FROM GREXIT TO GROWTH: ON FISCAL MULTIPLIERS AND HOW TO END RECESSION IN GREECE

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Three years after the implementation of the Adjustment Programme for Greece, public debt remains at unsustainable levels. Despite recent improvements in meeting deficit targets and the fact that the risk of exit from the Euro Area has subsided, growth is still missing and unemployment has surpassed 25 per cent, causing major social tensions. The paper argues that a critical parameter of such failure was that the Programme grossly underestimated the adverse effects that fiscal correction might have on growth. Fiscal multipliers are found to be significant in the Euro Area so that fiscal cuts had strong and permanent Keynesian effects, rather than a transitive and minor downturn as initially assumed. In light of this, the paper argues that policies should now concentrate on enhancing growth and by relaxing fiscal targets allow the multipliers to raise activity as the only route to safeguard the exit from recession and ensure sustainability of debt.

Keywords: Debt; fiscal policy; Greece

JEL Classifications: H60, H61

1. Introduction

On the eve of 2013, the Greek crisis entered a new phase which had both reassuring and alarming characteristics. On the one hand, the speculation that Greece might exit the Eurozone – either by domestic choice or as a result of immense pressure from abroad – subsided considerably and substantial improvements in fiscal consolidation took place. In 2012 public deficit was brought down to 6.60 per cent – from a horrendous 16 per cent in 2009; a primary surplus of around 1.80 per cent of GDP is expected to be realised this year and the current account deficit has shrunk to below half of its level in 2008. As a critical step towards adjustment was accomplished, capital inflows of €44 billion (i.e. around 25 per cent of the country's GDP) were subsequently approved by the lending institutions within the framework of the Bail-out Agreement to provide liquidity to the Greek economy.

On the other hand, the situation in the real economy is being further aggravated this year despite the aforementioned progress, or perhaps exactly because of the specific means by which it has been achieved thus far. As fiscal contraction remains the main instrument to achieve conditionality targets, domestic activity will continue to shrink by no less than –4.50 per cent of GDP in 2013, and official unemployment has reached yet another previously unimaginable threshold, this time 25 per cent of the working age population. In the meantime, hopes for an export-led boost are fading due to the slowdown of world demand and also to the low exportability of Greek produce in spite of massive cuts in labour costs enforced over the past two years.

The reform agenda that is part of the Adjustment Programme is expected to become more active, ending a prolonged phase of indecision and inaction before and after the double elections in May and June 2012. Nevertheless, the process will be sluggish as foreign investors remain hesitant about how quickly social tensions and institutional barriers can be diminished so as to allow safe and productive operation in the country. At the same time, the slump in domestic demand, combined with an acute shortage of liquidity in the banking sector, means that several small and medium sized firms will be squeezed out of business, further reinforcing fears that the long cycle of recession is going to continue.

Arguably, a critical factor in the unfathomable recession is the very implementation of the Adjustment Programme,

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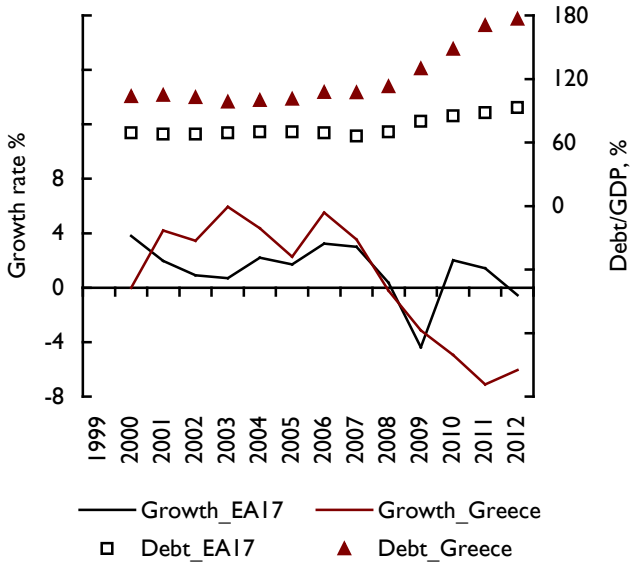
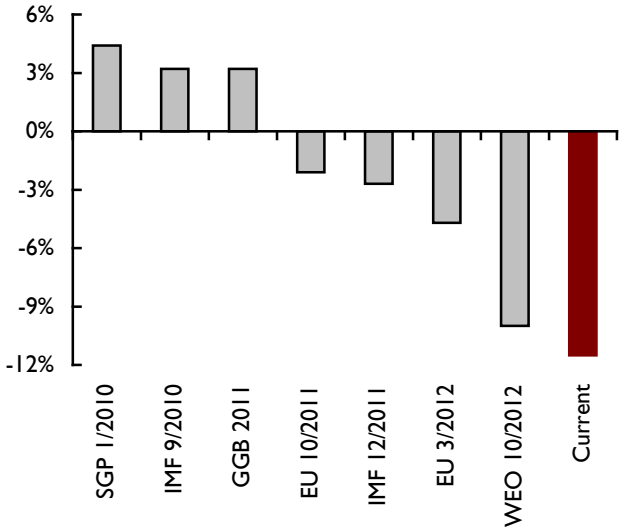
Figure 1. Growth rate (line, Lhs) and public debt as per cent of GDP (points, Rhs) in the Euro Area and Greece, 2000–12



Source: AMECO. Growth rates for 2013 are from the European Commission's autumn 2012 forecasts.

Figure 2. Official projections of real growth rates for the two-year period 2012–3



Note: SGP is the Stability and Growth Plan published by the government and the EU before the implementation of the Programme. GGB stands for the Greek government Budget Report.

which began in 2010. Until then, the Greek economy was experiencing a slide similar to the Euro Area economies for the period 2005–9 (see figure 1). But instead of Greece returning to some positive growth in 2010, as happened in the other economies, the country was forced to seek a Bail-out Agreement and implement front-loaded fiscal consolidation to harness public debt that had gone out of control, in contrast to milder increases in the Euro Area.

Following three years of implementation and various modifications of the original Programme, Greek real GDP is now lower by –22 per cent since 2007. With the exception of World War II, this represents by far the deepest slump in the country's history and a key question is why such a contraction was overlooked and no policy has so far been considered to counter it. The answer is of critical importance, not only in order to explain the facts but also to lay out the policies that can help the economy to embark on a growth path and exit recession.

In fact, the extent of recession in Greece and elsewhere had by no means been expected to reach such depths when the Programme began. Early optimism can perhaps be explained by an IMF study in which the growth impact of fiscal consolidation was estimated to be mild and in any case disappear after two years. In the WEO Report (2010, p. 94) it is asserted that a fiscal correction of a size equal to 1 per cent of GDP, reduces output by just 0.50 per cent and raises unemployment by only 0.30 per cent.

Moreover, even these small contractions could be mostly superseded by the growth potential unleashed by quickly implementing market reforms. At that time all authorities involved seemed to be convinced that the deflationary impact would be limited, recession would bottom-out in late 2010 and the economy gradually rebound (see WEO, 2010, p. 165).

Expectations have been massively disproved; figure 2 shows the continuous updating of expectations for cumulative real growth in Greece over the period 2012–3. From a hope for positive growth by +3.20 per cent a few months after the implementation of the Programme, predictions were adjusted to an alarming downturn by –4.70 per cent in early 2012, only to be superseded later by the current dismal –11.50 per cent.

Similar – though milder – developments have happened in other economies of the Euro Area, especially in those undergoing consolidation programmes. This seemed to contradict the previous optimistic belief that any recession effects would be small and transient, and applied research is now underway in order to assess the real impact that fiscal cuts have on growth.

In the light of current debate on fiscal multipliers, the aim of the present paper is to examine the failure of the consolidation programme for Greece and to suggest policy actions that might spur more growth in the future, thus ensuring the sustainability of public debt.

The rest of the paper is organised as follows: Section 2 discusses recent literature on the effects that high indebtedness and concomitant adjustment might have on growth prospects. Section 3 discusses some key failures of the Adjustment Programme in Greece and describes the risks posed by a prolonged contraction of the economy. Section 4 suggests some feasible ways to speed up growth in the medium term and shows how the debt profile is improving without further restructuring. Section 5 concludes. Appendix A presents some indicative estimates on the size of fiscal multipliers in the Euro Area and a list of variables is given in Appendix B.

2. Multipliers in the time of crisis

The literature on growth-inducing fiscal consolidation thrived in the early 1990s as European economies were cutting public debt and deficits as they moved towards Economic and Monetary Union (EMU).[1] If successful, fiscal consolidation in each individual country would raise the prospects of joining the EMU and – as a result – usher in a period of stability, increased capital flows and low interest rates that spur growth and further facilitate adjustment. Foreseeing convergence, markets were eager to reward the economies in advance, hence activity was rising as quickly as debt and deficits were harnessed.

As none of these growth-inducing factors was any longer taken for granted after the crisis in 2008, new research was undertaken to assess the linkages between indebtedness and the growth rate. First, Reinhart and Rogoff (2010) performed simple correlation tests over the period 1946–2009 between growth rates and various sub-samples of debt zones across both advanced countries and emerging markets. Their conclusion was that high debt/GDP levels of *90 per cent* and above are associated with notably lower growth outcomes.

In a more formalised framework, Checherita and Rother (2010) – among many others – set out to examine the fiscal impact on growth in the 12-member states of the Euro Area over the period 1971–2008 by estimating the following equation:

$$g(t) = const + \alpha \cdot y(t-k) + \beta \cdot b(t-1) + \gamma \cdot b^2(t-1) + [other] \quad (1)$$

where $g(t)$ is the growth rate either on an annual basis or as a moving average, $y(t–k)$ is lagged per capita output in logs to account for catching-up effects, and $b(t)$ the debt-to-GDP ratio. Lagged terms are used for the latter to avoid reverse causation from growth rate to the current ratio. The term 'other' represents a variety of explanatory or institutional variables not directly related to the debt level.

Equation (1) can be viewed as a bell-shaped quadratic function in which – assuming $\beta>0>\gamma$ for parameter values – growth is maximised when the debt-to-GDP ratio reaches a level $h = -\beta/(2\gamma)$. Debt-augmenting policies (used for example to build infrastructure or upgrade human capital) enhance growth until threshold (h) is reached. If exceeded, then cutting debt through larger primary surpluses pushes growth upwards, the debt-to-GDP ratio is further relieved and this generates even more growth. The finding that public debt becomes detrimental to growth above a certain level supported the view that deficits in the aftermath of the crisis would exert a negative impact throughout, hence governments should be "… in favour of swiftly implementing ambitious strategies for debt reduction".

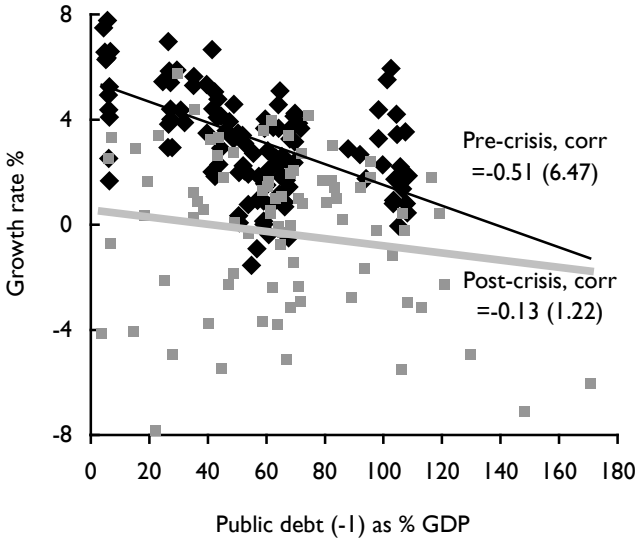
Employing a similar framework, a large number of advanced economies were investigated over the period 1970–2007 by Kumar and Woo (2010) at the IMF and an inverse relationship between initial debt and subsequent growth was also established; on average, a 10 percentage point increase in the initial debt-to-GDP ratio is associated with a growth slowdown of around 0.2 percentage points per year. The impact is stronger if debt exceeds a threshold of around 90 per cent. On the same lines, Cecchetti *et al*. (2011) investigated eighteen OECD countries from 1980 to 2010 and concluded that beyond a level of around h = 85 per cent of GDP, public debt is a drag on growth, thus countries in such conditions should act quickly and decisively to address their fiscal woes.

As these results were largely obtained by using data prior to 2008, they do not distinguish any specific characteristics for the periods before and after the global crisis. Hence, the general implication remained that reducing public debt would not only relieve stressed economies from the burden of increased debt service costs but also enhance growth and help to exit recession. A mild exception is Baum *et al*. (2012) who – though not altering the main message – check how the global crisis might have shifted the critical threshold; prior to 2007 the threshold is estimated at 66.4 per cent of GDP, while by including data for up to 2010 the inhibitive level is raised to 95.6 per cent of GDP.

The findings on growth-inducing fiscal consolidation did not go unchallenged on the technical side. For example, Égert (2012) notes that results are very sensitive to the time dimension and, by using data for a very long time horizon 1790–2009, finds that the negative relationship between debt and growth is rendered insignificant for several sub-groups. Employing an instrumental variables approach to capture foreign currency effects, Panizza and Presbitero (2012) claim that any evidence that high public debt levels hurt future growth disappears, at least for advanced economies, thus "… the debt-growth link should not be used as an argument in support of fiscal consolidation".

A more policy-minded differentiation was put forward by Cotarelli and Jaramillo (2012) who warned that such views "ignore that fiscal multipliers should be larger when output is below potential" and advised that excessive fiscal zeal might have serious contractionary effects. In other words, the supply-side motives that otherwise would have been invited by redressing public finances, may now be dominated by Keynesian effects. The situation was highlighted by Keynes (1936, p. 125) who argued that in 'abnormal' periods the multiplier is enlarged as "… the propensity to consume may be sharply affected by the development of extreme uncertainty concerning the future and what it may bring forth".

Figure 3. Correlation between annual growth rates and debt-to-GDP ratios lagged one period for the Euro Area countries before and after the global crisis.



Source: AMECO.
Note: Period 2001–7: Small diamonds, black trend line, correlation significant at the 1 per cent level. Period 2008–12: Grey points, grey trend line, correlation insignificant. Correlation coefficients are in boxes and t-statistics in brackets.

To see at a glance whether the global crisis might have affected the relationship between growth and indebtedness in the Euro Area economies, a simple correlation is presented in figure 3 for the periods before and after the global crisis. A strong, significant and negative correlation, as predicted by the growth-inducing literature, is found for the period 2001–7. But in the wake of the crisis in 2008, correlation becomes insignificant, casting doubt on the assertion that consolidation will be accompanied by a resurgence of growth in the Euro Area.

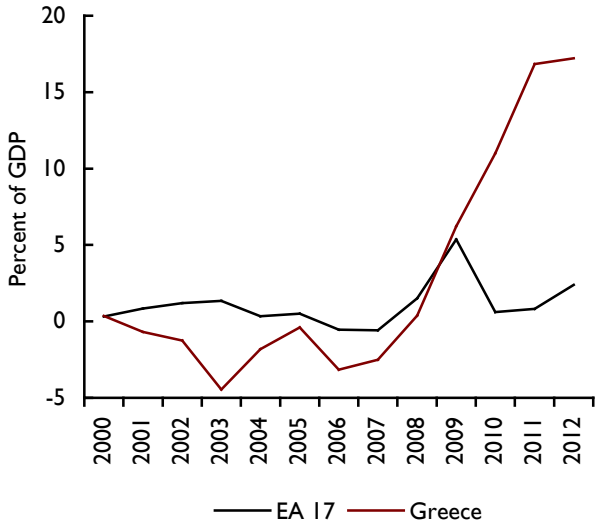
The hardest test of growth-inducing consolidations came, of course, from the real world as fiscal cuts were causing deep recession and this in turn further aggravated the stabilisation effort, rather than helping it. The reason is that recession impacts on debt, increases it as a ratio to GDP and, by inviting further contractionary measures, leads to positive feedback dynamics. To see why, the change in the debt-to-GDP ratio (b) in each period is expressed by the well-known equation:[2]

$$\Delta b(t) = \frac{r - g(t)}{1 + g(t)} b(t-1) - s(t) \qquad (2)$$

where (s) is the primary surplus as ratio to GDP, r the real interest rate and Δ denotes first-differencing. The first expression in the r.h.s. is the so-called 'snowball' effect that is increasing with (r) and decreasing with the growth rate. Figure 4 displays how it has been developed since 2000; for the Euro Area as a whole the effect increased only in 2009, mainly due to the post-crisis slump,[3] but for Greece the snowball effect increased, augmenting debt by as much as 17 per cent of GDP per year.[4] As a result, fiscal consolidation, initially necessitated by explosive debt, was causing so much recession that it had the effect of making debt look even more explosive. It was precisely this effect regarding the consequences of stabilisation that was completely overlooked and led to the vicious circle of higher debt and further recession.

Though the errors in forecasting Greece's recession were excessive, similar misjudgments are detected in relation to several other economies undergoing fiscal consolidation. A recent IMF assessment on 28 economies (WEO, 2012, Box 1.1) found that the stronger the correction in the fiscal stance, the wider the error in predicting GDP growth. Around the same time, an official study for the Euro Area economies emphasises that "… fiscal multipliers are higher now (i.e. in the crisis) than they would be in

Figure 4. The snowball effect on debt in Greece and the Euro Area



Source: AMECO, variables as described in the Appendix.

normal circumstances" (see European Economy, 2012, Box I.5, pp. 42–3). The study, however, stops short of admitting a robust linkage between forecast errors and planned fiscal consolidation by conveniently singling Greece out as a case where private sector confidence collapsed after debt restructuring, thus hurting growth prospects that otherwise would have thrived. This seems to confuse cause and effect, since in fact – as argued in the next section – it was mainly the spiralling recession that kept debt unsustainable and made restructuring unavoidable, rather than the other way around.

The most recent contribution to the fiscal multipliers debate has come from Blanchard and Leigh (2013), who admitted that figures used thus far by IMF authorities to forecast the recessionary impact of debt consolidation programmes in Europe and elsewhere were grossly underestimated. Their new findings suggest that fiscal multipliers are more likely to be in the range of 0.90 to 1.70 rather than around 0.50 as formerly assumed. These findings put an end to the view that austerity would have only mild recessionary effects, and may soon lead to revisions of the relevant Programmes based on more reliable estimation of the expected multipliers.[5]

To examine the fiscal effect on growth in the Euro Area, a simplified version of equation (1) is estimated in Appendix A. Though only indicative due to the short period of estimation, estimates reveal a strong recessionary effect of fiscal consolidation close to the upper bound of the range suggested by Blanchard and Leigh (2013). These results suggest that fiscal consolidation programmes applied in the wake of the debt crisis are more likely to have contributed to diminishing growth rates in the Euro Area countries than to have boosted them. Among them, Greece was forced to apply the most ambitious consolidation programme to reverse the explosive accumulation of public debt, and was hit by a prolonged contraction at the same time (see below in more detail).

3. Shortcomings of the Greek stabilisation

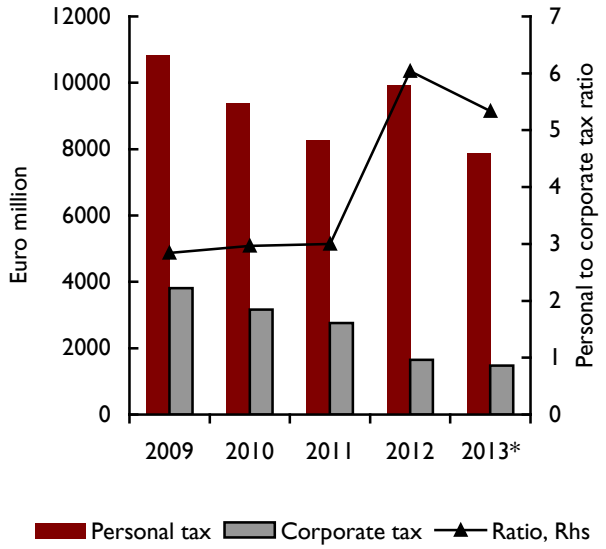
The Adjustment Programme for Greece (APG) involved extensive and universal cuts in expenditure, several tax hikes on households and property, and an ambitious plan of market reforms and privatisations to attract new investments and promote growth. In this process too many things went wrong and, far from containing fiscal imbalances in time, most targets were missed and the debt burden continued to rise. Though certain reform initiatives, applied in the Social Security system, the Health sector and in some budgetary procedures, went in the right direction, other attempts such as the liberalisation of vocational licenses in various sectors failed to spur growth as recession was inhibiting potential new entrants. In reforming public entities or privatisation plans, the failure was even more extensive in spite of expensive preparations and political costs (see Christodoulakis, 2011).

Ignoring the warnings that deep cuts in incomes would lead to deep recession, the authorities added salt to the wound by adopting positive feedback tactics; whenever a fiscal target was missed, the measures – rather than being re-examined – were re-intensified. Such tactics exhausted the disposable incomes of households and had detrimental effects on revenues.

Figure 5 shows that, despite raising the average tax burden, income tax revenues declined substantially, either because of recession or increased evasion, even in comparison to the slack year 2009. As most rate increases fell upon personal income, while the business sector was left unaffected so as to avoid a further slump, the tax burden on households relative to that of the corporate sector increased twofold between 2009 and 2013, multiplying inequalities in effort sharing and causing social discontent.

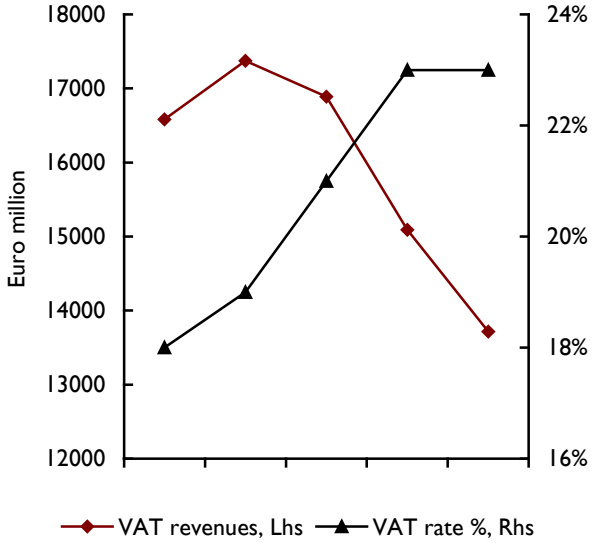
The same effect of increasing rates and falling revenues was experienced in indirect taxation. Figure 6 shows the VAT rate rise from 18 per cent in 2009 to 23 per cent

Figure 5. Personal and corporate income tax revenues in Greece (left-hand scale) and their ratio (right-hand scale)



Source: government Budget Reports, various years.
Note: * For 2013, government projections.

Figure 6. Revenues from VAT and the main VAT rate in Greece



Source: Revenues from government Budget Reports, various years.
Note: The VAT rate takes the value at the end of the year.

in 2012, while revenues were constantly falling due to lower purchasing power. In spite of several warnings that the key to raising revenues is not raising the marginal rates, but extending the tax base and auditing to beat evasion, authorities were insisting on the same recipe, thus leading to further recession.[6]

One welcome development was the containment of the Current Account deficit from a horrendous 15 per cent of GDP in 2009 to less than 6 per cent of GDP by the end of 2012.[7] But even this is hardly a cause for celebration, as the main reason was that imports had shrunk due to the curtailment of demand and only a small fraction can be attributed to improvements in competitiveness. Average wages in the private sector have been cut by –21 per cent, leading to impressive reductions in unit labour costs and making the productivity index, based on unit labour costs, return to its 2000 level,[8] but this was to no avail as Greek firms suffering from lack of liquidity were not in a position to take advantage. The index of the real effective exchange rate improved only marginally by 2.8 per cent in 2012 relative to 2009,and non-oil exports increased by just 1.42 per cent in the first three quarters of 2012 relative to the previous year. This is even lower than the rise in world demand of goods and services by 3.2 per cent over the same period,[9] strongly implying that the exportability of Greek production is structurally deficient, not just because of the allegedly high wages.

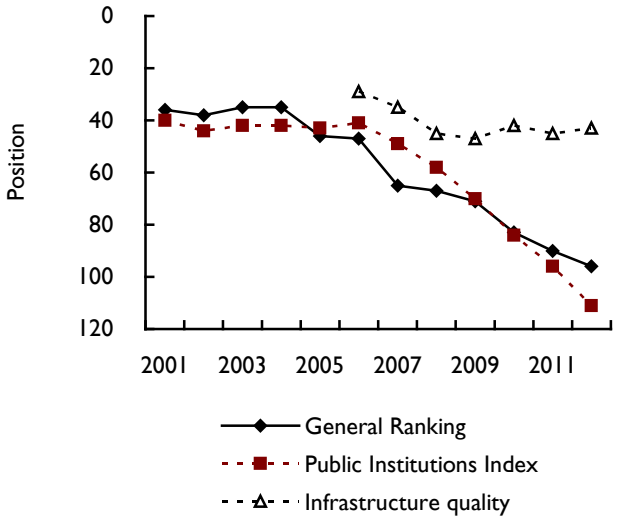
Institutional and political failures

However critical, the omission to account for the higher multiplier was not the only mischief. Even more serious consequences were brought about by ignoring what Akerlof and Schiller (2009) aptly coined a 'confidence multiplier', a factor affecting social and political behaviour in such a way that the crisis is further propagated rather than restrained.

In the wake of the debt crisis, Greece suffered from a systemic threat that the country might be forced to abandon the Eurozone, an event that would inflict major capital losses on euro-denominated deposits. The ensuing capital flight further damaged domestic liquidity and accelerated fears that the economy might indeed collapse. Public opinion was losing confidence in the ability of the authorities to drive the economy out of the crisis within a reasonable timescale and this had two serious consequences.

First, it undermined the efficacy of stabilisation measures as private market players adjusted their expectations on the basis that stabilisation would be likely to take much longer than envisaged; this had the effect of postponing or cancelling medium-term plans for new investment in Greece. Second, it meant that opposition from vested interests to the conditionality programme became widespread and protracted, thus raising the social and

Figure 7. Country ranking by the General Competitiveness Index and the components for institutions and infrastructure



Source: World Economic Forum, Competitiveness Report, various years.

political cost of implementing reforms to prohibitive levels.

The political and institutional fallout was significant. Mainstream parties saw their influence shrink to less than half their pre-crisis levels, while a radical polarisation emerged at both ends of the political spectrum. On top of chronic deficiencies, institutions crumbled too, both as a result of overload due to mounting numbers of economic and social disputes and also because of low motivation and job shirking as a reaction to deep wage cuts in the public sector.

It is interesting to examine how the loss of confidence affected the image of Greece as an attractive investment destination. According to the indicator of outward competitiveness composed annually by the World Economic Forum (2012), Greece continued to decline and ranked 96th among 144 countries. This implies a loss of 25 positions relative to 2009, i.e. the year before the conditionality programme was launched (see figure 7).

Naturally, the main drive of such deterioration was the macroeconomic instability stemming from the debt crisis and the risk of collapse and exit from the Eurozone. But equally telling is the fact that it is closely followed by the abysmal record of institutional capacity, which fell to the 111th place; a retreat of 40 places relative to 2009. On the other hand, physical infrastructures remained relatively unscathed, though persistent under-financing for maintenance costs due to the fiscal cuts may soon take its toll in this sector as well.

4. More growth and debt sustainability

Deep recession undermined most targets of fiscal stabilisation and a vicious circle was put in motion. As debt looked increasingly unsustainable a new wave of fiscal measures were introduced; recession deepened, snowball effects intensified and another failure was seen to be on its way. Even after substantial debt-restructuring in March 2012, the same symptoms reappeared by the end of the year. It is perhaps time now for a different policy mix between fiscal measures and growth initiatives. A new growth strategy could take advantage of the following sources of finance:

(i) *Increased liquidity,* as Grexit fears subside, bank deposits have started to repatriate and foreign investors may become more responsive to the privatisation plans.

(ii) *The current European Structural Funds:* In July 2011, the European Council approved between €16 and €18 billion for Greece in order to finance infrastructure and social programmes without the obligation of national cofinancing that could jeopardise the fiscal consolidation programme. A multitude of delays ranging from approving the decision by European institutions to preparing the ground for starting the projects has meant that to this date very little progress has actually been made. But recently the government has swung into action and the hope is that funds will be absorbed at a higher rate.

(ii) *Loans to Greek enterprises by the European Investment Bank:* At the beginning of 2012, the EIB decided that an amount of up to €500 million would be disbursed to Greek firms to assist liquidity and finance innovation. To date no loan has yet been granted,[10] but again the assumption is that the situation will change soon.

(iii) *Forthcoming Structural Funds:* After the recent EU summit in January 2013, around €18.3 billion are to be released for Greece over the period 2014–23 from the new round of Structural Funds. The amount represents 10 per cent of current annual GDP and its implementation will on average add around 1 per cent annually to raise infrastructure projects and improve education. Though it was hailed by the government

as a great leap forward, its timely utilisation will challenge Greece for the following reasons.

In the previous structural funds programmes, the main allocation criterion was to enhance regional cohesion. In practice, this implied that several projects were geographically dispersed, thus missing economies of scale, while others had underestimated market risks thus resulting in low rates of actual utilisation. According to EC (2012a):

> "The current (*i.e. regarding the period 2007–2013*) programme architecture is characterised by an unclear definition of responsibilities between the different levels of governance, and the lack of accountability. Combined with the absence of ownership and lack of coordination, this resulted in serious implementation delays" [*my emphasis*].

The new philosophy is to strengthen competitiveness, value-added and outwardness of existing producers. The means are the creation of a business-friendly environment conducive to investment, building a sustainable infrastructure and upgrading accessibility facilities and transport modality. As noted in EC (2012b):

> "There is a need to concentrate investments on sustainable economic activities with better growth prospects and the most dynamic exporting profiles. At the same time, emphasis should be put on the development of innovative and competitive products while improving the relevance of educational and training system to the needs and targets of the emerging economic activities in sectors and clusters where Greece has a competitive comparable advantage".

Though this is precisely the type of growth Greece needs to exit recession, its implementation requires major changes in the evaluation and allocation procedures. But as noted in the above Report,

> "Human resource management [is] practically inexistent and lack of continuity in the public sector due to political interferences have created through the years a weak civil service, lacking decision-making capacity and administrative continuity with regard to implementation of reforms and policies".

These remarks confirm the deterioration of public and institutional efficiency as examined above. To overcome the problem, Greece should be assisted in this task by eligible European institutions laying out a specific process for building advantages and promoting growth. Accompanied by a more gradual fiscal adjustment that includes tax incentives and a boost to public investment, growth – as a result – can be augmented such that debt declines to sustainable levels, reinforcing a process of confidence and stability as described below.

Debt stabilisation

As of last year, developments were officially expected to take place with ambitious privatisations, an end of recession this year, and growth returning to 2.50 per cent from next and staying robust for the rest of the decade. With fiscal surpluses at 1.80 per cent of GDP this year and 4.50 per cent from next, the economy would have ended up with a debt lower than 120 per cent of GDP in 2020 as projected by European Economy (2012).

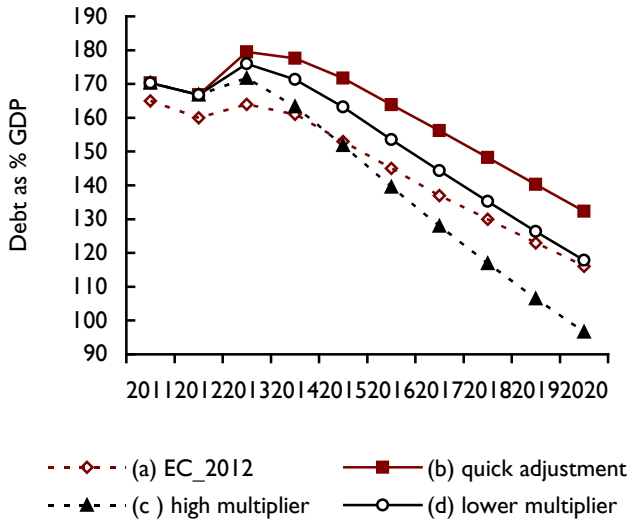
But as – once more – recession proved to be salient, the above assumption had been undermined by the end of last year and the IMF had threatened not to disburse its instalment unless the European partners of the Bail-out Agreement accepted a 'haircut' in their previous loans to Greece. After intense negotiations, the fear that the Greek economy might collapse from lack of liquidity and the threat that other bail-out countries might seek similar treatment, a compromise was finally reached that Greece would receive the instalment on condition that debt sustainability was reassessed in the near future.

As it currently stands, the debt-to-GDP ratio is bound to exceed 130 per cent in 2020 even if all optimistic assumptions are henceforth realised and growth resumes from 2014 onwards. One way to avoid the impasse is more debt-restructuring, but this will involve a new round of fiscal correction that may no longer be politically feasible, as Greece is unable to increase primary surpluses above the currently set target of 4.50 per cent of GDP.

An alternative route this time would be for both the government and the bail-out partners to take the issue of growth more seriously and carry out a challenging plan to restore it as quickly and robustly as possible. In order to finance extra public investments and implement a scheme of tax incentives to growth, fiscal targets could relax by 2 per cent of GDP and, according to the range [0.90 to 1.70] of multipliers, this may enhance growth by 1.80 per cent to 3.40 per cent per year. The range includes the figures of multipliers as estimated for the Euro Area in Appendix A (table A2).

A new scenario of less fiscal tightening and more growth is shown in figure 8 with all other assumptions the same as before. By 2020, even with the lower multiplier in place, the debt-to-GDP ratio falls below 120 per cent,

Figure 8. Debt-to-GDP ratios under alternative growth and fiscal assumptions



Notes: (a) All data as in the European Economy report (2012, Table p. 30). (b). Growth rates for 2011–14 are taken from the 2012 autumn forecasts of the European Union and set to 2 per cent for 2015–20. (c) and (d). As (b), but from 2013 onwards fiscal surplus is reduced by 2 per cent of GDP and annual growth rate is enhanced by 1.80 per cent and 3.4 per cent for the lower and higher fiscal multipliers (0.90 and 1.70) respectively. The interest rate is set at 3 per cent, GDP is revised downward as in the Budget 2013 report (2012) and the GDP deflator is adjusted upwards by half the increment in growth.

ensuring sustainability according to the specifications set out in the Adjustment Programme. If the higher multiplier turns out to be the case, debt will fall below 100 per cent of GDP, closer to the Euro Area average.

5. Conclusions

After the global crisis, Greece faced insurmountable problems of large deficits and explosive public debt and sought a bail-out agreement with the IMF, the European Union and the European Central Bank. An Adjustment Programme was begun in 2010, envisaging drastic fiscal measures to correct imbalances, privatisations to attract foreign capital and a series of structural reforms to enhance growth. Three years after the implementation of the Programme, public debt remains at unsustainable levels, privatisations have barely started and growth is plummeting, sparking fears that the country might be forced to exit the Eurozone and prompting massive capital outflows. The paper has argued that a critical parameter of such failure was that the Programme relied on optimistic assessments of the negative effects that fiscal correction might have on growth, overlooking the shift in market behaviour and the household psychology that made fiscal cuts have strong and permanent Keynesian effects, rather than a transitive and minor influence as initially assumed.

Taking advantage of recent literature that re-examines the relationship between fiscal tightness and recession, the paper has argued that policies should now concentrate on enhancing growth by relaxing fiscal targets to allow the multipliers to raise activity as the only route to safeguard the exit from recession and ensure sustainability of debt.

NOTES

1 Among many others, see Giavazzi and Pagano (1990 and 1996), Alesina and Perotti (1997), Alesina and Ardagna (1998). For the case of Greece see Christodoulakis (1994).
2 In this form, the expression ignores the effect on debt due to seigniorage.
3 Real borrowing costs (r) in 2009 went on the rise for some countries such as Greece, Ireland and Portugal which later sought bail-out agreements, but in the Euro Area as a whole they virtually remained unchanged.
4 Setting values r = 4 per cent, g = – 6 per cent and b = 160 per cent as roughly was the case for Greece, the effect is 17 per cent of GDP per year.
5 The Greek government has already raised the issue of a possible re-assessment of the Adjustment Programme at the Eurogroup meeting of 11 February, 2013, on the grounds that the recession impact was grossly underestimated.
6 Another vivid manifestation of Laffer-curve effects took place in the Autumn of 2012 when the levy on heating fuel increased from €60 to €330 per metric ton – more than fivefold. With a seasonal consumption of around 4 million tons, the government expected to raise more than €1 billion in extra revenues. The actual outcome showed a poor rise by only €30 million, as households shifted to alternative supplies and fuel demand dropped sharply.
7 IMF WEO Database, October 2012
8 See ECB, Harmonised competitiveness indicators based on unit labour costs indices for the total economy (1999Q1=100). In 2012Q2 the index was 89, exactly the same as the 2000 average.
9 IMF, *ibid*.
10 According to the *Financial Times* (19/11/2012), "… the European Commission, which is also participating in the fund, faulted the bank for dragging its feet". The EIB attributed the delays to technical challenges, and predicted that the fund would be in place before the year-end.
11 All square terms are found to be insignificant at the 10 per cent level. Only the square of gross balance is found statistically significant at p = 0.08 but it is negatively signed, thus no threshold effect exists.
12 All estimates were repeated for the 16-member Euro Area by excluding Greece and again found to be similar to those obtained as above, though multipliers are closer to the upper bound of the IMF range. Results available from the author.

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Appendix A: Estimates for the Euro Area

To examine the fiscal effect on growth, a variant of equation (1) is estimated for the Euro Area. To avoid the presence of unit roots in the debt variable as displayed in table A1, estimation is carried out with the terms of growth and output in first-differences and by ignoring population growth and 'other' institutional variables as remaining mostly unaffected in the short time span. A simplified equation is given by:

$$\Delta g(t) = const + \alpha \cdot g(t-k) + \beta \cdot fiscal(t-1) \tag{3}$$

Non-linear terms are omitted as they are found to be insignificant and with the same sign as the linear term, thus implying no threshold effect.[11] The term 'fiscal' stands alternatively for the gross or primary government balances. To avoid the mechanical effect from lagged growth rates onto lagged fiscal variables when expressed as GDP ratios, the latter are constructed as the ratio of current flows in constant prices to real GDP in 2005, i.e.

$$fiscal(t) = \frac{\text{current flow}(t)}{PGDP(t) \cdot GDP(2005)} \tag{4}$$

where *PGDP* is the deflator of GDP at market prices relative to year 2005. For the same reason, lag *k* is set equal to 2. As shown in table A1, none of the variables is found to exhibit common or individual unit roots, and equation (3) is then estimated using pooled least-squares techniques over the period 2001–12. Country-fixed effects are allowed to account for idiosyncratic characteristics of member states, in a way similar to that in Baum *et al.* (2012), and dummies are used for the recessions in 2009 and 2012, while another one to count for the recession

Table A1. Unit root tests for Euro Area variables

Test	Common unit root process		Individual unit root process	
Variable	Levin, Lin & Chu t-stat	p value	Im, Pesaran & Shin W-stat	p value
Debt to GDP	+5.19	1.00	4.64	1.00
Growth rate	–7.69	0.00	–4.48	0.00
Gross balance	–3.87	0.00	–2.0	0.023
Primary surplus	–4.44	0.00	–2.42	0.01

Source: All variables from AMECO as explained in Appendix B.
Notes: Period 2001–12. The null hypothesis of a common unit root and individual unit roots found for the debt-to-GDP ratio cannot be rejected. A common or individual unit root is heavily rejected for all variables used in estimating equation (3).

Table A2. The fiscal impact on growth in the Euro Area

	Depended variable: Δgrowth			
Constant	0.051	0.597*8	2.312**	2.923***
	(0.123)	(1.98)	(2.20)	(2.75)
Growth(t–2)	–0.163**	–0.156*	–0.218**	–0.211**
	(1.96)	(1.89)	(2.55)	(2.48)
Gross balance(t–1)	–0.211***		–0.225***	
	(2.77)		(2.82)	
Primary balance(t–1)		–0.225**		–0.242***
		(2.94)		(3.02)
Dummy_2009	–5.222***	–5.541***	–4.457***	–4.470***
	(6.84)	(6.88)	(5.07)	(5.10)
Dummy_2012	–2.646***	–2.634***		
	(3.30)	(3.31)		
Policy uncertainty /100			–2.162**	–2.18888
			(2.84)	(2.48)
R2bar	0.250	0.254	0.230	0.235
DW	2.63	2.64	2.54	2.54
Implied long–term multiplier	–1.294	–1.440	–1.032	–1.146

Source: AMECO.
Notes: Regressions between the change in the growth rate and government balances (gross and primary) in the 17-member Euro Area. Method: Pooled Least Squares with Cross-section fixed specifications. Period 2001–12. Significance at the 10%, 5% and 1% level denoted by (*, **, ***) respectively; t-statistics in brackets.

in 2003 was found to be insignificant. The two dummies may also capture the effect that developments in the banking sector exerted on the economy, as the first round of banking consolidation in several Euro Area countries took place in 2009 and Greek debt restructuring was implemented in 2012.

Results are displayed in table A2 and a long-term multiplier is calculated as $m = -\beta/\alpha$. All coefficients are significant at the 1 per cent or 5 per cent level and imply long-term fiscal multipliers in the middle of the [0.90 1.70] range found by Blanchard and Leigh (2013).

However, to reduce the omitted variable bias an index of policy uncertainty as composed by Baker *et al.* (2013) was employed to reflect in more detail the serious deterioration of economic environment after the 2008 crisis while keeping the 2009 dummy for the initial shock. From an average of 93 between January 2001 and August 2008, the index rose to 151.76 for the period September 2008 to December 2012, a deterioration of 63 per cent.The estimates are found to be similar to those previously obtained, though multipliers are now closer to the lower bound of the IMF range.[12]

Appendix B: List of variables

Definitions and symbols as in AMECO Data base, January 2013, unless stated otherwise.

Gross domestic product at 2005 market prices (OVGD)

Price deflator gross domestic product at market prices (PVGD)

Net lending (+) or net borrowing (–) excluding interest: General government: ESA 1995 (including one-off proceeds relative to the allocation of mobile phone licences (UMTS)), (UBLGI).

General government consolidated gross debt: Excessive deficit procedure (based on ESA 1995), (UDGG).

Snowball effect on general government consolidated gross debt as per cent of market GDP: excessive deficit procedure (based on ESA 1995), (ADGGI).

Index of policy uncertainty: Obtained as simple annual average of monthly values of the European Policy Index (Baker *et al.*, 2013).

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