

Press Release

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Factor model forecasts for the short-term prospects in Greek GDP

Factor Model Economic Forecasting Unit

According to the forecasts of the Centre of Planning and Economic Research (KEPE) for the short-term prospects for the Greek Gross Domestic Product (GDP),¹ the mean rate of change for the second half of 2020 and the mean annual rate of change for 2020 are estimated at -12.8% and -9.9%, respectively. These forecasts, derived on the basis of a dynamic factor model, incorporate the official (provisional) data for the nine-month period January–September 2020, as well as the estimated rate of change of -14% for the fourth quarter of 2020. For the first half of 2021, the corresponding mean rate of change is projected at -3.7%, based on the forecasted percentage changes of -10.4% and 3% for the first and second quarters of 2021, respectively.

According to published data for the third quarter of 2020, which was characterized by the lifting of a significant number of restrictive measures, the Greek GDP contracted by -11.7% (in terms of chain-linked volumes), compared to the respective quarter of 2019. The referred data and the provided projections indicate the prolongation of the recessionary conditions into the first quarter of 2021, while GDP is expected to start recovering during the second quarter of 2021. It should be stressed that forecasting the short-term evolution of real GDP remains a complex and demanding task due to the unprecedented arising uncertainty, as well as to the constant alternation between periods where wide-ranging restrictive measures are implemented and periods where these restrictions are partially and gradually lifted. In addition, the accurate quantification of the effects of the compensatory measures implemented to deal with the pandemic and shield the economy, expected to be gradually passed through to economic aggregates in the short to medium term, is not straightforward.

The projected course of real GDP in 2020 and in the first half of 2021 —and, hence, the overall economic conditions in Greece— may evolve according to a more or less favourable scenario, conditional upon a wide range of crucial and decisive factors, several of which are directly linked to the evolution of the pandemic. All these factors are expected to determine, among other things, the demand and supply dynamics in Greece, the country's export performance, the investment and saving decisions by households and enterprises, the developments in employment and unemployment —and, hence, income— as well as the financial conditions and the course of fiscal aggregates.

**Table 1: Estimated real GDP rate of change
(%, y-o-y)**

Quarters	2020	2021	
	Q4	Q1	Q2
Quarterly rate of change	-13.98 [-14.43, -13.52]	-10.44 [-11.40, -9.47]	3.04 [1.56, 4.55]
1 st half mean rate of change*	-	-3.70 [-4.92, -2.46]	
2 nd half mean rate of change**	-12.81 [-13.04, -12.59]		
Mean annual rate of change***	-9.85 [-9.98, -9.74]		

Note: Values in brackets indicate the lower and upper boundaries of the 95% confidence interval of the forecasts. *The mean rate of change is not reported for the first half of 2020 since it does not incorporate a forecast. ** The mean rate of change for the second half of 2020 incorporates the officially available (provisional) data for the third quarter of 2020, on a seasonally adjusted basis. ***The mean annual rate of change incorporates the officially available (provisional) data for the first three quarters of 2020, on a seasonally adjusted basis.

¹ The date of the forecast is January 7, 2021.

Detailed presentation of KEPE forecasts

KEPE publishes the factor model forecasts for the short-term prospects in Greek real GDP. The forecasts (Table 1) result from the implementation of a dynamic factor model² and incorporate time series for economic activity up to the third quarter of 2020. The underlying database includes 126 variables,³ covering the major aspects of economic conditions in the country and spanning the time period from January 2000 to September 2020.

According to the econometric estimates on a seasonally-adjusted basis,⁴ the mean annual rate of change for 2020 and the mean rate of change for the second half of 2020 are projected at -9.9% and -12.8%, respectively, signaling the deep recession caused by the COVID-19 pandemic. It is noted that the estimated mean annual rate of change for 2020 incorporates, on the one hand, the published (provisional) GDP data for the nine-month period January–September 2020,⁵ according to which the Greek GDP contracted in the third quarter of the year by -11.7% (in terms of chain-linked volumes), compared to the respective quarter of 2019, despite the lifting of a significant number of emergency measures that had been imposed to restrict and suspend economic and social activities. On the other hand, the mean annual rate of change entails the prediction of a negative rate of change of -14% for the fourth quarter of 2020, as compared to the respective quarter in 2019. The short-term effects of the pandemic shock on the Greek economy are further reflected in the forecast of a -10.4% rate of change of real GDP for the first quarter of 2021, compared to the first quarter of 2020. In contrast, based on the referred estimations, the economy is expected to return to a positive growth rate of 3% in the second quarter of 2021. Nonetheless, the unfavourable forecast for the first quarter is decisive for the percentage change of real GDP in the first half of 2021, which is predicted at -3.7%.

The above-presented forecasts for 2020 and the first half of 2021 are in line with the recent course of data series incorporated in the model and, more specifically, with the recent developments in the major GDP components and a large number of economic variables and indicators, as implied by the corresponding observations for the third quarter of 2020 (compared to the respective quarter of 2019), on a non-seasonally and non-calendar adjusted basis.

In more detail, exports and imports of services recorded a considerable decrease, while imports of goods also declined. Unfavourable developments characterised the General Industrial Production Index, the General Turnover Index in Industry (overall, internal and external markets), as well as a number of the related sub-indices. The Overall Volume Index in Retail Trade also decreased, driven by the downward course of several sub-indices, while falling trends further characterised the Stock Exchange, the private passenger car market and the turnover in wholesale trade. In terms of all the recorded negative percentage

² A detailed description of the underlying model can be found in Issue 15 (June 2011, pp. 19–20) of the *Greek Economic Outlook*, https://www.kepe.gr/images/oikonomikes_ekselikseis/issue_15enb.pdf. Note that the implementation of the dynamic factor model does not involve the explicit estimation of any effects caused by policy measures (policy neutral model), while the model itself is not suitable for a straightforward analysis of the impact caused by huge shocks, such as the COVID-19 pandemic, which create abnormal economic conditions and lead to sudden and extreme (away from the trend-determined course) shifts in GDP. Still, the model implicitly takes into account any impact, through the incorporation of the economic variables updated to the most recent period of reference (third quarter of 2020).

³ The underlying sample includes variables out of the categories of real and nominal aggregates, alongside indicators reflecting expectations and assessments. The necessary seasonal adjustment is carried out by use of the Demetra+ software, on the basis of the TRAMO/SEATS filter.

⁴ Recall that the forecasts are obtained on the basis of a small number of ‘factors’, which summarise the information provided by a large number of explanatory variables, employing the procedure of principal components, with the aim to preserve as much of the variability of the underlying economic series as possible. Hence, in the current conjuncture, any assessment of the provided forecasts should be subject to the degree to which all short-run fluctuations in real economic activity are reflected and should, further, take into account the increased heterogeneity in the dynamic response of the economic series, in combination with the occurrence of outliers. In addition, the underlying data sample, which relies on quarterly data with a hysteresis of one quarter, does not mirror the most recent swift changes on a daily or weekly basis. All the aforementioned limitations might, in the current juncture, affect the forecasting performance of the factor model employed.

⁵ According to the most recent ELSTAT Quarterly National Accounts publication, dated December 4, 2020. Note that the data for the first two quarters of 2020 have been revised.



changes, developments in transport receipts, and especially in travel receipts, were particularly unfavourable. The construction sector remained subject to the adverse impact of the pandemic and the related measures imposed. In addition, as anticipated, expectations and assessments formed by economic agents with regard to the course of economic activity (concerning manufacturing, exports and developments in individual sectors of the economy) deteriorated, while both the Economic Sentiment Indicator for Greece and all EU countries declined significantly.

At the same time, some of the major GDP components displayed resilience, as expressed by a rise in private consumption and overall investment, as well as in the investment sub-categories (with the exception of the *transport equipment* category, which declined considerably), during the third quarter of 2020, as compared to the respective quarter of 2019. Exports of goods also increased. Some positive trends, which still did not prevail over the negative ones, were observed with reference to several sub-indices for certain categories of the industrial production index, the turnover index in industry and the volume index in retail trade. Improvement was observed in terms of a number of the underlying competitiveness indicators, while spreads declined further with regard to both the preceding quarter and the respective quarter of 2019.

Great importance is attributed to developments in the domestic labour market, where total employment decreased in the third quarter of 2020, as compared to the corresponding quarter of 2019 (the same was the case for the number of persons employed in the secondary and, in particular, in the primary sectors, whereas the number of persons employed in the tertiary sector marginally increased). In contrast, statistical data for unemployment, according to the Labour Force Survey conducted by ELSTAT, indicate a weakening impact of the pandemic during the third quarter of 2020, on the basis of the recorded decrease (compared to the respective quarter of 2019), which was greater for the long-term and the newly unemployed. Nevertheless, with the unemployment rate at 16.2%, labour market conditions remained unfavourable and the functioning of the market was affected by specific regulatory measures implemented regarding the operation of businesses.⁶

The projected course of real GDP in 2020 and in the first half of 2021 —and, hence, the overall economic conditions in Greece— may evolve according to a more or less favourable scenario, conditional upon a wide range of crucial and dynamic factors linked to the pandemic (e.g., vaccinations, specialised compensatory and support measures at the domestic and European levels, effects of the second wave of the pandemic and a potential third wave, environment of uncertainty) and a number of others not directly related to the pandemic (continuous implementation of structural reforms, ongoing rebalancing of major economic aggregates, geopolitical tensions). All these factors are expected to determine, among other things, the demand and supply dynamics in Greece, the country's export performance, the investment and saving decisions by households and enterprises, the developments in employment and unemployment —and, hence, income— as well as the financial conditions and the course of fiscal aggregates.

⁶ For the related statements, see the Press Release for the Labour Force Survey by ELSTAT, referring to the third quarter of 2020 and dated December 17, 2020.

