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Strategic Analysis

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PROSPECTS AND POLICIES FOR THE GREEK ECONOMY

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Summary

In this report we discuss various scenarios for restoring growth and increasing employment in the Greek economy, evaluating alternative policy options through our specially constructed macroeconometric model for Greece (LIMG). After reviewing recent events in 2013, which confirm our previous projections for an increase in the unemployment rate, we examine the likely impact of four policy options: (1) external help through Marshall Plan–type capital transfers from the European Union (EU) to the Greek government; (2) temporary suspension of interest payments on public debt and use of these resources to increase demand and employment; (3) introduction of a parallel financial system based on new government bonds, or "Geuros"; and (4) adoption of an employer-of-last-resort (ELR) program financed through this parallel financial system. We argue that the effectiveness of the different plans crucially depends on the price elasticity of the Greek trade sector. Since our analysis shows that such elasticity is low, our ELR policy option seems to provide the best strategy for a recovery, having immediate effects on Greek living standards while containing the effects on foreign debt.

Introduction

The latest announcements from Brussels, Frankfurt, and Berlin proclaim the worst of the eurozone crisis to be over, and even praise Greece for having finally turned the corner. Surprisingly, officials appear to be observing neither the recent economic developments nor the narrowing of

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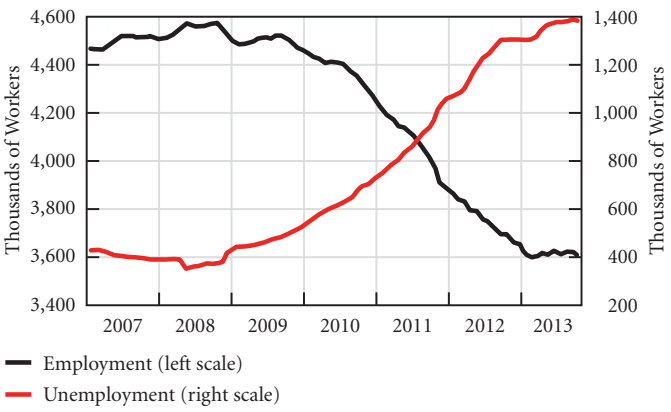
the country's policy options. The negotiations between Greece and its international lenders are continuing, with the latter insisting that the targets for deficit reduction, privatization, and structural changes be met absolutely if the next bailout tranche (which was supposed to have been released last September) is to be disbursed soon. Due to the bailout program's spectacular failure over the past three-plus years, the goal of lowering the debt-to-GDP ratio has been likened to chasing a mirage, as the recent level of 175 percent testifies—especially if one considers that this ratio was about 125 percent at the onset of the crisis four years ago, prior to any "rescue" from the country's lenders (Papadimitriou 2013a).

The country's economic conditions are still stubbornly negative, despite the government's celebration of a small primary budget surplus for 2013 that cannot be confirmed until reliable fourth-quarter figures are published by Eurostat in April. Employment-creation statistics—as we shall show later—are not encouraging, particularly if one takes into account how many jobs were created and lost during the height of the tourist season last summer. A recent report by the Bank of Greece shows that bank lending to the private sector in December 2013 decreased sharply by 3.9 percent, much faster than in the rest of the eurozone, where the comparable decline was 2.3 percent (Reuters 2014). Despite the lowest-ever European Central Bank (ECB) benchmark interest rates and the government's efforts urging banks to boost lending to firms, borrowing costs in Greece are high: both consumer and corporate nonfinancial average real interest rates for new loans hit 8.3 percent in November 2013, the highest rate since Greece became a member of the European Monetary Union (EMU). As the economy collapsed (the result of harsh austerity policies), savings were depleted (to cope with economic hardship) and tax burdens rose (leading to capital flight). Today, Greek banks, with a large number of nonperforming (red) loans and fewer depositors than in earlier times, remain capital inadequate, with new loans restricted to the "creditworthy" and no capacity to help pull the economy out of its continuing downward spiral (Papadimitriou 2014). Moreover, the economy is succumbing to recently reported price deflation, making the "recovery" that the government forecasts to begin this year pure fantasy.

Figure 1 **Greece: Employment and Unemployment**



Source: ElStat

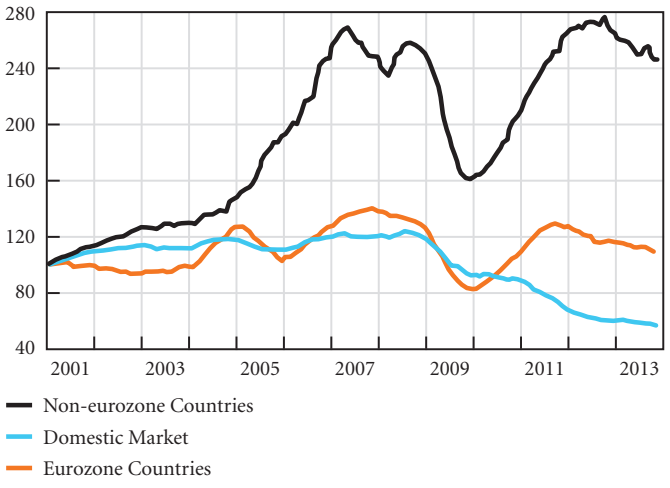
Recent Developments in the Greek Economy

We begin our analysis with the scourge of unemployment, which has continued rising, in concert with earlier findings based on simulations using our macroeconometric model for the Greek economy, or LIMG (Papadimitriou, Nikiforos, and Zezza 2013a, 2013b).

Employment, on a seasonally adjusted basis, slowly increased from its trough of 3.6 million persons in February 2013 (Figure 1), only to fall below this figure again in October 2013. The ranks of the unemployed increased by 84,128 individuals over the same period, raising the seasonally adjusted unemployment total to an all-time high of 1,388,631, with a significantly higher unemployment rate for women (31.3 percent in 2013Q3) than for men (23.8 percent). The largest increase in jobs between the first and third quarters of 2013 was in the "accommodation and food service activities" sector, with a gain of 50,800 salaried employees; however, the same sector showed a decrease of 1,900 employers over the same period, which may reflect an increase in the average size of the surviving firms (these latter figures are not seasonally adjusted). It is important to note that this employment category, which includes tourism—a crucial economic sector—shed 9,300 jobs between 2012Q3 and 2013Q3.

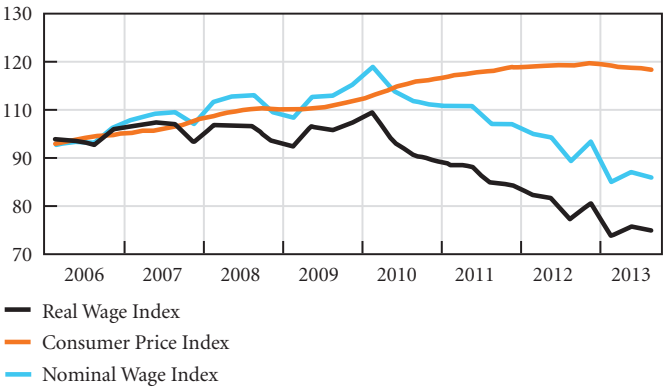
The economy's deterioration is also reflected in the index of industrial production, which in November 2013 was 6 percent below that of the corresponding month in 2012, and in sharp contrast to the improved figures registered for

Figure 2 Greece: New-orders Indices in Industry (Four-quarter Moving Averages, 2000=100)



Source: ElStat

Figure 3 Greece: Wage and Price Indices (2006=100)



Note: The nominal wage index is published by ElStat, while the real wage index is obtained by deflating the nominal wage index by the CPI, also published by ElStat. The latter has been seasonally adjusted and converted to quarterly frequency.

Source: ElStat

September and October 2013. The annual average index (2005=100) peaked at 103 at the end of 2007, then began an uninterrupted free fall through November 2013, reaching 68. Another interesting short-term indicator of economic activity is shown in Figure 2: the new-orders index in industry. As shown, the performance of the Greek industrial sector, absent demand from the rest of the world—especially from non-eurozone countries—would have been much worse. The numbers also show that in recent months new orders, rather than increasing, have either stagnated or declined.

The impact of internal devaluation

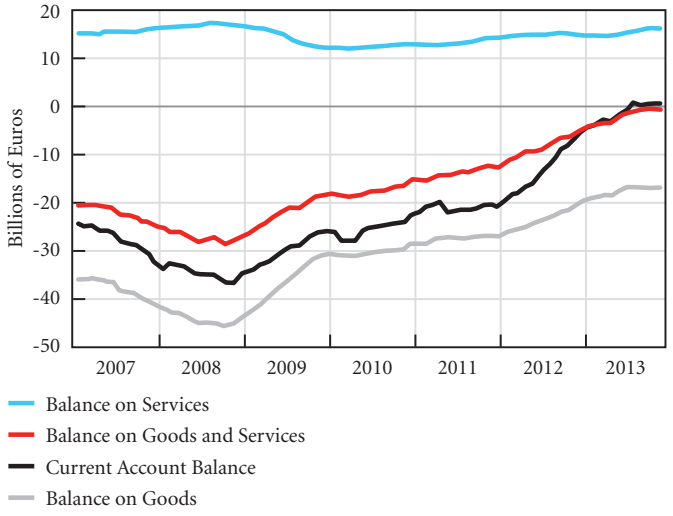
The new-orders indices in Figure 2 are useful for evaluating the effects of the troika's strategy for increasing competitiveness in the Greek economy's export sector by lowering unit labor costs.

The theory of "expansionary austerity," when viewed within the framework of our model's financial balances approach, requires that—in order for growth to remain stable as the government reduces its deficit—the external balance must improve without affecting the private sector balance. Speaking at a Levy Institute conference in Athens in November 2013, ECB Executive Board member Yves Mersch stated clearly that,

> as Greece is undergoing a simultaneous deleveraging in its public and private sectors, sectoral accounting tells us that its external sector must go into surplus. The key for growth is to ensure that this happens as much as possible through higher exports rather than import compression. The best way Greece can achieve this is by improving its price competitiveness. . . .
>
> To facilitate an export-led recovery, this trend [decreasing competitiveness] has to be corrected and there is no way this can be achieved in the short run other than by adjusting prices and costs. I know the difficulties that such adjustment creates and the criticisms that are levelled against it. But we are in a monetary union and this is how adjustment works. Sharing a currency brings considerable microeconomic benefits but it requires that relative prices can adjust to offset shocks. (Mersch 2013)

In concert with the troika-imposed strategy, both nominal and real wages have fallen by 23 percent and 27.8 percent, respectively, from their peak in the first quarter of 2010 (Figure 3). "Internal devaluation," then, has been very effective in terms of reducing wages. On the other hand, its impact on

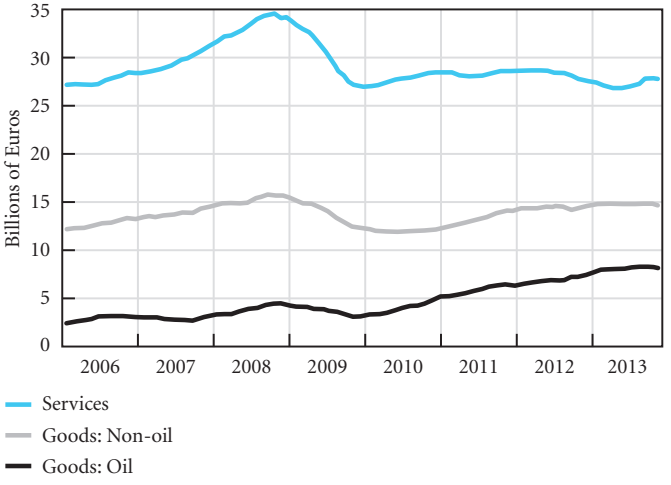
Figure 4 Greece: Current Account Balance and Components (Annual Moving Averages)



Note: All data are computed as annualized moving averages over the last 12 months, on data from the Bank of Greece.

Source: Bank of Greece

Figure 5 Greece: Exports of Goods and Services (Annual Moving Averages)



Source: Bank of Greece

prices has been limited. As Figure 3 shows, the consumer price index (CPI) showed a rising trend irrespective of the decline in wages up to the beginning of 2013, when prices started dropping.

While it is true that prices began falling later than wages, limiting the improvement in competitiveness, the impact on exports remains in doubt. The goods trade gap slowly narrowed between 2010 and 2013Q3 as imports fell and exports rose, although exports have since reversed their upward trend. The balance of trade on goods fell from a prerecession peak of 45.8 billion euros in October 2008 to 16.9 billion euros in November 2013 (Figure 4), as imports fell by 18.8 billion euros and exports rose slightly by 2.7 billion euros, resulting in a significant reduction in the trade deficit. Figure 4 also shows that net trade in services—the major contribution to Greek receipts from the rest of the world—improved only marginally through 2013Q3, and it is still below its precrisis level. In the last few months, a major benefit to the current account has instead occurred through the reduction in net interest payments made abroad, thus generating a small overall surplus.

Given the assumed importance of the export sector to the troika's strategy, it is useful to differentiate the performance of its main categories, as shown in Figure 5. The data clearly show that exports of services—the major source of credit in the balance of trade—have not yet returned to their precrisis level. All of the improvement in exports between October 2008 and November 2013 was due to oil-related products, which increased by 3.7 billion euros, while non-oil exports, having recovered from their fall during 2008–10, were still 1 billion euros below their precisis peak at the end of the period.

The Eurostat database on trade allows for a further decomposition of exports by partner country. This shows that the rise in oil exports is mainly due to intra-industry trade (exports to Kuwait and Libya have increased in the last few years) or to stronger demand from neighboring, non-euro-zone countries (e.g., Turkey and Bulgaria), while exports to the euro area have fallen.

The data in Table 1, obtained from Eurostat trade statistics, confirm the analysis of the composition of Greek exports described above. While in the euro years before the recession exports to Europe increased on average by 8 percent per year while exports to non-EU countries increased by 6.7 percent, this was reversed with the recession. Exports to Europe fell at an annual rate of 0.2 percent between 2007 and 2012, while exports

Table 1 Greece: Exports of Goods by Standard International Trade Category and Destination (percent of total exports)

	Exports to EU-27 Countries			Exports to Other Countries			Total		
	2000	2007	2012	2000	2007	2012	2000	2007	2012
Food and live animals	11.3	11.2	9.6	3.6	3.2	3.5	14.9	14.4	13.1
Beverages and tobacco	2.1	1.3	1.3	2.6	1.4	1.0	4.7	2.7	2.3
Crude materials (inedible), except fuels	2.9	2.5	1.5	2.6	1.7	3.1	5.6	4.2	4.6
Mineral fuels, lubricants, and related materials	3.7	4.5	6.1	10.0	12.4	32.5	13.8	16.9	38.5
Animal and vegetable oils, fats, and waxes	2.1	1.8	1.2	0.3	0.3	0.2	2.4	2.1	1.4
Chemicals and related products not elsewhere specified	5.2	9.5	6.4	2.9	3.3	2.6	8.1	12.8	9.0
Manufactured goods	13.5	14.3	8.2	6.7	6.5	6.0	20.2	20.8	14.2
Machinery and transport equipment	7.4	7.9	4.6	5.1	4.1	3.9	12.5	11.9	8.5
Miscellaneous manufactured articles	13.7	8.0	4.1	4.2	2.7	2.1	17.9	10.7	6.2
Other goods not elsewhere classified	0.0	2.4	1.2	0.0	1.0	1.0	0.0	3.4	2.2
Total	**62.0**	**63.4**	**44.1**	**38.0**	**36.6**	**55.9**	**100.0**	**100.0**	**100.0**

Source: Eurostat

to non-EU countries rose on average by 23 percent, with the share of exports to non-EU countries growing from 36.6 percent to 55.9 percent of total exports. The largest increase was in the "mineral fuels" category, which increased from 2.4 billion euros in 2007 to almost 9 billion euros in 2012. Exports to non-EU countries of goods other than oil-related products also increased, but only by 1.7 billion euros between 2007 and 2012.

The largest increase in exports to EU countries between 2000 and 2007 was in the "chemical and related products" category and in manufacturing. Notwithstanding the decreasing competitiveness of the Greek economy relative to the core euro countries in these years, the early 2000s saw an improvement in the exporting ability of Greece in more technology-intensive sectors. This pattern was reversed from 2008 to the present, and if we subtract the increase in exports of oil-related products, exports to non-EU countries fell by 900 million euros between 2007 and 2012, in all sectors with the exception of food and live animals, which showed a small increase.

We can therefore safely conclude that the improvement in Greek exports has had nothing to do with competitiveness achieved through wage deflation, since it is related to trade with non-eurozone countries—especially with a strong euro compared to the US dollar—and concentrated in oil-related products that rose in price during most of the period reported in Figure 5. To be sure, the increase in exports in oil-related products is beneficial in the short term, but it leaves the country vulnerable to fluctuations of oil prices and provides only minimal stimulus to job creation and growth.

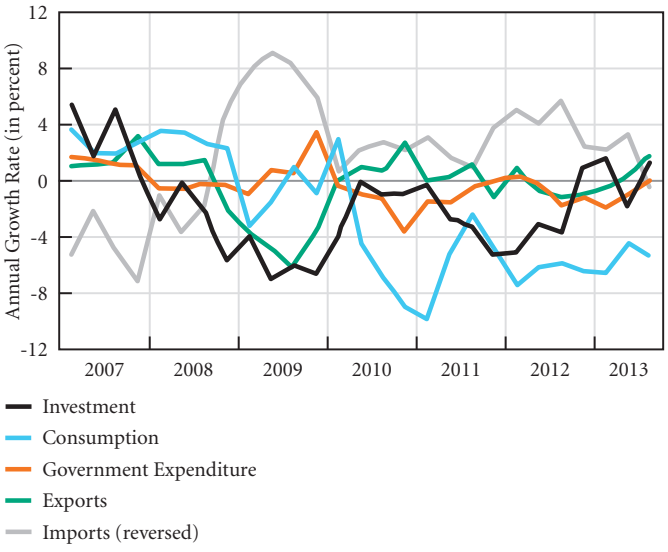
Table 2 Greece: Projections for Export Markets (growth rates)

	Real GDP of Major Trading Partners*	GDP Deflator Index	Domestic Demand Deflator
2012	0.14	2.73	3.49
2013	1.97	1.78	2.05
2014	1.67	2.54	2.53
2015	2.23	2.68	2.67
2016	2.46	2.73	2.76

* Major trading partners, based on 2011 exports, include Bulgaria, Cyprus, France, Germany, Italy, Macedonia, the Netherlands, Romania, Singapore, Spain, Turkey, the United Kingdom, and the United States.

Sources: Eurostat; IMF 2013b; authors' calculations

Figure 6 Greece: Contributions to Real GDP Growth



Source: ElStat

This further analysis of the structure of Greek exports has improved our understanding and existing measures of foreign demand and the country's competitiveness. In our previous report (Papadimitriou, Nikiforos, and Zezza 2013b), we focused on the performance of Germany and the eurozone as they relate to Greece. Greek exports to the eurozone, which were almost 61 percent in 1990, were down to 29.8 percent in 2012. Exports to non-eurozone and nearby faster-growing countries like Turkey are expected to become more significant and relevant for overall Greek trade. Our new expectations have led us to revise our projections for growth and inflation of Greece's trading partners, as illustrated in Table 2.

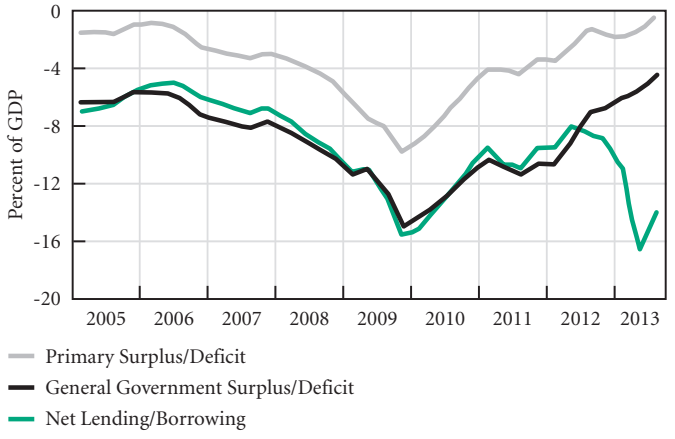
Stronger growth in Greek trading partner countries like Turkey, Bulgaria, and the United States will not compensate for the sluggish growth in the eurozone predicted by the International Monetary Fund (IMF) for 2014. In its fourth review of the Greek "economic adjustment program," the IMF (2013a, Table 13) projects exports of goods and services to grow by 5.5 percent in 2014, while our estimates, combined with the projections in Table 2, imply export growth of about 2.6 percent. It is therefore still unlikely that exports alone will be the key driver to restart Greece's economic growth engine.

Real GDP and its components

We analyze the dynamics of the components of real GDP using the latest available figures (2013Q3), as depicted in Figure 6. As shown, falling imports have been the major positive contribution to GDP growth, while consumption is still the primary factor of aggregate demand contraction. Investment has been unstable, recently falling and then recovering somewhat, but given the projected path for domestic demand, it is inconceivable to expect that investment will increase by 8.4 percent as predicted by the IMF (2013a, Table 13). Consumption has continued its unprecedented fall, although at a slower pace, in line with expectations derived from the behavior of real wages as reported in Figure 3. All indications are that the IMF's optimistic projections for the Greek economy—that it will reverse its six-year slide and achieve a growth rate of 0.6 percent in 2014—are very unlikely to come to pass.

Provisional figures for 2013Q3 are mainly in line with our analysis. Investment fell by 12 percent in real terms in the first three quarters of 2013 as compared to the first three quarters of 2012. The main difference between our analysis and these preliminary figures is that the latter indicate an increase of 8.8 percent in real exports of services in 2013Q3 over 2012Q3, a figure we believe to be too high given the increase in other indices of tourism activity.

Figure 7 Greece: General Government Surplus/Deficit (Four-quarter Moving Averages)



Source: ElStat

Fiscal policy

The government claims that Greece will ultimately realize a primary surplus of over 1 billion euros for 2013. However, based on our analysis of the macroeconomic sectoral accounts—which are less discretionary than cash balances, where expenditure and revenues can be moved more easily from one period to the next—that claim will in all likelihood turn out to be wishful thinking, unless more stringent austerity measures were put in place in the fourth quarter of 2013, as assumed in our baseline scenario below.

According to the sectoral accounts published by ElStat, the general government deficit (measured as saving less investment) is gradually being reduced by the implementation of more austerity—albeit at a slower pace than what was hoped for in government plans—and reached 4.5 percent of GDP,[1] or 8.3 billion euros, in the third quarter of 2013. The same measure, net of interest paid, followed suit, resulting in a primary deficit of 0.4 percent of GDP, or 0.7 billion euros, as illustrated in Figure 7.

According to the flow-of-funds data published by the Bank of Greece, the government received a large loan (19.5 billion euros) from abroad in the second quarter of 2013, of which more than half (11.5 billion euros), according to the sectoral accounts, was transferred to the banking sector for strengthening banks' balance sheets. When including capital transfers of 23.6 billion euros paid by the government to the banking sector over the previous four quarters—part of which is not counted toward meeting the troika's deficit target criteria—the overall deficit (labeled "Net Lending/Borrowing" in Figure 7) amounted to 25.9 billion euros in the third quarter of 2013, or an extraordinary 14 percent of GDP (down from 16.6 percent in the previous quarter).

It is worth noting, however, that the deficit in the first three quarters of 2013 was lower by 4.8 billion euros compared to the same period in 2012. To achieve the troika's 2013 deficit target as detailed by the IMF (2013a), further contraction in government outlays, implementable in 2013Q4, would have been necessary.

These facts and assumptions form the basis for our baseline projection, updating our previous analysis in Papadimitriou, Nikiforos, and Zezza (2013b).

Projected Impact of Austerity

Our revised projections are based on the changes in general government operations as outlined by the IMF (2013a, Table 7), which assume a fall in primary expenditure of about 8 billion euros in 2013, as compared to 2012, including 5.4 billion euros in reduced social benefits, 2.7 billion euros in compensation of employees, and 0.6 billion euros in intermediate consumption.

The IMF is also projecting a fall in government revenue in 2013, as compared to 2012, of about 1 billion euros in direct taxes, 2.1 billion euros in indirect taxes, and 1.9 billion euros in social contributions. These targets have almost been achieved, according to preliminary data on the first three quarters of 2013. Our model shows that meeting the troika targets requires some further contraction of government outlays in the last quarter of 2013, notably in social benefits. In addition, we assume that the direct tax rate, measured as the ex post tax revenue over the tax base, remains at the historically high level it reached in the third quarter of 2013 (11.6 percent of GDP, against an average of 8.2 percent of GDP between 2001 and 2008)—a hypothesis that is difficult to prove, although data on the cash balance of the general government show an increase in revenues (MinFin 2013a). Our projections are conditional on this assumption, but should tax

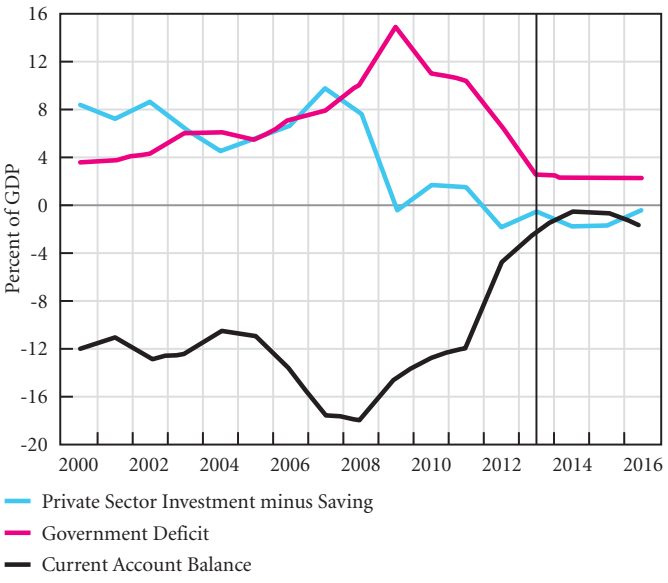
Table 3 Greece: Baseline Projections for Impact of Austerity Policies

	2012	2013	2014	2015
Real GDP (percent)	-6.75	-3.90	-2.65	0.04
Government expenditure on goods and services (percent)	-4.56	-9.19	-3.52	0.37
Government surplus/deficit (percent of GDP)	8.96	13.06	2.95	3.35
Government current surplus/deficit (percent of GDP)[1]	6.79	4.36	3.35	3.74
Government primary balance (percent of GDP)	-1.77	-0.01	1.37	1.03
Government debt (percent of GDP)[2]	169.67	195.44	205.84	208.02
External balance (percent of GDP)[3]	-2.69	-2.85	-1.16	-0.28
Real exports of goods and services (percent)	-2.11	2.30	2.95	1.46
Real imports of goods and services (percent)	-13.76	-8.15	-6.82	-1.61
Unemployment rate (percent)	24.23	27.40	27.93	28.29

[1]Net of capital transfers. [2]Cumulated government deficit, based on gross liabilities. [3]Net lending/borrowing.

Sources: IMF 2013b; EC; authors' calculations

Figure 8 Greece: Baseline Main Sector Balances



Source: Authors' calculations

revenues fall short of the target, the effective government deficit will be higher than what we project. Again, it is plausible that some of the cuts in government expenditure implemented in the last part of 2013 will be reversed in 2014, which would imply a higher government deficit, and a higher real GDP growth rate, for that year.

Our other assumptions are as neutral as possible. We use the IMF's October 2013 *World Economic Outlook* projections for growth and inflation of Greece's trading partner economies (see Table 2). We further assume that price deflation is lower in 2014 and followed by price stabilization in 2015; interest rates on government debt (ex post) stabilize at the current low level; the exchange rate of the euro does not appreciate against the US dollar; and, finally, private sector deleveraging continues at a slower rate. This last assumption decreases the negative effect on domestic demand in our model. The results obtained for the key economic indicators are reported in Table 3.

To reach the deficit/GDP target, fiscal policy has to continue being contractionary in the last quarter of the year. Our model finds that, in doing so, the government achieves more or less a primary surplus by the end of 2013, and no stronger austerity measures are necessary in 2014. However, given the large fall in the second part of 2013, keeping government expenditure constant at this lower level in 2014 implies a further decline in the average annual expenditure in that year as well, compared to the annual average in 2013.

Exports, in nominal terms, are projected to increase for 2013Q1–2013Q4, with the rise in exports in later months compensating for their decline in the first half of the year. As demonstrated in Figure 8, our baseline projection, in concert with the troika's plan, shows that the external balance improves, the result of the dramatic fall in imports (a consequence of depressed internal demand), but deteriorates as soon as GDP begins growing in 2015. The government achieves its deficit targets but shows a spectacular failure in restoring employment and growth in our projected horizon.

Table 4 Greece: Projections for Real GDP, 2013–15 (in percent)

	2013	2014	2015
Current Levy Institute projections	-3.9	-2.6	-0.0
Ministry of Finance[1]	-4.0	0.6	NA
IMF[2]	-4.2	0.6	2.9
OECD[3]	-3.5	-0.4	1.8
Citibank[4]	-3.4	-1.9	-0.4
Ernst & Young[5]	-4.6	-1.0	1.3
PwC[6]	-3.8	0.2	1.86

Sources: [1]MinFin 2013b. [2]IMF 2013b; EC. [3]OECD 2013. [4]Citi Research 2014. [5]Ernst & Young 2013. [6]PwC 2014.

In Table 4 we compare our current projections, conditional on the austerity plans discussed above, to other projections currently available for the Greek economy.

Given the persistent contraction in private domestic demand and insufficient improvement in net exports, we again argue that the best strategy for Greece is a Marshall-type plan funded by EU institutions, which would create jobs quickly and avert the inevitable risks of implementing policies contrary to the EU treaties. Even though the omens are clear, the prospects for a dramatic shift in European policy are grim, especially after the results of the German elections.

Policy Scenarios Requiring External Funding

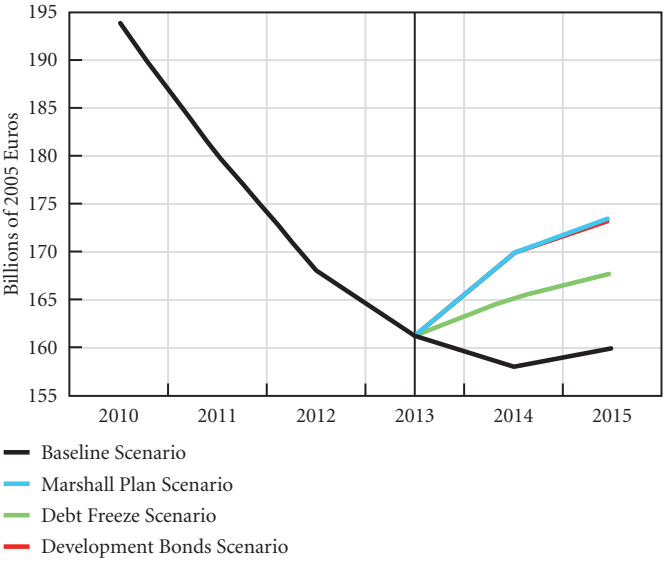
A Marshall plan

The first alternative policy scenario we consider is an update of our proposal for a Marshall-type plan, discussed in Papadimitriou, Nikiforos, and Zezza (2013b). The proposal implies an increase in government consumption and investment using special funds from the European Investment Bank or another EU institution. The amount of this exogenous fiscal stimulus aid—discussed in many eurozone meetings—is assumed to be 30 billion euros, disbursed at a rate of about 2.5 billion euros each quarter beginning in the first quarter of 2014. This inflow to Greece's capital account improves its overall external balance with no increase in the government deficit or debt, since the transfer will not be repaid.

The effect on the level of real GDP is reported in Figure 9, while Figure 10 demonstrates the effects on the unemployment rate. The initial impact of the stimulus moves real GDP back to strong growth in 2014, albeit the immediate impact on employment is modest, as employment tends to lag output growth. We estimate that this nontargeted employment policy will create approximately 130,000 jobs over three years. Since this program does not require additional government expenditure but rather increases tax revenues as income rises, the government deficit is projected to be 3 billion euros less in 2014 than in our baseline, or 0.5 percent of GDP as compared to 2.2 percent in our baseline. The external balance also improves, reaching 0.5 percent of GDP in 2014.

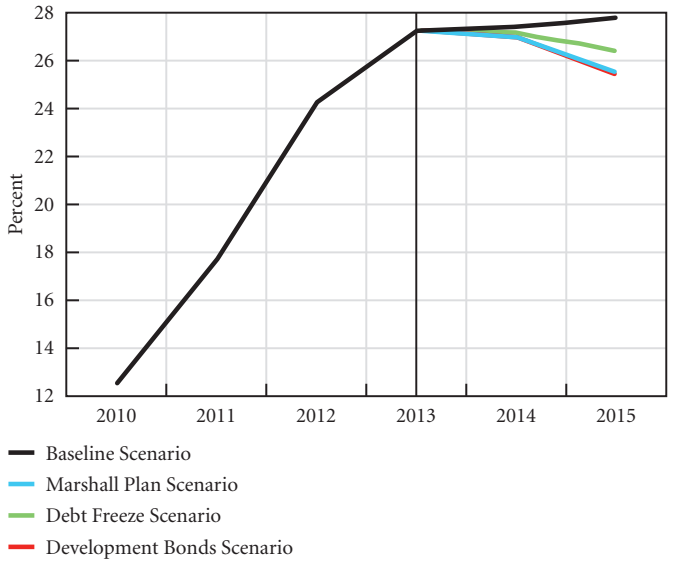
Under this policy, we assume that the Greek government keeps its commitments on foreign and domestic debt, paying interest at the same rate projected in the baseline. Part of this plan may in fact be implemented in 2014 using EU funding: the government recently announced the approval of a stimulus program for road repair and construction amounting to an expenditure of about 7.5 billion euros over the next year and a half. This is in concert with our Marshall–type plan simulation, which could be used to assess the likely impact of

Figure 9 Greece: Alternative Scenarios for Real GDP



Source: Authors' calculations

Figure 10 **Greece: Alternative Scenarios for the Unemployment Rate**



Source: Authors' calculations

such a plan. We need to bear in mind, however, that we assume an expenditure of 15 billion euros over the next six quarters. It must also be remembered that, if workers employed in the program are laid off as the program and the funding come to an end, then the economy will be dealt a negative impact, notwithstanding the benefits of the increase in public capital provided by the program.

Freezing the public debt and suspending interest payments

Since the required action from EU institutions to finance a Marshall–type plan intervention seems to lack the political will, we instead consider whether sufficient funding for lowering unemployment and restoring growth can be obtained by changes in the manner in which public debt is managed. Thus, in scenario 2 we assume that all public debt is *frozen,* all interest payments on existing debt are suspended, and creditors are persuaded to roll over maturing debt during the three-year (2014–16) simulation period. It is, therefore, necessary to estimate the amount of interest payments that the public sector is expected to pay, to both foreign and domestic creditors.

The general government gross debt was 339.6 billion euros in the third quarter of 2013, somewhat above 183 percent of GDP.[2] A growing share of such debt—80 percent in 2013Q3, or 270 billion euros—is held by the foreign sector, mainly by eurozone institutions that have refinanced the country's maturing debt since the sovereign debt crisis began in 2009. The Bank of Greece holds approximately 18 billion euros in government securities and other assets—representing about 5 percent—with the remaining held by domestic financial institutions. The country as a whole has net foreign debt estimated at 238 billion euros as of the end of 2013Q3, implying that the private sector has a small net credit position—approximately 32 billion euros—against the rest of the world.

These figures help us evaluate the dynamics of actual and prospective interest payments under alternative assumptions about debt management. According to sectoral account statistics, during 2012 the country as a whole paid out 6.9 billion euros in interest and received payments of 2.6 billion euros, while the general government paid out 9.7 billion euros overall. The cumulative interest paid by the general government between 2008Q1 and 2013Q3 was 67 billion euros, while the country as a whole had a net outflow in interest payments of 40 billion euros. Dividing interest payments for the year by the opening stock of gross debt, the ex post implicit interest rate on government debt can be estimated for 2012 at 4 percent. However, the government paid out about 5.6 billion euros in the first three quarters of 2013, compared to 7.7 billion euros over the same period in 2012. This leads us to assume in our baseline that the ex post interest rate on government debt will be lower than in the past, with the interest payment expected to amount to around 7.4 billion euros in 2013: 6 billion euros to foreign creditors and the remaining 1.4 billion euros to domestic creditors.

In the simulation, we assume that all interest payments from the government are suspended and the equivalent funds used for increasing public investment and supporting direct job creation. We further assume that creditors agree to roll over maturing debt—its sustainability becoming more secured when growth is restored than in an economy struggling to lift itself from continuing contraction—and that the value of public liabilities does not drop irrationally in the market, so as to have only a small effect on consumption from expected capital losses.[3] The suspension in interest payments implies a fall in the income of bondholders, but since the same funds will be spent on public investment and consumption,

generating more income for low- or no-income workers and thus offsetting the fall in bondholders' income, the net effect for the private sector will be positive.[4]

Based on these assumptions, this policy option of freezing interest payments has many similarities with the policy option of the "Marshall–type plan" in scenario 1: the sources for additional government spending will come from a reduction in net interest payments made abroad—which is the same as an increase in payments received from abroad—both of them improving the current account balance. Results for the path of output are illustrated in Figure 9. Notice, however, that this policy option is less effective than the Marshall–type plan, since it involves a lesser amount of overall funding.

Financing growth and employment with European development bonds

Finally, we consider an alternate Marshall–type plan funded, not through capital transfers, but rather a new loan made available via European development bonds, at a very low interest rate of, say, 1 percent. We assume a loan in three annual tranches of 10 billion euros, to be repaid over 20 years. It turns out that, according to our simulation, the additional cost of repaying the loan is small enough that the path for output and unemployment is virtually identical to that in the Marshall–type plan scenario, as Figures 9 and 10 clearly show. However, financing the stimulus using development bonds increases the public debt and reinforces the monitoring by the troika or another European institution, in addition to creating more difficulty for debt refinancing in the open market.

A Parallel Financial System for Solving the Greek Crisis

In the next two policy options we consider an alternative approach that has received attention in Greece and elsewhere—that is, the introduction of a parallel financial system, without exiting the eurozone, that would allow Greece to adopt a national currency for all domestic transactions in order to relax austerity conditions (Lordon 2013).[5] The possibility of a eurozone member-nation adopting such a policy is not strictly forbidden by the EU treaties, unless the country should insist that the bonds issued under the parallel system were the only means of financing, with existing euro obligations to be paid off. Most proposals that have circulated suggest a suspension of one or more treaties, which is not implausible given that the treaties have already been violated several times in the past with no serious consequences for the survival of the euro.[6]

The (temporary) introduction of a parallel financial system (currency) in Greece has been suggested by those who believe that an exit from the euro, if not well coordinated, would generate a major financial crisis in the eurozone and the rest of the world.[7] The argument is based on the idea that, (1) if the exit were the result of democratic parliamentary deliberation, during the ongoing deliberation all deposits in the exiting country would fly to a country expected to strengthen—Germany—thereby engendering a domestic financial crisis and unequal redistribution of income and wealth; and that, (2) even though an exit could be achieved over a bank holiday, avoiding a bank run in Greece, speculators might start betting against other, larger countries that might be expected to follow (e.g., Portugal, Spain, and Italy), generating a much larger financial crisis and causing a disorderly collapse of the eurozone.

A very recent contribution discussing a parallel currency for Greece is Richter, Abadi, and de Arce Borda (2013). The authors stress that the introduction of a parallel currency would be a temporary policy, designed to make the return to the euro achievable within a given time frame. One of the key assumptions is that, to achieve this goal, existing financial assets (such as bank deposits) would not be redenominated in the new currency. The new currency would be managed by the Bank of Greece—with the agreement of the ECB—which would set a credible target devaluation rate against the euro over a two-year horizon, offering forward contracts for exchanging the new currency into euros at the target rate. The authors do not propose further shifts in policy, and rely on the devaluation of the new currency—and its impact on trade—for recovering growth. Based on their econometric model, they suggest a 50 percent devaluation to obtain significant effects.

Another proposal that has attracted considerable attention comes from Deutsche Bank's Thomas Mayer (2012a),[8] who suggests the introduction of government IOUs, which could circulate as a local currency, to settle debt between the government and its creditors. Charles Goodhart and Dimitrios Tsomocos (2010) also propose government IOUs as the way to introduce a parallel currency. A "fiscal currency" is

also advocated by Bruno Théret and Wojtek Kalinowski (2012), who suggest that parity with the euro be maintained to make the new currency more readily acceptable. Raoul Ruparel and Mats Persson (2012) discuss the possibility of a parallel currency along with a euro exit, and since they believe such an approach would require European support for the Greek banking system, they suggest it is not a likely outcome. Robert Parenteau (2013) suggests a financing system based on "tax anticipation notes," avoiding the word *currency*. Biagio Bossone and Abdourahmane Sarr (2011) propose creating a parallel currency by changing the exchange rate between bank deposits and euros, and thus devaluing households' liquid assets in euro terms—a proposal that would, in our view, exacerbate the recession in the short term, until benefits from the devaluation were realized.

Analysis from the research centers of private banks tends to overstress the problems related to any change in the current eurozone settings. This is the case for William Porter (2010), who states in a Credit Suisse report that "an EMU member trying to redenominate into a new currency would inflict prohibitive damage on itself and other members." Some very conservative and uninspiring proposals, such as Philipp Bagus (2011), discuss the introduction of a parallel currency as a less traumatic step toward the end of the euro, but still advocate austerity and structural reforms in the new regime.

Martin Feldstein correctly foresaw the consequences of austerity in his 2010 article in the *Financial Times*, and suggested a temporary Greek withdrawal from the euro. His idea that existing obligations would remain in euros is—in our view—infeasible, as it would bankrupt households and other institutions with euro-denominated debt and no access to receipts in euros (Papadimitriou 2010). Pedro Schwartz, Francisco Cabrillo, and Juan E. Castañeda (2013) also suggest that the introduction of a parallel currency, which in their proposal would float freely against the euro, is a policy option that could let Greece rejoin the euro when the recession was over, without causing the financial turmoil of a complete exit from the euro agreements.

Finally, Antonin Rusek (2012) offers a well-balanced proposal. In his view, the new currency should circulate only domestically, and could be introduced by redenominating a portion of existing bank deposits, as well as government payments. All contracts between two residents would introduce a minimum share to be serviced in the new currency; taxes would be collected in both euros and the new currency, while all payments to and from nonresidents would remain in euros. The government would balance its account in euros but would be allowed to target a deficit in the new currency.

All of the proposals summarized differ from one another, so no consensus seems to be emerging yet on the "best" policy. We will attempt a synthesis by focusing on the key issues:[9]

1. *Should the new currency be freely convertible in euros?*
   Pros: a convertible currency would be more reliable, and therefore demand for the new currency should stabilize.
   Cons: convertibility may lead to capital flight, and to ineffectiveness of monetary policy conducted in the new currency.

2. *How should the currency be backed?*
   By gold and/or international reserves: some authors have suggested this possibility, which, of course, goes along with full currency convertibility, which would enhance confidence in the new currency. On the other hand, this approach would limit the actions of the central bank, prevent the government from running expansionary policies, and, last but not least, be implausible given the size of the current net asset position of Greece.

   By future euro revenues from tourism and external trade: some authors propose convertibility into euros, or convertibility at a future date, based on the expected euro receipts from trade, especially from tourism. This option, again, would limit the fiscal space for government action.

   By tax revenues: in this case, the government would issue the new currency (or "fiscal certificates") in coordination with the central bank, making it clear that it would accept the currency at par for tax payments. When taxes become due, the government can satisfy its needs for liquidity by issuing new IOUs. This option is more likely to be effective if government IOUs are not convertible into euros (although euros should be convertible into the new currency IOUs, if needed).

As pure fiat money: no authors explicitly suggest this approach, which implies a strong trust in the ability of the new currency to act as a store of value (i.e., not depreciate). For practical purposes, if the government were willing to accept the currency for tax payments at par, this proposal would not be different from the previous one but would allow banks to make loans in the new currency, while in the previous regime the currency would be a liability of the government.

3. *How much of the new currency should be created?*
   Only a few authors address this point directly, and the appropriate amount would depend on our point (2) above. If convertibility with the euro can be maintained, the maximum amount of the new currency should be determined from the target exchange rate, or as a ratio to the euro value of reserves. For "fiscal certificates," a simple option would be to pay existing government obligations with residents in new currency bonds, and therefore, the amount of new currency bonds to be issued would be equal to the existing debt of the government to the private sector. A more expansionary policy would set the desired amount of the new currency in circulation as an instrument to achieve the desired level of employment, for a targeted inflation rate.

4. *Which transactions should be denominated in the new currency?*
   Most of the proposals in the literature suggest that all transactions among residents would be immediately denominated in the new currency, including wages and prices for domestic goods. Foreign goods would need to be purchased in euros, and sold on domestic markets in either euros or the new currency. A few authors suggest that wages could be paid in both currencies, either adopting a fixed share or letting the agents contract individual outcomes.

5. *Would financial assets held by domestic residents be converted into the new currency?*
   Authors have widely divergent opinions on this matter, ranging from no conversion, so that all bank deposits (but also household mortgages) would remain in euros; to full conversion; to a mixed solution. It should be clear that if debt obligations were to remain in euros when the debtor has no access to euro revenues, a devaluation of the new currency against the euro would lead to a default of the private sector. Switching all euro bank deposits to the new currency, when the latter is expected to devalue, would imply a loss of purchasing power for foreign goods but little effect on purchasing power for domestic goods, as long as prices were kept under control.

6. *Would foreign debt be redenominated in the new currency?*
   It is in the power of a sovereign government to change the currency denomination of contracts signed under the law of the issuing country, even when they involve nonresidents. However, most of Greece's foreign debt has been issued under British law, and an attempt at conversion would imply complex legal problems. It would require an international agreement in order to avoid a complete default on existing foreign debt.

In our view, a policy based on a parallel financial system (currency) should aim at restarting the Greek economy as soon as possible without exiting the euro. Given the country's current macroeconomic situation, in particular the unprecedented unemployment rate, creating jobs and sustaining demand for domestic firms should be far more important than the credibility of the new currency. We, therefore, do not favor the idea of pegging the new currency either to international reserves or to a future euro exchange rate. In addition, we believe that—given the size and relevance of exports for the Greek economy—solutions that rely only on a devalued currency for restoring growth and employment may prove to be ineffective in the short run and will not reverse the current process of disruption in physical and human capital. In the next policy option, we investigate the plausible effects of introducing a new parallel financial system in a "soft" way,[10] by simply paying existing government obligations to the private sector in liquid IOUs; while in another policy option we investigate the consequences of using fiscal and monetary policy in the new financial system to implement a direct job creation program to achieve full employment. But before we turn to these new policy approaches, we need to assess the plausible impact of increased competitiveness on the Greek balance

of trade, and on the effectiveness of devaluing a parallel currency to stimulate net exports.

Is a devalued currency the solution to Greece's problems?

Our previous analysis has shown that without a U-turn in fiscal policy the prospects for Greece imply a continuous fall in output and employment, while abandoning the austerity programs would provide some relief but at a very slow pace. Modestly increasing government expenditure would help create jobs but at an insufficient pace, given the current number of people looking for work (1.388 million as of October 2013). At the current rate of net job creation, an employment level assumed to be at full employment would take approximately 15 years (Papadimitriou 2013a).

Some of the proposals examined above suggest the introduction of a new, parallel currency while maintaining austerity measures to reduce the government deficit and debt. The main idea behind such proposals is that Greece should restore its external competitiveness through the adoption of a new currency—let's call it the *drachma*—which would lower the euro price of Greek exports while increasing the drachma price of imports, thus stimulating the economy both through increased sales abroad and by import substitution domestically. The impact of these effects would depend on the price elasticity of Greek trade, which should therefore be carefully investigated.

Restoring competitiveness is also one of the main objectives of the troika plan, which, however, aims at achieving this result by "internal devaluation"; that is, by lowering unit labor costs and hoping that lower wages lead to lower prices for Greek products and increased external competitiveness. So far, the sizable reduction in wages has not been followed by a proportional reduction in prices, and has therefore only generated increased profit margins; and since these have not implied higher investment expenditure, the net effect has been to contribute to the massive drop in domestic demand.

Our macroeconomic analysis does not show very significant price effects on Greek trade. After adopting our improved measure of foreign demand for Greek exports, we estimate the price elasticity of goods exports at 0.5, implying that a fall in export prices of 1 percent—everything else being equal—equals an increase in goods exports of 0.5 percent. Our estimate for the elasticity of goods imports is somewhat higher, at 0.6, and therefore the Marshall-Lerner condition[11] is barely satisfied: improved price competitiveness implies only a small improvement in the value of trade in goods. The price elasticity for trade in services is also low or difficult to establish, according to our estimates.

If our estimates are correct, they imply—first of all—that even though the internal devaluation will succeed in lowering export prices, its effects on trade performance will be insufficient for Greece to recover. In addition, the introduction of a parallel currency—or an exit from the euro—coupled with continued tight fiscal policy will not be sufficient for an economic recovery.

We can conclude that the evidence of price competitiveness in Greek exports is very weak. Greece has managed to increase its exports during the recession period to countries outside the EU, notwithstanding the relatively strong value of the euro. Policies aimed at generating export-led growth through increased price competitiveness are therefore unlikely to succeed.

Introducing a parallel financial system via government bonds

Given Greece's export sector results, the introduction of a parallel financial system should not be primarily aimed at restoring price competitiveness. Rather, it should aim to (1) restore liquidity in domestic markets, reenabling investment and normal operation of profitable businesses; and (2) provide liquidity for expansionary fiscal policy, without exiting the euro and keeping the existing agreements on Greek public debt. These financial arrangements are well-known instruments of public finance and have been used by state governments in the United States; most recently, in California. Similarly, as detailed in a UBS report, zero-coupon "pharma bonds" in the amount of 5.5 billion euros were used by the Greek government in 2010 to settle government arrears with the pharmaceutical industry, which was threatening to stop selling medicine in the country unless paid (Weisenthal 2012). These financial instruments had all the characteristics of normal bonds, were negotiable on the Athens Stock Exchange, and were pari passu with other Greek debt. To many economists, these bonds were akin to quasi-money, since they could be deposited with a bank, which could then pledge them as collateral for cash.

The new financial system would entail the issuance of government bonds that are zero coupon (similar to cash, with

no interest payment), perpetual (no repayment of principal, no redemption, and no increase of debt), and transferable. They could be electronically deposited to bank accounts of firms and individuals through a sophisticated and secured system or given as certificates in small and large denominations, with a starting nominal exchange rate of one against the euro. These bonds would be backed by tax receipts, in the sense that while the government would use them to settle debts with its creditors, they would be accepted pari passu in settlement of private sector tax liabilities. Indeed, we would expect that the government would require that a given share of future tax payments be in these bonds, in order to generate demand and trust for the new parallel financial system.

The new bonds—which we call "Geuros," following Mayer (2012a)—should be convertible in only one direction, from euro to Geuro, in order to avoid speculative attacks, limit their use to domestic markets, and reduce the possibility of transfers to euro deposits outside of the country. In this scenario, the Geuro is a new form of liquid government liability,[12] and since the euro will remain in circulation, existing contracts in the private sector need not be denominated in Geuros, although firms and workers may contract on whether to switch to Geuros for part or all of wage payments. Since Geuros are not convertible, all foreign trade still requires euros, and therefore the impact on imports of an increase in Geuro-denominated income will be contained, as long as Geuros and euros are used for domestic and foreign transactions, respectively, and not considered as perfect substitutes.[13]

In scenario 3, the introduction of the Geuro is not linked to an expansionary fiscal policy, which we will address in the next scenario. Instead, we assume that the government introduces Geuros to (1) extinguish its debt with the domestic sector, (2) pay for unemployment benefits, and (3) pay for a portion of public sector wages. At the same time, the government will announce that, starting on the next fiscal year, a share of personal taxes and social contributions equal to some percent has to be paid in Geuros.

Using our macroeconometric model to run simulations on the impact of a parallel currency on the economy's performance as measured by GDP growth, public sector deficit or surplus, and current account balance requires a number of assumptions that cannot be tested against history, since the parallel currency scenario is created de novo. A possible modeling strategy would be to duplicate in Geuros existing behavioral relationships in euros. For instance, under this strategy, private sector demand in Geuros would depend on disposable income and wealth in Geuros, and total private sector expenditure would be the sum of its Geuro and euro components. This strategy, however, would not be realistic, since it implies the separation between the "new Geuro world" and the euro world, while it should be the case that the increase in purchasing power obtained from additional Geuro income would also generate additional euro expenditure.

We, then, prefer to treat the Geuro as a perfect substitute for euro expenditure, since the government will accept it pari passu for tax payment obligations. Furthermore, this implies that there is no reason for setting separate prices in private transactions between Geuros and euros. Armed with these assumptions, we ran a set of projections, to which we turn next.

As a first step, it is necessary to calibrate the amount of Geuros to inject into the economy, the amount of Geuros the government expects to collect through taxation, and the possible velocity of circulation of Geuros in private transactions.

In 2012, the Greek government collected 19.6 billion euros in taxes on income and wealth and 26.5 billion euros in social contributions, for a total of 46.1 billion euros. We adopt the assumption that 50 percent of taxes on income and wealth, and 40 percent of social contributions, would be paid in Geuros as soon as the program is implemented. These percentages will determine the amount of euros withdrawn from circulation. In Table 5, we report the decomposition of government liabilities held by domestic residents. The table shows that a large share (14 billion euros) of government debt takes the form of long-term loans from the financial sector. These loans could be converted to Geuros, providing liquidity to the banking sector, which we assume would stimulate credit to households and businesses.

The amount of liquidity available for the household and nonfinancial corporate sectors at the end of 2013Q3 was 177 billion euros,[14] or about 96 percent of GDP. Given these figures, the injection of 14 billion in Geuros[15] through the financial sector should be sufficient, as the Geuro begins circulating for domestic payments, to satisfy the private sector average holding of these new assets without creating inflationary pressures.

In 2012, the government paid out 38.5 billion euros in social benefits and 24 billion euros as compensation to

Table 5 Greece: Government Liabilities Held by the Domestic Private Sector, as of End September 2013 (in millions of euros)

Sector	Short-Term Securities	Long-Term Securities	Short-Term Loans	Long-Term Loans	Total
Household	2,021	129			2,150
Nonfinancial corporate	780	268		163	1,211
Financial corporate	7,280	11,200	159	14,021	32,660
Total*	**13,188**	**16,889**	**159**	**14,184**	**44,420**

* Columns do not sum to totals, since government liabilities held by other public institutions are omitted.

Source: Bank of Greece, Quarterly Financial Accounts

employees, for total payments of 62.5 billion euros.[16] Its debt outstanding held domestically is reported in Table 5. Given these figures, the Geuro could be used to convert in (non–interest bearing) Geuros the stock of short- and long-term loans obtained from the financial sector (14.2 billion euros), paying 25 percent of social benefits and 25 percent of public sector wages in Geuros.

In this way, interest-bearing debt would drop by 14.2 billion euros and euro-denominated government outlays would be lower by an estimated 18 billion euros. A government obsessed with debt and deficit reduction may stop here, and use the euro proceeds to reduce its deficit and buy back a (tiny) fraction of its debt held by foreigners. If this were the outcome, this policy would be slightly contractionary at the macro level, since it would not increase aggregate demand (there is no reason in this context for a Geuro depreciation), while it would reduce income payments to the financial sector, which would no longer be earning interest on its loans.

The only source of additional aggregate demand may come from the increase in liquidity for the financial sector, which could put an end to the credit crunch. However, the availability of credit will not produce effects, if the household and nonfinancial corporate sectors are not willing to borrow.

In our first simulation, we assume a moderate increase in borrowing, relative to our baseline of 2 billion euros per year. The projected impact on GDP is very small, relative to our baseline. The simple introduction of a parallel financing mechanism—the Geuro—will not be effective on employment without a fiscal stimulus. These results are summarized in the "Geuro scenario" in Table 6.

If, on the contrary, the government uses the new funds to increase public investment and consumption, domestic demand can grow by a maximum of 6.5 billion euros each quarter, if interest payments on debt outstanding are frozen as in scenario 2. If the government honors its debt obligations, our estimate of 1.8 billion euros paid out in interest each quarter will leave 4.7 billion euros for increasing government demand on average for each quarter. Assuming that Geuro income generates an impact on domestic demand similar to euro income, the outcome in terms of output and jobs will be smaller than in scenario 2, while the projected worsening of the trade balance may be smaller—since Geuros cannot be used to purchase foreign goods—albeit by an amount that is difficult to estimate.

Direct job creation financed by a parallel financial system

Our previous scenario showed that the introduction of a parallel financial system, despite its beneficial effects on increasing GDP, will not provide a strong short-term response to the high unemployment problem in Greece if the government does not adopt a policy directly targeting job creation. In scenario 4, we consider what is likely to happen if the government were to use the parallel system for an employment guarantee, or ELR, program. The general details of such proposals are detailed in Antonopoulos et al. (2014). In summary, the government would provide a job at a minimum wage for the production of public goods to anyone able and willing to work.

The wage level should be low enough to make private employment more attractive, yet high enough to ensure a decent standard of living. A monthly gross wage based on the post-troika established monthly minimum of 586 euros for

Table 6 Greece: Baseline and Alternative Scenarios

	2014	2015	2016
Baseline			
GDP	174.8	177.6	181.7
Government surplus/deficit	-3.9	-4.2	-4.0
Current account balance	2.4	1.9	-0.1
Geuro scenario			
GDP	174.8	178.1	182.3
Government surplus/deficit	-3.3	-3.5	-3.2
In euros	4.6	4.5	4.6
In Geuros	-7.9	-7.9	-7.8
Current account balance	2.4	1.3	-0.9
ELR scenario			
GDP	188.0	193.3	198.5
Government surplus/deficit	-11.2	-10.4	-9.5
In euros	3.3	4.0	4.7
In Geuros	-14.4	-14.4	-14.2
Current account balance	-0.2	-4.1	-7.4
ELR plus debt freeze scenario			
GDP	188.0	193.3	198.5
Government surplus/deficit	-5.7	-4.8	-3.7
In euros	8.7	9.6	10.5
In Geuros	-14.4	-14.4	-14.2
Current account balance	5.2	1.5	-1.6

Source: Authors' calculations

550,000 workers implies annual payments of about 7.5 billion euros.[17] The monthly wages, taxes, and some portion of the intermediate consumption expenditure would be paid in Geuros. It is important to recognize that the employment of the 550,000 ELR workers will eventually result in additional indirect employment (approximately 156,000 jobs) and increased output (gross value added) of about 12 billion Geuros from the effects of a sensible fiscal multiplier. Moreover, government revenue will also increase by about 4 billion Geuros, with an estimated net program cost of no more than 3.5 billion Geuros. With a monthly gross wage set at the pre-troika minimum of 751 euros, the corresponding net cost of the program is estimated at no more than 4.5 billion Geuros (see n. 17).

We simulate the model assuming that the ELR program is implemented, financed by issuing Geuros. Results are reported under the "ELR scenario" in Table 6. As mentioned, about 550,000 jobs will be created within one year, and GDP improves by 7 percent in 2014 over our baseline projection. As with any fiscal stimulus, the overall government deficit increases, but our estimates for euro/Geuro government outlays and receipts show that the government will still have a sizable euro surplus. The problem with this scenario, as with any similar fiscal stimulus that does not receive financial support from abroad, is in the deterioration of the balance of payments, which goes back to a deficit, albeit a manageable one. In this scenario, we assume that the Greek government continues to honor its debt obligations. If, on the contrary, we assume the same "debt freeze" policy discussed previously, the euro outflow will sensibly be reduced. Results are reported under the "ELR plus debt freeze scenario" in Table 6. The reduction in interest payments in government outlays implies that the overall budget deficit is not too far from our baseline, and the reduction in interest paid abroad implies a sensible improvement in the current account as well. This policy mix could thus prove to be sustainable in the medium term, while providing immediate support to employment and domestic demand.

However, the damages inflicted on Greece's small industrial structure during the current recession are similar to the effects of a major war. As the ELR program starts providing purchasing power to the unemployed, additional intervention may be needed to strengthen domestic supply in order to meet the increase in domestic demand, or else the impact on imports may be higher than we estimate. An industrial policy to help re-create productive capacity will be needed in key sectors, until confidence in the profitability of the Greek market is restored for domestic investors.

Conclusions

What we can now clearly observe is that the harsh fiscal consolidation measures imposed on Greece show no convincing signs of a "light at the end of the tunnel." Most, if not all, short-term indicators of economic activity show the performance of the Greek industrial sector to be very weak, absent demand from the rest of the world, both from within and outside of the eurozone. The dramatic fall in unit labor costs—a result of the troika-imposed strategy aimed at increasing exports through internal devaluation—has not brought about the anticipated effects on a sufficient scale, as the statistics on

the balance of trade confirm, despite the minimal growth of exports (primarily in highly unstable oil-related goods) and falling imports due to the deepening recession. The strategy has instead brought deteriorating living standards and a precipitous decline in domestic consumption—the most important driver of economy stability.

To be sure, exports are important, but domestic demand is more crucial. Even China, a giant, export-guided economy, has recently taken the necessary steps to increase and stabilize its domestic demand. And this should be the economic policy emphasis for Greece.

All of the alternative policy options explored above—a Marshall-type plan financed by European institutions, temporary suspension of interest payments on the public debt, introduction of a parallel financial system that functions as currency, and implementation of a targeted public employment policy based on this parallel system—are geared toward restarting Greece's economic growth engine and increasing employment. Our analysis has shown that the effectiveness of the various plans is crucially dependent on the price elasticity of the Greek trade sector, which is determined to be low. We argue that since the first two policy options, though economically feasible, lack the necessary political will, a public job guarantee is the only option that could provide a relatively quick restoration of living standards to a large segment of the Greek population, with limited impact on foreign trade.

While Brussels, Berlin, and Frankfurt, with no Greek representation, secretly debate what they should do with the country's controversial bailout program, Greece should begin considering alternative options for exiting the crisis now.

Notes

1. Data refer to the last four available quarters; that is, 2012Q4–2013Q3.
2. According to the Bank of Greece, subtracting financial assets held by the government, net public debt in 2013Q3 amounted to 213.8 billion euros.
3. Our assumption that interest payments will be suspended would, of course, make public bonds less attractive than other financial assets, causing a fall in their market price, with a net capital loss to the bondholders. However, this should be of secondary importance, as households spend around 4 cents for 1 euro of their aggregate financial wealth, and public bonds are only a fraction of such wealth.
4. We are considering here only payments made to domestic bondholders. Suspending interest payments made abroad will reduce the income of foreign investors, but we are concerned more with the freeing of resources for domestic expenditure, with a sensible multiplier effect.
5. We will not discuss a similar proposal for the eurozone; namely, the adoption of a "southern euro" by Mediterranean countries, with the "core" retaining the existing euro. See Mayer (2012b) and Arghyrou and Tsoukalas (2010), among others.
6. Athanassiou (2009) provides an analysis of the legal aspects of withdrawing from the euro. See also Thieffry (2011).
7. See Eichengreen (2010) and Knowles (2011), among others.
8. Absent an English translation of Mayer (2012a), we based our analysis primarily on Mayer (2012b) and Boesler (2012).
9. See Schuster (2013) for a comparative survey of proposals relative to the eurozone.
10. See Papadimitriou (2013b) for a description of the structure and workings of this sort of parallel financial system
11. The Marshall-Lerner condition requires that the sum of price elasticities of exports and imports be greater than one for the trade balance to improve after devaluation (or a change in prices equivalent to devaluation).
12. The Geuro is "liquid" in the sense that, since it is accepted for tax payments, it should be accepted as payment by any seller—worker or merchant—who needs to pay taxes.
13. Should the Geuro keep its parity with the euro and become widely accepted for payments in domestic markets, the private sector would be able to reduce its purchases of domestic goods in euros and increase its purchases of foreign goods, with an effect on trade similar to a standard increase in domestic income. In other words, the use of Geuro bonds for domestic transactions would decrease the demand for euros, freeing up more euros for payment of imports of essential goods such as oil and medicines until domestic production develops in these sectors. For these reasons, in our simulations we prefer to adopt the conservative assumption of perfect substitutability between the Geuro and the euro, imply-

ing that the impact on Greek trade of an expansionary fiscal policy under a Geuro regime may be overstated.

14. Households held 27.4 billion euros in "currency and sight deposits" and 129 billion euros in other deposits with the domestic financial sector. The figures for the nonfinancial corporate sector were 12 billion euros and 9 billion euros, respectively.
15. Note that Geuro average holdings as a form of payments is a stock concept, while Geuros required for tax payments is a flow concept. However, we assume that, as the government destroys Geuros received as tax payments, it will issue new Geuros for the same value, for a given fiscal stance.
16. All figures are drawn from ElStat's Quarterly Sector Accounts. We refer here to "social benefits other than social transfers" in kind.
17. The annual program cost includes direct and indirect costs (benefits and social contributions of workers), intermediate consumption of goods and services, and direct and indirect taxes (VAT). For details, see Antonopoulos et al. (2014).

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