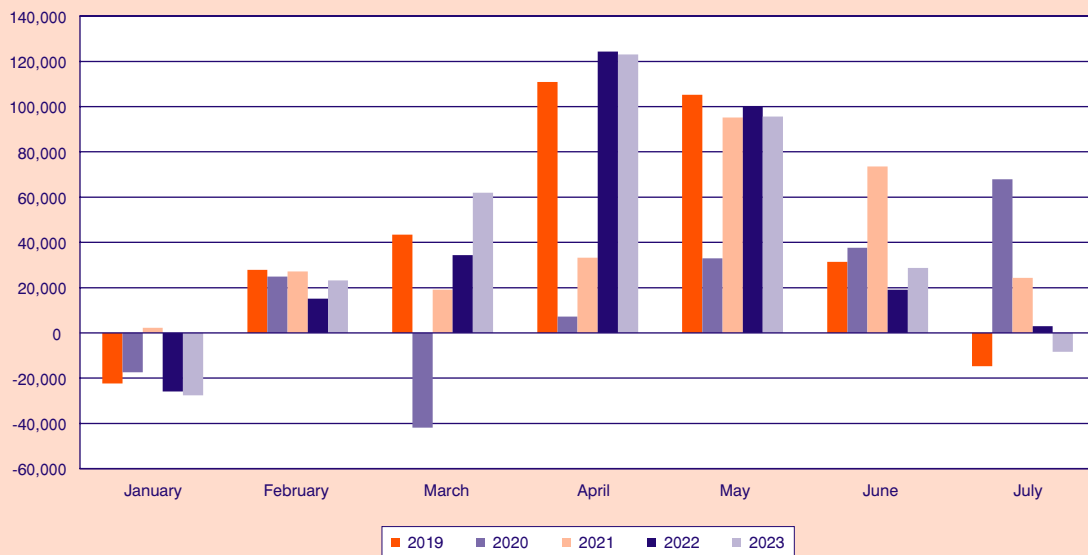
Focusing solely on the evolution of the number of employed people ignores qualitative aspects of employment. Working hours are one of those aspects. The share of full-time employed people increased compared to the second quarter of 2022 by 2.8%, i.e., faster than the increase in the number of the employed (1.7%). As a result, the share of part-time employment in the second quarter of 2023 shrank to 7.4%, an entire percentage point lower than the respective quarter in 2022. Another aspect that is associated with part-time employment is underemployment, i.e., people who work fewer hours than desired. The number of underemployed persons declined to 126 thousand from 160 thousand in the second quarter of 2022. This number represents a decline of more than 20%, which is a good thing. The number of underemployed men was bigger, reaching 34%, or 23.8 thousand persons. Since the majority of the underemployed consists of women (63.3%), the faster reduction of underemployed men led to a widening gender differential; it also calls for more thorough research on the reasons behind this imbalance.

3.1.3. Paid employment

The Labour Force Survey records an annual increase in the number of the employed by approximately 38.2 thousand people, which equals a 1.3% increase.⁵ This means that the number of employed individuals is smaller than the maximum number reported in the second quarter of 2008 by only 76.6 thousand people, while their share of total employment has been almost constant at 70%. We use the reports of the Information System ERGANI to investigate the most recent changes in paid employment. At the time of writing, the most recent published data involved July; hence, the discussion that follows refers to the first seven months of 2023.

In accordance with the systematic increase that was discussed above, the number of paid employees increased by 296 thousand until July; at least, this is the number of new jobs (positive balance) that were created since January (see Graph 3.1.3). This is the best performance since 2001, from when there is available data. Compared to 2022, significantly more new jobs were created in February (circa 8 thousand), March (27.5 thousand) and June (9.6 thousand). Moreover,

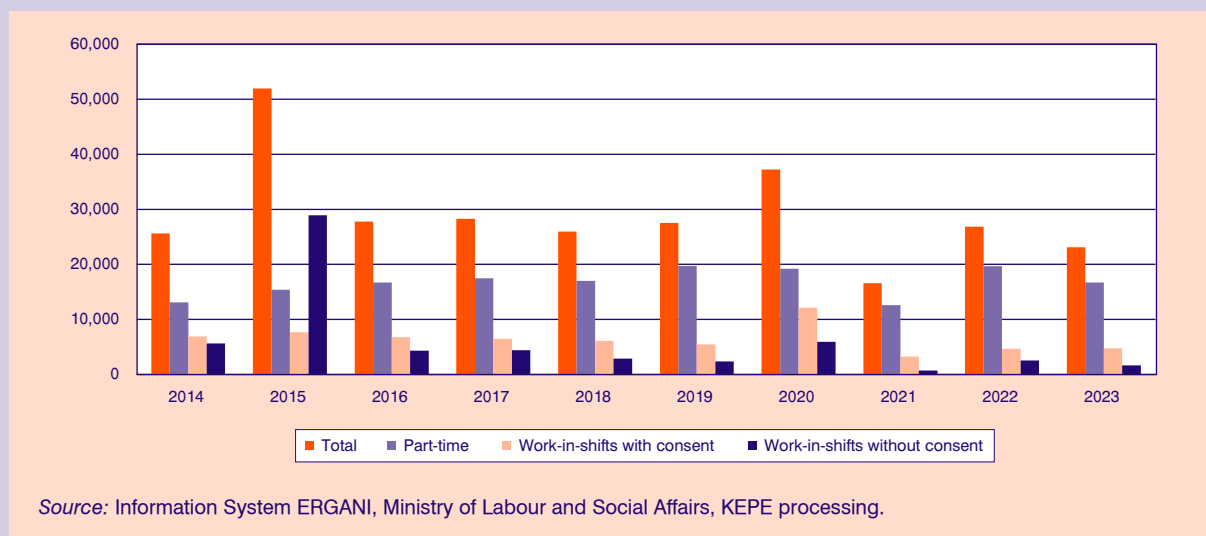
GRAPH 3.1.3
Flows and balance of paid employment from January to July, 2019-2023



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

5. The annual increase in the number of self-employed individuals with no employees reached a remarkable 4.7%. However, it should be noted that starting a business activity does not necessarily mean income. Conversely, the number of self-employed persons with employees (firms) went down by 2.6%.

GRAPH 3.1.4
Number of conversions from full-time to flexible types of employment



labour market mobility was strengthened, since hires reached 1.93 million (203 more than 2022), while employee turnover stood at 1.63 million persons (176 thousand more than 2022). Finally, about 40% of new jobs were occupied by women, a share that has been quite stable over the past three years. The monthly paid employment balance has been positive for men until July, except for January, while women have been facing a negative balance in January, but also in June and more often in July over the past three years.

Most new hires involved full-time job contracts. The biggest share was reported in April (60.3%), while in July the respective share was 48.9%, which is almost equal to June. In the first seven months of 2023, the number of hires that involved full-time job contracts represented 53.3% of the total, which is almost identical to 2022 (53.7%) and approximately 4 percentage points smaller than 2021 (57.4%); however, the 2021 performance was the best over the last ten years. Moreover, conversions of full-time job contracts to flexible types of employment contracts were 14 thousand fewer compared to the respective period of 2022 (see Graph 3.1.4), but more compared to 2021. Most conversions involved part-time job contracts (over 70%) and another 7% involved conversions to work-in-shifts job contracts without the consent of the employee. Except for 2021, this figure is the smallest in the past years.

3.1.4. Unemployment

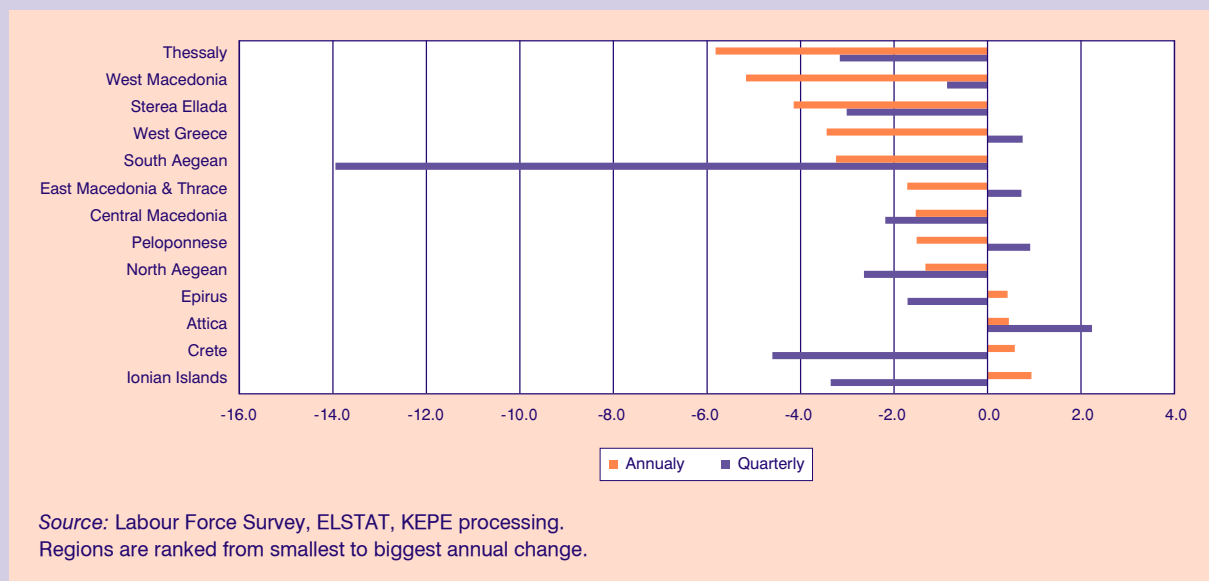
The number of the unemployed aged 15-64 declined in the second quarter of 2023. The decline equaled

14.9 thousand compared to the first quarter of 2023, reflecting the strengthening of economic activity, and 56.5 thousand compared to the second quarter of 2022, which is consistent with the increase in the number of the employed discussed in the previous section. Consequently, the unemployment rate dropped to 11.3% in the second quarter of 2023. Another positive development was the decrease in the share of the long-term unemployed, which dropped to lower than 60%, albeit marginally. The number of the long-term unemployed (≥ 12 months) decreased by approximately 51 thousand persons annually, even though in the short-term, i.e., compared to the first quarter of 2023, it increased by 29.2 thousand persons. A similar discrepancy was reported in 2021.

The unemployment rate decreased to 14.8% for women and 8.5% for men. Over the year, the reduction of the unemployment rate was faster in the case of women. That led to the narrowing of the gender gap to 6.1 percentage points compared to 7.4 percentage points in the second quarter of 2022. The narrowing of the gender differential was possible partly due to the faster decrease in the number of unemployed women, by 10.9% (or 37.9 thousand), when the number of unemployed men decreased by 7.9% (or 18.6 thousand). Even though the share of women in the pool of the unemployed declined to 58.5% because of the above, they still constitute the majority in the second quarter of 2023. The reduced unemployment rate for women is particularly important since the number of females in the labour force increased annually by 15.5 thousand (or 0.7%), while

GRAPH 3.1.5

Changes in the unemployment rate by region on an annual and quarterly basis (2022Q2-2023Q2, 2023Q1-2023Q2), in percentage points



the number of males in the labour force declined by 7.7 thousand (or 0.3%).

The unemployment differential between age groups also narrowed. Typically, persons aged 30-64 face a lower unemployment rate (9.3%) compared to those aged 15-29. The latter group, in the second quarter of 2023, was facing an unemployment rate almost twice as big (21.3%) as that of the general population. However, the differential shrank to 12.4 percentage points, smaller than what it was in the second quarter of 2022 by 1.1 percentage points. These changes were accompanied by an annual increase in the number of youths in the labour force of 31.8 thousand (or 4.5%) and a reduction in the number of persons aged 30-64 in the labour force of 24.1 thousand (or -0.6%).

There were also differences in the fluctuations of the unemployment rate across regions, even though in most of them it declined over the year and since the previous quarter (see Graph 3.1.5). Regions that exhibited a strong decrease in the unemployment rate between the second and the first quarter of the year enjoyed a seasonal boost in economic activity, e.g., due to tourism. Crete, the North and South Aegean islands, and the Ionian islands are examples of that. Moreover, regions that exhibited an increase in the unemployment rate since the second quarter of 2022 and

a decrease between the first and the second quarter of 2023, like Crete, the Ionian islands and Epirus, should be closely monitored because the short-term fall may be reversed in the following months. On the other hand, the labour market seems to be doing well in the North and South Aegean islands, Stereia Ellada, Thessaly and Central Macedonia. The developments in Attica do not allow for optimism since the unemployment rate increased over the past year and between the first and second quarters of this year. It is the only region with an upward movement in the unemployment rate in both spans of time.

3.1.5. Institutional changes in the labour market

Important changes in the labour market have been recorded over the past few months. Some of them are included in the recent legislation put forth by the Ministry of Labour and Social Affairs to incorporate the Directive (EC) 2019/1152 into national law. The discussion that follows is not exhaustive and the reader should refer to the reforms themselves to study the details.⁶

Possibly one of the most important reforms is the acknowledgement of an employee's right to work for more than one employer, i.e., to work two jobs, one full-time and the other part-time, without violating the

6. <<https://www.taxheaven.gr/news/64569/se-diaboyleysh-to-ergasiako-nomosxedio-oles-oi-allages-analytika>>

minimum resting hours (11 hours per day). Until today, that would probably lead to uninsured and undeclared work since there was no legitimate way to work two jobs (except if both were part-time jobs). However, this provision could risk some employees being exploited if they are forced to work longer hours without overtime pay. Moreover, it would be wise to investigate the reasons why some people feel compelled to get a second job and work for more than 8 hours per day, especially when such a practice is not temporary.

Other changes involve the definition of a probation period at work: it should not last longer than six months, and it should be considered as tenure in case the employee continues to work for the same employer after the end of the probation period. This means that the employee enjoys all the perks of an open-ended job contract sooner than in the past. It is also provided that the employer must supply the employee with a written job contract or at least a written and detailed description of key working conditions within a week of hiring. Moreover, additional provisions are introduced to protect the employee in case of an unexpected workload; the work/effort must be supplied within a specific time frame, i.e., defining both hours and days of supply, while the employee must be notified by every available means and within a reasonable time frame (at least 24 hours before the start of the work), unless specific circumstances are at play.

As far as in-firm training is concerned, when it is mandatory by law, it should be considered as paid working hours. Moreover, the new provisions safeguard that Collective Agreements could stipulate more favourable provisions than the general ones and that a layoff is considered invalid if proven to be vindictive. The fine for underreported work has been equalised to that of undeclared work, i.e., set at 10,500 euros per employee, based on the digital work card information, while any obstacles that prevented the arrangement of working time between the employer and the employee have been lifted; any arrangement could be settled with an individual job contract. Note that the employee could be in danger of accepting an unwanted working time arrangement to keep his/her job. The same is true for the right to work six days a week under specific

conditions and for designated types of firms. At the same time, within the Information System ERGANI II, a digital platform has been set up, branded 'Rebrain Greece' and aimed at creating a modern interface node for monitoring the supply and demand of high-skilled persons living in Greece or abroad.

Perhaps one of the most controversial provisions that is expected to cause the reaction of workers, since it seems to restrict the right to strike, is the one that stipulates at least six months in jail and a fine of at least 5,000 euros in the following cases: a) when someone obstructs the free access or departure from work, or b) when someone does not allow employees to work contrary to their own will, or c) when someone exerts physical or psychological violence against employees who wish to work, or d) when someone takes part in squatting at workplaces or firm entrances during a strike or regardless of it.

Finally, the provision for tri-annuals is an important step;⁷ it provides for their reactivation on 1st January 2024 and the re-examination of this regime in 2027. The initiative to open the discussion before the unemployment rate drops below 10%, as was initially stipulated, could possibly limit uncertainty in the labour market and, hence, it is considered positive. In practice, the fact that the provision considers the period from 14/2/2012 to 31/12/2023 as void is probably wise since any retrospective effect would lead to increases in the cost of labour, even as high as 30%, overnight; the consequences of that for firms and then, the employees, are very hard to predict.

Overall, the above provisions could solve or create additional problems and friction points between the employees, the employers, and the government. In any case, before any reform is introduced, all stakeholders should be thoroughly informed and extensive dialogue should take place to achieve maximum consent; this is the best way to minimise resistance. Moreover, it is necessary to closely monitor the labour market to prevent arbitrary practices and any misreading of the provisions. Political will is a necessary requirement for this, coupled with a competent and efficient Labour Inspectorate.

7. <https://www.euro2day.gr/news/economy/article/2207964/h-telikh-diataxh-gia-tis-trieties-pote-mporei-na-x.html?utm_source=e2drelated&utm_medium=textlinks>

3.2. Income inequality and productivity

Vlassis Missos

3.2.1. Introduction

Over the past two decades, income inequality has emerged as one of the most challenging socio-economic issues, with a multiplicity of linkages affecting various facets of economic activity and overall macroeconomic performance (Stiglitz, 2012; Atkinson, Piketty and Saez (2011)). There is a widespread consensus that inequality not only erodes social cohesion, but also hampers economic progress (OECD, 2017). Numerous contributions to the literature on economic inequality shed light on the social, economic, and political implications of a fragmented society, contending that reducing inequality and championing initiatives for shared prosperity are not merely preferable but imperative for achieving sustainable economic development.

This assertion finds further support in the United Nations Sustainable Development Goals (UNDESA, 2015), a set of top-priority objectives aimed towards the eradication of poverty in all its forms, with a pronounced focus on diminishing inequalities within and between countries. Prosperity is intrinsically linked to productivity (the output per worker), ultimately resulting in an enhanced standard of living. However, the surge in income inequality restricts access to essential resources and opportunities, thereby impacting well-being and corroding social cohesion. This state of affairs becomes apparent in cases where an increasing segment of the population encounters obstacles when seeking access to fundamental necessities such as education, healthcare, and other indispensable services (Missos, 2021a). In the absence of an effective system of social protection, disadvantaged

groups often face numerous barriers that impede their ability to improve their socioeconomic status.

To a significant degree, the connection between inequality and productivity is especially conspicuous in the context of various social policies, whether at the national or regional level, which are designed to assist low- and middle-income households. Consequently, the well-established relationship between productivity and inequality has been thoroughly documented. Policy measures that emphasize the enhancement of aggregate demand through investments (OECD, 2016, ch. 2) are deemed essential for elevating productivity and supporting living standards, especially of the most disadvantaged groups.

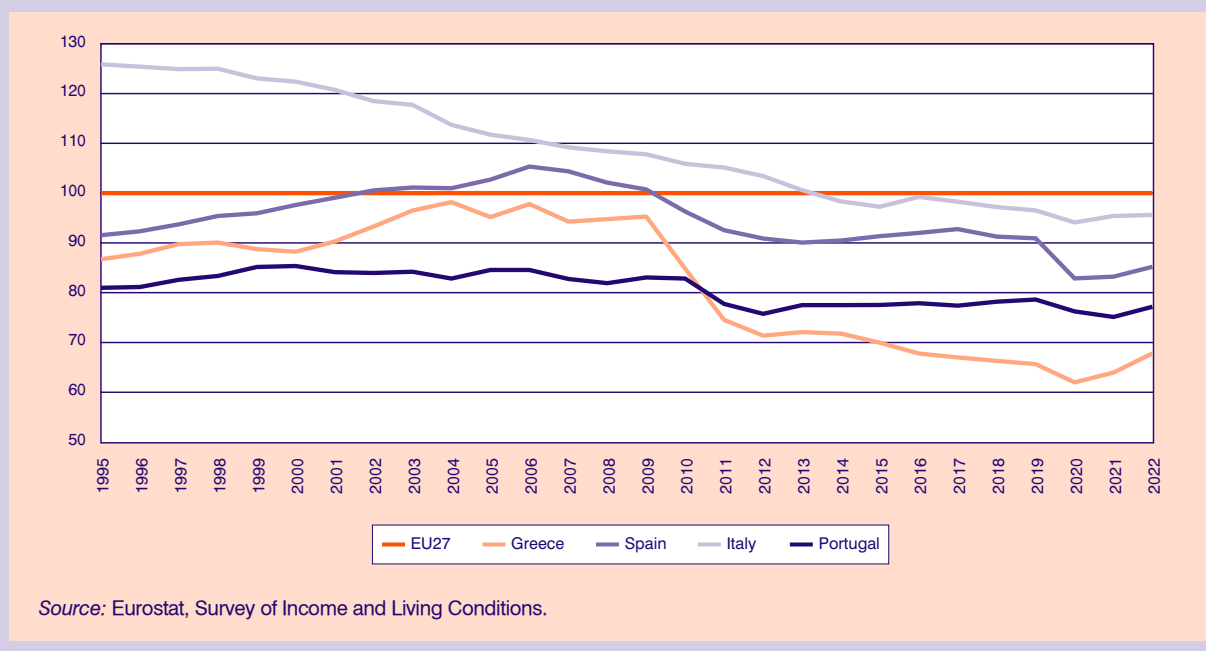
3.2.2. Greece's economy diverges from the EU average

Inequality among the European Union (EU) countries has, for the most part, shown an upward trajectory. The EU is a region of great diversity, with significant disparities in income levels among its member states and highly varied production structures. Furthermore, southern European countries have exhibited a pronounced and persistent decline in relative income levels, a trend that became more pronounced after the year 2009. Figure 3.2.1 simplifies this concept, offering a visual representation of the extent of disparity among EU countries and serving as a valuable indicator for grasping the evolving pattern of inequality.

When we examine the GDP per capita in Greece in comparison to the EU27 average (indexed as "100" in Figure 3.2.1), we can observe that the period of EU convergence halted or decelerated significantly after the economic downturn in 2009. Figure 3.2.1 illustrates the extended trends in GDP per capita in PPS (Purchasing Power Standards), expressed as percentages of the EU27¹ average. It becomes evident that certain countries experienced more severe economic contractions than others, underscoring the notable disparities among member states.

1. According to the European Price Statistics publication (Eurostat, 2008, chapter 5), purchasing power parities (PPS) determine the exchange rate that equates the purchasing power of two different currencies. Country PPSs are indicators used to eliminate price level differences between countries by comparing the quantities of currency units required to purchase a basket of common goods and services. The unit of measurement of these PPS indicators is called the Purchasing Power *Standard*, which is a hypothetical currency used as a common unit of account for all EU27 countries, based on the cost of living. Thus, due to different price levels, the euro currency does not correspond to the same quantity of goods in all EU27 countries, and the PPS indicators allow more accurate and meaningful economic comparisons between countries. In Figures 3.2.1, 3.2.3 and 3.2.4, all measurements are shown in PPS.

FIGURE 3.2.1
GDP per capita, in PPS, as percentage of EU27 (100), major countries of southern Europe, 1995-2022



As all the prominent countries in Southern Europe experienced a decline and divergence, Greece’s GDP per capita fell to approximately 70% of the EU27 average. During this period, the gap between Greece and the EU27 has consistently expanded, while its GDP per capita, measured in purchasing power, has remained at a persistently low level for over a decade. Consequently, Greece confronts substantial hurdles in its pursuit of sustained growth and narrowing the economic disparity with its European counterparts. This endeavor is particularly vital because regions or countries with a real GDP per capita below 75% of the EU27 average are eligible for assistance from the EU structural funds.

3.2.3. The Greek system of social protection suffers from chronic inefficiencies

Within country inequality analysis reveals a persistent issue linked to the historical physiognomy of Greece’s social protection system. Enhancing the effectiveness of social protection may be a very complex task. From this standpoint, Greece’s social welfare system grapples with several complexities as it struggles to increase income towards marginalized parts of the population (Missos, 2021a). However, its operation is inefficient since it perpetuates inequality and hampers the promotion of overall well-being. Achieving a more

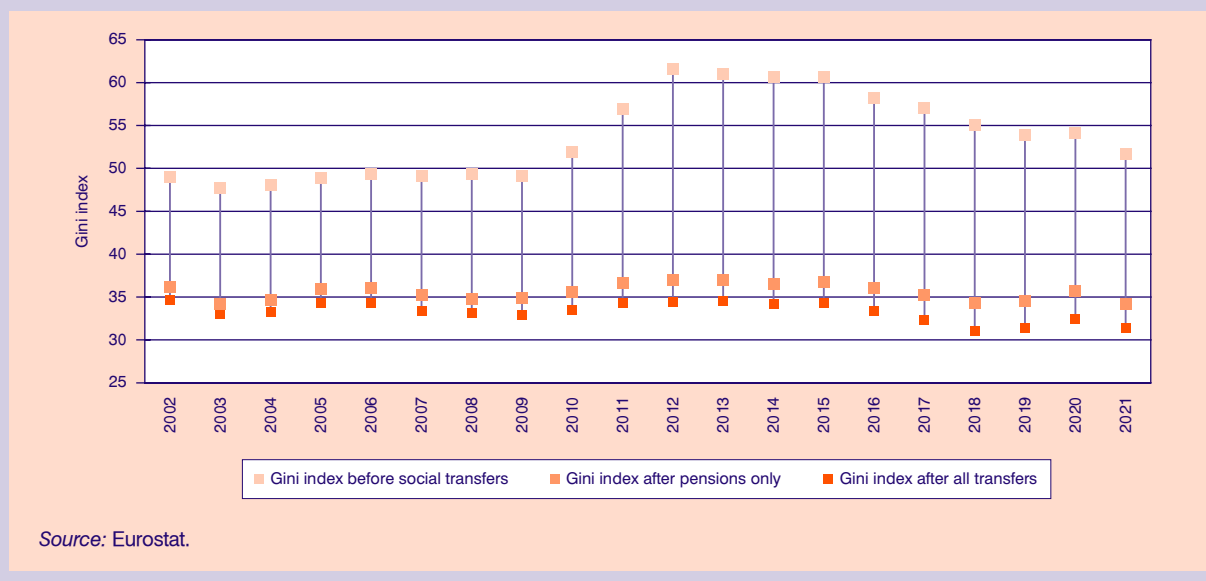
equitable social protection system in Greece continues to be a pressing and ongoing challenge.

Figure 3.2.2 illustrates three distinct Gini income inequality indices for the period between 2002 to 2021. The Gini index serves as a concise metric for quantifying income inequality. In the context presented here, it is computed based on the dispersion of disposable income. The Gini index ranges from 0, signifying absolute equality (where all individuals possess the same income), to 100, representing the exact opposite, which is maximum inequality (where all income is owned by a single individual). An increasing Gini indicates that a relatively smaller segment of the population holds a larger proportion of the total income. Consequently, this increase is directly associated with poverty and social exclusion.

As with all other countries of the EU, social transfers in Greece –along with other redistributive policies– contribute significantly towards reducing the unequal allocation of income. By providing financial support and essential services for health, education, etc. to those with lower earnings or in need of assistance, social transfers contribute towards mitigating the effects of inequality and promoting social stability.

Since 2010, there has been a sharp rise in the Gini index before accounting for any social transfers. This evidence indicates that the role of pensions in income redistribution has become more prominent. Between

FIGURE 3.2.2
Gini before and after social transfers, 2002-2021, Greece



2002 and 2009, pensions contributed to a reduction in the Gini index by 13.6 points. However, from 2010 to 2021, this contribution increased to more than 21 points, significantly surpassing the EU27 average (15.4 percentage points). The documented upward trajectory of the Gini index before social transfers suggests that income earned through market activities, such as wages, dividends, rents, and profits, has been tending towards a more unequal distribution.

The social welfare system can play a vital role in mitigating the inequality originating from market forces, and its effectiveness hinges on its ability to address recipients' needs through evidence-based adjustments. Consequently, as income inequality continues growing over the years, the role of social protection becomes pivotal in bridging these gaps and ensuring access to essential services to foster social cohesion. A comprehensive approach that integrates social protection with growth policies, education, and opportunities in the labor market can lead to more sustainable outcomes.

Conversely, other types of social transfers, such as family and unemployment benefits, appear to have a limited impact on curbing inequality. For instance, the risk of poverty is notably higher for single-parent households in Greece when compared to other household categories (Missos, 2021b). This highlights the urgent need for a more targeted and specialized approach to social benefits, specifically tailored to address the unique challenges faced by single-parent households, particularly those associated with raising children.

Nevertheless, when the entire population is taken into account, the effectiveness of non-pension social transfers in reducing inequality has been gradually improving. Its relative performance, however, remains relatively modest. To illustrate, from 2002 to 2009, these transfers had an estimated impact of 1.6 points, while from 2010 to 2021, the impact increased by 2.7 points –yet still falls far short of the EU27 average. These findings clearly underscore the significant room for reforms aimed at enhancing the efficiency of the social protection system to mitigate income inequality effectively and ensure that social protection benefits can reach and support those groups most in need. It's worth noting that pensions represent a substantial portion of social benefits, indicating that the Greek social welfare system has been primarily structured to cater to the needs of the elderly population, with comparatively less emphasis on other socio-economic groups.

3.2.4. Firms by size and household income: Are they positively related to productivity?

The widespread acknowledgment of the intricate relationship between productivity and inequality underscores the significance of advancing education, leveraging cutting-edge technologies, and cultivating exclusive skills and specialized knowledge. These factors play an important role in expanding the spectrum of capabilities and pushing the boundaries of the labor force's potential (UNDESA, 2015, p.95-96; Hanson and Rose, 2010). In this context, the availability of more and better-quality job opportunities is deemed a fun-

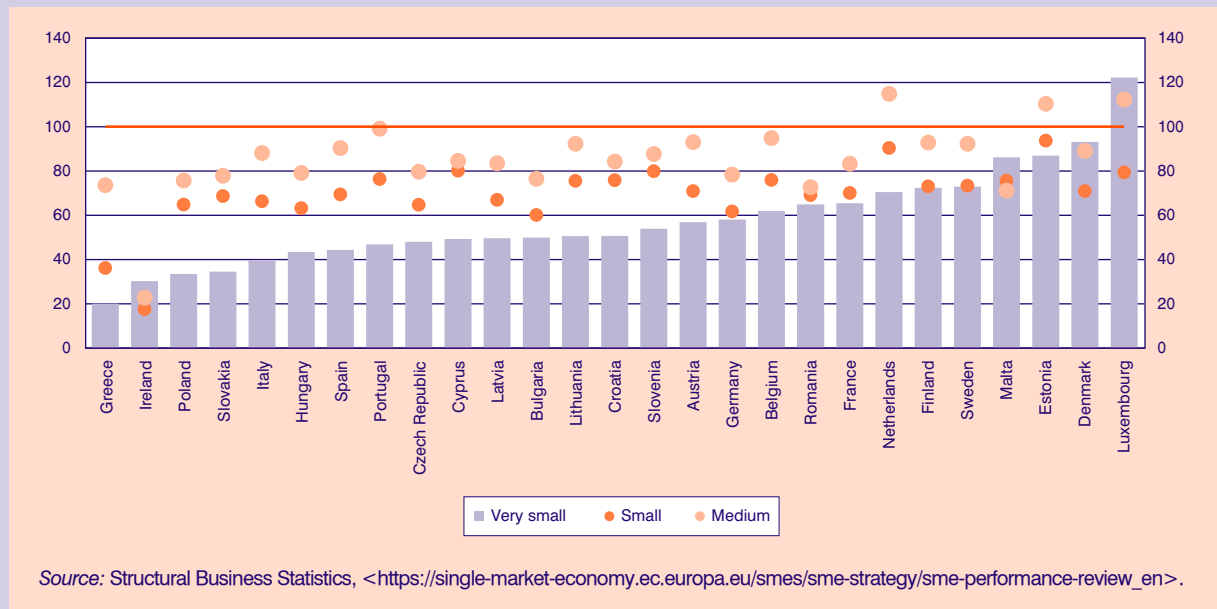
damental catalyst for inclusive growth. However, this is contingent on the technological advancements introduced being labor-augmenting, i.e., providing avenues for individuals to join the workforce (OECD, 2018). The effective absorption and application of these new technological developments are critical as they open up possibilities for increased wages, enhanced benefits, and improved working conditions for employees.

Regarding the number of enterprises, the entrepreneurial landscape in Greece broadly follows the established pattern within the EU27. Based on the latest available Structural Business Statistics, as of 2021, very small enterprises (those with fewer than 9 employees) in Greece constitute a significant 92.7% of all enterprises. This figure aligns closely with the EU27 average, which stands at approximately 93.1%. These statistics underscore the crucial role played by small-scale enterprises in the socioeconomic fabric of Europe. Small and medium-sized enterprises (SMEs) are widely recognized as key drivers of growth, innovation, and employment generation. They have the capacity to rapidly absorb and provide jobs for a substantial portion of the total workforce. However, it's worth noting that the percentage of employees working in very small enterprises in Greece is significantly higher, ac-

counting for 40.1% of overall employment. This figure surpasses the EU27 average, which hovers around 28.5%. This disparity highlights the pronounced importance of small-scale entrepreneurial activities in shaping income distribution. It constitutes a vital factor that warrants careful consideration in the formulation of policies aimed at fostering economic development.

Figure 3.2.3 illustrates the extent to which SMEs' productivity, defined as gross value added per employee, deviates from that of large enterprises within the EU27 countries, benchmarked against a value of 100. This divergence is a common occurrence, as large enterprises often enjoy more accessible financial resources, advanced technologies, and a wealth of human capital. All the findings presented in Figure 3.2.3 are based on five-year averages spanning the period from 2017 to 2021. While various methodologies are available, SMEs are categorized into three groups: very small (0-9 employees), small (10-49 employees), and medium (50-249 employees). The orange horizontal line represents the productivity level of large enterprises (those with more than 250 employees).² This concept conveys the productivity gap observed between SMEs and large enterprises, taking into account the specific economic conditions prevailing in each country.

FIGURE 3.2.3
Comparing the productivity between SMEs and large enterprises (100), average 2017-2021, EU27



2. From 2008-2014 and from 2015-2022, the average productivity levels of large-scale enterprises, measured in PPS as the ratio between gross value added and number of employees, shows a significant increase of variability among the EU27. More specifically, the coefficient of variation (CV) –the ratio of standard deviation to the mean– between the respective periods has almost doubled, indicating a greater dispersion of productivity performance.

An examination of SME productivity relative to that of large enterprises (as depicted in Figure 3.2.3) reveals that very small businesses in Greece appear to perform significantly below the corresponding entities in any other EU27 country. Furthermore, small-sized enterprises in Greece occupy the second-lowest tier, outperforming only Ireland, while medium-sized enterprises rank as the third lowest, trailing behind Romania and Malta. This striking underperformance of SMEs in Greece reflects the intricate relationship between employment levels and the creation of added value. This dynamic is shaped by a diverse array of technical approaches, underpinned by a fusion of knowledge-based methodologies and highly advanced skills. For very small-sized enterprises, even marginal improvements in their productivity levels can have a substantial impact on overall income, given their notably high share of total employment. In light of this, policies and initiatives aimed at enhancing skills, fostering technology adoption, boosting innovation capacity, and improving the overall business infrastructure can play a pivotal role in elevating SME productivity. However, the efficacy of such policy responses hinges significantly on the specific sectoral composition of the country's production structure and the concentration of either low or high value-added activities within it.

Figure 3.2.4 illustrates the correlation between productivity in very small enterprises and the poverty threshold, denoted in Purchase Power Standard (PPS). To minimize sporadic fluctuations, all measurements are represented as five-year averages (2017-2021) of mean deviations. The poverty threshold is determined

as 60% of the median disposable income, signifying the dividing line below which an individual is categorized as “poor.” Moreover, the vertical axis enables a comparison of poverty thresholds across the EU27 countries. Evidently, as Figure 3.2.4 demonstrates, there exists a positive correlation between these two variables among the EU27 countries. This positive correlation underscores the significance of very small entrepreneurial endeavors in contributing to social well-being, thereby emphasizing the need for further exploration of this issue. The performance of small enterprises is intrinsically linked to enhancing living conditions and has the potential to elevate the standards of individuals facing poverty.

In the sense that heightened productivity creates new employment opportunities, the ability of small enterprises to facilitate job creation and income generation contributes to the reduction of unemployment rates, enabling individuals to partake in activities aimed at enhancing their quality of life. Additionally, small-scale entrepreneurship should be regarded as a tool for bolstering economic empowerment, fostering self-reliance, and elevating social standing, all of which have positive ripple effects on the overall well-being of local communities. Cultivating an environment conducive to the thriving of SMEs may, in turn, exert a favorable impact on poverty and inequality reduction, particularly if it leads to a narrowing of the income gap between high- and low-paying activities, even if it comes at the expense of the former.

In a similar vein, Figure 3.2.5 presents the connection between overall productivity (measured as gross val-

FIGURE 3.2.4
Correlation between very small productivity and the poverty threshold (EU27) in PPS, 2017-2021 average

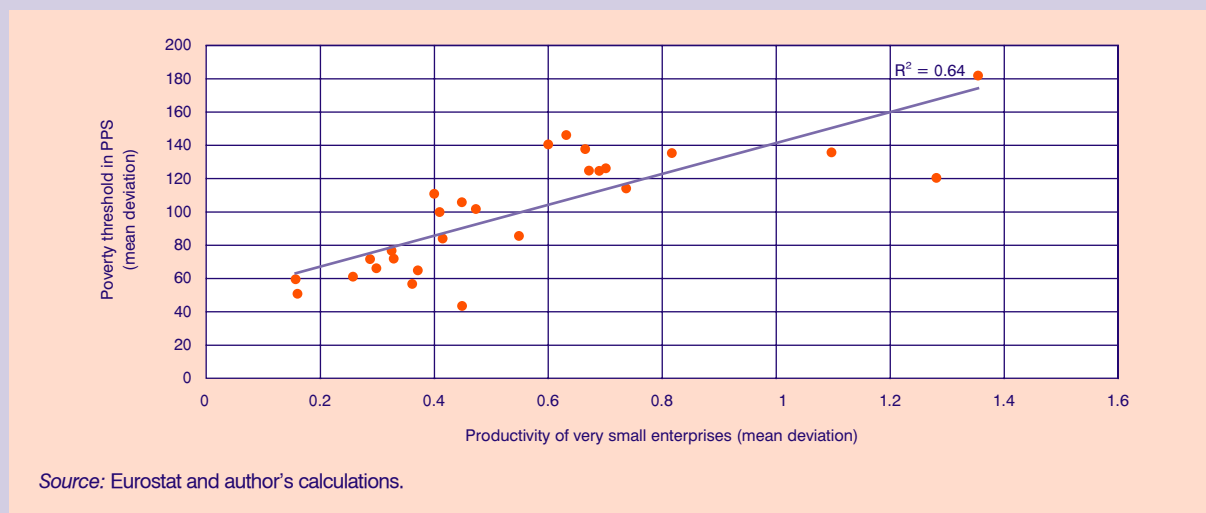
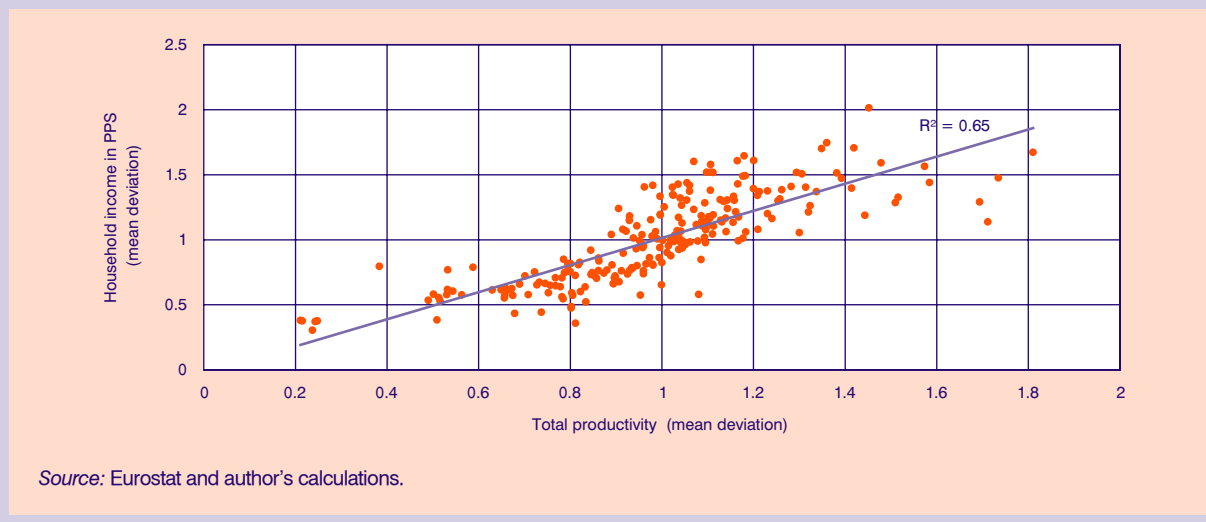


FIGURE 3.2.5
Correlation between total productivity and household income (EU regions) in PPS,
2017-2021 average



ue added over the number of employees) and household income (in PPS) across all regions (NUTS2) of the EU27 (refer to the Methodological Note). Over the period spanning from 2017 to 2021, various regions within Greece experienced significant fluctuations in poverty rates, displaying noteworthy deviations from the national average. Regions such as Dytiki Ellada (26.1%), Anatoliki Makedonia (25.5%), Thraki, and Dytiki Makedonia (23.7%) consistently demonstrated poverty rates that surpassed the national average.

Enhanced productivity contributes to increased earnings, which can subsequently stimulate investments in the creation of new job opportunities. Productivity improvements at the regional level may also generate positive spillover effects by boosting demand for local goods, thereby amplifying the impacts of heightened productivity. To a certain extent, income levels are intertwined with productivity, with the latter playing a pivotal role in bolstering per capita household income. Nevertheless, it's important to note that productivity alone does not guarantee an equitable distribution of income, though it is a necessary prerequisite for fostering future sustainable development.

3.2.5. Policy implications

Addressing economic disparities and promoting productivity and inclusive growth in Greece remains a priority. Government actions are faced with a twin challenge of pursuing a wide range of policies that reduce inequalities while supporting productivity. Producing products of higher quality and complexity is essential.

Among others:

- Policies that focus on improving access to training for the acquisition of relevant skills are needed to enhance productivity and potentially reduce disparities.
- Labour market reforms ought to be directed towards promoting fair and inclusive employment, enhancing a framework of continuous social dialogue between employers and employees to ensure that workers in the Union earn adequate wages (principle 6 of the European Pillar of Social Rights).
- Robust social protection is necessary to provide adequate coverage of the social security and services that are essential for advancing social cohesion, directed to small-scale entrepreneurs.
- As long as the conditions for repayment are met, easing the access to affordable finance and supporting small-scale entrepreneurship should be a policy priority. Financial inclusion through particular schemes may enable small firms to invest in new technologies and innovative techniques.
- Specialised initiatives that would facilitate technology transfer and collaborations with other firms, even abroad, can enlarge the network and create linkages for export promotion.

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School bullying and poverty in Greece: Findings from the implementation of a new model during the school year 2022–2023

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Eirini Leriou**

Abstract

In this article, a new multidimensional instrument for the geographical distribution of bullying in Greece is presented, along with the main research results from its implementation during the school year 2022–2023. Also, the multidimensional characteristics of children victimized by bullying, in the light of their economic and non-economic well-being, are strongly identified and depicted.

The findings show that 32.4% of children nationwide were victims of bullying during the school year 2022–2023. The rates are most alarming in the regions of the Peloponnese, Eastern Macedonia and Thrace, and Western Macedonia, with 48.8%, 42.1% and 40.0% of children, respectively, being victims of bullying. Moreover, bullying victimization is also more common among girls, migrant children and children belonging to single-parent families with a mother.

The results of a multiple correspondence analysis (MCA) reveal that bullying is also associated with poverty. More specifically, bullied children are deprived of adequate nutrition in qualitative and quantitative terms, and to a lesser extent, live in cold homes, with insecure or no heating, and have experienced extended periods with no electricity. In the light of the aforesaid,

public policies for the mitigation of the school bullying are proposed. The most important policy focuses on tackling child poverty and boosting child well-being.

The results are discussed in light of previous international studies.

Keywords: school bullying, indicators, child well-being, poverty, social policy

JEL Classification: C18, C80, I100, I30, I31, I32, I38, I39, J10

Introduction

There are a lot of studies on bullying on the international chessboard. A number of them examine the relationship between poverty and bullying, such as in Algeria (Tiliouine, 2015), Hong Kong (Chen et al., 2021) and in the U.S. (Bradshaw, 2009). Other ones examine the relationship between self-reported life satisfaction, particularly through the SWB instrument, and bullying, as in Indonesia (Borualogo and Casas, 2023a) and other Asian countries (Borualogo and Casas, 2023b), in Spain (Grané et al., 2020) and in the United Kingdom (Rees and Bradshaw, 2018). Some also examine other characteristics, such as the relationship between bullying and family structure and nationality in the United States (Fu et al., 2013), or the negative impact of bullying on school achievement, as well as on later academic and professional development in Brazil (Sbroglio Rizzotto and Aniceto França, 2021).

In Greece, despite the fact that there have been a few non-temporal studies on bullying, so far none of them have considered the association of bullying with poverty, family structure, nationality, etc. Consequently, there was a big scientific and research gap, which this article addresses.

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

In this article,¹ a new model for recording bullying in Greece is presented for the first time, and the main findings from its implementation at the national level are also presented. Also, the multidimensional characteristics of children victimized by bullying, in the light of their economic and non-economic well-being, are strongly identified and depicted. In light of the above, authorities will be able to identify children with these characteristics promptly and prevent bullying, which has grown to a giant scale in Greece. The characteristics include material deprivation, family structure, nationality, etc. The geographical distribution of bullying and proposals for tackling it in the framework of good policies follow.

More specifically, school bullying is a new factor of children's general well-being and particularly of non-economic well-being and most especially of Dimension 5, namely "Moral Education", of the C.W. - SMILE instrument.² In this framework, an existing model/tool for recording well-being is being constructed, and more, specifically evolved (Leriu, 2015, 2016, 2019, 2022, 2023a; Leriu and Tasopoulos 2015-2016; Leriu et al., 2021, 2022a, 2022b; Tasopoulos and Leriu, 2014) in order to include the quantitative variable of bullying as an indicator. Based on the above, any associations with the other factors/indicators of the model are investigated. This tool is implemented via anonymous questionnaires to 2,293 children across Greece. The categorical variables include region, gender, age/school category, nationality, family structure, rural/urban areas, siblings, and school achievement.

A multiple correspondence analysis (MCA) is performed in order to identify any profile of children suffering from bullying and to investigate if the model is methodologically and theoretically valid. Indeed, the MCA clearly shows the specific profile of children being bullied or who could be bullied in the future and strongly confirms the validity of the model as the most appropriate for recording bullying.

The main aim of this article is to place bullying in a broader research context in our country, where its mul-

ti-dimensional characteristics, completely absent from all previous scientific discussions, will be explored and discussed. These characteristics include the lack of child well-being, i.e., child poverty (Leriu, 2022, Section 2, p. 1970), the family structure, nationality, etc. A second aim is to investigate the geographical distribution of school bullying in Greece and to propose public policies for its mitigation.

1. The theoretical framework

The research question that is addressed in this article is how to accurately include school bullying in any tool for recording child well-being or the deprivation of it (i.e., child poverty) (Leriu, 2022, Section 2, p. 1970).

There is a significant debate in the global literature about the definition of bullying.³ Bullying victimization is defined according to the latest scientific literature, in Borualogo and Casas (2023a, p. 1205), as exposure to aggressive action by one or more children that is aimed at harm and involves an authority/power imbalance. It is manifested between siblings and schoolmates (Borualogo and Casas, 2023a, p. 1205).

The reasoning developed below is based on C.W.-SMILE's definition of child well-being and poverty (Leriu, 2016:109; Leriu, 2022) and the aforementioned definition of bullying. More specifically, children's well-being⁴ (Aymerich et al., 2021; Borualogo & Casas, 2021; Caqueo-Urizar et al., 2022; Casas et al., 2013; Casas & González-Carrasco, 2021; Dinisman et al., 2012; Gierczyk et al., 2022; Goldan, Nusser & Gebel, 2022; Gross-Manos & Bradshaw, 2022; Guhn et al., 2012; Herd, 2022; Huebner & Furlong, 2016; Jiang et al., 2021; Leto, 2021; Llosada-Gistau et al., 2015; Montserrat, Casas et al., 2015; Montserrat, Dinisman et al., 2015; Moreira et al., 2021, 2022; Rodriguez de la Vega, 2014; Savahl et al., 2017, 2021; Schonert-Reichl et al., 2011, 2013; Schutz, Sarriera & Bedin, 2022; Tonon & Mikkelsen, 2022; Viñas et al., 2019) is a society's chief end (Aristotle, 1926, 1932, 1934, 1952). It manifests itself as the potential pleasure (Plato, 1925,

1. For detailed context of this article, kindly refer to: Leriu, E. (2023b). School bullying as a determinant of general child well-being. *Mimeo*.

2. For detailed context of the C.W.-SMILE instrument, kindly refer to: Leriu, E. (2022). Understanding and measuring child well-being in the region of Attica, Greece: Round Four. *Child Indicators Research*, 15, 1967–2011. <https://doi.org/10.1007/s12187-022-09957-x>

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4. For the detailed context of the definition kindly refer to: Leriu, E. (2022). Understanding and measuring child well-being in the region of Attica, Greece: Round Four. *Child Indicators Research*, 15, 1967–2011. <https://doi.org/10.1007/s12187-022-09957-x>

1926) that they enjoy, and originates in certain economic and non-economic factors (Lianos, 2012; Zolotas, 1982; Edgeworth 1881; Little, 1949, 1950; Michalos, 2015; Michalos et al., 2012; Pigou 1920; Scitovsky, 1941, 1951; Sen, 1987; Skidelsky, 2010; Smith, 1759) that determine this chief end (Leriu, 2016; Leriu, 2015, 2019, 2022, 2023a; Leriu and Tasopoulos 2015-2016; Leriu et al., 2021, 2022a, 2022b; Tasopoulos and Leriu, 2014). These factors can be influenced by public policy (Michalos, 1978, 2017). Based on the above, overall/general child well-being consists of economic and non-economic child well-being (Leriu, 2022). Child poverty is defined in the same way (Leriu 2022, Section 2, p. 1970).

A child suffering from bullying cannot be led to well-being, even if all the above mentioned factors leading to child well-being are activated, because being bullied can be considered as a lack of freedom. Aristotle regards freedom as the first principle, namely, as the starting point to lead to the chief end of well-being, via the pursuit of other intermediate ends (Leriu 2016: 206-209). Based on this, we can consider that the absence of bullying is the starting point, to lead to the chief end, via the intermediate ends.

More specifically, school bullying is a phenomenon that is unreal, where it escapes from the order of the real, while it invades and restricts the child's existential space, therefore destroying his freedom. A child that bullies another child exerts on him violent authority/power, bordering on the total destruction of his freedom, as it marks his existence. No child bullied at school can be considered a free person, because he is enslaved to the fear of the person exercising violent authority over him. His actions and thoughts are determined and motivated by this fear, not freedom. He ceases to be a free and complete human being, unmanipulated, because he is completely manipulated by the violent power of the person bullying him. His earlier freedom gives way to fear, and each destruction of his freedom cancels out any pursuit of his well-being.

The factor of bullying's existence can be considered as a non-economic factor that does not simply determine child well-being (such as leisure time), but presupposes the achievement of child well-being. Currently, a tool for recording and analyzing child well-being has been developed and implemented in the region of Attica (Greece). In this section, it will be highlighted that child well-being cannot be analyzed without considering bullying.

As a consequence, the factor of the absence of bullying is a restriction of the C.W-SMILE tool. If the restriction is true, well-being can be achieved and the tool can be implemented. If the restriction is not true, well-being cannot be examined and the analysis is completed at this stage. That means that the well-being analysis cannot be implemented with any child well-being measurement tool. The restriction of bullying will take the following structure⁵:

(Restriction) \Rightarrow

School Bullying = 0 \Rightarrow \nexists CW

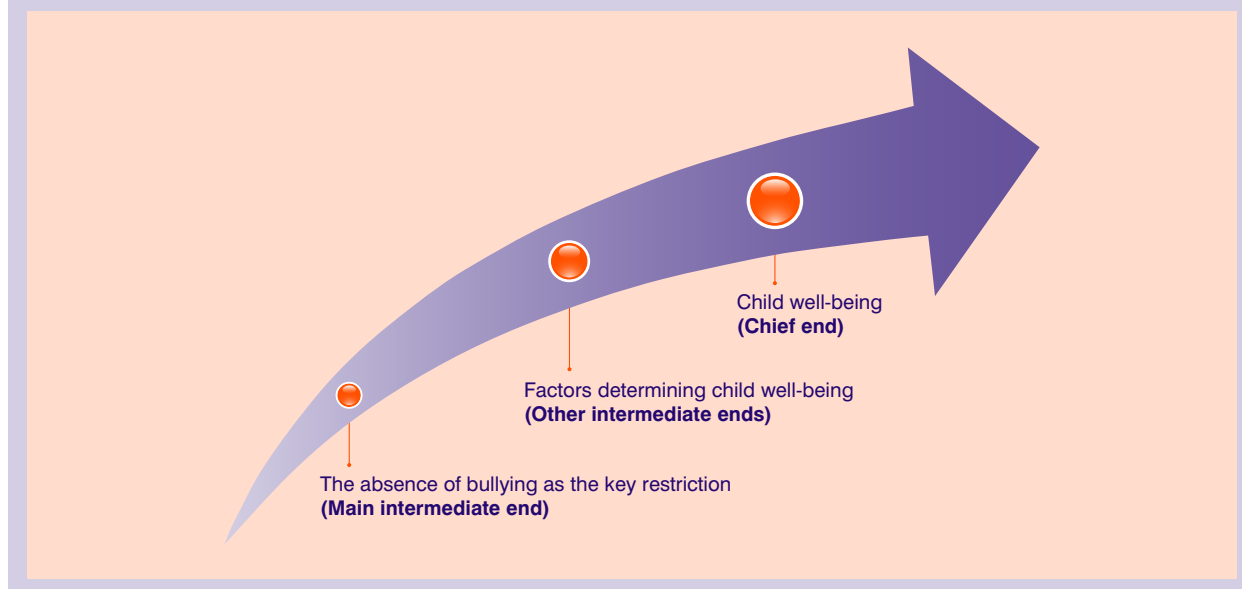
School Bullying = 1 \Rightarrow \exists CW.

This formula is interpreted in the same way as already mentioned above, namely the existence of bullying will be symbolized by zero and will signify the impossibility of well-being. The absence of bullying will be symbolized by one and will signify the potential to achieve child well-being. This restriction is the main restriction of the tool, as its validity is associated with its implementation possibility. On the contrary, other future restrictions, possibly to be placed, may be associated with the correct performance of the child well-being measurement tool and the maximization of child well-being.

In this context, this restriction is like a "switch" of the whole system of analysis and determination of child well-being. If this switch is "turned off", meaning that the restriction is not valid, the system cannot be started. If it is "turned on", the system will start to operate. In this light, the absence of bullying could be considered as an end that is equally important as well-being. However, this would be incorrect, as the chief end is well-being and the absence of bullying is the primary and necessary condition to achieve this chief end. Consequently, the absence of bullying is an intermediate end, more important than the others, but not the chief end. The absence of bullying contributes to the achievement of the chief end of child well-being, but in a special way, as the presence of bullying entails that we should not even talk about this effort to achieve the chief end. The absence of bullying is the starting point for the researcher to proceed to the other intermediate ends and, finally, to the chief end, namely child well-being. Consequently, the presence of bullying not only cancels out child well-being but also cancels out all the factors mentioned in the above definition, the existence or absence of which contributes to child well-being. The

5. Kindly refer to: Leriu, E. (2016). *Analysis of the factors that determine social welfare by implementing an integrated decision-making framework*. Panteion University. <https://doi.org/10.12681/eadd/39270>

FIGURE 1
The process for achieving child well-being



absence of bullying, consequently, constitutes that intermediate end that presupposes the opportunity for the researcher to continue to analyze the other intermediate ends, in order to reach the chief end, namely well-being.

According to Figure 1, the beginning of the arrow starts from the absence of bullying. If bullying is present, there is no arrow starting point leading to child well-being. In other words, if bullying is present, this arrow will not be formed or created.

Based on the above, a threshold of 60% of the median of all observations concerning bullying can be set. Then, a “cut-off” can be set, at 50% of the persons, who are at or above 60% of the median of all observations. This switch (cut-off) represents the above restriction ($Bullying = 0 \Rightarrow \exists CW$). The restriction, however, is the starting point. For this reason, it is first checked during data analysis whether this switch is “turned off”. That is, whether 50% or more of children who have completed the questionnaire are at or above 60% of the median of all observations on bullying. If this is the case, no further analysis will proceed. More specifically, the C.W.-SMILE child well-being tool, which is a set of multi-prismatic indicators of child well-being, will not be applied. This restriction, of course, can be applied to any other child well-being tool.

In conclusion, in this section, the factor of bullying was included as a “switch” of an overall child well-being monitoring system; the start of the monitoring system depends on this switch.

2. The methodological framework

In the quantitative research, a multi-stage sampling was adopted. At the first stage, the sampling is by clusters according to the geographical boundaries of the regions, thus each region constitutes a cluster. In total, there are thirteen regions in Greece. In the second stage, the sampling is systematic, as two municipalities were selected from each region, one very large (urban area) and one very small (rural, mountainous or island area). In the third stage, at least one elementary school, one junior high school and one high school were randomly selected from a list of public schools of the Ministry of Education from each municipality. The representativeness of the sample is reinforced by the fact that each geographical region has different characteristics and by the fact that each school in each large or small municipality was randomly selected. In the fourth stage, questionnaires were completed by students attending the older grades of elementary, junior high and high school.

More specifically, in the quantitative research for the school year 2022–2023, all regions (clusters) and their municipalities were totally captured. Overall, 84 public schools participated in our survey. Particularly, 29 elementary schools, 27 junior high schools and 28 high schools of the country participated. The sample of the first round of research, totaled 2,293 children: 480 children of the sixth grade of elementary school, 917 of the third grade of junior high and 896 of the third grade of high school. There were 937 boys and 1,251 girls,

while 105 children did not declare their gender. There were 1,870 children with Greek nationality and 421 with other, while 2 children did not declare their nationality. About 1,634 children belonged to a two-parent family, 490 to a single-parent family with the mother as the leader, 86 children were in a single-parent family with the father as the leader, and 83 children did not provide any information for this question. A total of 1,299 children describe their school achievement as high, 768 as medium and 93 as low, while 133 children did not mention their school achievement. Furthermore, 244 children stated that they have no siblings, 1,155 stated that they have one sibling, 532 belong to three-child families and 225 to large families, while 137 children did not provide this information.

The broader methodological framework of this research is similar to the C.W.-SMILE (Leriu et al., 2021). More specifically, the same model and questionnaire are applied. The “C.W.-SMILE” model evolved to include bullying.

Two basic new indicators were added to measure bullying and to associate it with the pre-existing indicators of the model. One main indicator is “Schoolmates –

Bullying”. The second main indicator is “School – Bullying”. These indicators are included in non-economic well-being and specifically in Dimension 5 of the model, “Moral Education” (Leriu, 2022).

In terms of statistical analysis, a threshold is set, and via this, it is possible to implement a measurement in order to determine a certain value of well-being. Thresholds/limits are established in order to measure the variables included in the model. Consequently, the statistical analysis in this paper is similar to C.W.-SMILE (Leriu et al., 2021).

It is worth noting that in this article, due to the inclusion of bullying as a switch in the overall model (as mentioned above), no well-being analysis is carried out.

3. Empirical findings on school bullying

In this section, the main results concerning the children bullied by their schoolmates are presented for the first wave of the research. Firstly, the overall percentage of child victims experiencing bullying is displayed. Following this, the relationship between bullying and other factors in the model is examined in or-

TABLE 1 Percentages of children below the well-being threshold of the “Schoolmates – Bullying” indicator, per region, during the school year 2022–2023

Region	“Schoolmates – Bullying” (2022–2023)
1 (Eastern Macedonia and Thrace)	42.105
2 (Central Macedonia)	31.884
3 (Western Macedonia)	40.000
4 (Epirus)	34.783
5 (Thessaly)	30.178
6 (Ionian Islands)	31.579
7 (Western Greece)	32.857
8 (Central Greece)	33.043
9 (Attica)	31.176
10 (Peloponnese)	48.810
11 (North Aegean)	29.545
12 (South Aegean)	30.508
13 (Crete)	22.989
Total	32.376

*p-value=0.035

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

der to develop an initial framework for composing the characteristics of children experiencing bullying. More specifically, the main results of the analysis related to the well-being indicator “Schoolmates – Bullying” of the model are presented.

The processing of the data (through the SPSS statistical package), based on the model, for the school year 2022–2023, shows that 32.4% of children (Table 1) in the whole country are below the threshold, in terms of an indicator that records the bullying they have received from their classmates.

The processing of the data (through the SPSS statistical package), based on the model, during the school year 2022–2023, regarding school categories of junior high and high school (N=1,813), shows that 32.4%

of children (Table 1) in the whole country are below the threshold, in terms of the “Schoolmates – Bullying” well-being indicator.

According to Table 1 above, bullying is associated with region ($\chi^2_{12, N=1,427} = 22.188, p = 0.035$). More specifically, higher shares of children are below the “Schoolmates – Bullying” well-being threshold in regions 10 (48.8%), 1 (42.1%), 3 (40.0%) and 4 (34.8%), as compared to other regions.

In addition, regarding Table 2, bullying is associated with gender ($\chi^2_{1, N=1,373} = 10.712, p = 0.001$). More specifically, a higher representative number of girls (35.2%) is below the “Schoolmates – Bullying” well-being threshold, as compared to boys. This strengthens the claim of gender inequality against girls in Greece.

According to Table 3, bullying is associated with the family structure category of the children ($\chi^2_{2, N=1,383} = 14.603, p = 0.001$). More specifically, an alarmingly higher share of children below the “Schoolmates – Bullying” well-being threshold is in the single-parent family with mother category (40.5%), as compared to other family categories (Figure 2).

Moreover, according to Table 4, bullying is associated with school achievement ($\chi^2_{2, N=1,363} = 10.327, p = 0.006$). Higher shares of children who mention a medium school achievement are below the “Schoolmates – Bullying” well-being threshold (37.7%), as compared to other school achievement categories.

Furthermore, regarding Table 5, bullying is associated with nationality ($\chi^2_{1, N=1,426} = 5.707, p = 0.017$). More specifically, a higher share of children with other nationality is below the “Schoolmates – Bullying” well-being threshold (38.9%), as compared to children with Greek nationality.

TABLE 2 Percentages of children above and below the well-being threshold of the “Schoolmates – Bullying” indicator, per gender, during the school year 2022–2023

Schoolmates – Bullying	Gender	
	Boy	Girl
Below the threshold	27.0	35.2
Above the threshold	73.0	64.8

* *p-value*=0.001

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

TABLE 3 Percentages of children above and below the well-being threshold of the “Schoolmates – Bullying” indicator, per family structure category, during the school year 2022–2023

Schoolmates – Bullying	Categories of family structure		
	Single-parent family with mother	Single-parent family with father	Two parent family
Below the threshold	40.5	25.5	29.5
Above the threshold	59.5	74.5	70.5

* *p-value*=0.001

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

FIGURE 2
Percentages of children below the well-being threshold of the “Schoolmates – Bullying” indicator, per family structure category, during the school year 2022–2023

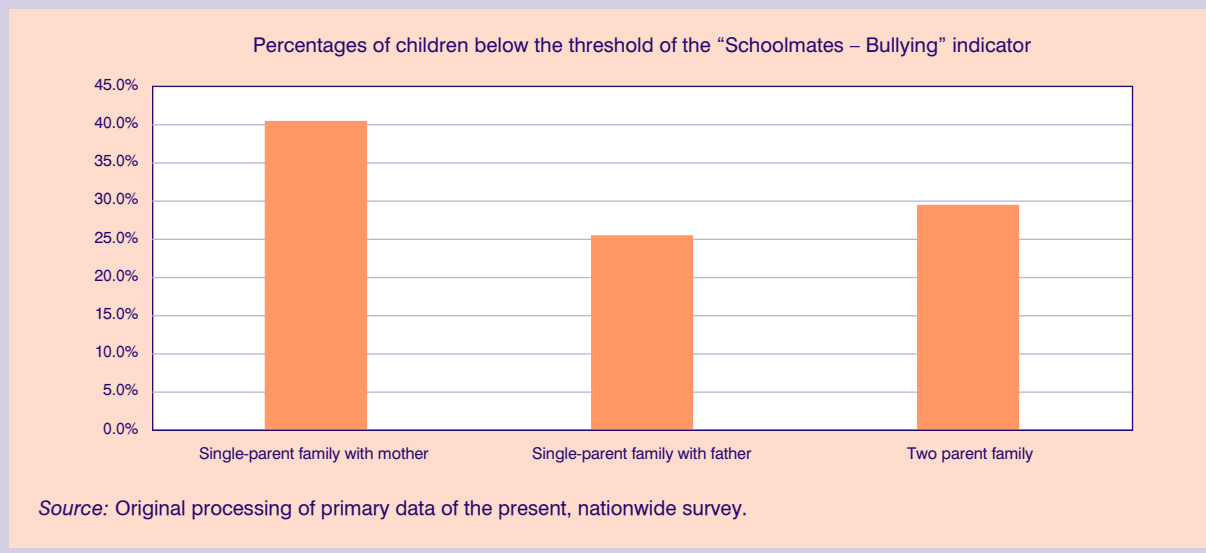


TABLE 4 Percentages of children above and below the well-being threshold of the “Schoolmates – Bullying” indicator, per school achievement category, during the school year 2022–2023

Schoolmates – Bullying	Categories of school achievement		
	High	Medium	Low
Below the threshold	29.1	37.7	34.3
Above the threshold	70.9	62.3	65.7

* *p-value*=0.006

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

TABLE 5 Percentages of children above and below the well-being threshold of the “Schoolmates – Bullying” indicator, per nationality, during the school year 2022–2023

Schoolmates – Bullying	Categories of nationality	
	Greek nationality	Other nationality
Below the threshold	31.0	38.9
Above the threshold	69.0	61.1

* *p-value*=0.017

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

4. Empirical findings on the fight of the school institution against bullying

In this section, the main results concerning the school institution's fight against bullying are presented for the first wave of the research. Firstly, the overall percentage of children who feel that their school doesn't teach them to stop bullying is provided. The association of this factor with other factors of the overall model follow. More specifically, the main results of the analysis regarding the "School – Bullying" well-being indicator are presented.

The processing of the data (through the SPSS statistical package), based on the model, during the school year 2022–2023, regarding all school categories (N=2,293), shows that 18.0% of children (Table 6) in the whole country are below the threshold, in terms of the "School – Bullying" well-being indicator.

According to Table 6, the school institution's fight against bullying is associated with the region ($\chi^2_{12, N=1,890} = 46.714, p < 0.001$). More specifically, a higher share of children are below the "School – Bullying" well-being

threshold in Region 4 (31.0%), as compared to other regions.

In addition, regarding Table 7, the school institution's fight against bullying is associated with the school category ($\chi^2_{2, N=1,890} = 122.133, p < 0.001$). More specifically, a higher representative number of high school children (29.7%) is below the "School – Bullying" well-being threshold, as compared to other school categories.

Moreover, according to Table 8, the school institution's fight against bullying is associated with school achievement ($\chi^2_{2, N=1,780} = 62.142, p < 0.001$). Higher shares of children who mention low school achievement are below the "School – Bullying" well-being threshold (50.7%), as compared to other school achievement categories.

Furthermore, according to Table 9, the school institution's fight against bullying is associated with the family structure category of the children ($\chi^2_{2, N=1,832} = 7.090, p = 0.029$). More specifically, a higher share of children below the "School – Bullying" well-being threshold is in the single-parent family with mother category (22.1%), as compared to other family categories.

TABLE 6 Percentages of children below the well-being threshold of the "School – Bullying" indicator, per region, during the school year 2022–2023

Region	School – Bullying (2022–2023)
1 (Eastern Macedonia and Thrace)	19.6
2 (Central Macedonia)	26.2
3 (Western Macedonia)	4.5
4 (Epirus)	31.0
5 (Thessaly)	12.2
6 (Ionian Islands)	18.2
7 (Western Greece)	21.1
8 (Central Greece)	18.4
9 (Attica)	17.4
10 (Peloponnese)	9.4
11 (North Aegean)	10.2
12 (South Aegean)	18.8
13 (Crete)	17.4
Total	18.0

*p-value < 0.001

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

TABLE 7 Percentages of children above and below the well-being threshold of the “School – Bullying” indicator, per school category, during the school year 2022–2023

School – Bullying	School categories		
	Elementary school	Junior high school	High school
Below threshold	4.5	15.3	29.7
Above threshold	95.5	84.7	70.3

* *p-value* < 0.001

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

TABLE 8 Percentages of children above and below the well-being threshold of the “School – Bullying” indicator, per school achievement category, during the school year 2022–2023

School – Bullying	Categories of school achievement		
	High	Medium	Low
Below threshold	14.3	20.6	50.7
Above threshold	85.7	79.4	49.3

* *p-value* < 0.001

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

TABLE 9 Percentages of children above and below the well-being threshold of the “School – Bullying” indicator, per family structure category, during the school year 2022–2023

School – Bullying	Categories of the family structure		
	Single-parent family with mother	Single-parent family with father	Two parent family
Below threshold	22.1	10.5	17.2
Above threshold	77.9	89.5	82.8

* *p-value* = 0.029

Source: Original processing of primary data of the present, nationwide survey in the SPSS statistical package.

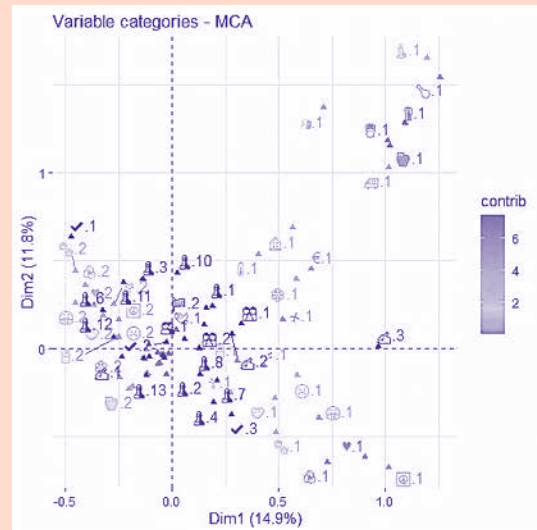
5. Bullying and poverty: Findings of the Multiple Correspondence Analysis (MCA) – Profile of children

In order to further explore whether a group of children below the threshold of the “Schoolmates – Bullying” indicator is formed, and to further explore the characteristics of this group, a multiple correspondence analysis (MCA) was performed. The implementation of the MCA may confirm whether the developed model is the most appropriate tool to record bullying. More specifically, if no profile of children regarding the indicator “Schoolmates – Bullying” appears, a new, alternative model will have to be considered.

In this section, a Multiple, Factorial Correlation Analysis (MCA) is performed using the programming language R, in order to explore any profiles of victims of bullying and to explore whether the model constructed is methodologically and theoretically correct. Indeed, the MCA clearly reveals the specific profile of children (Figure 3) who suffer bullying now or could suffer bullying in the future and strongly confirms the validity of the model as the most appropriate for recording bullying.

As shown in Figure 3, classified on the right side of Axis 2 are students who tended to report being nutritionally deprived in qualitative and quantitative terms (three meals, fruit, milk, meat), as well as being strongly disappointed with their schools’ efforts to cultivate human values in students, such as in learning not to bully their schoolmates. In addition, to a lesser extent, these children tended to report that they resided in cold homes, with insecure or no heating, had experienced long periods without power at home, and had stayed away from their homes for extended periods for serious reasons. Moreover, to an even lesser extent, these students tended to report that were deprived in terms of sufficient and quality spare time, as well as in terms of playing outdoors and spending many hours on screens. Furthermore, these children tended to report that they belonged to a single-parent family with a mother and had medium or low school achievement. Essentially, this profile (Figure 3) reflects that bullying follows children with harsh living conditions, more specifically children living in poverty. In other words, children who, due to the harsh daily life they have to face, appear weaker and more vulnerable in the eyes of their schoolmates. At the same time, the same children seem extremely disappointed by the school’s efforts in moral education, perhaps because of the attitudes of their schoolmates –by whom they are bullied– that are not consistent with higher, universal values, i.e., moral education (Figure 3, Tables 10 and 11).

FIGURE 3 Multiple Correspondence Analysis (MCA) during the school year 2022–2023 (Axes 1 and 2)



Source: Original processing of primary data of the present, nationwide survey, using open source code and specifically the R Programming Language.

Note regarding active variables:

- 1 Below threshold.
- 2 Above threshold.

TABLE 10 Interpretation of the symbols of the supplementary variables in Figure 3

Supplementary variables

Symbols	Interpretation
	Region*
	School category**
	Gender ***
	Family structure****
	School achievement *****

*For the correspondence of the values of the variable “Region”, kindly refer to Table 1.

** 1: Elementary school, 2: Junior high school, 3: High school

***1: Boy, 2: Girl

****1: Single-parent family with mother,























2: Single-parent family with father,

3: Two parent family

***** 1: High, 2: Medium, 3: Low.

TABLE 11 Interpretation of the symbols of the active variables in Figure 3

Active variables

Symbols	Interpretation
	Internet
	Cold
	Heating
	Electricity
	Home
	Three meals
	Fruits
	Milk
	Meat
€	Employment/Unemployment of the guardians
	Healthcare
	Empathy
	Love of people
	School – Bullying
	Schoolmates – Bullying
	Love of animals
	Love of nature
	Values
	Social solidarity
	Spare time
	Playing outdoors
	Vacation
	Screens

Note: 1 Below threshold.
2 Above threshold.

6. Mapping of bullying in Greece

In this section, a mapping of the geographical extent of school bullying in Greece and the geographical intensity of the efforts to deal with bullying by the school institution is performed.

According to Map 1, bullying is at its peak in the Region of the Peloponnese, while the best position com-

pared to all regions is held by the Region of Crete. More specifically, bullying in the different regions is graded according to the colors of the map. In regions with stronger colors, the problem is greater; in regions with weaker colors, the problem is less severe. Consequently, policy makers in the field of bullying should focus on the regions with the darker colors of the map.

Similarly, in Map 2, the dark colors show the regions where most children feel that no efforts by the school institution are aimed at tackling the problem. It is observed that in the Region of Epirus, the darkest color appears. The Region of Western Macedonia is the region that tries harder than the others in the fight against bullying.

Combined, the two maps indicate that it is not enough to simply take anti-bullying measures and be complacent. What is needed is an annual research regarding the effectiveness of these measures, to what extent and which regions should further intensify their efforts in the fight against bullying.

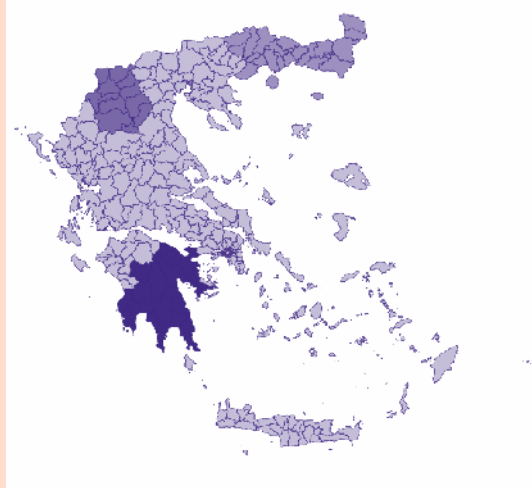
The geographical distribution of this article is a powerful tool for policy makers, providing them with direction on the spatial dimension, which is important when preparing action plans. Any action plan to tackle bullying should put particular emphasis on children in the regions depicted in the darkest colors in these maps.

In this light, bullying should mainly be addressed at the local level, rather than at the national level. At its root, the problem should be solved at the regional level, but the coordination of efforts should be carried out at the national level.

7. Discussion – Policies

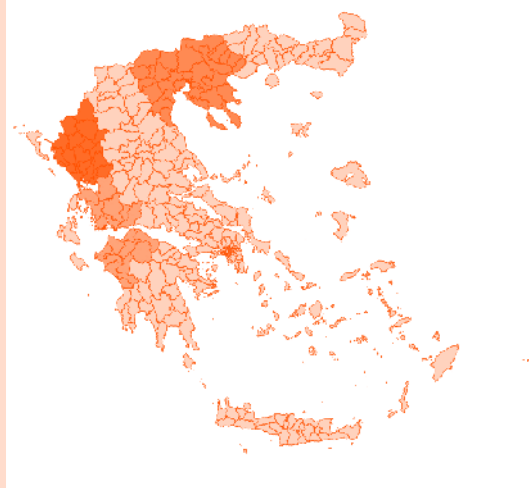
According to the percentages above and below the threshold in the different indicators of the model developed in this article (Tables 1-9), it is noted that bullying is racial, and it is more intense among girls and poor children. Consequently, bullying has three pillars around which it revolves: nationality, gender and poverty. This triptych is observed to run through all the findings of this paper associated with bullying. Children at greater risk of being victimized by their schoolmates are migrants, girls and children experiencing material deprivation. Racism is linked, probably via a non-specific pattern, to bullying. These findings are also confirmed by studies on bullying in other countries. Specifically, regarding poverty, according to Til-iouine (2015), it is proven that bullying victimization in Algeria is more present among children belonging to less privileged families. Moreover, according to Chen

MAP 1 Mapping of the percentage of children below the “Schoolmates – Bullying” well-being threshold
Geographical distribution of school bullying, Greece (school year 2022-2023)



Source: Original processing of primary data of the present, nationwide survey, with the creation of a geographical database and their analysis in the software program QGIS.

MAP 2 Mapping of the percentage of children below the “School – Bullying” well-being threshold
Geographical distribution of anti-bullying efforts, Greece (school year 2022-2023)



Source: Original processing of primary data of the present, nationwide survey, with the creation of a geographical database and their analysis in the software program QGIS.

et al. (2021), it is revealed that child deprivation experienced by poor families in Hong Kong increases the risk for school bullying victimization. In addition, according to Bradshaw et al. (2009), a high concentration of child poverty is a determinant of more bullying. Furthermore, regarding nationality, according to Fu et al. (2013), it is found that children of other nationalities in U.S., such as African Americans, persistently show higher levels of bullying victimization over time.

A deeper analysis reveals that children of single-parent families with a mother also face a high risk. Due, perhaps, to the social prejudice that children who do not live in the same house with their father are more unprotected, more vulnerable and therefore more easily victimized in the view of the perpetrators. Of course, this finding is also confirmed by Fu et al. (2013), revealing how children of single-parent households also persistently show higher victimization intensities from bullying over time.

The most important finding, which should motivate the competent bodies to action in a specific direction to prevent further victimization, is the specific profile of children that arises so distinctly and completely in this article. As already mentioned, the child victims belong

to single-parent families with a mother, live in cold and humid homes, have experienced long periods without power, are nutritionally deprived in qualitative and quantitative terms, are strongly disappointed with their schools' efforts to cultivate human values in students, spend many hours on screens and report their school achievement as medium. These characteristics of children, which are consistent with the child deprivation as described in Chen et al. (2021), are extremely important in helping competent bodies identify children prior to their victimization and to prevent, via appropriate policies, their future victimization.

Screens appear to be the refuge of children being victimized. The many hours devoted to screens during leisure time by children bullied at school is adequately explained by the fact that these children may be closing in on themselves, isolating themselves and finding an escape in screens, with all the negative consequences this implies for their broader non-economic well-being.

Based on the geographical distribution of bullying, it is strongly suggested that policy makers, apart from the specific profile of children mentioned above also take into account the spatial dimension of bullying. Only in

this way is it possible to develop good and effective policies for fighting bullying.

The Multiple Correspondence Analysis confirms that the model constructed to capture bullying in Greece is valid and, consequently, the most appropriate. Namely, it verifies the correctness of the theoretical and methodological framework, as well as the overall analytical framework of this paper. More specifically, strong statistical significance in the variables is revealed, and the factorial model that was adopted explains 37.5% of the total inertia.

To address the phenomenon of bullying, policy makers from different backgrounds should cooperate, as it has become obvious that bullying is a multidimensional phenomenon. The coordination of this cooperation should be implemented at the national level, while actions should be specialized at each different local level. Given that bullying is linked to poverty (both economic and non-economic), by adopting policies to reduce it, bullying could be effectively tackled. Other policies should be aimed at informing students and educating them in such a way as to shape them into beautiful people internally. More specifically, anti-bullying is something that is taught, exactly as moral education is taught in a broader perspective. Via *héxis*, namely via the constant practice of good actions, eventually good actions end up becoming second nature to a child; in other words, a habit/addiction/ethos can be learned via *héxis*, namely via constant practice, in the same way a child learns to solve a given arithmetic problem. Consequently, by revising school curriculums so that students are taught fewer skills and more about moral education, a stable base for tackling bullying is built (Tasopoulos and Leriou, 2014).

In conclusion, school bullying is a long-standing phenomenon with many different dimensions, and the victims are poor and generally vulnerable children. As a result, the phenomenon should be recorded regularly over time in order to monitor its intensity or reduction, as well as the effectiveness of the actions taken to address it, and to compare the data over time.

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