



# Strategic Analysis

July 2013

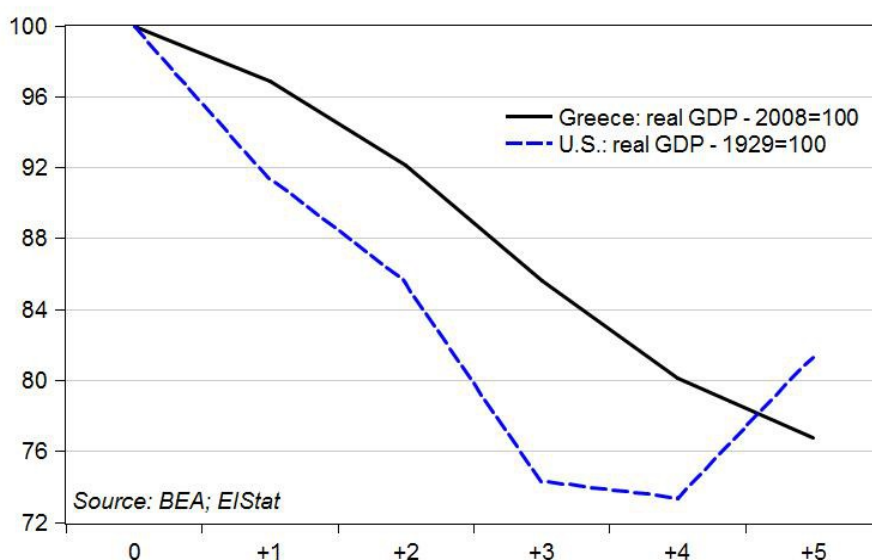
## The Greek Economic Crisis and the Experience of Austerity A Strategic Analysis

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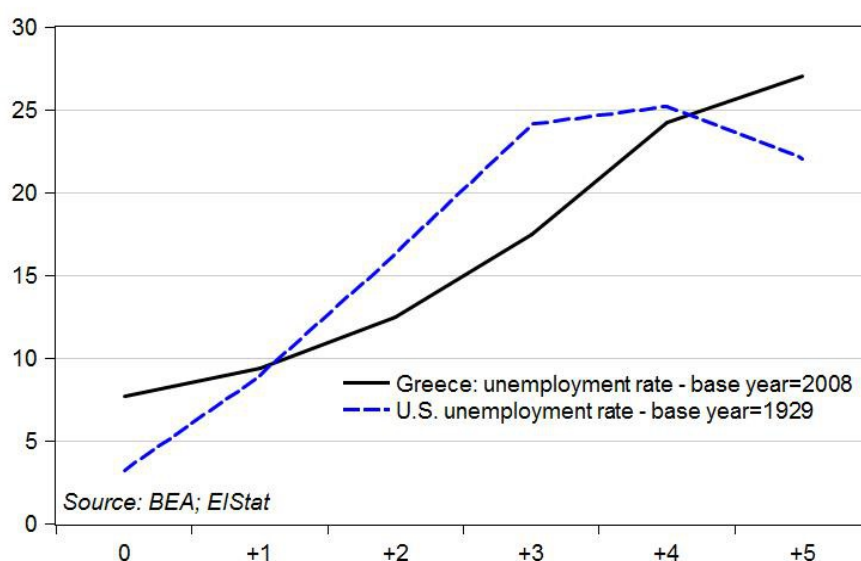
### 1. Introduction

“Seen from Greece, the Great Depression looks good,” wrote Floyd Norris in a recent column in *The New York Times* (Norris 2013). Whereas after five years into the Great Depression (1929-34), the United States had experienced a loss of about 20 percent of GDP, its economic performance began to improve reversing its course toward growth, in the case of Greece, its economy having lost more than 20 percent since 2008 continues declining and losing more GDP as illustrated in Figure 1. Unemployment in the U.S. began to decrease after the fourth year while in Greece continues its trajectory surpassing the Depression highest level of the U.S with no sign of reversing (Figure 2) anytime soon. Personal consumption spending in the United States, by the fifth year of the Great

**Figure 1. Greece and the United States. Two Great Depressions**



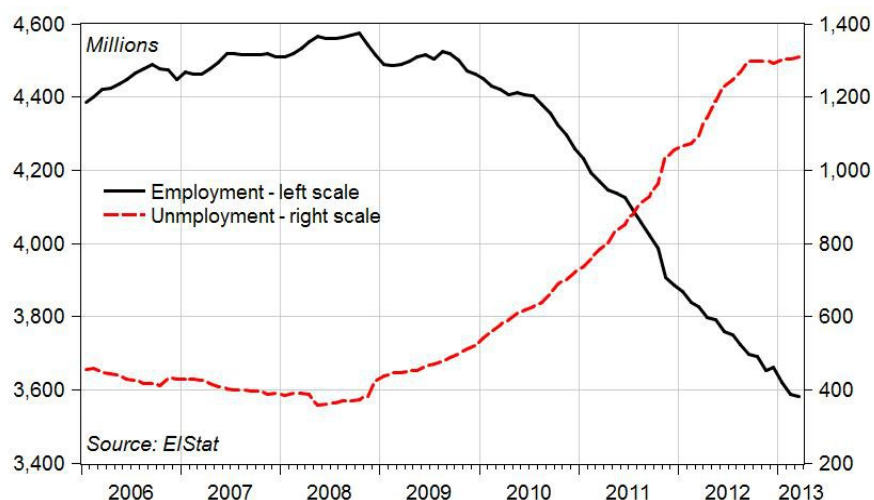
**Figure 2. Greece and the United States. Two Great Depressions**



Depression, had started to recover while in Greece fell, last year, by the most in any other year of the contraction. The most important difference between the comparable trajectories of the two economies is in government consumption spending not including investment in infrastructure. While in the United States that spending continued to grow during the downturn helping to arrest the economy's fall, in Greece it has fallen severely, i.e., by 9.1 percent only last year alone, one of the highest declines in the country's continuing contraction (Norris).

Employment in Greece is at a free fall with over one million jobs been lost since the peak in October 2008 representing a drop of more than 28 percent, while March 2013 "official" unemployment is recorded at over 1.3 million workers representing 27.4 percent of the labor force

**Figure 3. Greece. Employment and unemployment**



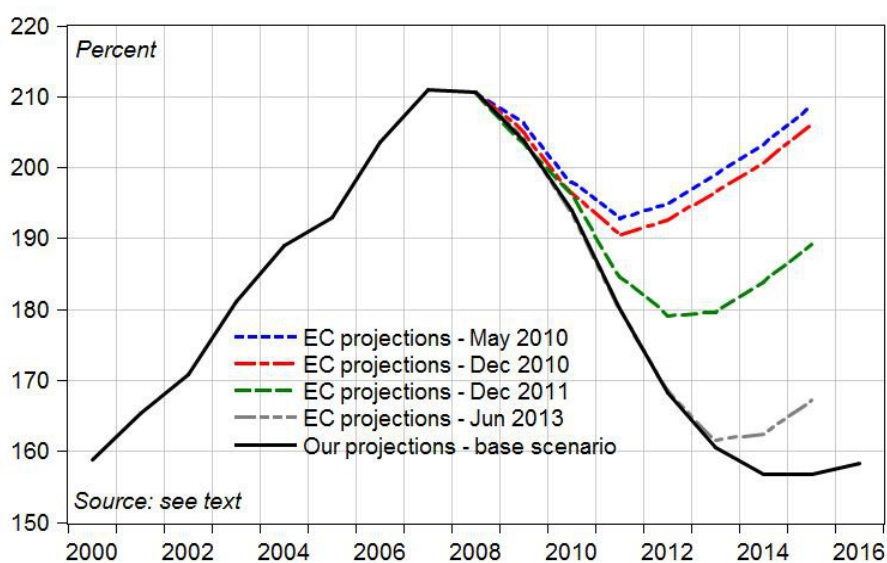
(Figure 3), the highest level of any industrialized country in the free world during the last 30 years.

The current economic conditions are, by and large, the result of foolish policy based on shaky economic theory advocating that “expansionary austerity,” along with labor market reforms, is the best recipe for medium and long-term growth in countries like Greece, running large government deficits and high public debt as percentages of GDP.

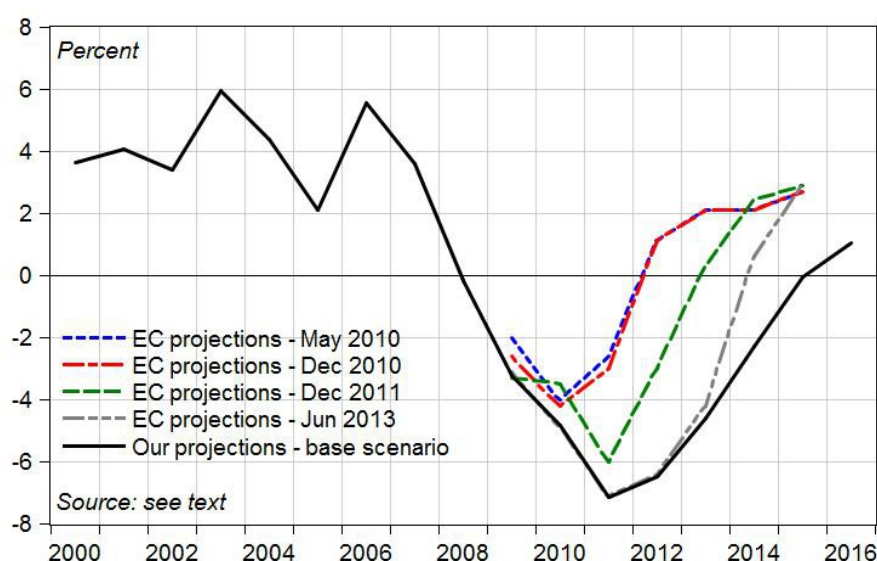
In this report, we argue, on the basis of simulations drawn from a newly constructed macroeconometric model for the Greek economy (LIMG) (Papadimitriou et al 2013), that prolonged austerity will result in a continuous fall of employment since real GDP will not grow fast enough to arrest, let alone, invert the downward trend in the labor market.

We are, therefore, more pessimistic than the projections made either by the IMF or the European Commission (EC). In their recently published report (IMF 2013b), they acknowledged the serious errors in assumptions about projected annual deficits and debt to GDP ratios, growth of GDP and unemployment rates emanating from the unrealistically low value of fiscal multipliers operating on spending cuts and tax increases. Figures 4 and 5 represent the successively erroneous projections, including the very recent, on real GDP in money terms and growth rates respectively. The figures separate with a vertical line actual from projected data, and also denote with a black line the trajectory of GDP of our own projections, should the current austerity policy be continued. Similarly, Figure 6 documents IMF/EC (troika)’s successive projections as well as our own of the paths of unemployment. Given the present rate of over 27 percent of joblessness, it is inconceivable how much ill advice is being dispensed in the EC and IMF official suites about improving trends.

**Figure 4. Greece. Real GDP - current and projected**

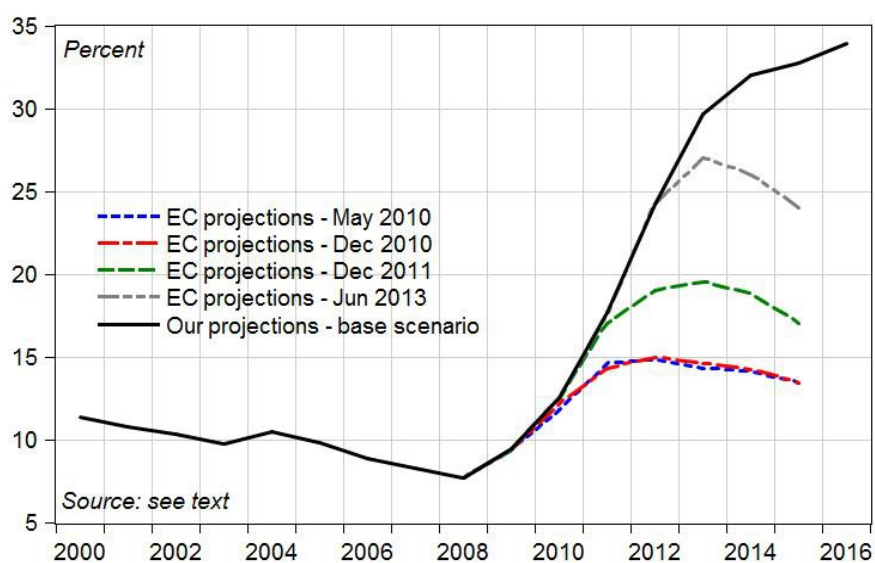


**Figure 5. Greece. Real GDP growth - current and projected**



The chorus of thoughtless European and IMF officials still sings in unison the soundness of discredited economic theories – exemplified by “countries should press on with needed balance sheet repair and structural reforms. Long-standing structural rigidities need to be tackled to raise long-term growth prospects. Southern Europe needs to increase competitiveness in the tradable sector, especially through labor market reforms. (...) These measures will help reduce unemployment and rebuild competitiveness in the periphery” (IMF, World Economic Outlook, April 2013, p. 49).

**Figure 6. Greece. Unemployment rate - current and projected**



Our projection about loss of employment, shown again by the black line in Figure 6, paints a completely different picture of the present policy delivering an even greater unemployment rate close to 34 percent by the end of 2016. Despite the IMF's recently acknowledged *mea culpa* (May 2013b) report, both the EC and IMF are still projecting a continuing recession for the first part of 2014, but a return to economic and employment growth in 2014 and beyond. This, of course, is impossible to achieve, unless a coherent pattern of strong growth in the components of aggregate demand commences well before the latter part of this year to lead to reducing unemployment given the normal lag between GDP growth and employment creation.

In the following section, we investigate the determinants of aggregate demand while in section 3 analyze their plausible evolution over time based on the troika's projections and our own evaluation. The last section 4, describes our assumptions used to derive our simulations along with policy proposals for the intermediate run. We should make clear, however, that these simulations are not short-term forecasts. Instead, we use the Levy Institute's macroeconometric model for Greece (LIMG), based on a consistent framework of stock and flow variables to trace a number of possible medium-term scenarios in order to evaluate strategic policy options.

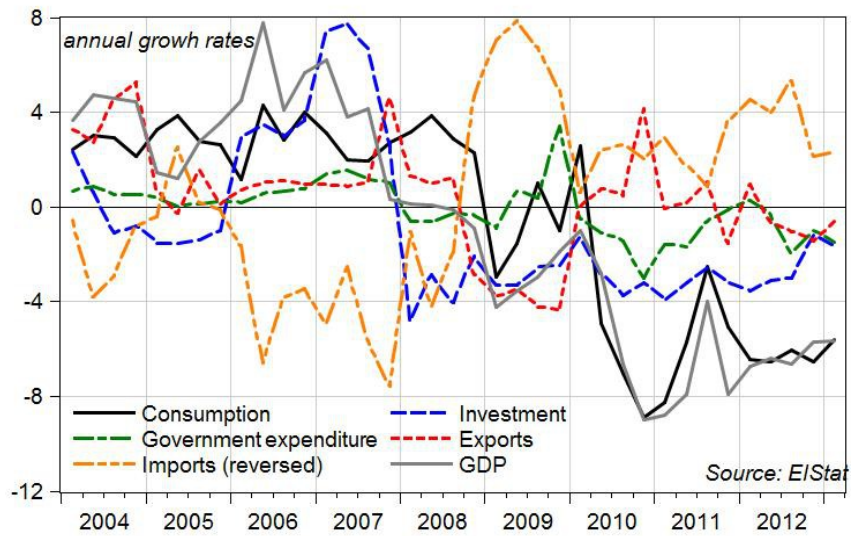
## **2. Recent developments in aggregate demand**

The components of aggregate demand illustrated in annual growth rates and levels in Figures 7 and 8 respectively have seen further declines since our last report (Papadimitriou et al. 2012). The last available data for real GDP show that during 2012 another 5.7 percent of output has been lost, and the recent second estimate for the first quarter of 2013 continues the downward trend, with real GDP falling by 5.6 percent against the same quarter of 2012.

Figure 7 breaks out the individual contributions of all components of aggregate demand in percentage real GDP growth rates as of the first quarter of 2013. Each contribution is obtained by multiplying its annual growth rate with a weight given by the component on GDP for the previous quarter, so that real GDP growth can be obtained summing up each line including the negative impact of import growth, shown in Figure 7 with a positive sign. The annual level in money terms of each contribution is correspondingly shown in Figure 8.

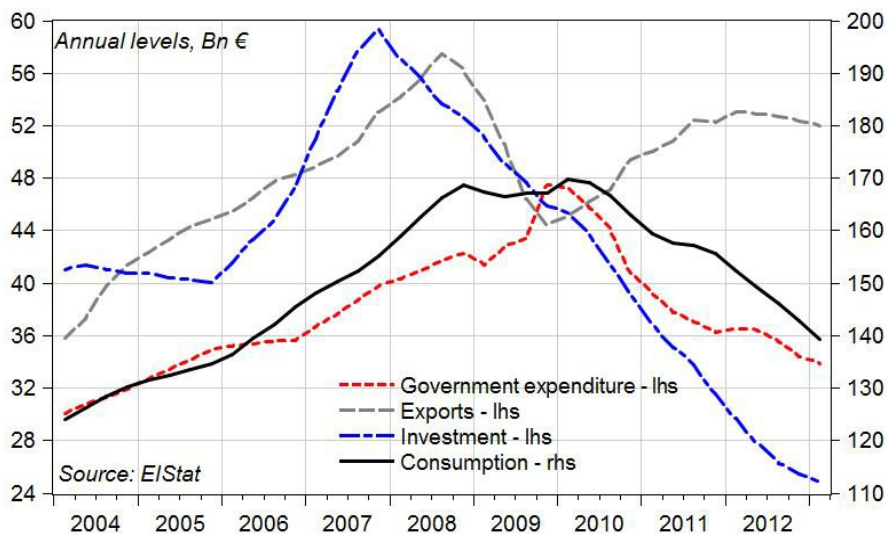
As mentioned above and shown starkly in Figures 7 and 8, the major determinant of growth before the downturn was consumption that has turned into the major GDP reducer steadily declining in the last three years by more than any other component. Investment boomed only for two years before the beginning of the crisis in 2007 and since turned course by declining at a rate between 3 and 4 percent. Real government expenditure was also a significant contributor to aggregate demand

**Figure 7. Greece.  
Contributions to real GDP growth**



and growth up to 2009, but began declining procyclically since then under the heavy weight of the troika fist to meet deficit and debt targets agreed in exchange for the bailout programs. What has been normal in economics for the role of government plays during downturns became antithetical to troika's prescriptions. The feedback loop from the steep decline in public expenditure has been leading the way to a deepening recession. Shown in Figure 7, is the path of GDP growth that followed closely to that of consumption as the component with the heaviest weight in determining aggregate demand.

**Figure 8. Greece.  
GDP components**



Exports, their unstable trend before and after the crisis, have not been able so far to offset the drop in domestic demand. Indeed, they were decreasing, on an annual basis, in the last quarter of 2012. So much of the troika's insistence for the forced reduction in unit labor costs—by decreasing wages via government fiat—as means of increasing competitiveness and achieving export-led growth. This strategy has, naturally, been proven detrimental to domestic consumption, despite the by now, discredited theory<sup>1</sup> behind this policy that provided the academic seal of approval for the troika strategy—claiming that “expansionary austerity” via severe fiscal contractions would not have any discernible effects on output, if they were obtained through cuts in public spending, rather than increases in taxation allowing market-based incentives to work properly. Finally, the large drop in imports —shown as an increase in Figure 7 - contributed minimally on the real GDP growth.

What is shown in Figure 8 will be crucial for our simulated scenarios. Notice that almost at the same time, when government expenditures started to contract at the end of 2009, exports started to grow, but so far their increase of almost 8 billion euro from their trough has been insufficient to balance the fall in government expenditure of 13 billion euro, measured over the same period. When austerity began, in 2009-2010, the economy was already experiencing a fall in investment that had started at the end of 2007 coincident with the beginning of the global Great Recession. In money terms, investment has fallen by almost 34 billion euro since its peak at the end of 2007, and is now (first quarter of 2013) at a record lower than 25 billion euro. Contrary to the claim of the “expansionary austerity” theory estimating the fiscal multiplier to be close to zero, or even less than zero, the fall in government expenditure and investment have proven to yield a much larger output loss rendering the value of the multiplier higher than 2.5. As shown also in Figure 8, in concert with the drop of output and employment, consumption declined by almost 30 billion euro.

While it might be possible for exports to grow further, it is very unlikely that the increase in *net exports* can be strong enough to counter the fall of the other components of aggregate demand. We will carefully analyze the determinants of these constituent parts of GDP growth to set the stage for the model's simulations.

### *Private expenditure*

In an earlier report, we found<sup>2</sup> that private expenditure – the sum of consumption and investment – was driven by the private sector's disposable income and net financial wealth, together with the additional effects of access to borrowing, and capital gains arising from the equities market<sup>3</sup>.

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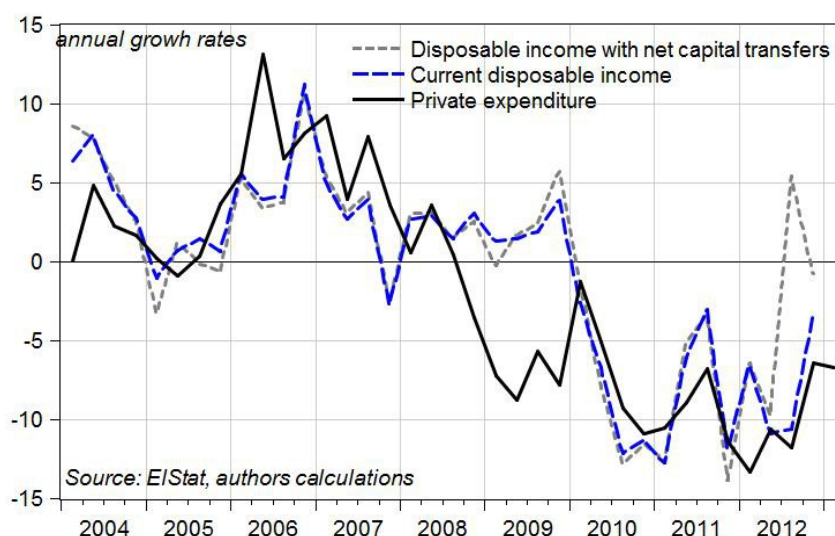
1 See Alesina and Ardagna (1998); Ardagna (2004); Giavazzi and Pagano (1990) among others

2 See Papadimitriou et al., (2012)

3 There is some evidence of additional effects of net capital gains arising from the housing market, but they seem to



**Figure 9. Greece.**  
**Real disposable income and private expenditure**



The dynamics of real disposable income along with private expenditure are illustrated in Figure 9. It is interesting to note that when comparing Figure 9 with Figure 8, private expenditure was growing faster (slower) than income when investment was buoyant (depressed). Figure 9, also traces the two different measures of real disposable income, with and without net capital transfers, the former experiencing a large spike in the third quarter of 2012, reflecting a transfer of capital from the public sector to the banking sector to prop up a failing bank and prevent another crisis from occurring, but with no discernible stimulus to aggregate demand. Despite the apparent improvement of all three variables in 2012, their outlook seems still negative.

Net financial wealth of the private sector measured at costs<sup>4</sup> has declined steadily since Greece entered the Euro area, and as foreign debt exceeded government debt, in 2008, the private sector has become a net debtor, according to our measure<sup>5</sup>. As the austerity programs continue to contribute adversely to the net financial wealth of the private sector, some improvement may eventually come from any decrease in foreign debt from improvement in the current account.

Our econometrics reveal that additional effects on private expenditure are obtained by the

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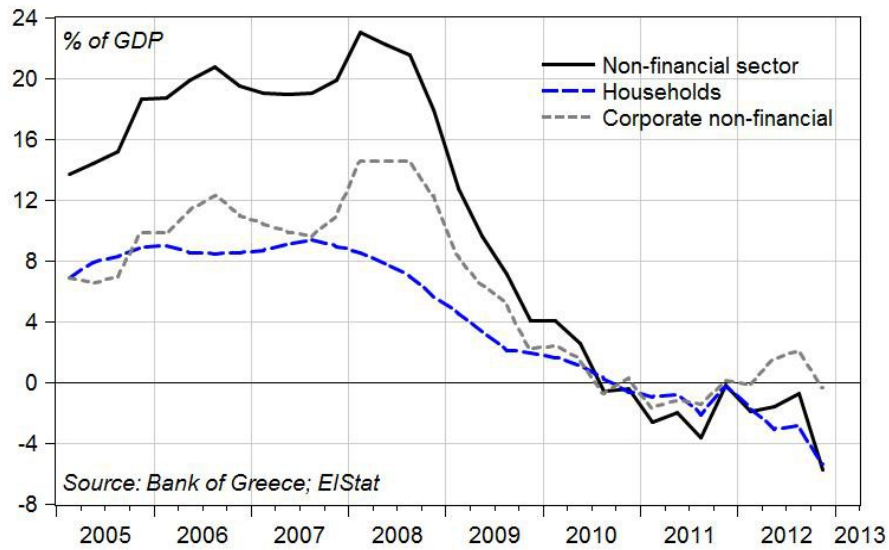
be negligible.

4 Net financial wealth of the private sector is the counterpart of the net debt of the foreign and public sectors as determined by the macroeconomic identity. We estimate all these stock measures (values) at cost by cumulating the underlying flows, i.e. private sector saving, government deficit and the (reciprocal of the) current account. Our stock measures will differ from published values of net financial wealth at market prices because they do not take into account net capital gains arising from fluctuations in the market price of the components of financial wealth (securities, equities, etc.)

5 The “official” measure can be obtained from the financial accounts published by the Bank of Greece, as the sum of the stocks of net foreign assets and net government liabilities. This measure is declining steadily becoming negative in 2006, and is now negative by about 50 billion euro.

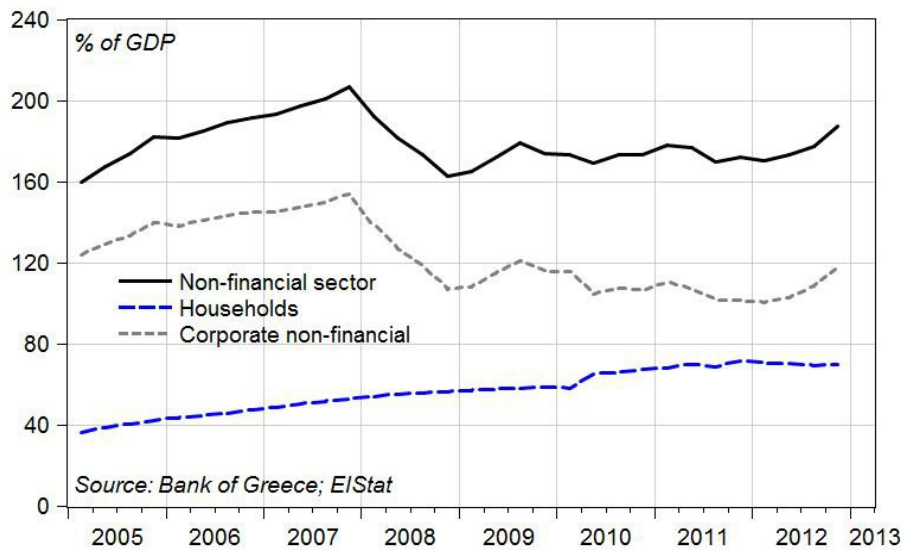


**Figure 10. Greece.  
Private sector borrowing**



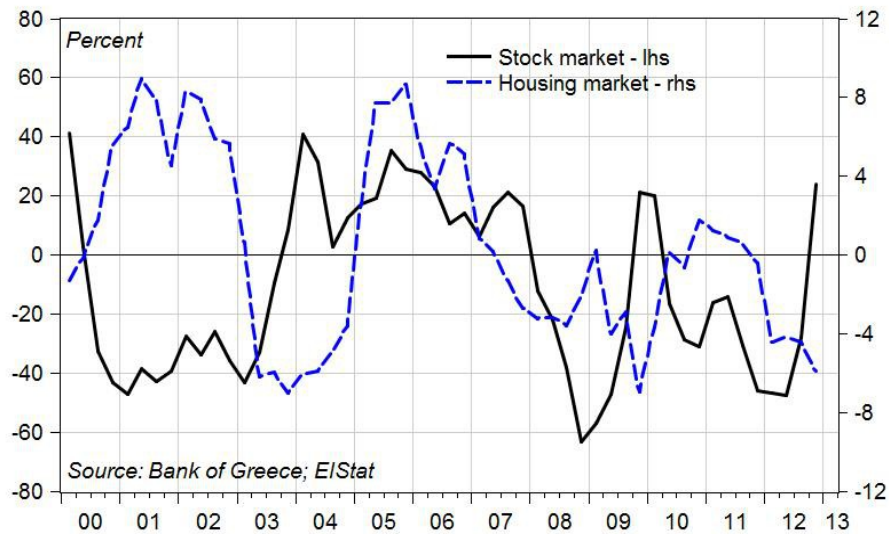
availability of credit, and firm and household willingness to borrow. The latest data available, fourth quarter of 2012, of the households and corporate non-financial sectors borrowing are shown in Figure 10<sup>6</sup>. Figure 10 illustrates that the rate of borrowing before the crisis was clearly increasing contributing to an increasing debt-to-GDP ratio, with the household sector borrowing at an average rate of 8 percent of GDP over the 2005-2008 period while the corporate sector borrowing rate

**Figure 11. Greece.  
Private sector gross debt**



<sup>6</sup> To eliminate seasonal fluctuations, borrowing and GDP are measured as moving averages over the last four quarters.

**Figure 12. Greece.**  
**Relative changes in the price of assets**



reaching at 15 percent and a corresponding average borrowing for the entire private sector as high as 23 percent in 2008 against an average nominal GDP growth rate of about 6 percent. Once the crisis hit both sectors moved precipitously to negative territory reflecting liquidity constraints, deleveraging and other commensurate effects of the downturn. The analogous levels of the stock of accumulated liabilities (debt) of these two sectors are reported in Figure 11.

Examining Figures 10 and 11 more carefully, we notice, that together with negative borrowing, GDP is also falling pushing the stock of debt relative to GDP to an increasing trend as shown especially in Figure 11, noticeably more for the corporate sector. This will form our assumption in running the model's simulations in that the negative borrowing trend will continue as long as real GDP keeps falling.

The value of equities and housing are also drivers of investment and consumer spending. Our econometric analysis has shown that net capital gains from the equities market increase private expenditure at a faster rate than disposable income alone, while the evidence of the effects of net capital gains from the housing market on private expenditure is much weaker. Figure 12 illustrates two measures, i.e., net capital gains from the stock market and housing market obtained from the annual growth in price indexes, net of nominal GDP growth. The two trend lines correspondingly measure the net gain obtained each year from buying equities or (existing) houses against the gains obtained by investing in activities with a return equal to output growth plus inflation. Our measures show that housing prices increased considerably in the first part of the 2000s, when the stock market was not performing well, while subsequently both markets were profitable for a few years

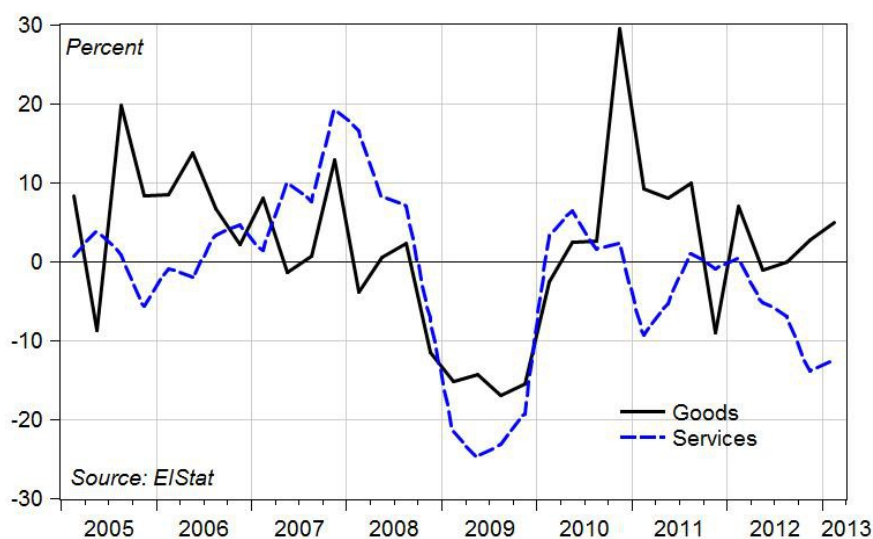
and both plummeting as the recession was taking hold. The crash in the stock market price index, from the previous peak of 163 in the third quarter of 2007 to 19 in the second quarter of 2012 (a fall of more than 88 percent) has been so dramatic that the increase we are witnessing in the last months (an increase of 63 percent between the first quarter of 2013 and the second quarter of 2012) has barely lifted the value of the market where it was at the end of 1995. Although conceivable that the increase in the equities market will continue, from the combined effects of public enterprise privatizations and selected companies depressed values, it is doubtful that the lack of liquidity in the banking sector limiting the financing options of corporations will generate investment.

House prices, on average, continue to fall. The previous peak of our calculated index was at the end of 2005, and average house prices have fallen dramatically reverting to their 2003 level. We see no reason for a reversal of this downward trend, but will assume that housing prices stop falling during our simulation period ending in 2016.

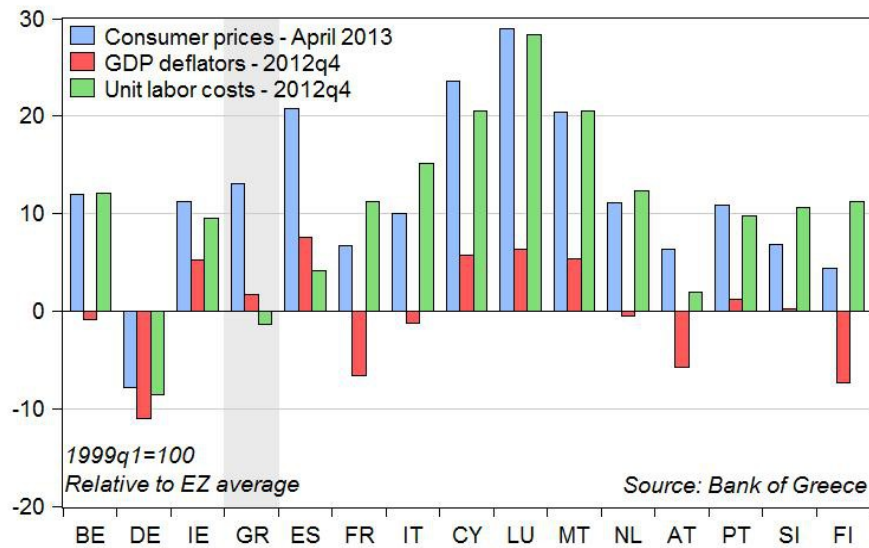
### *Net exports*

We saw in Figures 7 and 8 above, that net exports are augmenting real GDP growth mainly because of the drop in imports. Figure 13 breaks out the corresponding real growth rate of goods and services exports: the former has increased very significantly in 2010, recovering some of the drop that occurred after 2008, but not indicating a stable trend even though a small increase is achieved since the second quarter of 2012. On the other hand, exports of services that were once larger than goods exports prior to the crisis have been mostly negative and experienced yet another major

**Figure 13. Greece.  
Real exports of goods and services**



**Figure 14. Euro area.  
Competitiveness indexes**



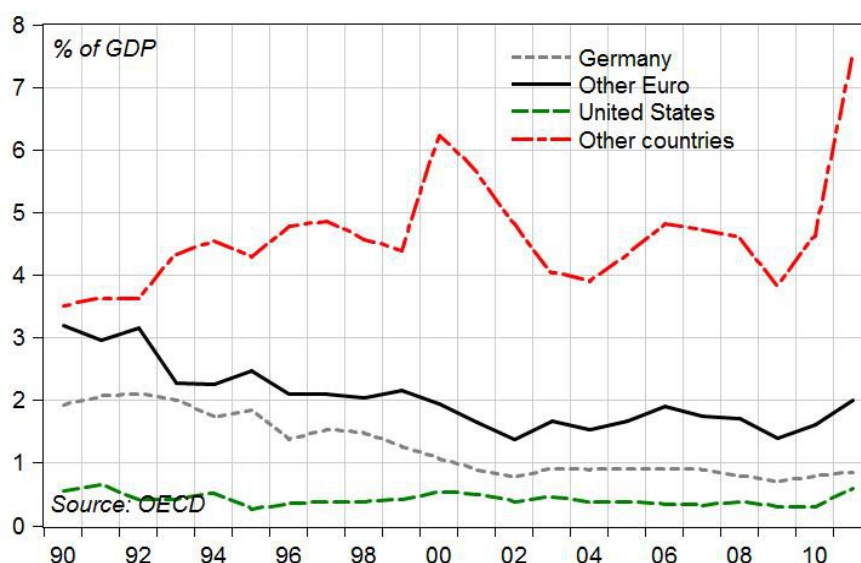
decline since the beginning of 2012.

As was discussed earlier, the strategy imposed by the troika aimed at increasing exports through an internal devaluation, i.e., a decrease in unit labor costs, has not brought about the anticipated effects despite the reduction of the relative unit labor cost that has been achieved since 2010. The current level of three harmonized competitiveness indexes based on consumer prices, GDP deflators and unit labor costs, are respectively depicted in Figure 14<sup>7</sup>. The indexes are contrasted against on the basis of the first quarter of 1999, and are structured as such that an increase in value implies a decrease in competitiveness. Greece had experienced one of the largest drops in competitiveness – measured by unit labor costs – before the start of the recession, but has now reversed its lack of competitiveness at least in unit labor costs, showing the largest decrease, save for Germany that systematically maintains lower values for all competitiveness indexes over the whole 1999-2013 period. Figure 14 also illustrates that while relative Greek unit labor costs have declined, consumer prices have not followed suit.

Furthermore, while the Eurozone debt crisis and worldwide fiscal austerity have, in general, dampened growth in exports, the countries that import the bulk of Greek goods and services are outside the euro area (about 7.5 percent of GDP in 2012) as shown in Figure 15. The Figure shows a breakdown of Greek exports by destination country as ratios of GDP. What emerges from the Figure is that Greece has suffered reductions of its exports to Germany, once its major foreign market, in

<sup>7</sup> The HPI based on consumer prices is not available for the Euro area, and it has been computed as the simple average of the indexes for all Euro countries excluding Slovakia, which is an outlier since its index increased by almost 100% between 1999 and 2013, against an average increase for other countries of 0.7 percent.

**Figure 15. Greece.**  
**Exports of goods by destination**



addition to the decline of her exports to other euro area countries as well. Exports to the U.S. have remained stable throughout, but insignificant accounting for less than 1 percent of GDP. Thus, even a major increase in domestic demand in Greece's trading partners will have a minor impact on the country's aggregate demand and employment.

The composition of exports by technological content from 1990 to 2011 obtained from the STAN database of the OECD is shown in Table 1 below. We report the first value available (1990), the value before Greece's accession to the Euro area (2000), before the recession (2006), and the last available data for 2011. What emerges from the table is that the strategy of reducing unit labor costs to boost competitiveness has been associated with a relative insignificant growth in exports with higher technological content, while exports of agricultural goods and those mostly in the Medium-Low Technology category show much higher growth increases.

Moreover, the recent large increase in the value of Greek exports is due to oil refinery operations that are a sizable export component and are positively affected by an increase in the price of oil. Overall, then, the current strategy of basing the Greek recovery on exports may be shifting production towards sectors with lower value added, and larger volatility for oil-related trade.

Goods imports have fallen significantly from 34 percent of GDP in 2008 to about 24 percent in 2009, but no further decline in the import propensity has been generated through price adjustments, and imports are now at 23 percent of GDP in real terms (25 percent when both are measured in euro). Services imports, however, have not declined as goods imports, but have

fluctuated around 6 percent of GDP with no visible impact from changes in relative prices.

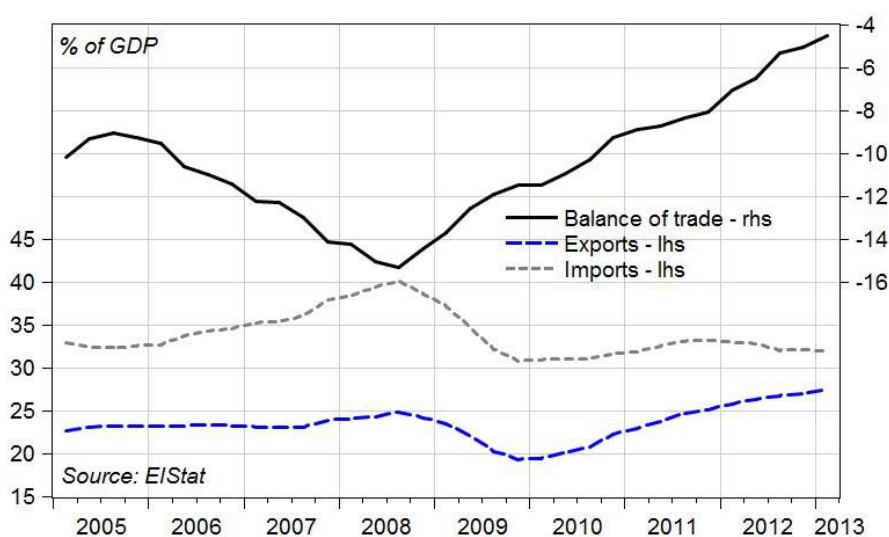
Table 1. Greece. Exports of goods (percent of GDP)				
	1990	2000	2006	2011
Agriculture	1.17	0.96	0.75	0.87
High Technology Industries	0.15	0.69	0.8	0.83
Medium-High Technology Industries	0.6	1.03	1.19	1.26
Medium-Low Technology Industries	2.23	2.56	2.62	5.21
Low-Technology Industries	4.21	2.95	2.15	2.18
ICT Manufactures	0.12	0.47	0.42	0.37
<i>Source: OECD</i>				

The joint result of the increase in the value of goods exports, and the overall decline in imports, result in an improvement in the balance of trade as reported in Figure 16<sup>8</sup>.

#### *The current account balance and the financial account*

The net payment flows from the rest of the world, other than those arising from trade, are shown in Figure 17. As the Figure clearly illustrates Greece were transferring resources out of the country on

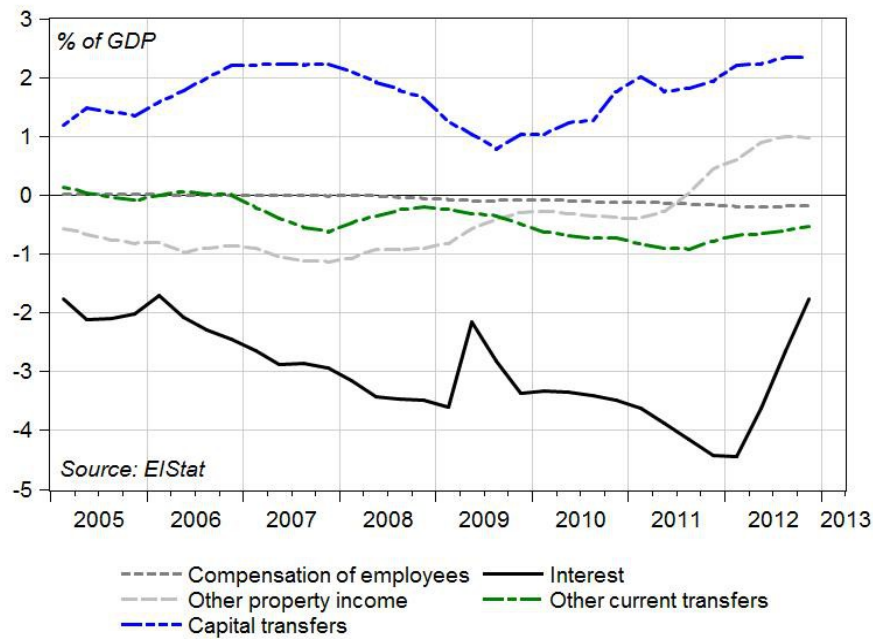
**Figure 16. Greece.  
Balance of trade**



<sup>8</sup> To smooth out seasonal fluctuations, data in Figure 16 are averages over the last four quarters.



**Figure 17. Greece.  
Net payments from abroad**



interest payments at about 5.8 percent of GDP, before the 2012 “haircut” which almost halved these payments<sup>9</sup>. When considering the effect of interest payments earned by Greek residents on foreign assets at about 1.3 percent of GDP, total payments for interest, as of the fourth quarter of 2012, amounted to about 1.7 percent of GDP. To be sure, this figure seems very low considering that both the private and public sectors are net debtors, and that the sum of their gross liabilities largely exceeds 200 percent of GDP. To the stock composition of foreign assets and liabilities, shown in Table 2, we turn next.

**Table 2. Foreign assets and liabilities (Ratios to GDP)**

	2000			2006			2012		
	Assets	Liab.	Net	Assets	Liab.	Net	Assets	Liab.	Net
Monetary gold and SDRs	1.1	-	1.1	0.9	-	0.9	2.8	-	2.8
Deposits	29.4	29.7	-0.3	29.0	41.0	-12.0	51.4	103.4	-52.0
Securities: private	12.9	3.0	9.9	28.9	2.8	26.2	49.3	1.1	48.2
Securities: public	0.0	44.5	-44.5	0.1	68.5	-68.4	7.3	27.1	-19.8
Loans: private	2.8	7.7	-4.9	2.5	11.6	-9.1	3.0	9.3	-6.3
Loans: public	-	7.3	-7.3	-	9.9	-9.9	-	102.6	-102.6
Shares and other equity	6.5	14.0	-7.6	9.3	36.3	-27.0	19.9	15.0	4.9
Other	1.9	4.4	-2.4	3.3	3.2	0.2	4.3	6.1	-1.8
<b>TOTAL</b>	<b>54.6</b>	<b>110.6</b>	<b>-56.0</b>	<b>74.1</b>	<b>173.3</b>	<b>-99.2</b>	<b>138.0</b>	<b>264.6</b>	<b>-126.6</b>

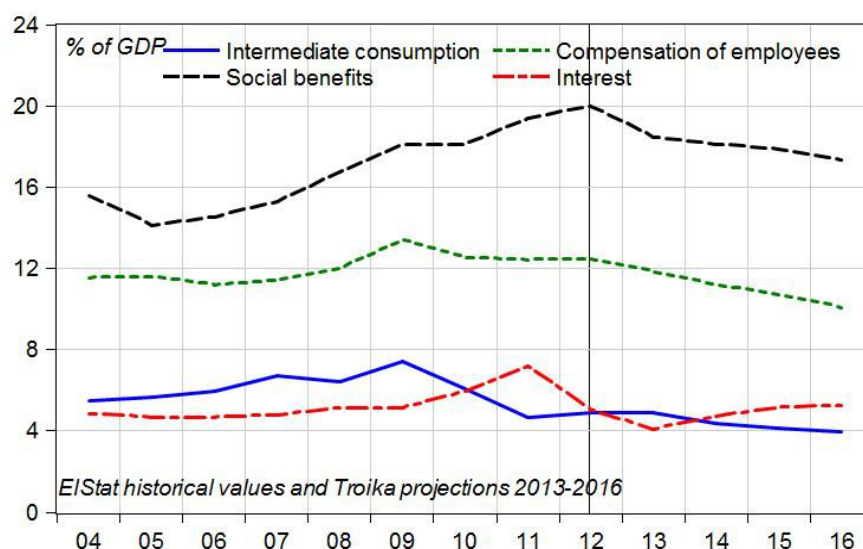
<sup>9</sup> We are referring here to gross payments, while the data in Figure 17 reflect net payments.

Table 2 shows starkly the dramatic increase in foreign debt, a consequence of the prolonged current account deficit. The overall net debt of Greece increased from 56 percent of GDP at the end of 2000 to 126.6 percent of GDP by the end of 2012. Public debt held abroad, as of the end of 2012, amounted to 122 percent of GDP. It is interesting to note the lately changed nature of financing the debt, showing a considerable drop in public securities held abroad—that now amount to only about 20 percent of GDP—and a strong increase in long-term loans to the government reflecting the EU and IMF bailouts. As noted above, the private sector is also a net debtor to the rest of the world, and the latest numbers reflect the changed nature of the composition of Greek liabilities held by foreigners showing a large drop in Greek equities which decreased from 36 percent of GDP in 2006 to the current 15 percent of GDP, and a strong increase in liquid assets (“other deposits”) which increased from 41 percent of GDP in 2006 to the current level of 103 percent of GDP. A large part of the decrease in the value of Greek equities held by foreigners is undoubtedly the result of the drop in their market value that decreased by about 80 percent from 2006 to the end of 2012.

### 3. Fiscal policy

Fiscal policy has been following, to a large extent, the austerity program imposed by Greece’s international lenders (troika) in exchange for financing the public sector continuing deficits and rolling over government securities when become due. In figure 18, the major components of

**Figure 18. Greece**  
**Components of government current expenditure**



government current expenditures both actual and projected in accordance with the latest forecasts<sup>10</sup> from the troika are shown. We adopt these forecasts to form our baseline projection for fiscal policy<sup>11</sup>.

What the troika's austerity plan has achieved is a considerable drop in most components of government expenditure save for those not affected by the recession, i.e., interest payments. Intermediate consumption has decreased by 5.6 billion euro from its 2007 level; compensation of employees while continued to rise up to 2009, is now 1.2 billion euro below its 2007 level. Examining carefully the EC/IMF projections for both variables, however, they denote a significant decline in the years beginning in 2013 as shown in Figure 18. In addition, social benefits that automatically increase with unemployment, are now 4.7 billion euro higher than 2007, are projected to decrease in 2013 to conform to troika's optimistic estimates of decreasing unemployment. Interest payments on debt are shown to have increased steadily until the PSI "haircut" in 2012 was implemented which together with the downward interest rate adjustment reduced expenditure by 5.3 billion euros over the previous year. Since the fiscal multiplier of government expenditure is much larger than what is assumed in the troika plan, the reduction of the interest expenditure as a share of GDP has been modest, given the large fall in output.

The major components of government current revenues, actual and projected, are illustrated in Figure 19. Social contributions respond to the business cycle, and after an increase in 2008 have been declining, although more slowly than GDP, so that the ratio to GDP increases slightly. They are projected to grow modestly by the IMF/EC on the assumption of employment growth. Revenues from indirect taxes have also declined with a fall in output, but more slowly than GDP. Direct taxes are the only component that has increased against the fall in income, providing about 1 billion euro more in revenue in comparison to 2007. Against a falling GDP, this implies a dramatic increase in the ex-post implicit tax rate; this variable is projected to remain more or less stable up to 2016.

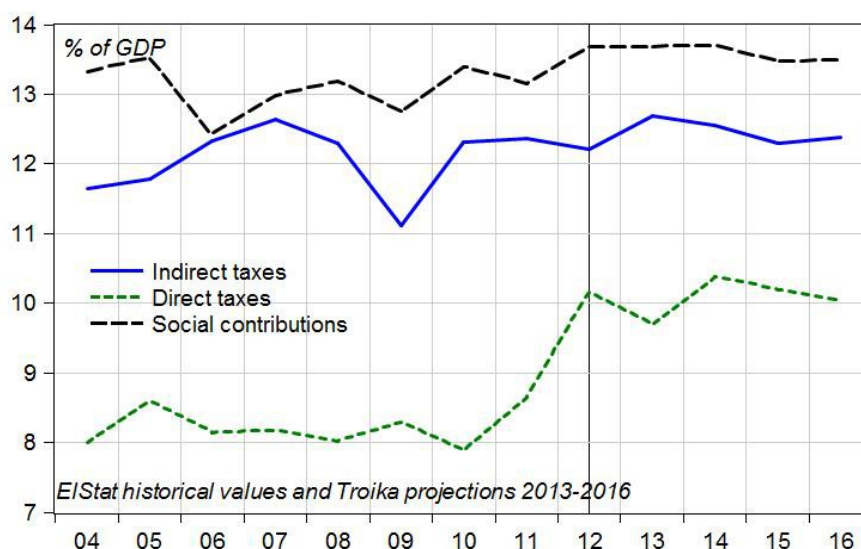
Other minor savings are expected from less important components of government balance, while public investment is projected to increase already in 2013 by about 500 million euro, and by

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10 European Commission (2013) 'The Second Economic Adjustment Programme for Greece: Second Review May 2013', European Economy, Occasional papers n.148, May

11 In passim, we have noted a discrepancy between our major consistent data source, which is the 'Quarterly non-financial accounts by institutional sector' published by ElStat, and some of the figures used by the European Commission (EC) in producing their forecasts. For instance, "Social benefits other than social transfers in kind" amount to 38.8 billion euro according to ElStat, and to 44.4 billion euro according to the EC. The figure used by EC for the "General government balance" for 2011 and 2012 are a deficit of 19.6 billion euro and 12.3 billion euro, respectively, while figures from our source suggest 21.8 and 12.8 billion euro, respectively, and net lending – that is, government balance including net capital transfers – at a negative 19.4 billion euro for 2012, given a large capital transfer from the government to the banking sector. In our projections for fiscal policy we adopt the same path suggested in the EC document for all components of government expenditure and revenue, but we apply their projected changes to our consistent data source.

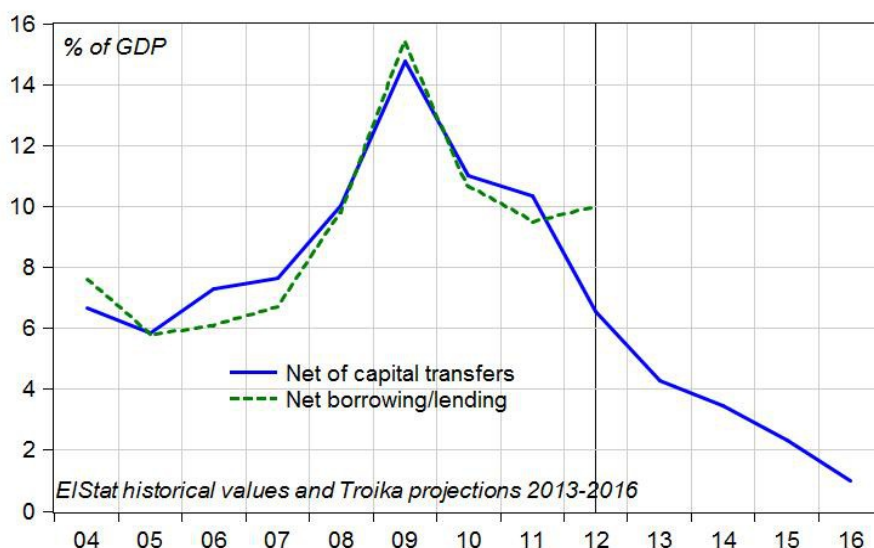
**Figure 19. Greece**  
**Components of government current revenue**



smaller amounts in the coming years. Meanwhile, capital transfers received by the government are expected to decline moderately.

The implications for overall government deficit of the Troika plan are reported in Figure 20, which shows that the deficit – net of capital transfers – will fall considerably<sup>12</sup> in 2013 and continue

**Figure 20. Greece**  
**Government deficit**



<sup>12</sup> The EC measure of government deficit is expected to reach 7.6 percent of GDP in 2013, while our measure net of capital transfers should fall to 4.2 percent. The latter value is reported in Figure 20 that shows a more optimistic path than that reported by the EC. A path similar to that of the EC is obtained from our figures using the “Net borrowing/lending” measure, which however is not consistent for 2012 with the EC measure.

decreasing eventually reaching less than 4 percent by 2016, provided that no further capital transfers are put in place, and – above all – that the troika projections for GDP realized, a result that we will strongly question with our model simulations, to which we turn next.

#### **4. Model simulations: the impact of austerity for 2013-2016**

In running simulations of the paths for the exogenous variables in our model (LIMG) especially constructed for the Greek economy, we use the results from the analysis above<sup>13</sup>.

In addition to the path for fiscal policy variables (public revenues and expenditures) discussed in the previous section, we assume that monetary policy will keep the current stance, so that interest rates remain at a very low level, and that no significant changes will occur to the exchange rate of the euro.

We use the recent OECD Economic Outlook<sup>14</sup> for projections of foreign output and inflation, as co-determinants of the performance of Greek exports, and assume no price increases in Greece, but a moderate increase in the stock market index (implying a stop to the rally of the past two quarters).

##### *Base scenario*

We begin with a baseline that adopts assumptions based on Troika's projections for changes in government revenues and outlays outlined in their last report (May 2013b). The main results of our econometric analysis confirm that the fall in net financial wealth explains the decline in private expenditure over disposable income. Regarding the country's foreign sector our analysis which is compatible with the IMF's June (2013c) Country Report, shows that there is a high elasticity of goods exports to income of Greece's trading partners, a higher elasticity for services exports, and no short-run impact from relative prices<sup>15</sup>. The implication of our findings is that achieving growth in exports through internal evaluation will take a very long time and furthermore declining fortunes of the country's major trading partners do not bode well for her exports. As mentioned above some recent increases from oil refinery exports were achieved primarily from price increases in oil known for its volatility. When it comes to imports the econometric analysis shows high income elasticity for both goods and services imports, and a small short-run effect from relative prices<sup>16</sup>. The implication of this finding is that imports decline quickly in concert with falling income and import

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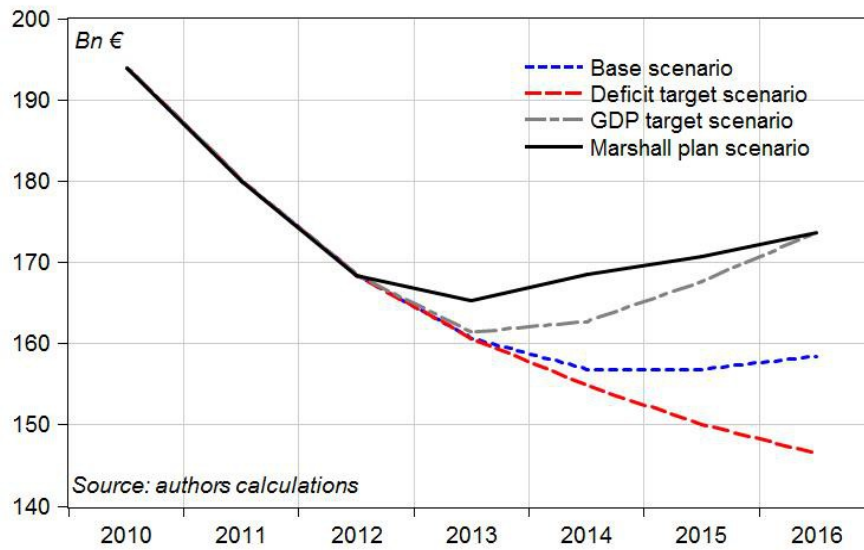
13 The model is described in Papadimitriou et al. (2013).

14 OECD, Economic Outlook, vol.2013/1, preliminary version

15 Our calculations show goods exports long-run income elasticity of 3.2 and a long-run elasticity of 1.4 from relative prices.

16 Our estimations for imports show long –run income elasticity at 1.4 while short-run relative price elasticity is .06

**Figure 21. Greece. Alternative scenarios  
Real GDP**



substitution can be a slow process.

Our base-run simulations rooted in the planned austerity agreed to by the present government with its international lenders (troika) show that GDP will grow more slowly, employment will further decline than the corresponding troika projections, and in addition the deficit targets for the intermediate run will not be met. Our projections are depicted in *blue* in Figures 21-23 respectively. As Figure 21 shows GDP continues declining until the middle of 2014, stabilizes in 2015 and grows slightly in 2016 reaching the level of about 158 billion euros at the end of that year. Similarly employment (Figure 22) declines further by at least another 30,000 workers by the middle of 2014 before increasing to a bit over 3.6 million workers –an increase of about 50,000 from present levels. The deficit to GDP ratio (Figure 23) worsens reaching 7.6 percent by the end of the simulation period. Based on previous experience of the troika’s response to missing targets, it will, most likely, become necessary, in subsequent troika reviews, to implement additional measures, i.e., spending cuts or tax increases or more rapid privatization or a combination of these to meet the targets unless the targets of deficit and GDP growth are revised downward<sup>17</sup>.

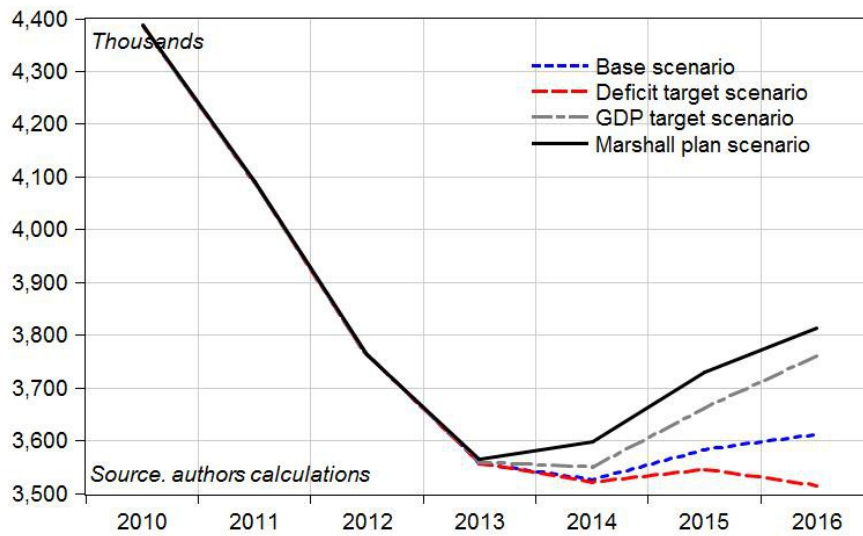
#### *A troika deficit target scenario*

In this *deficit target* scenario, we modify our assumption as to how much more austerity will be needed to meet the deficits to GDP ratio target. The results of this exercise and the implications to GDP and employment are summarized in *red* in Figures 21-22 respectively. Meeting the deficit

<sup>17</sup> The deficit and GDP targets could be affected should another large debt restructuring takes place in line with that implemented in 2012.



**Figure 22. Greece. Alternative scenarios  
Employment level**

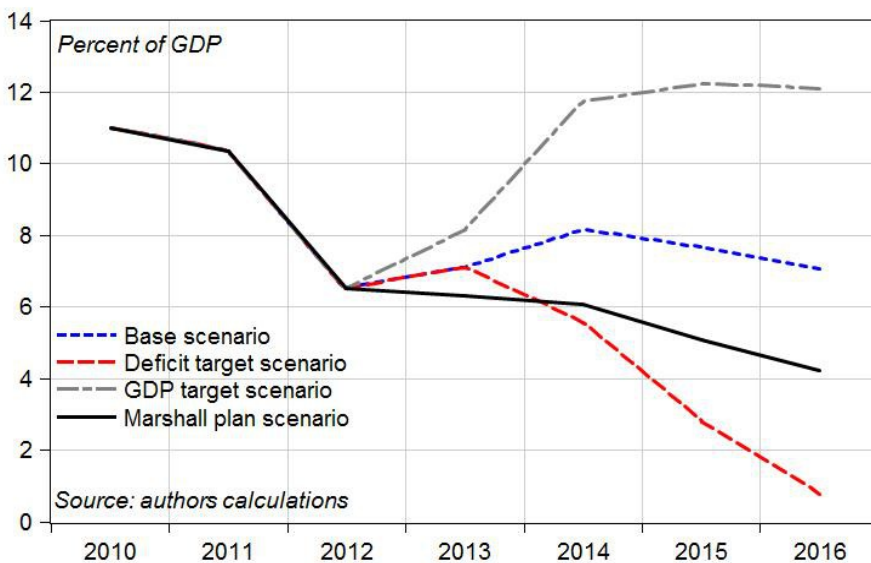


target will put more pressure on GDP growing more slowly than in the base scenario (Figure 21) while employment declines more than the base scenario shedding about 90,000 jobs by the end of the simulation period (Figure 22).

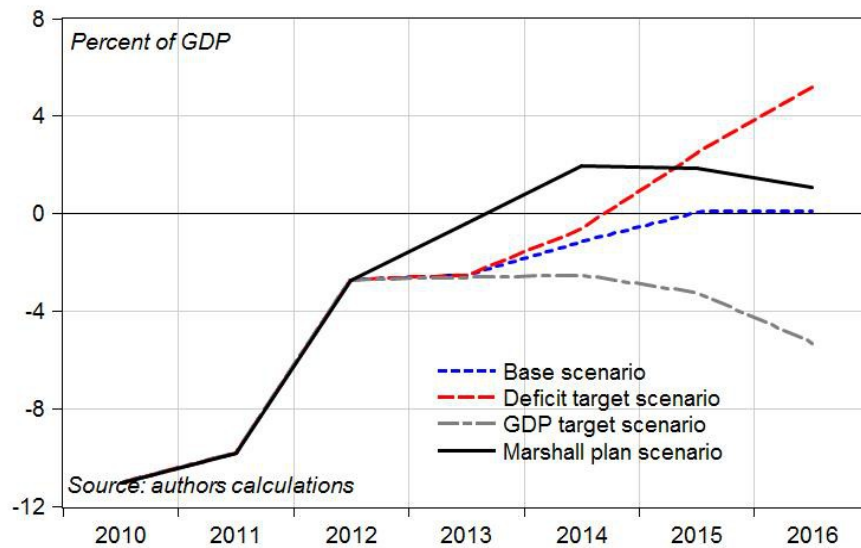
#### *A troika GDP target scenario*

Meeting the GDP target scenario will require less austerity than currently included in the troika's agreement. In this *GDP target scenario* we compute the amount of fiscal stimulus required to reach

**Figure 23. Greece. Alternative scenarios  
Government current deficit**



**Figure 24. Greece. Alternative scenarios  
External account**



the GDP target as shown in troika’s latest projections (2013b). Naturally a fiscal stimulus will worsen the government’s budget deficit which steadily increases reaching over 12 percent by the middle of 2016 (Figure 23) while the current account balance also worsens reaching a deficit of over 5 percent (Figure 24). Meeting the GDP target –requiring about 41 billion euros of fiscal stimulus—increases employment, too, by more than 160,000 jobs above the base scenario by the end of the simulation period (Figure 22).

The last two scenarios discussed above show clearly the fundamental problem with the troika projections. These projections as outlined in their last report contain signs of faulty thinking. In addition to the errors in the values of the fiscal multipliers and the doctrine of “expansionary austerity,” there are implicit supply-side effects emanating from market liberalization and internal devaluation with all effects converging to produce higher growth of output and employment together with lower deficit to GDP ratios. These flaws help explain why the troika projections are so optimistic in the absence of any level of economic stimulus. In other words, the troika model is still based on theoretical assumptions that have been proven wrong by the spectacular failure of the results of the last three years.

## 5. A “Marshall Plan” scenario

The results of the LIMG simulations of the baseline troika plan and the meeting deficit target and GDP target alternative scenarios are not encouraging. As the evidence of the last three years has

shown austerity leads to a path of continuous recession, lower employment, declining incomes and higher levels of poverty. We now turn to a plausible public-spending plan and its likely effects on the results of the previous three scenarios. We base our projections on an increase of government consumption or investment funded from special funds from the European Investment Bank (EIB) or any other institution of the EU. The amount of this exogenous stimulus –discussed in many Eurozone meetings—is assumed to be 30 billion euros used at a rate of about 2 billion euros each quarter beginning with the third quarter of 2013. The results of this rather modest stimulus are illustrated in *black* in Figures 21-24. The projected path of GDP growth is above all previous scenarios and ultimately converges with the GDP target scenario in the middle of 2016 at about 175 billion euros (Figure 21) while employment growth is also higher than the previous scenarios showing an increase of more than 200,000 jobs than the base scenario (Figure 22). The government deficit is lower than the base and GDP target scenarios reaching a bit over 4 percent of GDP (Figure 23) while the current account balance is above the base scenario reaching a surplus of close to 2 percent of GDP.

## **6. Conclusions**

This analysis seeks answers to the on going Greek spiral of lost GDP and employment, increasing public deficits and debt which in our view is the result of foolish policy by the government in compliance with the terms of a fiscal consolidation program imposed by its international lenders. The simulations of our scenarios discussed above show clearly that any form of fiscal austerity results in leading growth in output and employment into a tailspin becoming harder to reverse. We have shown that a relatively modest fiscal boost funded by the appropriate EU institutions could not only arrest the further declines in GDP and employment, but also reverse their trend and put them on the road to recovery. A Marshall type recovery plan directed at public consumption and investment is realistic and has worked in the past. Much research in recent years suggests that fiscal stimulus has larger effects especially when short-term interest rates have reached unprecedented low levels (Stehn 2012). To reduce unemployment that –within a short period—is destined to hit over the 30 percent mark, we would advocate an expanded public benefits work program proven for its effectiveness both in Greece and in many other countries (Antonopoulos et al. 2011). It is inconceivable that such a large rebalancing of the Greek economy could take place without a drastic change in the institutions responsible for running the Eurozone –a change that would involve shedding off discredited theories together with placing less than total reliance on market forces.

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**Appendix: data sources**

Bank of Greece. Data downloaded in June 2013 from <http://www.bankofgreece.gr/>

Hellenic Statistical Authority (ElStat). Data downloaded in June 2013 from <http://www.statistics.gr/>

Organization for Economic Co-operation and Development (OECD). Data downloaded in June 2013 from <http://stats.oecd.org/Index.aspx?DatasetCode=STAN08BIS>