

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

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The current section presents the updated short-term forecasts of KEPE concerning the evolution of the rate of change of real GDP in Greece for the year 2022,¹ based on KEPE's dynamic structural factor model.² The underlying time series database used to estimate the model and produce the forecasts includes 126 variables,³ covering the main aspects of economic activity in the country on a quarterly basis and spanning the period from the first quarter of 2000 up to the second quarter of 2022.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Given the particular circumstances prevailing in the current conjuncture, the above forecast for the development of Greece's real GDP is subject to a significant

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