



Strategic Analysis

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GREECE: RECOVERY, OR ANOTHER RECESSION?

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In the first two quarters of 2022, the Greek economy continued its quick recovery that began in 2021, recouping a significant part of the economic losses caused by the Covid-19 pandemic. Various economic indicators such as exports, retail sales, and manufacturing production grew, unemployment fell, and GDP rapidly increased—all indications of optimistic prospects for future growth. GDP at constant prices increased by 7 percent over 2021Q2 and exceeded its pre-pandemic level from 2019. The preliminary growth estimates for the second quarter of 2022 showed continued growth of 7.7 percent compared to the second quarter of 2021, and 1.2 percent growth from 2022Q1 to 2022Q2. While the economic sentiment expressed by many is high, denoting the resilience of the Greek economy, there are still unknown effects from the lingering pandemic and the continuing war in Ukraine, with energy- and food-induced inflationary pressures. Moreover, a careful analysis of these optimistic trends tells a different story—as with, for example, the decrease in unemployment. Employment has increased in the unskilled low-wage categories, pushing many of the unemployed toward self-employment in activities of very low productivity, low-value-added work, as reported by the Public Service Employment Agency (ΔΥΠΙΑ- τ. ΟΑΕΔ) (Salourou 2022a). Furthermore, there is also concern regarding the accuracy of measurements of unemployment conditions in Greece, stemming from the very large difference in the number of unemployed reported by the two government agencies responsible for employment/unemployment statistics. The recently released report from ElStat shows the unemployed as numbering 569,609, while the Public Service Employment Agency (ΔΥΠΙΑ –τ. ΟΑΕΔ) counts them as 944,000.

In this report, we discuss the robustness of the recovery, critically evaluating the recently released, optimistic projections from the International Monetary Fund (IMF) and the European Commission (EC), and provide our own projections, conditional on the implementation of the projects financed by the European Recovery and Resilience Funds.

In Figure 1, we report the absolute changes over the previous year in the components of GDP at current prices. The downturn caused by the pandemic seems to have ended in the first quarter of 2021, and in the other three quarters of last year all components have more than recovered in nominal terms to their pre-pandemic level. Note, however, that the analysis in Figure 1 is comparable to what we presented in previous reports: given the very low level of inflation up to 2020, and some doubts about the procedures adopted by ElStat in estimating GDP deflators (Zezza, Papadimitriou, and Rodousakis 2022), we preferred to discuss GDP components at current prices. The situation has now changed, since one of the disruptive effects of the pandemic has been the increase in transportation costs and the price of energy—exacerbated by the consequences of the war in Ukraine—generating import price increases and therefore inflation, not only in Greece but also in most western countries.

Figure 2 documents the link between the international price of oil—as measured by the monthly average of the West Texas Intermediate (WTI) spot crude oil price—and the deflators for exports and imports of goods for Greece. The WTI peaked in June 2022 at \$114.8 per barrel, up from a low of \$16.5 in April 2020 during the pandemic. The price was lower in July 2022, at \$101.6 per barrel, possibly signaling an inverted trend.

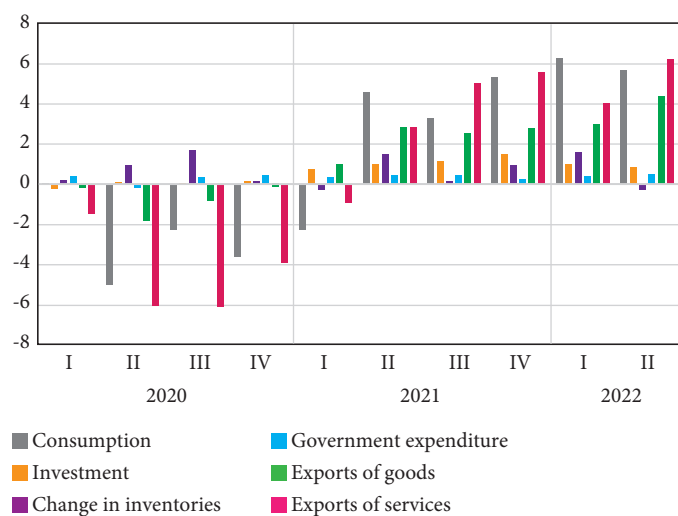
Figure 2 clearly shows that the deflators for the Greek components of trade in goods have a much lower volatility (they are scaled on the left vertical axis, while the WTI is scaled

on the right axis) than but a very strong correlation with the dynamics of the WTI. If the trend is indeed being inverted, we could therefore expect lower imported inflation in the rest of 2022, but still with figures above those experienced in the pre-Covid decade.

Domestic inflation is reacting to imported inflation, as expected—due to Greece’s high imports—even though growth rates in domestic prices seem to be lower than those for imports. In Figure 3, we report three different indicators of domestic prices: the GDP deflator, the deflator for consumption, and the consumer price index (CPI), the last one showing an increase of 10.5 percent over the same quarter of 2021. Comparing the dynamics of CPI to the deflator for imports, in Figures 3 and 2, respectively, there are some similarities with the increase around 2009, while movements in foreign prices in the 2016–7 period had no apparent impact on domestic inflation.

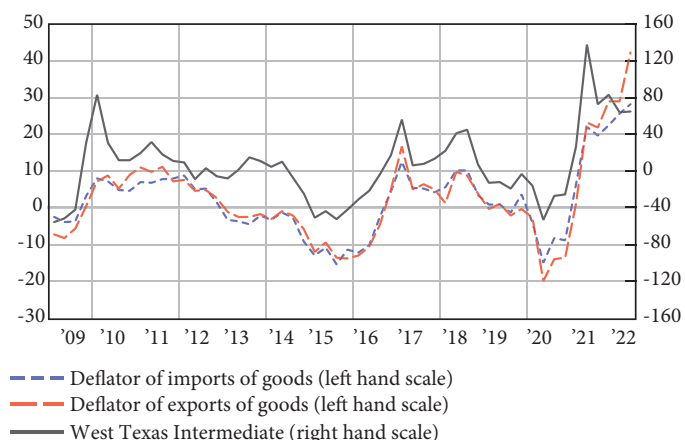
Commodity prices have also been increasing, most likely affected by the continuing war in Ukraine. Some aggregate indices published by the IMF are reported in Figure 4, rescaled to 2019 (the last period before the pandemic) as the base year. Again, while it is true that most price indices are above their 2019 level, domestic prices in Greece did not increase with commodity prices in previous periods, so that the surge in domestic inflation, which certainly started with the external shocks discussed above, must also depend on some other changes—possibly due to higher profit markups.

Figure 1 Greece: Components of GDP, Percent Change over Previous Year



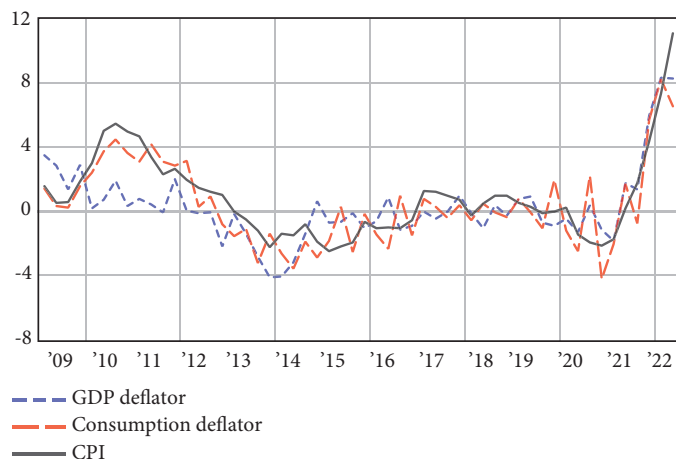
Source: ElStat

Figure 2 Price Indices (annual percent change)



Source: ElStat and FRED

Figure 3 Greece: Price Indices (annual percent change)



Source: ElStat

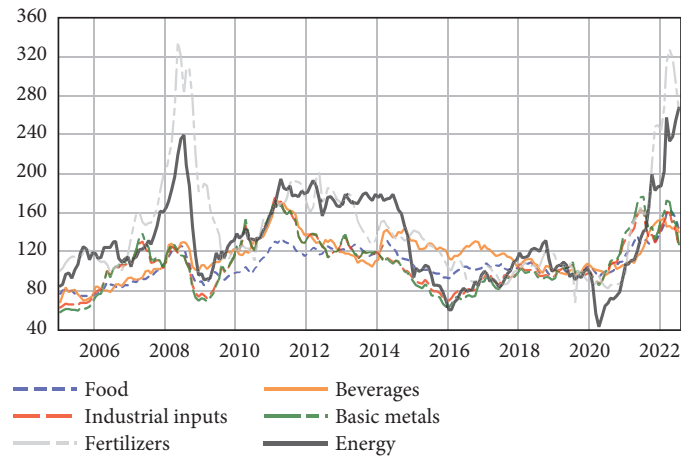
Domestic inflation has so far not been provoked or followed by wage inflation: the index of wages published by ElStat illustrates a decline of about 2 percent in the first quarter of 2022 against the same quarter of the previous year, which renders low- and middle-income households economically more vulnerable given the rising price level.

This divergence between wage and price inflation is confirmed by an analysis of the shifts in functional income distribution, reported in Figure 5. The share of wages in GDP increased temporarily when GDP dropped because of the lockdown, while many workers kept their wages, but has been dropping steadily from 2021 to present. The decrease in wages has been compensated in part by subsidies (which did not necessarily go to wage earners) during the pandemic, but this policy is not expected to continue. The remaining component of the income side of GDP—other than indirect taxes—is the gross operating surplus (including mixed income), which has grown by 4 percent of GDP between 2020 and the second quarter of 2022. In other words, in a period of inflation, the value of GDP will increase in concert with the price level, and—if wages do not follow suit—income distribution will have the pattern shown in Figure 5 for the last quarters.

Against this background marked by uncertainty, recent projections for Greece made by the IMF, the EC, and other analysts (Eurobank Research) look, in our view, problematic.

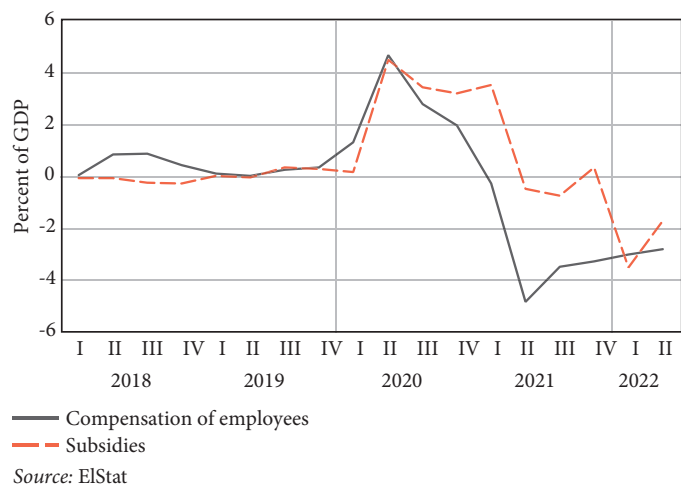
Real GDP is projected to grow at a rate between 3.5 and 4 percent in 2022, slowing down to around 2.4–2.6 percent in 2023. While these projections may not be off target, the model

Figure 4 Price of Commodities (index, 2019=100)



Source: IMF

Figure 5 Greece: Compensation of Employees and Subsidies (changes YoY)



Source: ElStat

on which they are based also projects a substantial inversion in fiscal policy, with net government lending cut by 3 to 4 percent of GDP in 2022, and a further 3 percent of GDP in 2023, while the current account balance is not projected to improve substantially, remaining instead largely negative.

As we have discussed several times in our previous reports,¹ the net lending position of the private sector—what we call NAFA in Table 1 (for Net Acquisition of Financial Assets)—must mirror, by accounting constraints, the sum of government net borrowing plus the current account balance. When NAFA is negative, the private sector as a whole is paying to the

other sectors more than it is receiving, and therefore it is either running down its stock of financial assets or increasing its stock of debt.

In our approach, a negative NAFA, which normally implies an increasing foreign-debt-to-income ratio for the private sector, is a sign of increased financial fragility, which often translates into a recession. Official forecasts for the Greek economy may look optimistic when focusing on GDP growth, but are a matter of serious concern should their assumptions about fiscal policy and the current account balance materialize.

In the following we will discuss in more detail the recent dynamics of the components of GDP and set our own assumptions for the evolution of the economy in the medium term.

The Components of Demand

Household consumption

As shown in Figure 1, illustrating the changes in the components of GDP over the corresponding quarterly data since 2020, the strongest contributor to GDP growth in the first quarter of 2022 was due to household consumption surpassing all other components. Moreover, the recently released data from ElStat indicate yet another increase: in 2022Q2, consumption grew by 2.1 percent over 2022Q1 and surpassed its 2019 level. While the omens of continued increases for the rest of the year are positive, especially with the sustained relaxation of fiscal policy, mixed signals abound: from survey data and anecdotal evidence indicating that 7 out of 10 private-sector working individuals have decreased their basic foodstuffs consumption (Salourou 2022b), to the encountered difficulties in coping with the dramatic price increases of energy and energy-dependent goods and services.² Notwithstanding the small decreases in the price level in July and August, to 11.6 percent and 11.4 percent, respectively (from the high 12.1 percent in June), the y-o-y price increases reported by ElStat average 13 percent for foodstuffs, over 30 percent for rent, and over 20 percent for transportation-related services, to name a few. Many consumers notice the prices of some packaged goods have remained constant even while their quantities have been reduced—what has been coined the phenomenon of “shrinkflation” or “package downsizing.” There are clearly different distributional effects between low- and high-income households.³

Investment

In the first quarter of 2022, gross fixed capital formation continued its growth path, which started in the fourth quarter of 2021. ElStat recently reported that gross investment in the second quarter of 2022, although decreasing by 1.0 percent over the first quarter of 2022, increased by 8.7 percent over 2021Q2. As shown in Figure 1, investment growth was a significant driver of GDP growth in the first quarter. It will hopefully continue to mark increases for the remainder of the year, even though official reports indicate a slower utilization of public investment funds, including those of the NGEU. The positive signs come from investment in building construction—although the measured construction business confidence index as reported by EUROSTAT indicates more pessimism than optimism, based on the recorded changes in August and September 2022 as compared to the corresponding months of 2021. The increase of investment in dwellings, which started recovering in the final months of 2021, continued in both quarters of 2022. In May 2022 (the last month for which data are available) building permits, both private and public, decreased by 0.4 percent over the same month in 2021, while they increased by 10.8 percent during the June 2021–May 2022 period (resulting, however, in only a 0.9 percent increase for that five-month period of 2022 over the same five-month period in 2021). On the other hand, private building permits for the period June 2021–May 2022 showed an increase of 11 percent, indicating a decrease in public building permits, which does not bode well for public investment—including projects designated to be funded by the NGEU funds. Overall construction output in the second quarter of 2022 increased to 28.9 percent y-o-y, compared to 14.8 percent y-o-y in 2021Q2.

Investment in private housing continues to grow, stimulated by the increased demand for short-term rentals with the explosion of the Airbnb phenomenon. The latter is caused by increases in tourism activity, including increases in demand associated with the “Golden Visa” program allowing foreign investors to obtain a five-year renewable residence for an investment of about €250,000—which usually takes the form of housing that can in turn be used for short-term rentals.

Trade

Seasonally adjusted growth in the index of the volume of retail trade (which is determined by indices of exports and imports of goods and services) has a highly positive influence on real

GDP growth. The respective changes of these indices show the exports index marked a 9.8 percent y-o-y increase in 2022Q1 and a dramatic 20.8 percent y-o-y increase in 2022Q2. Similarly, the corresponding y-o-y changes in the imports index for the first and second quarters of 2022, respectively, were 18.1 percent and 15.5 percent. Clearly, the second quarter changes are based on preliminary data and subject to correction; nevertheless, they indicate improvement in exports versus imports, most likely due to increased tourism.

The recovery in tourism activity in Greece seems to be approaching 2019 levels, and by some estimates may exceed it. As reported by the Bank of Greece (BoG), in the period January–July 2022 tourist receipts amounted to 97.1 percent of the corresponding period in 2019—exceeding it in the month of July, at 100.5 percent—fueling the prospects of 2022 becoming a record-high year in the tourist sector. Another recent estimate suggests it will reach 90 percent of the pre-Covid-19 level (Kokkinidis 2022). These record-breaking scenarios are, perhaps, in consequence of the government’s decision to lift all Covid-19 related restrictions. Some commentators (Capital.gr 2022) attribute the increase of household and corporate bank deposits, despite the high inflation levels, mainly to tourism receipts.

Recently released—but not seasonally adjusted—ElStat data on July 2022 commercial transactions of exports of goods were €4,971.4 million at current prices, marking a 39.9 percent y-o-y increase, with oil products commanding the lion’s share (26.7 percent). Products excluding oil and shipping represented the remaining 13.2 percent. Imports on goods increased to €7,967.9 million, representing a y-o-y increase of 37.3 percent, with oil products being the major component (23.5 percent). Imports excluding oil and shipping represented 13.4 percent. The resulting deficit in the balance of goods increased by €2,996.5 million in July 2022, from €2,247.7 million in July 2021. For the seven-month period January–July 2022, it widened y-o-y by €8,168.8 million.

Exports of goods registered a dramatic increase of 40 percent in the first seven months of 2022, relative to the same period in the previous year, when measured at current prices. As expected, the largest increase was in the oil category (81 percent), confirming the relative specialization of Greece in refining crude oil to be re-exported. It is important to mention that imports in the oil category exceed the value of exports, and over the same period they have grown by 106 percent.

The balance of trade in goods, which improved during the austerity period and reached its smallest deficit at 8.6 percent of GDP in 2015, has worsened since, and has collapsed in the last four quarters, reaching a deficit of 18.5 percent of GDP in the second quarter of 2022.

The trade deficit in goods is partly compensated by the surplus in the trade of services. The surplus, which almost vanished during the pandemic as a result of the halt in tourist activities in 2020, has now recovered to almost 12 percent of GDP in the second quarter of 2022, close to its peak of 12.5 percent in 2019. In general, a rebound of tourist receipts is critical to reducing the high and rising current account deficits.

As documented in Figure 1, exports of services together with private consumption have provided the largest contribution to GDP growth in 2022. Some adjustments to ElStat data on exports of services are discussed in the Appendix.

Projections for 2022–23

Fiscal policy

NGEU funds certainly sustained the growth in government investment, which reached €2 billion in the first quarter of 2022 (data for the second quarter are not yet available). Investment started to increase in 2021, from a trough of €1.2 billion in the last quarter of 2020. For our baseline projection we assume that government investment will remain at the level it reached in the first quarter of 2022 until the end of 2023: a hypothesis in line with the planned disbursement of NGEU funds.

Government consumption—which is also a component of GDP—has remained more stable in real terms, remaining roughly in line with the levels reached in the years of austerity. We assume that collective government consumption will stabilize in real terms in our projection period, while individual consumption is projected to increase at an annual rate of 1 percent, close to its recent trend.

Expenditure on social benefits has increased in the first half of 2021, but only because of the increase in the number of retired people. Real average expenditure, divided by the population over 65, has remained stable, and we project it will remain so in the projection period. In nominal terms, social benefits will increase with inflation, but are projected to stabilize as a share of GDP.

Other current net transfers from the government to the private sector remained relatively stable in the last two years, and

we project them to remain stable. By contrast, net capital transfers to the private sector increased substantially in the fourth quarter of 2020, and in 2021 were higher than the pre-2020 average. Total government “grants and capital transfers” were about €8 billion in 2020, compared to €2.4 billion in 2019 and €5.3 billion in 2021. The value for the first quarter of 2022 was lower, at €617 million—we assume they will revert to the pre-Covid average in the projection period.

Government support to the private sector during the pandemic has mainly operated through changes in taxation and subsidies, in addition to capital transfers. The average ex-post indirect tax rate decreased in 2020 to a low of 15.6 percent, from 17.8 percent in the second quarter of 2019. Since then, it has increased modestly, reaching 18.7 percent in the first quarter of 2022. We will assume no further increase in this rate.

Government subsidies were around €1.8 billion in 2019, and have increased to almost €6 billion in 2020, and €8.5 billion in 2021. They have dropped substantially in the first quarter of 2022, and we assume they will remain at the same level, relative to GDP, over the projection period. An exception will be in the first half of 2023, based on the government’s announcement to distribute €2.5 billion—made available by tax receipts exceeding projection in 2022—to alleviate the cost of energy bills. Lacking more precise information on their distribution, we assume that half of this amount will go to businesses and half to households in the first semester of 2023.

Subsidies received from abroad have been relatively stable, such that we will project them to remain stable in our projection period.

The ex-post average direct tax rate was low only in the third quarter of 2020, but reverted almost to its pre-pandemic level in the following quarters. We assume it will complete its recovery to the 2019 level in the remaining quarters of 2022.

The ex-post average rate of social contributions dropped at the height of the pandemic in the second quarter of 2020, but was already back to its average value in the next quarters. Its value in the first quarter of 2022 was again much lower and we project that it will revert to its average value in the rest of 2022.

Current transfers from abroad to the government are expected to increase with the disbursements of NGEU funds. The government has received about €6.6 billion in 2021, and we estimate it will get €7.9 billion in 2022 and €9.9 billion in 2023, compared to €4.9 billion in 2019 and €6 billion in 2020.

Interest rates

The implicit ex-post interest rates that we use to estimate interest payments on foreign loans are still very low, and so is their average value for payments made from the government to the private sector.

However, central banks, including the European Central Bank, have been increasing their base rate to avoid current inflation being translated into higher expected inflation, damaging the credibility of their inflation targets. Since inflation is not due to an increase in wages—it will affect even more negatively the already declining purchasing power of workers—a tighter monetary policy, in our view, will be exacerbating inflation, rather than controlling it. Nevertheless, we assume an increase of 150 basis points in the interest rate paid on domestically held debt in 2022, while we project the interest rate on foreign loans to remain at its current low level.

Housing market

The price of housing, as measured by the index price of dwellings published by the BoG, has been following an upward trend, growing at rates close to 10 percent since the third quarter of 2021. The y-o-y growth rate in the first quarter of 2022 was 9.2 percent, with an uptick increase to 9.4 percent in the second quarter based on preliminary ElStat estimates.

The increase in the price of dwellings did not have a proportional effect on investment in dwellings, as published by ElStat, which started to increase moderately after 2018, but is still only about 11 percent of its 2006 pre-crisis level.

The increase in prices reported by the BoG and mentioned above must therefore be the consequence of an increase in demand for existing dwellings, coming from foreign investors, which is not followed by increased construction activity of the same magnitude.

For our projection period, we assume that the price of housing will keep increasing more than the general price level in 2022, and that from 2023 it will revert to a growth rate in line with the general price level.

Inflation and foreign prices

As discussed above, import prices have increased dramatically during 2021 and the first half of 2022, due to supply chain disruptions, the increase in transportation costs from the pandemic and the war in Ukraine, and domestic prices that have surged, albeit at a smaller rate. We will optimistically assume, following

Table 1 Greece: Projections of Key Indicators

	2020	2021	2022	2023
IMF (April 2022)				
Real GDP (growth rate)	-9.0	8.3	3.5	2.6
Gov. net lending (% of GDP)	-10.9	-8.7	-4.8	-1.8
Current account (% of GDP)	-7.3	-6.4	-6.3	-6.1
Implied NAFA (% of GDP)	3.5	2.3	-1.5	-4.3
European Commission (Spring 2022)				
Real GDP (growth rate) (<i>Summer</i>)	-9.0	8.3	4.0	2.4
Gov. net lending (% of GDP)	-10.9	-7.4	-4.3	-1.0
Current account (% of GDP)	-7.3	-8.3	-8.4	-6.4
Implied NAFA (% of GDP)	3.5	-0.9	-4.1	-5.4

recent signals from monthly data on the price of energy and commodities, that imported inflation will be reduced in the coming months, so that inflation will revert to target by 2023.

Tourism

The number of tourists more than doubled in 2021 (to 3.9 million) with respect to the previous year, when the Covid-19 pandemic caused a collapse of the tourism sector. The recovery was sustained, as shown in the first two quarters of this year, but the numbers are still below the pre-Covid period. Our model projects that exports of services will continue to recover, as long as the disposable incomes of travelers' countries of origin keep rising as well.

Results for the NGEU baseline scenario

The main results of our baseline projection are summarized in Table 2. Comparing our baseline results to the other projections reported above in Table 1, we notice that real GDP growth is expected to be higher in 2022, and lower in the following year. The discrepancies between these projections and our own are mainly due to (1) the strong performance of the tourism industry, which has recovered more than expected and—together with consumption—accounts for most of the increase in GDP in 2022, and (2) the dire consequences of the war in Ukraine on inflation and uncertainty, which in turn have caused—and will continue to generate—a fall in real disposable income.

In addition, as documented above, we expect tax rates to revert to their pre-pandemic level, generating an increase in government revenues, but, at the same time, a fall in real disposable income.

The higher increase in import prices in relation to export prices will contribute to the worsening of the deficit of the current account balance of payments, with the increase in revenues from tourism insufficient to offset it. As a consequence, as discussed earlier, the Net Acquisition of Financial Assets (NAFA) for the private sector is projected to fall into negative territory, implying a reduction in the net financial assets of the private sector and/or an increase in foreign borrowing. Should this result materialize, appropriate policies have to be put in place to avoid another financial crisis.

An alternative, adverse scenario

In our baseline scenario, we optimistically assumed that all NGEU investment projects are financed and approved on time, but previous demonstrations of the government's ability to fulfil the criteria of European programs may imply less optimism.

In the alternative scenario reported in the lower part of Table 2 we have assumed that only 75 percent of the investment projects financed through NGEU funds are realized.

In addition, we have used less optimistic assumptions about inflation, which is now projected to remain above 8 percent in 2023, and decline only in 2024, not because of any significant change in wages, but rather on the hypothesis that international prices will continue to increase.

Table 2 Greece: Key Indicators Under Alternative Scenarios

	2020	2021	2022	2023	2024
Baseline					
Real GDP (growth rate)	-8.7	8.0	5.0	1.6	1.0
Gov. current expenditure	34.8	33.6	30.9	30.5	28.6
Gov. investment	3.3	3.5	4.2	4.5	3.3
Gov. revenues	32.9	32.7	35.1	36.6	34.2
Gov. primary surplus	-7.0	-4.9	0.7	2.8	3.4
Gov. net lending (% of GDP)	-10.0	-7.4	-1.8	0.1	0.8
External balance (% of GDP)	-5.3	-6.2	-12.4	-8.2	-2.7
Implied NAFA (% of GDP)	4.7	1.2	-10.5	-8.4	-3.5
Adverse scenario					
Real GDP (growth rate)	-8.7	8.0	5.0	0.8	0.3
Gov. current expenditure	34.8	33.6	30.9	30.5	29.8
Gov. investment	3.3	3.5	3.8	3.4	2.6
Gov. current revenues	32.9	32.7	34.3	35.2	33.7
Gov. primary surplus	-7.0	-4.9	0.6	2.4	2.4
Gov. net lending (% of GDP)	-10.0	-7.4	-1.9	-0.3	-0.3
Current account (% of GDP)	-5.3	-6.2	-12.3	-9.5	-3.1
Implied NAFA (% of GDP)	4.7	1.2	-10.4	-9.2	-2.9

Under these new assumptions, real GDP growth is not significantly lower in 2022—since most of the differences from the baseline assumptions have an impact from 2023 onwards—but falls below 1 percent in 2023 and 2024.

Finally, if the assumption holds that the international prices of energy and commodities continue to increase, this would imply a deterioration in the current account balance with respect to the baseline, making the Greek economy more fragile.

Conclusions

As most economic performance metrics show, for the first two quarters of 2022 the Greek economy was on the road to recouping what was lost in 2020 when the Covid-19 pandemic hit. Growth projections for 2022 are lower than those recorded in 2021, indicating the economy needs to perform much better if it is to continue on the growth path began in the pre-pandemic period. Similarly, growth projections for 2023 and 2024 appear much weaker, denoting that serious consequences may be in store.

In this new Strategic Analysis, we considered the current economic conditions in play and used reasonable assumptions for the trends of significant growth drivers—both positive and negative—to simulate the growth path of the Greek economy for the intermediate run (2022–2024). Our projections are for two possible scenarios: the basic and an alternate (adverse) scenario. The projections shown (Table 2) are conditional on our assumptions being realized. The basic scenario for 2022 is in line—albeit at the lower range—with more recent projections of the EC, IMF, BoG, and other research organizations, but much more pessimistic for the following two years for the reasons outlined above.

Our alternative (adverse) scenario projects even lower growth than the basic scenario for 2023 and 2024. We hope this scenario does not come to pass, since, if it does, it will cause more declines in the fortunes of households—especially low-income households—and a danger for the survival of firms. Most importantly, the worsening of the current account deficits does not bode well for servicing the stock of public sector debt, especially with increasing interest rates.

In these troubling times, with increasing price levels and the euro depreciating, economies like that of Greece—which are highly dependent on increasingly costly imports—become more fragile as the current account deficit widens. In our view, the continuous recovery of the Greek economy rests with the

government's ability to utilize the NGEU funds swiftly and efficiently, and for projects that will increase the country's productive capacity.

Notes

1. See Papadimitriou, Rodousakis, and Zezza (2022), among others.
2. Some negative prospects are slowly emerging that would decrease household consumption, as are the trends in retail sales and the declining expectations of retail trade (i.e., according to EUROSTAT, the change in the retail confidence indicator was -0.80 percent in September of 2022, dropping from its high of 21.60 percent in December of 2021 and a record low of -3.70 percent in August of 2022).
3. Data obtained from ElStat show that 80 percent of the income of poor households is spent on rent and food. Households living in rented houses spend an average of 18.9 percent of their budget on rent. The poorest 20 percent of the population spends on average 58.1 percent of their household expenditures on food, nonalcoholic beverages, and housing, while for the richest 20 percent of the population that figure is 36.3 percent. Finally, the average annual household expenditure in 2021, as compared to 2008, has been reduced by 33.0 percent.

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- IMF-CP: <https://www.imf.org/en/Research/commodity-prices>
- OECD: <https://stats.oecd.org>

Appendix. A Note on Real Exports

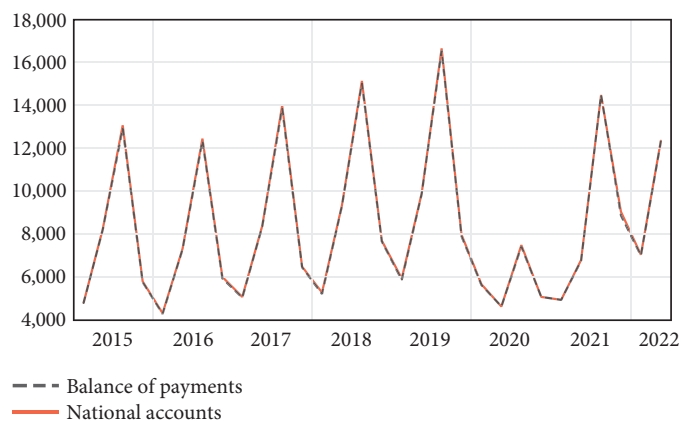
In the latest release of the quarterly national accounts for Greece, we were surprised to notice that the deflator for exports of services was registering a very large increase in the first two quarters of 2022, when compared to domestic inflation. In the second quarter of 2022, the y-o-y growth rate in the deflator for exports was reported at 28 percent, against an increase of 11 percent in the CPI. We therefore verified the ElStat estimates following the procedure described in their 2016 report on the methodology adopted to construct national accounts (ElStat 2016).

We use monthly data from the BoG balance of payments (BoP) statistics, available from January 2002 to July 2022, reporting the receipts from exports of services disaggregated between Travel, Transportation, and Other. Although “Part of travel services obtained by BOP is allocated to exports of goods” (Elstat 2016, 31), the quarterly data obtained from BoP statistics are in line with those from national accounts (NA from now on), as the chart in Figure A.1 documents (the discrepancy is usually below 1 percent). We use the non-seasonally-adjusted NA statistics.

We have next obtained the components of exports of services at constant 2015 prices, using the CPI deflator for Travel, and the Producer Price Index in industry for the non-domestic market, excluding energy, to deflate exports in the Transportation and Other categories (ElStat 2016, 32).

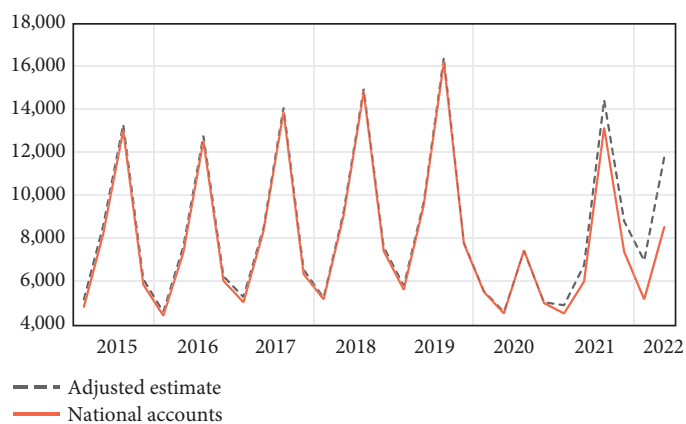
We next obtain quarterly statistics and sum them up to obtain adjusted estimates of exports of services at constant prices, which is compared in Figure A.2 to the data from national accounts. As the figure shows, the adjusted estimate is very close to that in the NA up to 2020, after which they start to diverge, with NA statistics being consistently below our adjusted estimate. The implication is that the adjusted estimate of the deflator for exports of services will show lower growth with respect to that implied by NA data, as the chart in Figure A.3 shows.

Figure A1 Greece: Exports of Services (€ million)



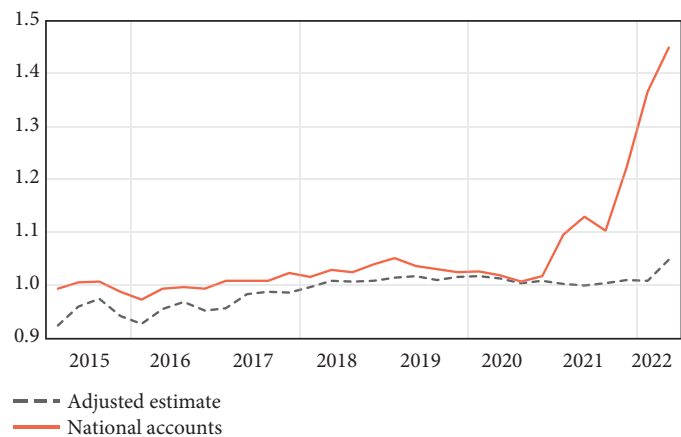
Source: ElStat and BoG

Figure A2 Greece: Exports of Services at 2015 Prices (€ million)



Source: ElStat and authors' estimates

Figure A3 Greece: Exports of Services Implied Deflator (€ million, 2015)



Source: ElStat and authors' estimates