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The Theoretical Weaknesses of the Expansionary Austerity Doctrine

Alberto Botta

Abstract

In this paper, we provide a critical analysis of the theory of the expansionary austerity. We take the hotly debated contribution by Carmen Reinhart and Kenneth Rogoff on the supposedly negative relationship between public debt and economic growth (when the debt-to-GDP ratio overcomes the 90 percent threshold) as the starting point of our analysis. We then move to analyze those contributions that more directly point to the possible expansionary outcomes of tough fiscal retrenchments. We eventually criticize the main conclusions of the expansionary austerity theory by presenting a simple short-run theoretical model. We show that fiscal consolidation might have expansionary outcomes only under extreme, very specific and uncertain circumstances. Expansionary austerity would hardly take place in the context of monetarily sovereign economies, or in presence of an accommodative monetary policy like that implemented by the ECB since late 2011, or in economic systems that are poorly integrated to international goods markets.

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Corresponding authors: Department of International Business and Economics, Greenwich Political Economy Research Center, Greenwich University, Old Royal Naval College, 30 Park Row, London SE10 9LS, UK. Email: A.Botta@greenwich.ac.uk

1. Introduction

In 2010, Carmen Reinhart and Kenneth Rogoff published a hotly debated and influential paper, “Growth in a time of debt”. This work was a continuation of some previous contributions in which the two authors, together with Michael Savastano, developed the “debt intolerance” theory. According to the authors, the history of several developing and emerging countries clearly shows that the accumulation of public and private debt, in particular foreign debt, recurrently represented a source of economic instability, economic stagnation and recession. Such a negative and easy-to-emerge effect of developing countries’ (foreign) debt on their own macroeconomic performances is the result of the reluctance of (international) financial operators to accept even low levels of indebtedness in countries recording a long tradition of complicated debt management and serial defaults.

In their 2010 article, Reinhart and Rogoff somehow extended the theory of the debt intolerance to the case of developed countries. More in detail, they asserted that a statistical negative correlation exists between economic growth and public debt when public debt stocks reach levels higher than 90 percent of GDP. Accordingly, public debt stocks approaching the 90 percent (debt-to-GDP) threshold can represent a significant problem developed countries’ policymakers have to carefully deal with if they want to maintain and boost economic growth.

Reinhart and Rogoff did not directly and explicitly pointed out quick fiscal corrections as the best strategy to tackle with the problem of increasing public debt stock in both the US and European countries. Nevertheless, two years after the outbreak of the worldwide financial crisis and “Great Recession”, and the ensuing massive intervention by most governments worldwide to bail out close-to-bankruptcy financial systems and avoid even deeper contractions, their empirical analysis was largely perceived as the definitive proof of the validity of the theory of “the expansionary fiscal austerity”, and of the need for a sudden return to fiscal consolidation. According to the former US House Budget Committee Chairman Paul Ryan, for instance, “economists who have studied sovereign debt tell us that letting total debt rise above 90 percent of GDP creates a drag on economic growth and intensifies the risk of a debt-fueled economic crisis”. Analogously, Olli Rehn, the former European Commissioner to EU economic and financial affairs, openly stated that “it is widely acknowledged [...] that when public debt levels rise about 90 percent they tend to have a negative economic dynamism, which translates into low growth for many years. That is why consistent and carefully calibrated fiscal consolidation remains necessary in Europe”.

The long-lasting nature of some economic problems (i.e. an apparently endless recession in Greece and a permanently high level of unemployment – in particular youth unemployment – in Spain and Italy) in the peripheral countries of the Eurozone, as well as pale economic performances if not signs of stagnation in some central economies like Netherlands, Finland and even Germany, have now sparked a heated debate on the reliability of the expansionary austerity hypothesis, and of the empirical analyses which underpin it, directly or indirectly.

The aim of this paper is to provide a simple but comprehensive overview of the two conflicting hypotheses, i.e. the idea that well-designed fiscal consolidations may be conducive to growth even in the short run and even when implemented in a downswing, and the opposite traditional Keynesian-type rejection of restrictive fiscal measures in times of economic contraction. In particular, in Section 2 of this paper we first provide a brief analysis of the arguments put forward by the supporters of the expansionary austerity, and of the economic mechanisms through which expansionary fiscal consolidations might actually materialize. We also review both the critique to the above mentioned

work by Carmen Reinhart and Kenneth Rogoff, as well as those contributions that point out the methodological flaws affecting the prevalently empirical literature that more directly developed the expansionary austerity logic. Section 2 closes with a brief look at some empirical evidence that may cast doubts on the solidity of the pillars of the expansionary austerity theory. Section 3 moves the focus of our analysis to the theory, and presents a simple short-run model that shows the specific economic conditions and assumptions that could make expansionary fiscal consolidation possible. We stress that the economic mechanisms at the basis of the expansionary austerity hypothesis are far from being automatic. Actually, they fundamentally depend on three core aspects: first, the highly *uncertain* favorable change in economic agents' expectations in presence of tough and likely long-lasting fiscal corrections; second, the dynamics of interest rates on financial markets, as strongly influenced by the behavior of the domestic central bank and the way it conducts domestic monetary policy; third, the high sensitiveness of net exports to internal devaluation and improving exchange rate. Our conclusion is that the theoretical fundamentals of the expansionary austerity hypothesis are fragile and state- or institution-contingent. Therefore, they must be carefully re-considered and contextualized before using such theoretical apparatus as a general guide for fiscal policy.

2. The empirical debate on the expansionary austerity theory

The theory of expansionary austerity is part of a long-standing debate in economic literature on the effectiveness of fiscal policy (at least in relative terms with respect to the effectiveness of monetary policy). Such a debate dates back to the 60s and to the theorization of the crowding-out effects of expansionary fiscal policies on private investments in the traditional IS/LM model. Such debate further developed during the 70s through the introduction of the well-known Ricardian equivalence hypothesis, i.e. the idea that debt-financed fiscal policies are ineffective if economic agents anticipate future increases in taxation, and therefore immediately cut consumption and investment expenditures.

Nonetheless, the theory of the “expansionary fiscal austerity” as we currently know it emerged at the beginning of the 90s when some economists stated that, at least under certain conditions, discretionary expansionary fiscal policies may have non-Keynesian effects, since that they may prove to be ineffective to stimulate economic activity and, at the same time, they may put at risk the solidity of public finances and of the whole financial system of the economy (see Giavazzi and Pagano, 1990 and 1996; Alesina and Perotti, 1995; Alesina and Ardagna, 2010 and 2012)¹. Symmetrically, those economists also argued through the analyses of some specific case studies that well-conceived fiscal restrictions might actually stimulate private consumption and investment expenditures, as well as improve export dynamics, so that the overall economic activity might eventually expand rather than contract (as stated by the standard Keynesian arguments).

According to the supporters of the expansionary austerity, well-designed fiscal consolidations must take the form of deep, persistent and credible cuts in public expenditures, in particular public transfers and public employees' wages, perhaps followed by reductions in the tax burden on households. In their view, such a shift in fiscal policy may constitute a “regime change” that may foster economic activity through three main mechanisms. First, successful fiscal corrections may positively affect the behavior

¹ See Sutherland (1997) for the case of possible non-Keynesian effects of expansionary fiscal measures when undertaken in a context of *high public debt*. Perotti (2012) also stresses that fiscal contractions may indeed be expansionary in presence of *high interest rates*, in particular when they contribute to reduce risk premia on financial assets, on government bonds first of all, and prompt a considerable reduction in nominal interest rates.

of private economic actors, both households and firms, through the so-called “expectation channel”. Upfront public spending cuts, it is argued, may induce economic agents to elaborate optimistic expectations by anticipating future tax reductions and consequent increases in their own (permanent) income. This, in turn, may incentivize them to immediately raise consumption expenditures and to unleash investment programs, giving momentum to current economic activity. Second, tough fiscal corrections that prove to be effective in reducing public deficits and public debt stocks can stimulate investments and growth by re-establishing bond vigilantes’ trust in public finances’ solvency and prompting a significant reduction in interest rates. Last but not least, cuts in public wages that help to establish wage moderation on the labor market may give rise to a kind of internal devaluation that may eventually improve external competitiveness and foster net exports.

Most part of the critiques to the theory of expansionary austerity address the weaknesses of the empirical analyses through which the expansionary austerity literature tries to validate its non-Keynesian view of fiscal policy outcomes. As to the above mentioned article by Carmen Reinhart and Kenneth Rogoff (which, let’s repeat it for the sake of clarity, does not explicitly or directly point out expansionary austerity as the main way out of the ongoing sovereign debt crisis), harsh criticisms emerged after Herndon et al. (2014) demonstrated that the empirical analysis presented in that paper was badly flawed by some technical errors and by a debatable procedure for selecting and weighting cross-country data. As to the selection process in particular, Herndon et al. (2014) note that Reinhart and Rogoff voluntarily neglect to consider the positive average growth rates registered in Australia, Canada, and New Zealand from 1946 to 1950 even in the presence of high public debt stocks. In the case of New Zealand, Reinhart and Rogoff consider data from 1951 only, when New Zealand plummeted in a bad recession with GDP contraction amounting to 7,6%. Even further, in their study Reinhart and Rogoff first re-group country level annual growth data into different sub-samples according to the corresponding public debt-to-GDP ratio. Four public debt-to-GDP categories are assumed: below 30 percent; between 30 and 60 percent; between 60 and 90 percent; higher than 90 percent. In each sub-group, mean growth rates at country level are averaged in order to compute the average cross-country growth rate associated with each specific debt category. Through such an averaging strategy, the authors assign equal weights to each country in each specific debt-to-GDP sub-sample without paying attention to the length of the timespan during which an economy falls into a given specific debt-to-GDP category. In the case of the “above 90 percent” category, the negative growth performance observed in New Zealand in only one year, i.e. in 1951, has the same relevance as the average positive growth rates registered in Greece and the UK over 19 years. Had Reinhart and Rogoff adopted the alternative weighing and averaging strategy proposed by Herndon et al. (2014), the average growth rate associated to the “above 90 percent” debt category would have been equal to 2 percent rather than -0.1 percent.

The economic analyses that more directly embrace and put forward the expansionary austerity standpoint generally build up their empirical tests on the concept of cyclically adjusted primary public balances² (henceforth CAPB), and take significant shifts³ in countries’ CAPBs as signs of

² The cyclically adjusted primary public budget (CAPB) is the difference between government expenditures and government revenues (net of interest payments) that would prevail should the economy work at full potential. Remarkable changes in a country CAPB are considered as genuine signs of discretionary fiscal measures since that they are “polished” from the effects that economic cycles, through the functioning of automatic stabilizers, would naturally have on actual primary public balances.

³ Alesina and Perotti (1995), for instance, interpret improvements (deteriorations) in a country’s CAPB in the order of at least 1,5 percentage points over GDP as examples of “very tight” (“very loose”) discretionary fiscal policies. This is also

discretionary expansionary or restrictive fiscal policies. The authors then use the identified episodes of fiscal adjustments to econometrically explain cross-country growth performances and public debt dynamics in the years following the launch of discretionary fiscal packages.

Criticisms to such a methodology are mostly based on the fact that the adopted measures of cyclically adjusted primary balances are not capable to completely remove the effects of the economic cycles on the evolution of public finances, no matter how carefully the cyclically adjusted primary balance itself is defined and computed (see Guajardo et al., 2011; Baker and Rosnick, 2014). For instance, during phases of economic expansion the prices of financial assets usually tend to increase, this way improving primary public balances by raising tax revenues. However, such an effect of the economic cycle on public finances is not detected by the above mentioned CAPB-centered methodology. Eventually, a pure cyclical component of public balance dynamics, which is positively correlated with the economic cycle, is misinterpreted and wrongly accounted for a discretionary restrictive fiscal policy shock. The positive correlation between apparent fiscal consolidation and economic expansion is easy to emerge, but it is the outcome of a biased empirical approach and the econometric misunderstanding of rather different economic mechanisms.

On top of the above mentioned problem of precisely computing the CAPB, a perhaps more relevant causality issue does emerge. Very likely, fiscal variables and economic growth feedback on each other and both emerge as endogenous variables. The causality runs both ways: fiscal policy can surely influence economic performances, positively or negatively. Economic dynamics, in turn, has clear implications in terms of improving or worsening public balances, as well as on the type of fiscal stances governmental authorities follow⁴. The results of the CAPB-based literature may thus be misleading simply because they take changes in the cyclically adjusted primary balance as the exogenous explicative variable of economic dynamics, whilst it is the endogenous one.

In order to address such an estimation problem, Guajardo et al. (2011) suggest an alternative method to identify episodes of fiscal adjustment. This approach is based on the direct analysis of fiscal authorities' historical documents and decisions. What eventually emerges from the adoption of this alternative methodology is that "a 1 percent of GDP fiscal consolidation reduces real private consumption by 0.75 percent within two years, while real GDP declines by 0.62 percent [...] Our main finding that fiscal consolidation is contractionary holds up in cases where one would most expect fiscal consolidation to raise private domestic demand. In particular, even large spending-based fiscal retrenchments are contractionary, as are fiscal consolidations occurring in economies with a high perceived sovereign default risk (Guajardo et al., 2011, p.29)".

The above results are in turn consistent with the findings of an expanding and rather transversal (among different economic theories) body of literature that has recently rescued from oblivion the concept of fiscal multiplier. Indeed, such literature stresses that the size of fiscal multiplier may vary over the business cycle and it may be particularly large during recessions (Auerbach and Gorodnichenko, 2012; Qazizada and Stockhammer, 2015). Of course, this evidence is radically at odds

the definition of fiscal adjustment followed by Alesina and Ardagna (2010). Alesina and Ardagna (2012), on the contrary, adopt a more complex definition of fiscal adjustment, according to which "a fiscal adjustment is either 1) a two year period in which the cyclically adjusted primary balance/GDP improves in each year and the cumulative improvement is at least two points of the balance/GDP ratio; a three year or more period in which the cyclically adjusted primary balance over GDP improves in each year and the cumulative improvement is at least three points of the Balance/GDP ratio (Alesina and Ardagna, 2012, pp. 5 – 6)".

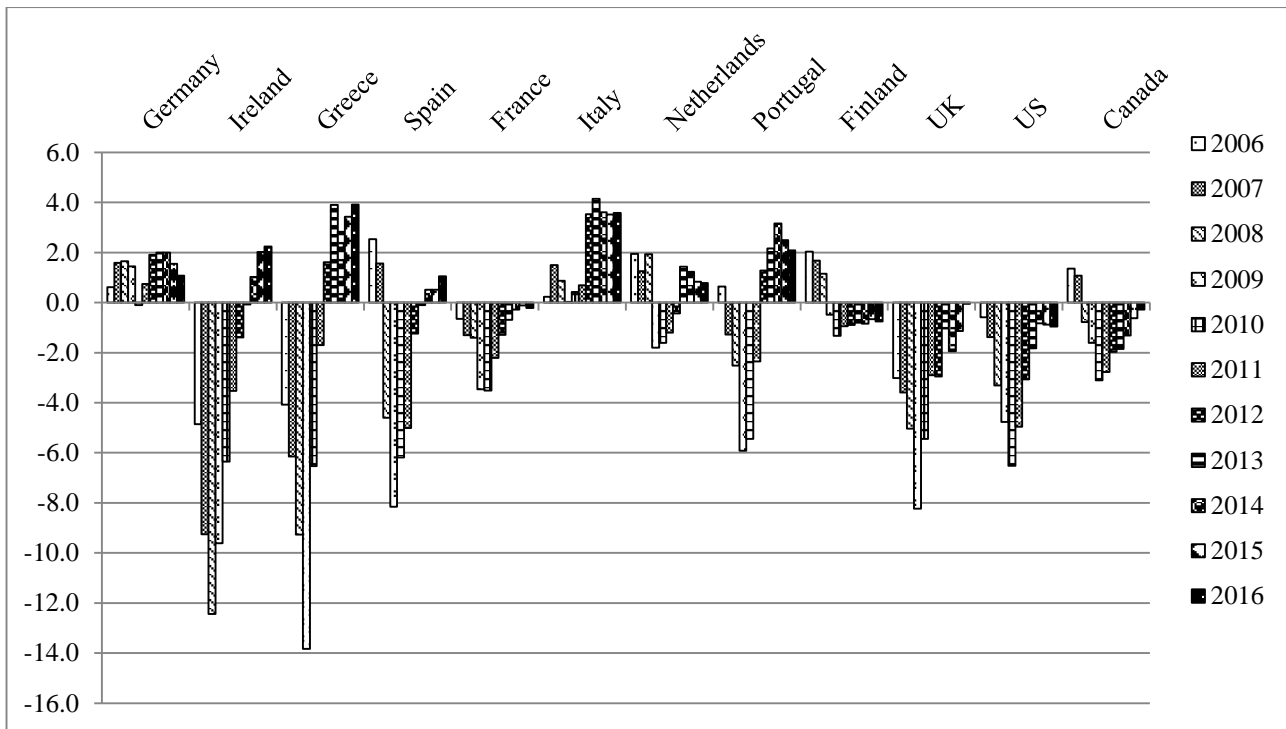
⁴ Policy makers, for instance, may adopt a restrictive fiscal policy stance as a response to, and in order to tame excessive economic expansions putting at risk price stability and overheating the economy. Here fiscal policy adjustments are a consequence rather than the determinants of economic growth.

with the concept of negative fiscal multiplier implicitly advocated by the expansionary austerity doctrine.

A further assessment of the methodological robustness of the expansionary austerity theory is out of the scope of the present paper, as it is any detailed estimation of a positive or negative fiscal multiplier. Yet, before moving the analysis to the theoretical model developed in Section 3, we give a brief look at some recent empirical data in order to get a prima facie feeling of how some stylized facts seem to contradict the main assumptions and economic mechanisms theorized by the expansionary austerity literature.

Figure 1 provides a general overview of the size of fiscal adjustments taking place in a series of developed economies since 2006. More in detail, in Figure 1 we show structural primary balances, and hence their annual change, for the countries under observations according to data and forecasts from the IMF and the OECD.

Figure 1 – General government structural primary balance as a ratio to GDP % in selected developed countries, 2006 – 2016.



Source: Author’s computation based on data and forecasts from IMF’s World Economic Outlook (October 2015) and OECD Economic Outlook (2015).

From Figure 1, it emerges strikingly clear the wide variety in the intensity of fiscal adjustments characterizing the economies at hand. Since 2010, fiscal retrenchments have been much tougher in peripheral eurozone countries than in central economies and in “stand-alone” countries⁵. Among peripheral eurozone countries, structural primary balances moved from highly negative values in the immediate aftermath of the world financial crisis to significantly positive ones in Greece and Portugal

⁵ In this paper, we follow De Grauwe and Ji (2013) and we label “stand-alone” economies those countries that maintain full monetary sovereignty by denominating the domestic public debt in their own currency and by maintaining a national central bank (associated to domestic fiscal institutions) that could freely intervene on financial markets to backstop public finances in case of need.

since 2012. Ireland and Spain have registered structural primary surpluses in 2014. In the case of Italy, positive structural primary balances over the whole period picked up in 2012, and are expected to remain at remarkably high levels onwards. Interestingly, structural primary deficits, albeit decreasing, did not switch into positive in all the three “stand-alone” economies we take into account. In the case of the UK, this means that the kind of fiscal adjustment implemented so far has been milder with respect to that of peripheral eurozone countries despite the pro-austerity rhetoric of the leading conservative party. In the case of the allegedly virtuous Finland, the structural primary balance is negative and around 1 percent of GDP since 2009. In the case of Germany, it is positive even though it is expected to decrease in the upcoming years and it should achieve much lower values than the corresponding figures in peripheral eurozone countries. Other way around, in Germany there is not any sign of the dramatic switch in public balance experienced in the periphery of the eurozone.

In this general picture, Figures 2, 3 and 4 go to the heart of the expansionary austerity doctrine and test the relationship existing between annual fiscal adjustments and year-on-year economic dynamics for the sample of developed countries considered in Figure 1. According to common practice in the expansionary austerity literature, fiscal adjustment is defined as the year-on-year change in structural primary balance. In Figure 2, we show how fiscal adjustment is correlated to overall economic growth. In Figures 3 and 4 we see how it is related to the dynamics of private consumption and gross capital formation respectively. Contrary to what expected by the supporters of the expansionary austerity, in Figure 2 we find out a negative correlation between fiscal adjustment and GDP growth. Such a negative correlation gets even stronger when we take private consumption (Figure 3) and gross capital formation (Figure 4) as dependent variables.

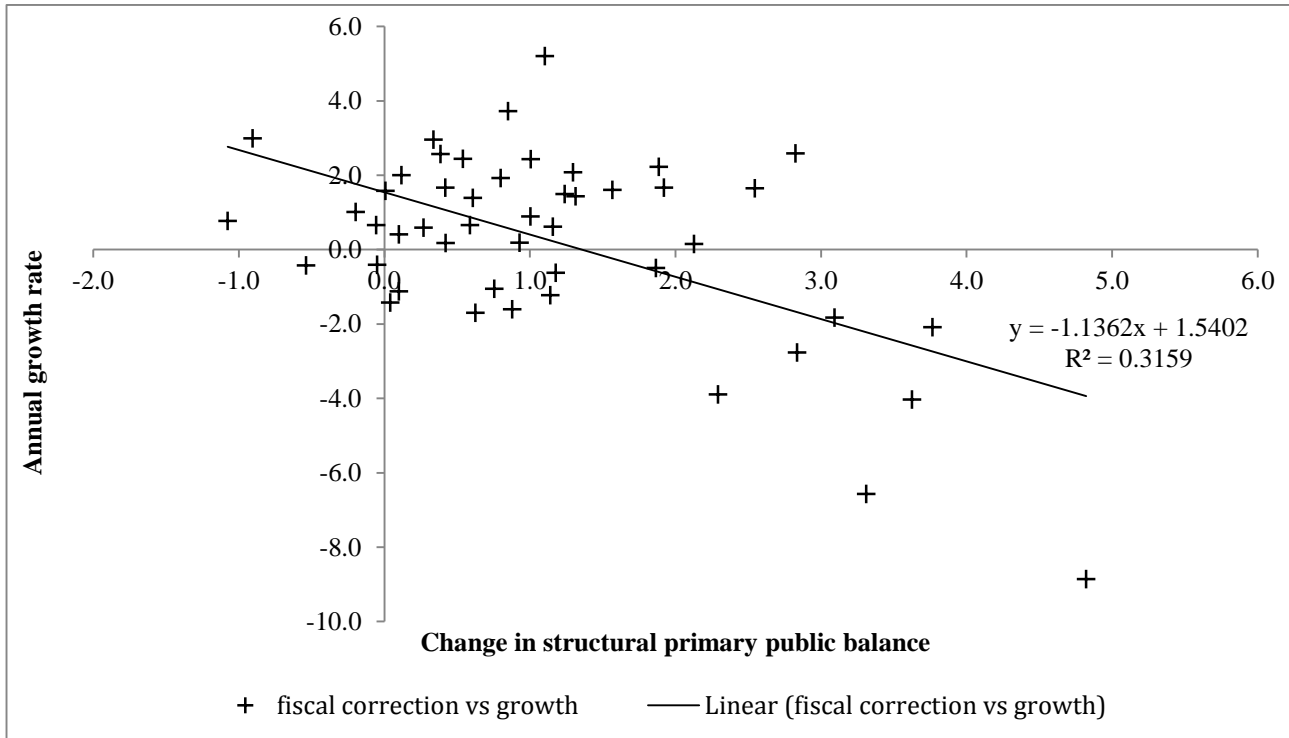
The analysis presented in Figures 2 – 4 is overly simple to constitute any definitive proof against expansionary austerity. Yet, it shows that it is hard to find any sign of austerity-led growth spurt in developed economies in the most recent years. Indeed, since 2010 to 2013, in eurozone countries where austerity measures have been extensively implemented, positive contributions to economic recovery have come by external factors mainly, i.e. increasing export flows, but certainly not by those domestic components of GDP that, according to the expansionary austerity theory, fiscal corrections were expected to positively stimulate (see Figure 5 below).

Even further, export dynamics has been appreciable in a small export-oriented country such as Ireland, which has very likely benefitted of tight commercial integration with non-eurozone countries such as the UK and the USA. But this does apply in a much lesser extent to Portugal and Spain. In Italy and, above all, in Greece, export dynamics has been disappointing at the very least. Accordingly, there are serious doubts on the allegedly positive effect fiscal austerity may have on export performances by inducing an internal devaluation. Should this channel be at work, if ever, its effectiveness likely depends on country-specific factors. For sure, it cannot be taken as a given well-established and universal regularity.

One possible reply by expansionary austerity’s supporters is that the dismal results of austerity in most developed economies, in peripheral eurozone countries in particular, might be the consequence of the wrong implementation of austerity measures themselves, with emphasis misplaced on tax increases rather than spending cuts. Empirical evidence does not provide support to such a rebuttal. Following Tamborini (2015), what stylized facts tell us is that cumulative primary spending cuts from 2010 to 2013 outstripped by far relatively small tax increases in Greece, Ireland and Portugal. Ironically, cumulative primary public spending increased vigorously rather than decrease in Germany, Finland,

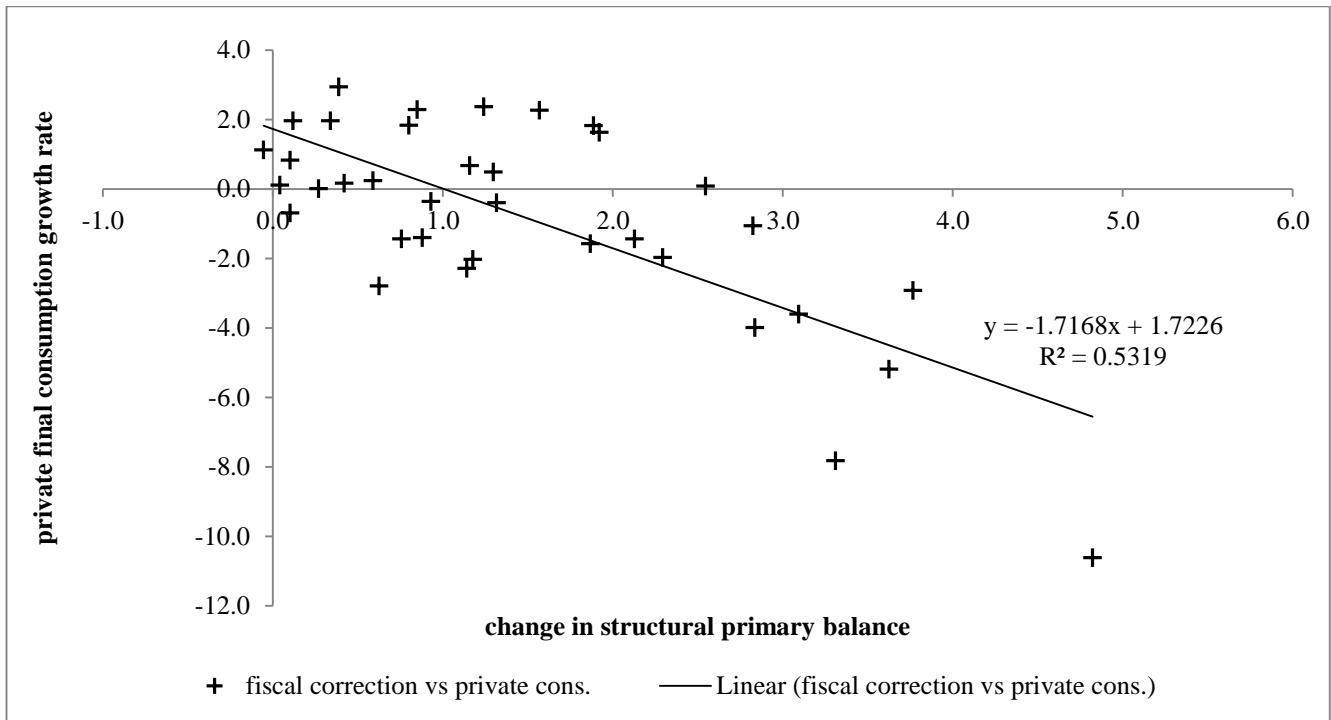
Netherlands and the USA. In the UK, austerity was mainly tax-based, with public expenditures being almost constant since 2010 to 2013.

Figure 2 – Correlation between annual change in structural primary balance and GDP growth, selected developed countries, 2011 – 2014.



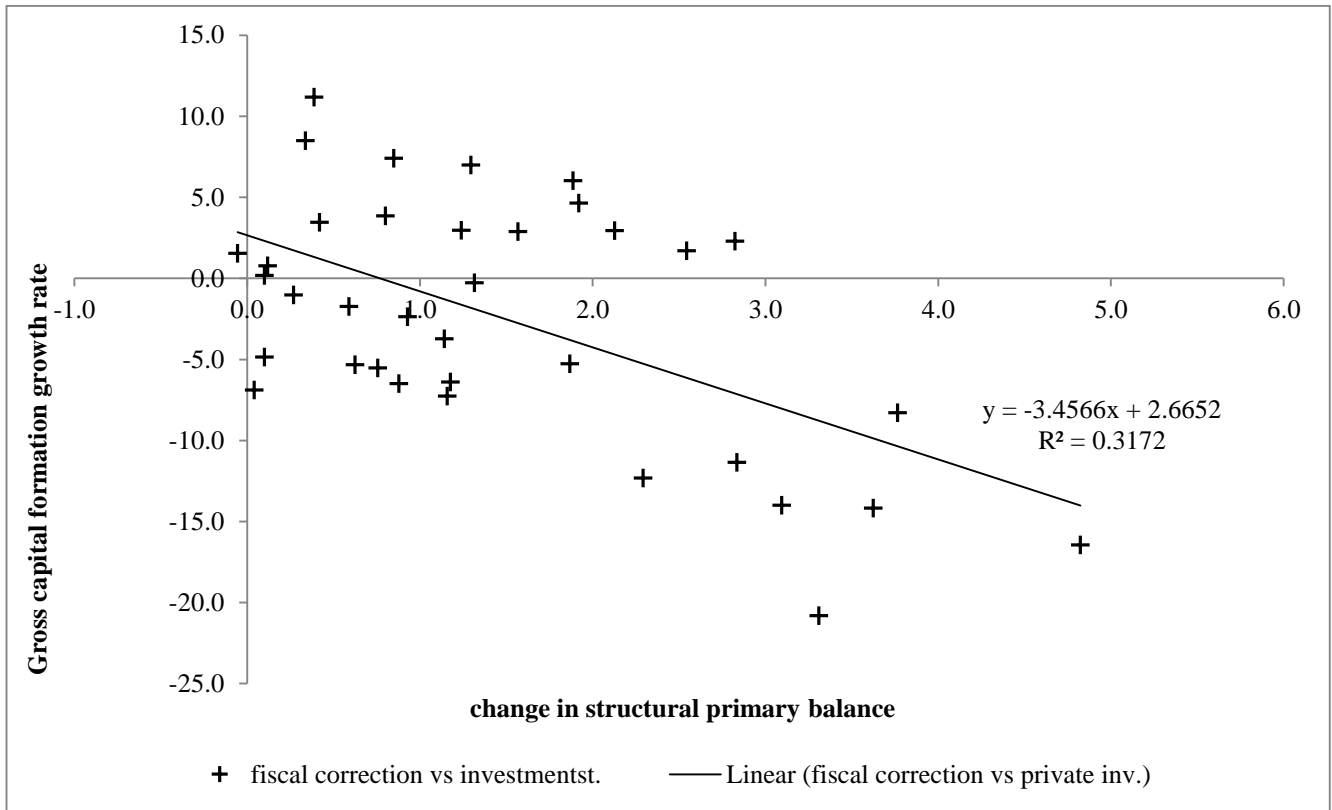
Source: Author's computation based on data from UNCTAD.

Figure 3 – Correlation between annual change in structural primary balance and private consumption's annual growth rate, selected developing countries, 2011 – 2013.



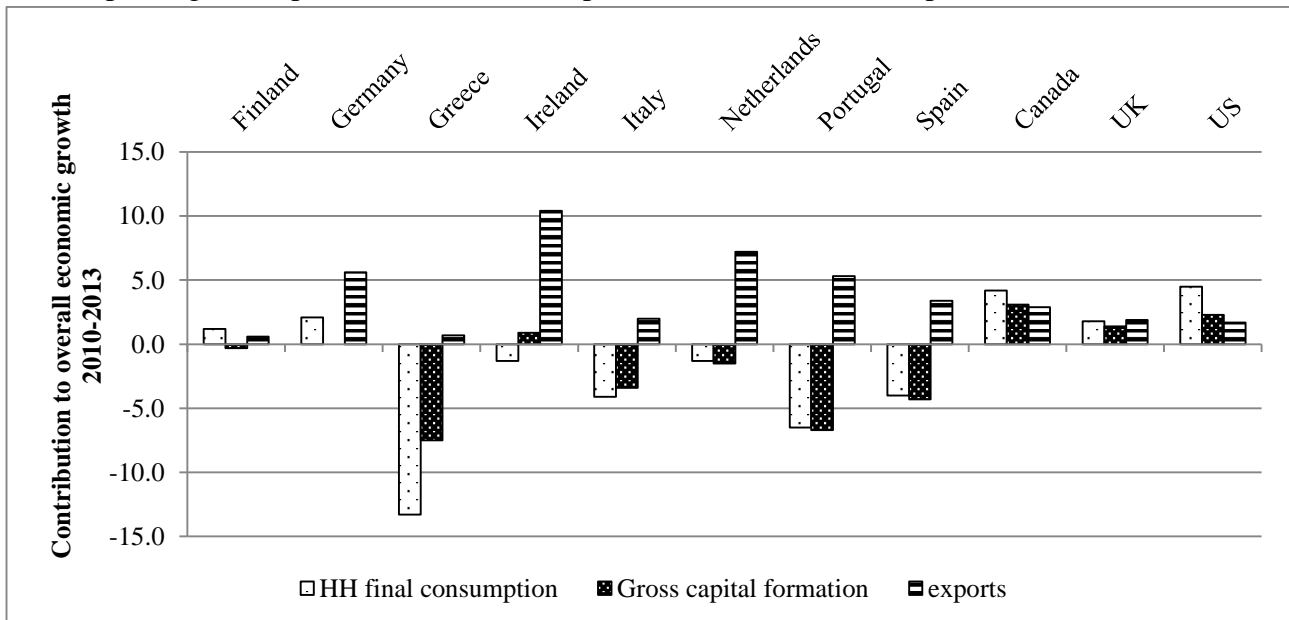
Source: Author's computation based on data from UNCTAD.

Figure 4 – Correlation between annual change in structural primary balance and gross capital formation’s annual growth rate, selected developed economies, 2011 – 2013.



Source: Author’s computation based on data from UNCTAD.

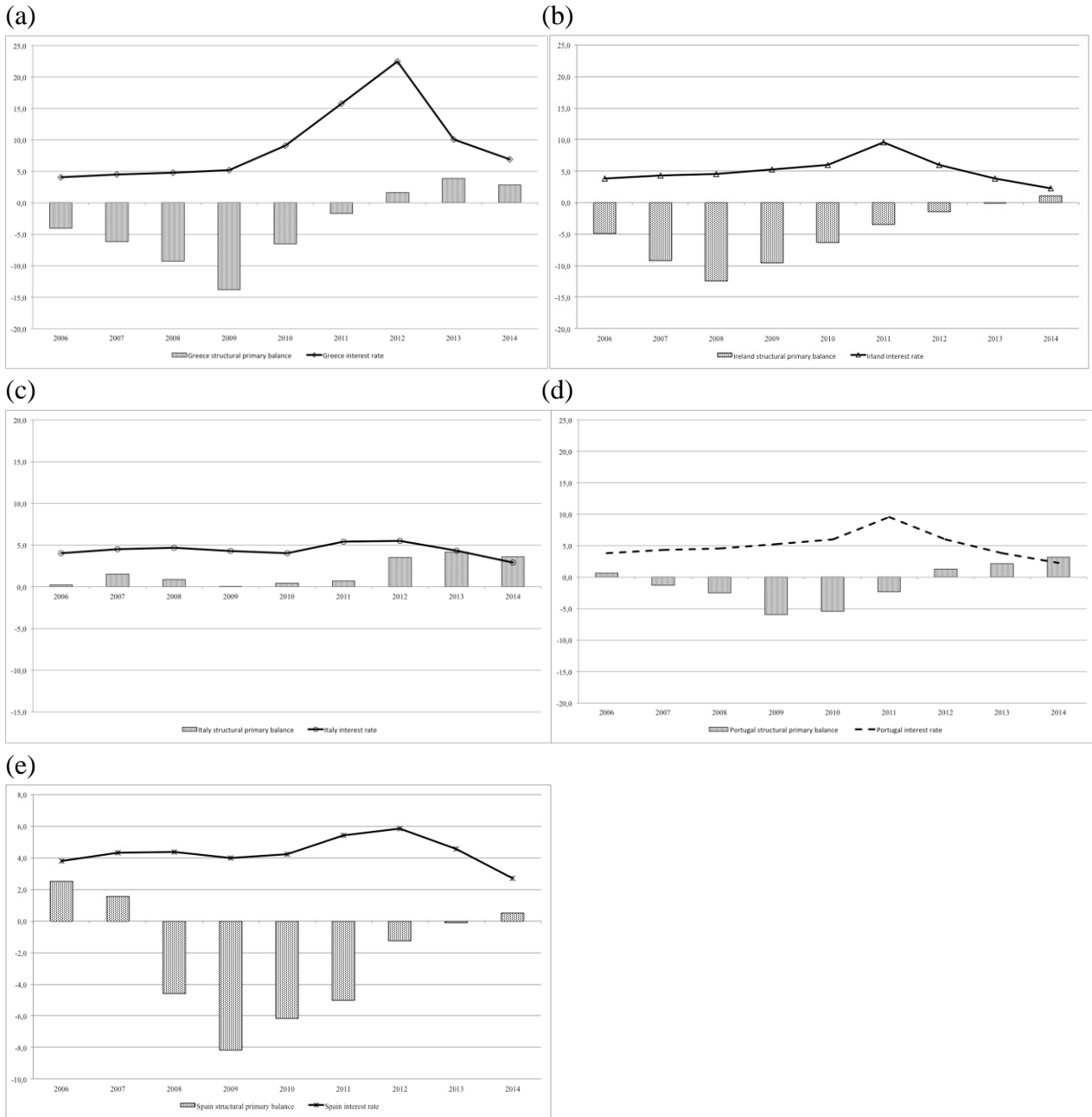
Figure 5 – Contribution to 2010-2013 overall economic growth by Households’ (HH) final consumption, gross capital formation, and export flows, selected developed economies.



Source: Author’s computation based on data from UNCTAD.

In the five panels composing Figure 6, we address the additional pillar of the expansionary austerity building, i.e. the positive effect fiscal consolidation may have on economic activity by restoring bond vigilantes' trust in public finance's solidity, hence reducing interest rates and ultimately crowding-in private investments.

Figure 6 – Structural primary balance and 10-year government bonds' yields in Greece (panel a), Ireland (panel b), Italy (panel c), Portugal (panel d), Spain (panel e), 2006 – 2014.



Source: Authors' computation based on data from IMF World Economic Outlook (October 2015) and OECD Economic Outlook (2015).

In Figure 6 we analyze this point applied to the case of the so-called GIPSI eurozone countries, i.e. Portugal, Italy, Ireland, Greece and Spain. The stylized facts reported in Figure 6 are particularly interesting when they are compared to the same figures related to “stand-alone” countries and to some central eurozone economies (see Figures 7 and 8 respectively). In the case of the peripheral eurozone

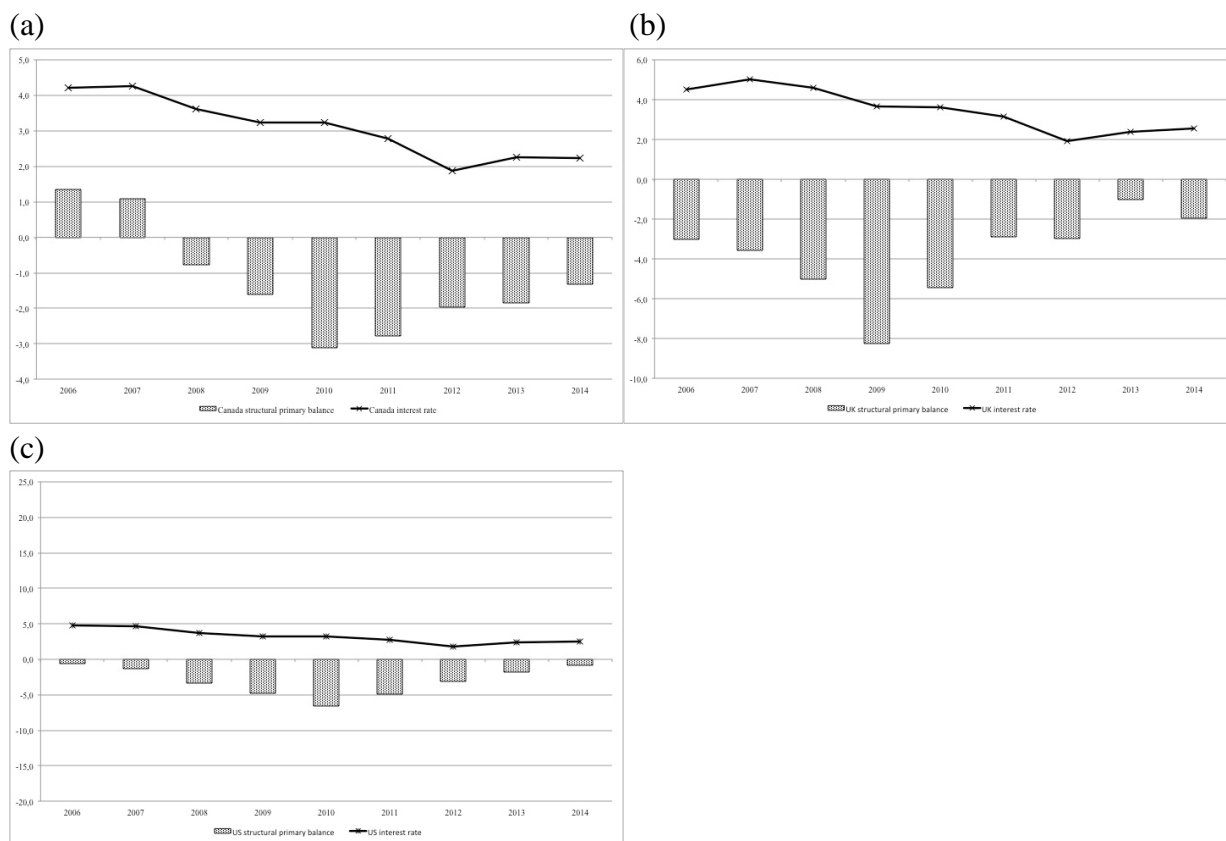
countries, 10-year government bonds' yields hiked up when tough austerity measures started to be implemented or were underway. This is astonishingly clear in the case of Greece. When we move our attention to "stand-alone" countries, a completely different dynamics emerges. Interest rates on government bonds started to decline in the immediate aftermath of the world financial crisis. And they decreased remarkably even in presence of discretionary fiscal stimuli that triggered off large deteriorations in primary structural balances. Last but not least, since 2007 10-year government bonds' yields have decreased also in central eurozone countries such as Finland, Germany and Netherlands. In the case of Finland and Netherlands, it is worth stressing that, contrary to what observed in the periphery of the eurozone, such a trend was associated to widening primary structural deficits in the years following the outbreak of the worldwide financial crisis and of the "Great Recession".

The analysis of Figures 6 – 8, together with a more detailed look at monthly interest rate data (see Figure A1 in Appendix A to the paper) and capital movements, reveals that financial operators do not judge the implementation of fiscal corrections as a relevant factor in order to assess public finance's solidity, and determine government bonds' riskiness and interest rate yields. What actually seems to be more important is the net debtor/net creditor position accumulated on international financial markets (as mirrored by protracted current account deficits/surpluses), and the institutional framework, i.e. the degree of connection between monetary and fiscal authorities, in which government bonds are issued.

Merler and Pisani-Ferry (2012), for instance, show that Greece and Ireland started to be hit by sudden stops and capital reversals due to external factors such as the 2007 – 2008 financial shock. Accordingly, turbulences on the market for Greek and Irish sovereign bonds, and upward pressures on the corresponding yields, emerged in the second half of the 2008 (see grey area in Figure A1 in Appendix A), even though there was no sign of the upcoming sovereign debt crisis at that time yet. In a way, what commenced as a standard Balance-of-Payment crisis eventually triggered off a knock-on effect and turned into a widespread public debt crisis passing by the public bailout of domestic private financial sectors (in Ireland in particular) and the financial contagion of other internationally indebted peripheral eurozone countries.

Into this picture, Lavoie (2015) notes that the intrinsic institutional flaws of the European Monetary Union decisively contributed to give rise and fuel the crisis. We refer, in particular, to the detachment of the European Central Bank (ECB) from national Treasuries (and from any still-not-existing centralized eurozone fiscal authority), and to its impediment, sanctioned by law in its own Statute, to act as purchaser of last resort on national bonds' markets. It is easy to see how such constitutional constraints to the operativeness of the ECB restrain it from backstopping public finances in case of need, make public finances over-dependent on financial markets' sentiments, and open wide space for confidence crises. By the same token, it is equally telling that government bonds' yields of most peripheral eurozone countries declined sharply after that the ECB took a much more interventionist stance by launching the Long-Term Refinancing Operation (LTRO) and by announcing the Outright Monetary Transaction (see blue areas in Figure A1). On the one hand, the former program indirectly calmed down government bonds' interest rates via government bonds' purchases by refinanced banks. On the other hand, the well-known Mario Draghi's "whatever it takes" statement and the subsequent OMT program has directly put an end to financial speculation on (peripheral economies) sovereign bonds' markets.

Figure 7 – Structural primary balance and 10-year government bonds’ yields in Canada (panel a), UK (panel b), and US (panel c), 2006 – 2014.

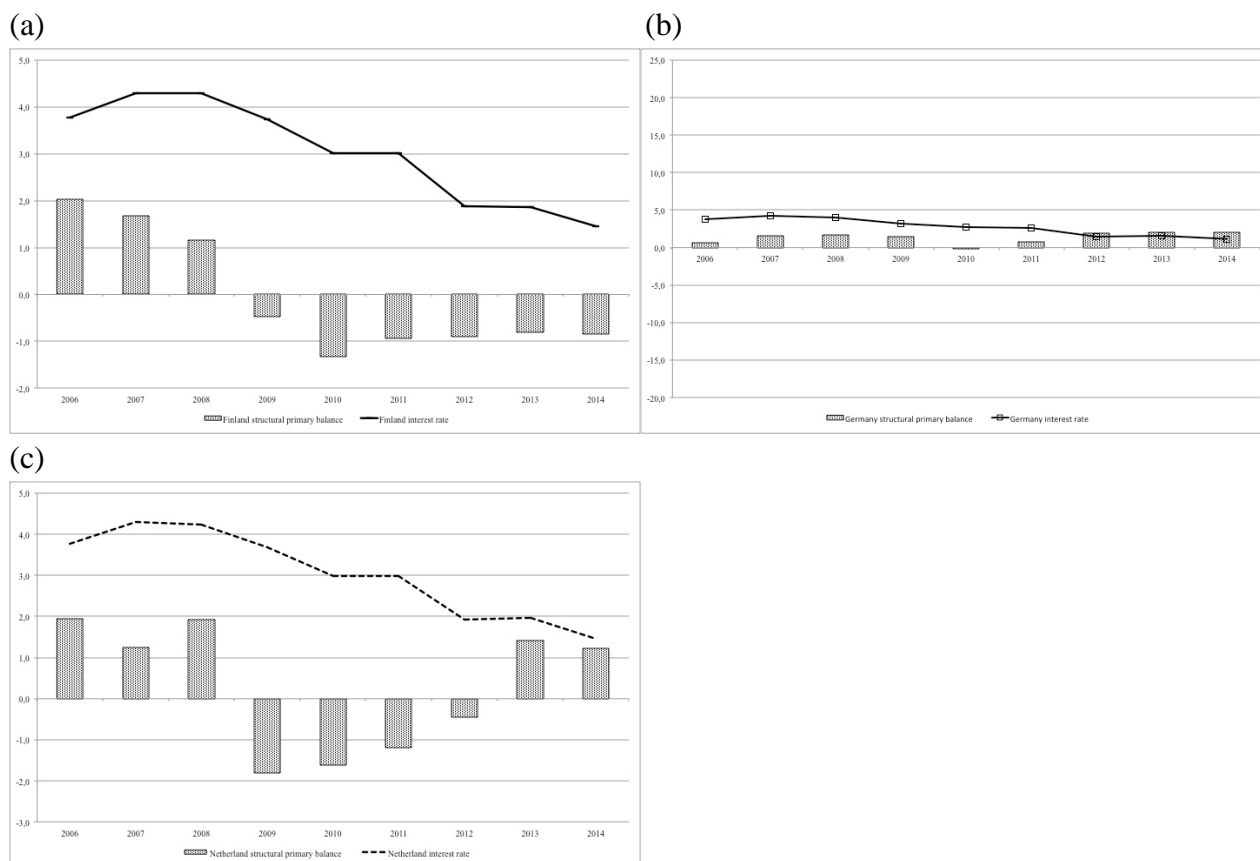


Source: Authors’ computation based on data from IMF World Economic Outlook (October 2015) and OECD Economic Outlook (2015).

Following De Grauwe (2011), these same limitations do not apply to the case of “stand-alone” countries, where domestic central banks could be eventually forced to intervene, snap off financial speculation and calm down financial distress on domestic government bonds’ markets. This is why it turns out clear from Figure 8 that financial operators, at least in the most recent years, seem not to pay any concern to highly expansionary fiscal policy stances, large deficits, and fast growing debt-to-GDP ratios in “stand-alone” countries such as the UK, the USA and Canada.

For the purpose of this paper, what matters is that all the above mentioned facts seem to contradict the overly simplistic view put forward by the supporters of the expansionary austerity according to which tough fiscal correction is the right policy to take in order to stabilize financial markets in time of distress. Indeed, expansionary fiscal policies appear to be mostly irrelevant to influence financial markets’ sentiments in the case of monetarily sovereign countries. For sure, they did not trigger off any run against government bonds. In turn, front loaded fiscal contractions taken during deep recessions did not deliver the expected results in externally indebted peripheral eurozone countries, which had previously lost their monetary sovereignty by joining the European Monetary Union.

Figure 8 – Structural primary balance and 10-year government bonds’ yields in Finland (panel a), Germany (panel b), Netherlands (panel c), 2006 – 2014.



Source: Authors’ computation based on data from IMF World Economic Outlook (October 2015) and OECD Economic Outlook (2015).

3. A simple short-run model of the expansionary/contractionary effects of fiscal adjustments

Most of the contributions discussed so far question and criticize the *empirical validity* of the expansionary austerity hypothesis. However, they do not address the in-depth theoretical consistency of such a theory. To the best of our knowledge, only a few studies have aimed at showing and enlightening the theoretical or logical fragility of the expansionary austerity doctrine from a non-mainstream perspective.

Demopoulos and Yannacopoulos (2012), and Robert Boyer (2012) provide *argumentative* analyses of the theoretical weaknesses affecting the expansionary austerity perspective, and highlight how there is “no general theoretical reason to guarantee the success of any austerity policy (Boyer, 2012, p.297)”.

Demopoulos and Yannacopoulos (2012) review all the abovementioned mechanisms through which fiscal corrections may supposedly have expansionary outcomes. They then attack the concrete effectiveness of these same mechanisms. On the one hand, they criticize the Ricardian equivalence hypothesis that lies behind the possible austerity-induced expansion of private consumption. In particular, they stress that consumers would hardly smooth consumption inter-temporally and increase current consumption in sight of future expected reductions in income taxes if liquidity constraints are binding⁶ and/or the degree of Keynesian uncertainty about (the timing and amount of) future tax cuts is

⁶ A formal analysis of the consequences binding liquidity constraints may have on inter-temporal consumption smoothing would require to allow households to finance consumption, at least partially, through debt. In the context of modern

high. On the other hand, they also note that, in a standard open-economy IS-LM model with fixed exchange rate, the so-called “financial channel” is not operative since that interest rates are set exogenously on international financial markets.

Robert Boyer (2012), in turn, surveys the specific conjunctures and circumstances under which, in the past, austerity measures might have been expansionary in a few small open economies.

These studies, although interesting, do not provide a formal treatment of their analyses. In a way, they do not frame their arguments into a perhaps simple model through which one can juxtapose expansionary and contractionary effects of austerity programs, and quantitatively assess how and under which (economic-institutional) circumstances (i.e. parametrical settings) the former might prevail on the latter.

Thomas Palley (2010) does elaborate a post-Keynesian demand-driven closed-economy model showing the short-run effects of fiscal rules imposing limits to debt-to-GDP ratios. Taking inspiration from a previous paper by Canale et al. (2008), Foresti and Marani (2014) in turn propose a simple short-run model in which fiscal austerity may have expansionary outcomes depending, among other factors, on the degree of interaction between monetary and fiscal policy, and on the intensity of the accommodative stance taken by monetary policy in presence of fiscal retrenchments.

In the present paper, we present a simple theoretical model, which is a sort of open-economy version of the previous model presented by Palley (2010). In our model, we propose a more general framework than Palley does. Indeed, Palley’s theoretical exercise *in-built* result is that austerity measures inevitably lead to economic contraction. We think such a property of his model to be unsatisfactory and to constitute a shortcoming of the model itself. From our point of view, it makes no sense to criticize the effectiveness of fiscal austerity (and the solidity of the expansionary austerity hypothesis) through a theoretical framework that assumes, *a priori*, contractionary fiscal consolidation. Rather, we think that a more effective critique of expansionary austerity ought to point out the specific and perhaps extreme and unrealistic conditions under which it could materialize. This is what we try to show in the present paper.

In their work, Foresti and Marani (2014) define austerity as a temporary and/or permanent reduction in public deficit⁷. On the one hand, they do not enter into the details of expansionary austerity prescriptions, and do not address the specific policy measures that, according to the expansionary austerity literature, should compose a possibly successful fiscal austerity package. On the other hand, they implicitly take the positive effect of fiscal measures on public deficit as granted. With respect to Foresti and Marani (2014), in this paper we propose a model, which is, at the same time, more specific in the analysis of the policy measures composing austerity packages, and more general in the type of results it may give rise. As to the first point, here we explicitly take into account and model some of the peculiar measures expansionary austerity supporters advocate, i.e. cuts in public transfers and in public employees’ salaries. This way, we depart from a simplistic and perhaps rough identification of austerity measures with reductions in public deficit. As to the second point, our model allows for a wider range of outcomes of the above austerity measures on public deficit. In our model, austerity measures may squeeze public deficits in the event they turn out to be effective and have an

financialized and increasingly unequal developed economies, this is a concrete eventuality, since that consumption expenditures from low-income households have increasingly relied upon banks’ loans. However, for the sake of simplicity, in the present model we neglect to take into account a possible link between consumption expenditures and banks’ loans to households.

⁷ Foresti and Marani (2014) do not clearly define what they do mean as temporary or permanent reductions in public deficit.

expansionary impact on economic activity. Such a result, however, is by no mean automatic. Rather, austerity measures may also lead to counterintuitive results, i.e. a worsening public balance deficit, if they make economic recession even deeper. In this sense, differently from the above mentioned contributions, our paper shows more explicitly the interaction between economic activity and public finance's variables.

More in general, the purpose of our model is to give formal substance to the above quotation taken from Boyer (2012). Somehow, we aim at showing formally that the expansionary effects of fiscal austerity are by no mean automatic, but rather depend on a series of contingent factors, as well as on peculiar or country-specific institutional arrangements. Accordingly, expansionary austerity is *not* to perceive as a well-established natural rule on the base of which policy makers should inform the design of fiscal policies.

In this model, we focus on short-run dynamics, in particular on the effects of restrictive fiscal adjustments on economic activity and on public balance deficit. Our purpose is to analyze and criticize, from a theoretical point of view, the assertion by Alberto Alesina according to which “many even sharp reductions of budget deficits [assuming that fiscal austerity effectively contributes to lower budget deficits] have been accompanied and immediately followed by sustained growth rather than recessions even *in the very short run* [cursive is of the authors] (Alesina, 2010, p.3)”. We assume that the economy does not work at full potential in order to allow for possible (fiscal) policy-driven expansions of aggregate demand and, hence, current economic activity. Indeed, the expansionary austerity literature argues that well-designed fiscal adjustments may boost economic activity through both a demand channel, i.e. by stimulating private consumption, investment expenditures and export demand, and a supply channel, i.e. by affecting the total supply of labor. In this paper, we focus only on the operativeness of the first channel, since that the supply channel will reasonably show its effects in a medium/long-run time horizon only⁸.

Due to the short-run perspective of our analysis, we assume all stock variables, i.e. the home economy capital stock K , public debt D , and the total amount of (past and present) private sector's borrowing from banks CR , as given. In this framework, equations (1) – (8) describe the supply side on the economy; equations (9) – (14) describe the demand side; equations (15) – (17), finally, formalize the public budget and the financial side of our economy, i.e. how the interest rates are determined and how they change.

The production/supply side block:

Equation (1) tells us that production (Y) is carried out through a fixed-coefficient production function, with N as the employed labor force and α as the average labor productivity.

$$(1) Y = \alpha N$$

Equation (2) defines potential output (Y^*) as the production level that would be realized in the event that total labor force (L) is fully employed. Equation (3) gives us the output/capital ratio as the product

⁸ Alesina and Ardagna (2010), for instance, argue that lower public sector employment, lower public sector wages, and (or) lower degrees of labor market protection (say cut in unemployment benefits), tend to increase individual labor supply and reduce trade unions' bargaining power. It is easy to see how these effects of fiscal adjustments may stimulate growth in supply-side mainstream models.

between capacity utilization $\chi (= Y/Y^*)$, which is a measure of the output gap, and $\beta (=Y^*/K)$, that is the highest degree of capital utilization achievable when production is at full potential⁹.

$$(2) Y^* = \alpha L$$

$$(3) \frac{Y}{K} = \frac{Y}{Y^*} \frac{Y^*}{K} = \chi \beta$$

According to equations (1) and (2), equations (4) and (4.b) define total unemployment U and the unemployment rate u , respectively.

$$(4) U = L - N \text{ or (4.b) } u = \frac{L-N}{L} = 1 - \frac{Y}{\alpha L} = 1 - \chi$$

Equations (5), (6) and (7) define the nominal wage rate w , the domestic price level p_H , and the real exchange rate q . In equation (6), domestic firms set the domestic price level p_H by applying a mark-up m on variable unit costs w/α . In equation (5), nominal wages are established through a bargaining process between trade unions and firms. More in detail, we assume the nominal wage w to be positively related to the expected price level p^e and the degree of labor market protection z , which is in turn a positive function of unemployment benefits b_u . We also assume current nominal wage rates to be negatively influenced by previous period unemployment u_{-1} , since that it would reduce trade unions' bargaining strength in the current round of wage negotiations.

$$(5) w = p^e l(\alpha, u_{-1}, z(b_u))$$

$$(6) p_H = (1 + m) \frac{w}{\alpha}$$

$$(7) q = \frac{ep^F}{p_H} = \frac{ep^F \alpha}{(1+m)p^e l(\alpha, u_{-1}, z(b_u))}$$

Equation (8) simply states that the value of production is distributed among the total wage bill W and aggregate profits Π .

$$(8) PY = W + \Pi = wN + \Pi$$

The demand side block:

In the demand-side block, equation (9) simply gives us the equilibrium condition on the goods market and makes explicit all the components of the aggregate demand, i.e. domestic consumption C , domestic investments I , public purchases G , and net exports NX .

$$(9) Y = C + I + G + NX$$

⁹ In our model we assume that there is plenty of capital stock, and that possible bottlenecks on the supply side of the economy come from shortages of labor rather than capital.

Equation (10) describes aggregate consumption as a function of wage earners' and profit earners' saving propensities, s_w and s_π respectively. Total consumption depends on disposable income. In the case of wage earners, this is defined as the sum of the total wage bill $W (= wN)$, public transfers Tr^G and unemployment benefits $b_u U$ provided by the domestic social security system. The domestic government levies a tax rate t_w on this kind of income. Profit earners' income is given by the difference between total profits Π minus interest payments on the total amount of (past and present) loans received from banks, i.e. $i_{cr}CR$. The tax rate levied on net profits is t_π . In this model, the domestic bank system gets interests on the outstanding amount of private loans (CR) and public debt D . We assume that it does not pay any interest rate on deposits possibly held by households. For the sake of simplicity, we also assume that banks save all their realized profits (i.e. the difference between positive and negative interests), so that banks' profits do not play any role in determining aggregate consumption.

For the sake of simplicity, equation (10.B) scales down aggregate consumption for the capital stock K . Accordingly, ρ and λ stand for normalized values of public transfers and private debt, respectively.

$$(10) C = (1 - s_w)(1 - t_w)[wN + Tr^G + b_u U] + (1 - s_\pi)(1 - t_\pi)[\Pi - i_{cr}CR] \text{ or:}$$

$$(10.b) \frac{C}{K} = (1 - s_w)(1 - t_w) \left[\chi \frac{\beta}{\alpha}(w - b_u) + b_u \frac{\beta}{\alpha} + \rho \right] + (1 - s_\pi)(1 - t_\pi)[r - i_{cr}\lambda]$$

Equation (11) defines the current growth rate of the capital stock. In particular, we assume (I/K) to be a positive linear function of capacity utilization χ and of the profit share r (with a and v as the corresponding parameters)¹⁰. Domestic investments are also negatively affected by the interest rate i_{cr} on banks' loans via parameter h . Keynesian-type animal spirits, finally, are captured by parameter σ .

$$(11) \frac{I}{K} = \sigma + a\chi + vr - hi_{cr}$$

Equation (12) gives us public purchases, once again normalized for the existing capital stock K , as an exogenous policy variable γ .

$$(12) \frac{G}{K} = \gamma$$

In equation (13), normalized net exports are a linear positive function of the real exchange rate q , whilst they depend negatively on domestic capacity utilization χ .

$$(13) \frac{NX}{K} = \epsilon_q q - \epsilon_\chi \chi$$

Finally, equation (14) introduces a crucial assumption that directly hinges upon the expansionary austerity literature. In fact, equation (14) assumes that, in an intertemporal time framework and according to, say, a permanent income argument, current households' saving propensity may depend positively on the expected future tax rate t_w^e . Current cuts in public expenditures, if sufficiently strong and reliable, may induce households to increase current consumption since that they may expect a lower tax burden tomorrow. By the same token, we also assume households' saving propensity to

¹⁰ Our formalization of the investment function takes inspiration from Bhaduri and Marglin (1990).

depend negatively on public transfers. Indeed, it is reasonable to believe that a permanent cut in public transfers, perhaps due to the policy decision of downsizing the provisions of the domestic welfare system (read a less generous domestic pension system), may also induce households to adopt a precautionary stance and save more today in anticipation of lower public transfers tomorrow¹¹.

$$(14) s_w = f(t_w^e, Tr^G) \text{ with } (\partial s_w / \partial t_w^e) > 0; (\partial s_w / \partial Tr^G) < 0$$

Public budget/financial side block:

In the financial block, equation (15) gives public balance deficit as the simple difference between government outlays, i.e. government purchases, public transfers, the total amount of unemployment benefits and interest payments on public debt $i_d D$, and government revenues from taxes on households and firms. Equation (15.B) normalizes the public balance deficit for the capital stock K , with $\Delta = D/K$.

$$(15) B = G + Tr^G + b_u U + i_d D - t_w [wN + Tr^G + b_u U] - t_\pi [\Pi - i_{cr} CR] - t_\pi [i_{cr} CR + i_d D] \text{ or:}$$

$$(15.b) \frac{B}{K} = \xi = \gamma + (1 - t_w) \left[b_u \frac{\beta}{\alpha} (1 - \chi) + \rho \right] + (1 - t_\pi) i_d \Delta - t_w w \frac{\beta}{\alpha} - t_\pi r$$

Equations (16) and (17), finally, try to formalize in the simplest way possible some financial aspects of the economy. In particular, equation (16) says that banks establish interest rate i_{cr} on private loans by applying a mark-up rate μ on the interest on public bonds. In equation (17), in turn, the interest rate i_d on public debt depends on several factors. First, it is a positive function of the current public budget deficit over GDP $B/Y = b = \xi/\beta\chi$ ¹². The higher is public budget deficit, or the lower is public budget surplus, the higher will be the interest rate national governments will have to pay on issued public bonds. Second, and perhaps more relevantly, the dynamics of the interest rate on public debt fundamentally relies upon the degree of monetary sovereignty characterizing the economy. In our model, we capture this point through the institutional variable Ω in equation (17). More in detail, we conceive Ω as a bivariate variable taking value 1 in the case of a monetarily sovereign country like the US, or 0 in the case of, say, eurozone Member States that issue bonds denominated in a supranational “foreign” currency. In a monetarily sovereign country, public bonds are usually taken as risk-free assets, since that they are denominated in the currency issued by the domestic central bank, and because the domestic central bank will likely intervene any time it likes in order to prevent default risks to emerge. Accordingly, we assume i_d to be insensitive to the evolution of the public deficit (surplus) over GDP. As shown in Section 2 of this paper, this assumption seems to be underpinned by some recent empirical evidence showing that government bonds yields do not respond to economic fundamentals such as the solidity of public finances, the growth rate of the economy and surpluses in the current account of the Balance of Payments in the context of “stand-alone” (read monetarily sovereign) countries (see De Grauwe and Ji, 2013)¹³. The institutional setting of the eurozone is rather

¹¹ The same logic may apply in presence of a reduction of public benefits to unemployed people that perhaps makes average *expected* income lower.

¹² In this model, we assume the interest rate i_d to be a (positive) function of public budget *deficit* (over GDP) only, and not of the overall public *debt*-to-GDP ratio. This is, of course, a simplifying assumption. Yet, whilst it makes mathematical passages more tractable, it does not change the meaning or the results of our analysis.

¹³ De Grauwe and Ji (2013), in their analysis of the determinants of government bonds’ spreads in both Eurozone countries and “stand-alone” economies, explicitly state that “ [in the case of “stand-alone” economies] financial markets do not seem

different. In fact, eurozone rules impose national governments to find resources on private financial markets only, and forbid the ECB from buying public bonds (at least on the primary market) and directly financing national governments. The solidity of eurozone national finances is in the hands of financial operators' will. Therefore, the above mentioned positive link between i_d and b will hold true.

$$(16) i_{cr} = (1 + \mu)i_d$$

$$(17) i_d = \phi\left(\frac{B}{Y}, \Omega\right) \text{ with } \left(\frac{\partial\phi}{\partial\left(\frac{B}{Y}\right)}\right) > 0 \text{ if } \Omega = 0; \left(\frac{\partial\phi}{\partial i_{cb}}\right) = 0 \text{ if } \Omega = 1$$

3.1 The short-run macroeconomic effects of public transfers' cuts

In our simple model, we can find out an explicit expression for the level of capacity utilization χ that ensures the equilibrium in the goods market. Analytically, by plugging equations (10.B) – (13) into (9) and, then, into (3), and by taking into account equations (16) – (17), we get:

$$(18) \chi = \frac{(1-s_w)(1-t_w)\left(b_u\frac{\beta}{\alpha} + \rho\right) + [(1-s_\pi)(1-t_\pi) + v]r + \sigma + \gamma + \epsilon_q q - [(1-s_\pi)(1-t_\pi)\lambda + h](1+\mu)\phi(\cdot)}{\left[\beta - (1-s_w)(1-t_w)\frac{\beta}{\alpha}(w - b_u) + \epsilon_\chi\right]}$$

In a very Keynesian fashion, equation (18) simply states that current capacity utilization is a positive function of all demand injections, whilst it depends negatively on those factors that reduce investments.

Let us now assume that, according to the expansionary austerity literature, the government implements a restrictive fiscal adjustment such that the cyclically adjusted primary deficit over GDP decreases by an amount equal to $-\theta$. Moreover, in line with the advice of the supporters of expansionary austerity, assume that fiscal consolidation mainly takes the form of a cut in public transfers (i.e. $dTr^G < 0$). In terms of our model, if we define the cyclically adjusted primary deficit (over GDP) as $b^* = \frac{1}{\beta}[\gamma + (1 - t_w)\rho - t_w w - t_\pi(r + i_d\Delta)]$, we get:

$$(19) db^* = -\theta = \frac{(1-t_w)}{\beta} d\rho = \frac{(1-t_w)}{\beta K} dTr^G, \text{ so that: } dTr^G = -\frac{\beta K}{(1-t_w)} \theta$$

with $\theta > 0$.

In our model, such a fiscal adjustment has a direct and simultaneous short-run effect on both current capacity utilization χ and overall public balance over GDP, b . In fact, totally differentiating χ and b , and taking into account the sign of equation (19), we get a system of 2 simultaneous equations for $d\chi$ and db :

to be concerned with the size of the government debt and of the fiscal space and their impacts on the spreads of stand-alone countries, despite the fact that the variation of these ratios is of a similar order of magnitude as the one observed in the Eurozone (De Grauwe and Ji, 2013, p. 24)".

$$(S.1) \begin{cases} d\chi = \frac{-[f_{t_w^e}(1-t_w)(b_u\frac{\beta}{\alpha}+\rho)dt_w^e - f_{TrG}(b_u\frac{\beta}{\alpha}+\rho)\beta K\theta] - (1-s_w)\beta K\theta - [(1-s_w)(1-t_w)\lambda+h](1+\mu)\phi_b db}{[\beta - (1-s_w)(1-t_w)\frac{\beta}{\alpha}(w-b_u) + \epsilon_\chi]} \\ db = -\frac{K}{\chi}\theta - \left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi}\right] d\chi \end{cases}$$

with $f_{t_w^e} > 0$; $f_{TrG} < 0$; $(\phi_b|\Omega) \geq 0$; $dt_w^e < 0$

Equations (20) and (21) below give us the solutions $d\chi^S$ and db^S of the system (S.1) reported above. What emerges is that there is not any clear outcome of the restrictive fiscal policy we have assumed. In particular, the sign of equation (20) may be either positive, confirming the expansionary austerity hypothesis, or negative, in line with the traditional Keynesian concern about the recessionary effects of fiscal retrenchments. The same applies to equation (21). Public transfers' cuts might help reducing public deficit over GDP or, alternatively, they may be counterproductive and lead to an even higher deficit-to-GDP ratio in the event they trigger a contraction of current economic activity. At least theoretically, mixed results may also emerge, according to which fiscal adjustments contribute to reduce fiscal deficit even though they induce a recession¹⁴.

$$(20) d\chi^S = \frac{\overbrace{[f_{t_w^e}(1-t_w)(b_u\frac{\beta}{\alpha}+\rho)]|dt_w^e|}^{+ \text{ or } 0} - \overbrace{[(1-s_w) - f_{TrG}(b_u\frac{\beta}{\alpha}+\rho)]\beta K\theta + [(1-s_w)(1-t_w)\lambda+h](1+\mu)\frac{K}{\chi}\phi_b\theta}^{-}}{\underbrace{[\beta - (1-s_w)(1-t_w)\frac{\beta}{\alpha}(w-b_u) + \epsilon_\chi] - [(1-s_w)(1-t_w)\lambda+h](1+\mu)\phi_b\left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi}\right]}^{+ \text{ or } 0}}$$

$$(21) db^S = -\frac{K\theta}{\chi} - \left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi}\right] d\chi^S$$

Despite such indeterminacy, a few points are worth stressing:

1. The expansionary outcome of fiscal adjustment heavily depends on the intensity of partial derivative $f_{t_w^e}$, and of $|dt_w^e|$, i.e. the expected reduction (here reported in absolute value) in the tax burden levied on households. The higher and the quicker is $|dt_w^e|$, the more rapidly and robustly private consumptions may respond positively to public budget's cuts. Interestingly, and perhaps paradoxically, it is reasonable to imagine that such positive expectations will hardly materialize in an economy characterized by a high public debt stock, i.e. the economic scenario in which, according to the supporters of expansionary austerity, fiscal consolidation is primarily needed. Indeed, when public debt D is considerably high and a prolonged period of fiscal consolidation is foreseen, people will likely expect future tax reductions to be modest and take place much farther ahead (at least with respect to current spending cuts). In a way, following Demopoulos and Yannacopoulos (2012), a high degree of uncertainty may "surround" the extent and the timing of future tax cuts. In such a context, the "expectation channel" through which expansionary austerity may work is extremely weak at best, and likely more than compensated by the overwhelming contractionary effect of current public transfers' cuts.

¹⁴ Into such a scenario, db^S would be negative thanks to the direct cut in public transfers even in presence of a negative value of $d\chi^S$, i.e. a contraction of short-run economic activity that tends to increase government outlays and government deficit.

2. Public transfers' cuts, expansionary austerity proponents say, may also boost growth by reducing public deficit, hence interest rate i_d on public bonds and, above all, interest rate i_{cr} on banks' loans to the private sector. Such a reduction in the cost of external financing may in fact spur private investments and induce the economy to expand. According to our model, however, such an effect of fiscal adjustments on interest rates does not take place in monetarily sovereign economies. Indeed, following equations (16) and (17), in the case of monetarily sovereign countries, the "financial market channel" through which fiscal consolidation may affect economic dynamics simply disappears (since that $\phi_b=0$). Accordingly, in equation (20), the allegedly expansionary impact of fiscal consolidation turns out to be even weaker at the very best. In the end, in the case of "stand-alone" countries, faith in fiscal adjustments as useful policy options to reduce government bonds' interest rates and, by this way, make banks' credit more accessible to private actors, is misplaced and ungrounded.

The "financial market channel" might be at work in the case of eurozone countries that issue public bonds denominated in a supranational currency, and in which the solidity of public finances and of the overall financial system hinge upon financial markets' sentiments. In such a context, one could be persuaded that front-loaded fiscal adjustments might reassure financial markets about the sustainability of eurozone countries' fiscal positions and that, eventually, they might more easily entail expansionary effects. Of course, this logic may hold true if designed fiscal adjustments effectively lower public deficits and debt-to-GDP ratios. Yet, we are very far from taking such a possible effect of fiscal consolidation as guaranteed. Indeed, recent empirical evidence show that it is hard to find a way out from public balance disarrays without sustained growth (Ali Abbas et al., 2013)¹⁵, and that fiscal multipliers may be high and positive when economies are in the midst of a recession or are operating below potential (Batini et al., 2012; Baum et al., 2012; Qazizada and Stockhammer, 2015). If so, too severe and premature fiscal retrenchments may actually induce a short-run deterioration in fiscal and financial variables, instead of improving them, by jeopardizing growth performances¹⁶.

In terms of our model, such an undesirable outcome of public transfers' cuts emerges clearly from the above two expressions for $d\chi$ and db . Let assume, for instance, that at the beginning of a fiscal austerity program the "expectation channel" is weak, and/or interest rates do not respond promptly or enough intensively to the announcement of public budget cuts. In such a context, fiscal austerity likely reduces the economic activity and makes $d\chi$ negative. Economic slowdown (or recession), in turn, tends to frustrate initial government's efforts to squeeze budget deficits or run fiscal surpluses due to the negative impact it carries out on public budget via automatic stabilizers. Very likely, the public debt-to-GDP ratio, if not the deficit-to-GDP ratio, will increase rather than decrease¹⁷ (see

¹⁵ Ali Abbas et al. (2013) analyze 26 episodes of large debt reversals in advanced economies. They find out that "periods of decreasing debt were often associated with higher growth rates and strong primary balances [...] Historically, debt reductions have tended to be smaller and less frequent in more challenging macroeconomic environments of moderate growth (Ali Abbas et al., 2013, p. 3)".

¹⁶ Ali Abbas et al. (2013) also note that "front-loaded consolidations have tended to increase public debt in the short run [...] Empirically, fiscal effort has been more likely to reduce public debt when growth has been stronger [whilst] the debt-to-GDP ratio increases in the short run when fiscal consolidations come at the cost of lower economic activity. [In the end] while credibility effects can ease the pain of fiscal adjustment through lower risk premiums, this is unlikely to fully offset the short-run adverse impact on economic activity (Ali Abbas et al., 2013, p. 3)".

¹⁷ In a discrete time framework, it is possible to show through simple mathematical passages that $\Delta(D/Y) = (D_t/Y_t) - (D_{t-1}/Y_{t-1}) = (\Delta D/Y_t) - (D_{t-1}/Y_t)g_t = b_t - (D_{t-1}/Y_t)g_t$. On the basis of the model developed in this paper, both the deficit-to-GDP ratio b_t and the current growth rate g_t can be expressed as a function of fiscal measures undertaken at time t . Accordingly, a reduction, if ever, in the deficit-to-GDP ratio, as possibly triggered off by restrictive fiscal measures, may

Figure B1 in Appendix B). In our model, a rise in the deficit-to-GDP ratio will put further strain on financial markets and induces a second round contraction of economic activity.

Interestingly, things may get dramatically worse in presence of a strong “credibility channel” and financial operators that overreact to changes in public deficits (i.e. $\phi_b \gg 0$), but improvements in public balance that are over-dependent on changes in domestic economic activity (i.e. $((1 - t_w)(b_u/\alpha) + b)/\chi \gg 0$), and austerity measures that are even slightly contractionary on the onset. In such a context, the denominator in equation (20) may turn out to be negative leading to unstable dynamics. In fact, despite discretionary budget cuts could per se reduce public deficits, even a small contraction in economic activity eventually makes public disarrays deeper instead of smaller. Financial operators get even more frightened by worsening public finance conditions and interest rates skyrocket. Economic recession gets deeper and gives rise to an endless “race to the bottom” (see Figure B2 in Appendix B), which will inevitably end up in a public debt default and a tremendously painful economic dislocation. This kind of dynamics may sadly resemble that one observed in Greece since 2010. Eventually, the results of fiscal cuts could be opposite than those expected by the supporters of expansionary austerity even when the “financial market” or “credibility” channel is judged to be relevant to stabilize macroeconomic real and financial variables.

3. Last but not least, since 2012, the monetary scenario prevailing in the eurozone resembles more closely that one characterizing the US since the outbreak of the worldwide financial crisis and “Great Recession”. Indeed, thanks to Mario Draghi’s pledge that he will do “whatever it takes” to save the euro, and after the launch of the OMT program, financial speculation on peripheral countries’ government bonds has calmed down. Interest rates i_d have decreased significantly. They are currently at historically minimum levels (see Figure A1)¹⁸, and may be expected to decline even further in the event the ECB would persist in conducting or even strengthen the quantitative easing policy recently launched to avoid deflation and try to rescue the eurozone from secular stagnation. In such a context, it makes sense to question the effectiveness of the “financial channel” through which fiscal austerity is expected to positively contribute to economic recovery. As Roberto Perotti himself stresses, “if fiscal consolidations were expansionary in the past because they caused a steep decline in interest rates or inflation, it is unlikely that the same mechanism can be relied on in the present circumstances, with low inflation and interest rates close to zero (Perotti, 2012, p.309)”.

3.2 The short-run macroeconomic effects of lower unemployment benefits

An additional proposition of the expansionary austerity doctrine is that fiscal adjustments should also aim at reforming the labor market, directly or indirectly. Cuts in public wages or public employment, for instance, may induce wage rate moderation, this way improving the external competitiveness of the economy. An increasing external demand for domestic goods may in turn foster economic activity and

turn out to be a *necessary but not sufficient* condition for prompting a negative variation in the debt-to-GDP ratio. Indeed, an austerity-led contraction in economic activity (i.e. a negative value of g_t) may seriously jeopardize any austerity-based attempt to put under control the debt-to-GDP ratio. Other way around, austerity packages’ successfulness in stabilizing and reducing debt-to-GDP ratios heavily depends on austerity’s *highly uncertain* short-run positive effect on current economic activity.

¹⁸ Greece obviously represents an exception into the much safer and more stable financial scenario induced in the eurozone by the so-called “Draghi put” since late 2012. Needless to say, the new hike in Greek government bonds’ interest rates is a consequence of the intense political and economic tensions Greece has recently gone through due to the uncertain outcome of the bargaining process with its foreign institutional creditors on the concession of a third financial rescue plan.

growth. The same logic applies to the reductions in the provision of the welfare system, which takes the form of lower unemployment benefits b_u . In fact, a reduction in the “non-labour” income workers would get in the event of unemployment would force trade unions to bargain a lower nominal wage rate w .

In our model, the short-run effects of these additional fiscal austerity measures are formalized in system (S.2):

$$(S.2) \left\{ \begin{aligned} d\chi &= \frac{\overbrace{[(1-s_w)(1-t_w)(\beta/\alpha)[(1-\chi)+(\partial w/\partial b_u)\chi]db_u}^- + \overbrace{[\epsilon_q(\partial q/\partial w)(\partial w/\partial b_u)db_u]}^+ - \overbrace{[(1-s_w)(1-t_w)\lambda+h](1+\mu)\phi_b db}^+}{[\beta-(1-s_w)(1-t_w)\frac{\beta}{\alpha}(w-b_u)+\epsilon_q\chi]} \\ db &= \frac{(1-t_w)(1-\chi)}{\alpha\chi} db_u - \left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi} \right] d\chi \end{aligned} \right.$$

with $(\partial w/\partial b_u) > 0$; $(\partial q/\partial w) < 0$; $db_u < 0$.

Equations (22) and (23) give the solutions of system (S.2):

$$(22) d\chi^{S2} = \frac{\overbrace{[(1-s_w)(1-t_w)(\beta/\alpha)[(1-\chi)+(\partial w/\partial b_u)\chi] + \epsilon_q(\partial q/\partial w)(\partial w/\partial b_u) - [(1-s_w)(1-t_w)\lambda+h](1+\mu)\phi_b}^? \frac{(1-t_w)(1-\chi)}{\alpha\chi}}{\left\{ [\beta-(1-s_w)(1-t_w)\frac{\beta}{\alpha}(w-b_u)+\epsilon_q\chi] - [(1-s_w)(1-t_w)\lambda+h](1+\mu)\phi_b \left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi} \right] \right\}} db_u$$

$$(23) db^{S2} = \frac{(1-t_w)(1-\chi)}{\alpha\chi} db_u - \left[\frac{(1-t_w)(b_u/\alpha)}{\chi} + \frac{b}{\chi} \right] d\chi^{S2}$$

Once again, it stands out clearly than no clear-cut solutions exist, and that the theoretical basis of the expansionary austerity doctrine is extremely weak. In particular, when the direct and indirect effects (i.e. the decrease in monetary wages w) of cuts in unemployment benefits are taken into account, the immediate outcome of such measures is lower demand injections in the form of lower consumption expenditures. According to the abundant literature theoretical and empirical literature on wage-led nature of economic activity and growth (see Ozlem and Galanis, 2014; Onaran and Obst, 2015), this would certainly deepen recession instead of prompting recovery. Of course, the contraction in the domestic component of aggregate demand might well be compensated by an increasing external demand for homemade goods that might emerge in presence of lower domestic nominal wages w and, thus, of a depreciated real exchange rate q . However, increasing net exports and, possibly, booming economic activity, strongly rely upon the sensitiveness of net exports to the real exchange rate (i.e. parameter ϵ_q in equation (22)), which in turn is conditional to the sectorial composition of net exports themselves and to the degree of openness of the economy (see Taylor, 1991, ch.7). In this regards, it is perhaps not by chance that one of the most cited examples of successful expansionary austerity is that one taking place in Ireland in late 1980s. Indeed, Ireland is now a small open economy that is highly integrated on international goods markets, and that exports a restricted but highly dynamic variety of manufactured products (see pharmaceutical products, for instance). At the end of the 1980s Irish exports were already accounting for more than 50 percent of Irish GDP. Interestingly, Perotti (2012) himself recognizes that a fundamental pillar of late 1980s Irish economic rebound was the solid expansion of Irish exports due to domestic wage moderation and fast reduction in inflation *plus* the

initial one-shot devaluation of the Irish pound, the stabilization of the British sterling, and the economic expansion of Britain, i.e. Ireland's most important trade partner. Now: it is worth noting that, first, part of the above policy recipe, i.e. the devaluation of the domestic currency, is not available in eurozone countries any longer. Second, it is questionable that a small peripheral eurozone country like Greece could currently follow and adopt that same development pattern. Indeed, Greece is a small, *relatively closed*¹⁹ and *largely de-industrialized*²⁰ economy. Accordingly, there are reasonable doubts that the emphasis on internal devaluation as sponsored by the supporters of the expansionary austerity would currently give rise in Greece to the same results as wage moderation supposedly did in Ireland when combined with other no-more available policy options, and when applied in a much more favorable worldwide economic scenario.

As to the operativeness of the "financial channel", the same line of reasoning developed in section 3.1 applies also to the case of cuts in unemployment benefits. It might have some relevance, but only in the case of non-fully monetarily sovereign economies, and according to the real effectiveness of fiscal adjustments in squeezing public balance deficits over GDP without throwing the economy in a deep recession.

4. Conclusions

In this paper, we provide a critical analysis of the expansionary austerity theory. We first review the critiques to the expansionary austerity doctrine from an *empirical* point of view. According to these critiques, the econometric techniques on which the expansionary austerity literature largely relies upon are fundamentally flawed because they are biased towards estimating lower (than effective) or even negative fiscal multipliers. We then present a short-run model in order to address the *theoretical* weaknesses of the expansionary austerity theory. In particular, we show that the expansionary outcomes of well-designed fiscal adjustments might materialize only in specific economic environments and under peculiar circumstances. For sure, they cannot be taken for granted and they do not represent the results of a well-established universal law.

First, we show that the downsizing of the welfare state might boost private consumption only under the *unrealistic* condition that expected and uncertain future reductions in the tax burden will more than compensate for the current, permanent and certain cut in public transfers.

Second, the "financial channel" through which fiscal corrections may crowd in private investments does not seem to work in the case of monetarily sovereign economies. It could perhaps work in the case of eurozone countries, but only if fiscal consolidation does effectively trigger off a reduction in the public deficit-to-GDP ratio, and thus helps to create a safer financial environment. However, such a virtuous effect of fiscal consolidation on public balance's solidity is all but certain in the short run. Quite on the contrary, recent empirical evidence tends to suggest that front-loaded fiscal adjustments actually increase the debt-to-GDP ratio, if not the public deficit, due to their recessive impacts on economic activity.

¹⁹ According to trade data provided by UNCTAD, in 2013, Greek exports in good and services account for less than 28 percent of Greek GDP.

²⁰ In 2013, Greece's exports of manufactured goods accounted for the 30 percent of total Greek merchandise exports only. Even further, in 2013, the manufacturing GDP share is equal to less than 9 percent (it was barely higher than 15 percent in 1987). In the case of Ireland, since 1987, the manufacturing GDP share has never decreased below 19 percent, even in periods of bad worldwide recessions and decreasing international trade flows.

Last but not least, austerity measures aiming at restoring external competitiveness through internal devaluation (read wage moderation) might be expansionary only in the case of economic systems that are deeply integrated on international goods markets, and that exports highly price elastic products. Historically, this was the economic setting characterizing a few episodes of expansionary fiscal adjustments that were implemented together with some additional policy measures such as the devaluation of the domestic currency first and foremost. However, a small peripheral eurozone country like Greece does not currently show any of those features characterizing Ireland at the end of the 1980s. Moreover, the toolkit of eurozone policymakers is now much narrower than it was thirty years ago. Accordingly, there are very good reasons to question the current validity of the expansionary austerity mantra.

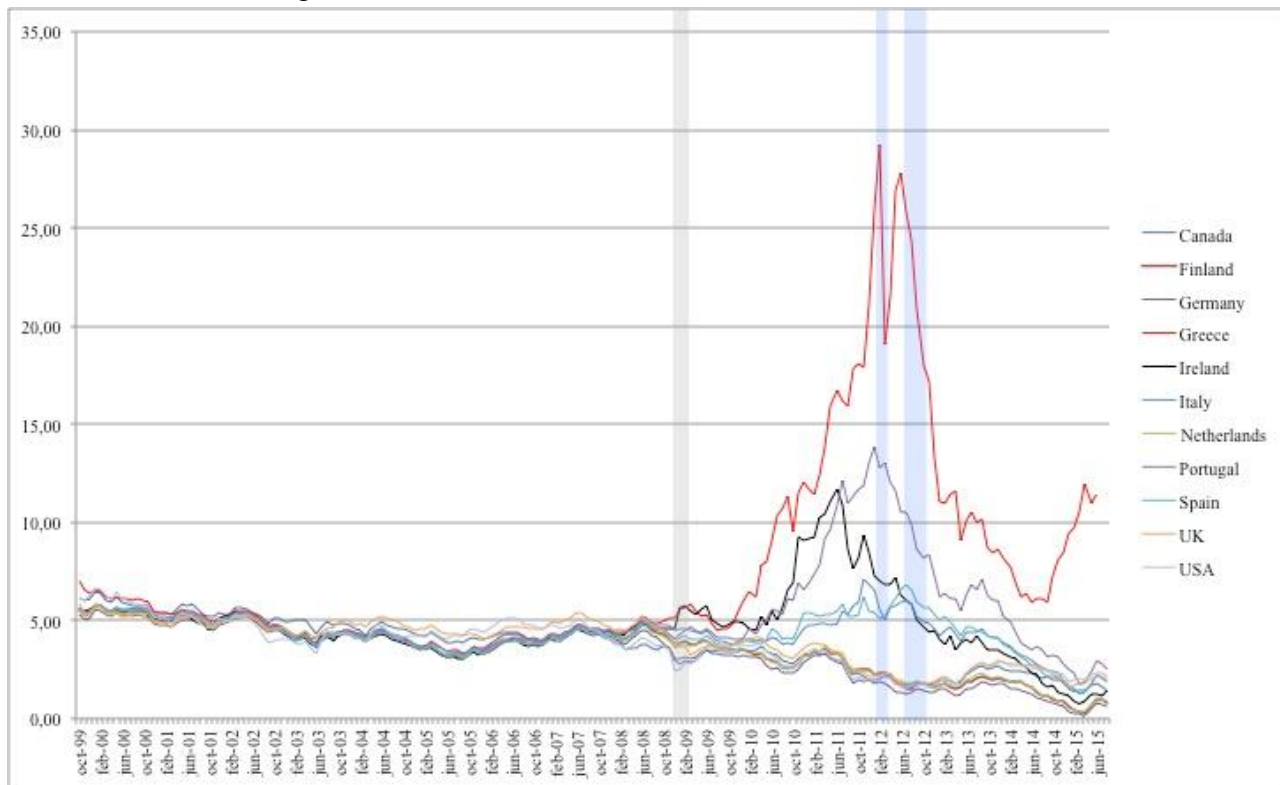
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Appendix A

Figure A1 – Interest rates on 10-year government bonds (monthly data) in selected developed economies, 1999 – (august) 2015.



Source: OECD Main Economic Indicators, issue 11 (2015).

Appendix B

In Figures B1 and B2 we describe more explicitly how changes in economic activity (as formalized in the first equation reported in system (S.1)) and variations in public deficit-to-GDP ratios (see the second equation in system (S.1)) do interact.

In the upper panels of Figures B1 and B2 we report the left-hand-side (LHS) of equation 1 in system (S.1), i.e. a 45-degree sloping curve, as well as its right-hand-side (RHS). Note that the RHS curve depends on $d\chi$ due to the positive feedback economic expansion has on its own dynamics via its effect on the evolution of the deficit-to-GDP ratio. Changes in the position of the RHS curve do depend on the “autonomus” direct effects discretionary budget cuts (i.e. θ) have on economic activity via the “expectation channel” and the “financial channel”. Upward shifts of the RHS curve stand for austerity measures that are expansionary on the onset. Downward movements of the RHS curve are due to an initial austerity-led contraction in economic activity.

In the bottom panels of Figures B1 and B2 we show how, according to the second equation in system (S.1), deficit-to-GDP ratios react negatively (positively) to economic expansions (recessions). The responsiveness of the deficit-to-GDP ratio to changing economic activity (i.e. the slope of the “ db ” curve) is lower (i.e. a relatively flat “ db ” curve) in the first “stable” scenario than in the second “unstable” one (in which we assume a relatively steeper “ db ” curve). The position of the “ db ” curve in Figures B1 and B2 depends on the negative direct effect austerity measures induce on public deficits.

Figure B1 – Austerity-led economic contraction and rising deficit-to-GDP ratios in a *stable* short-run setting.

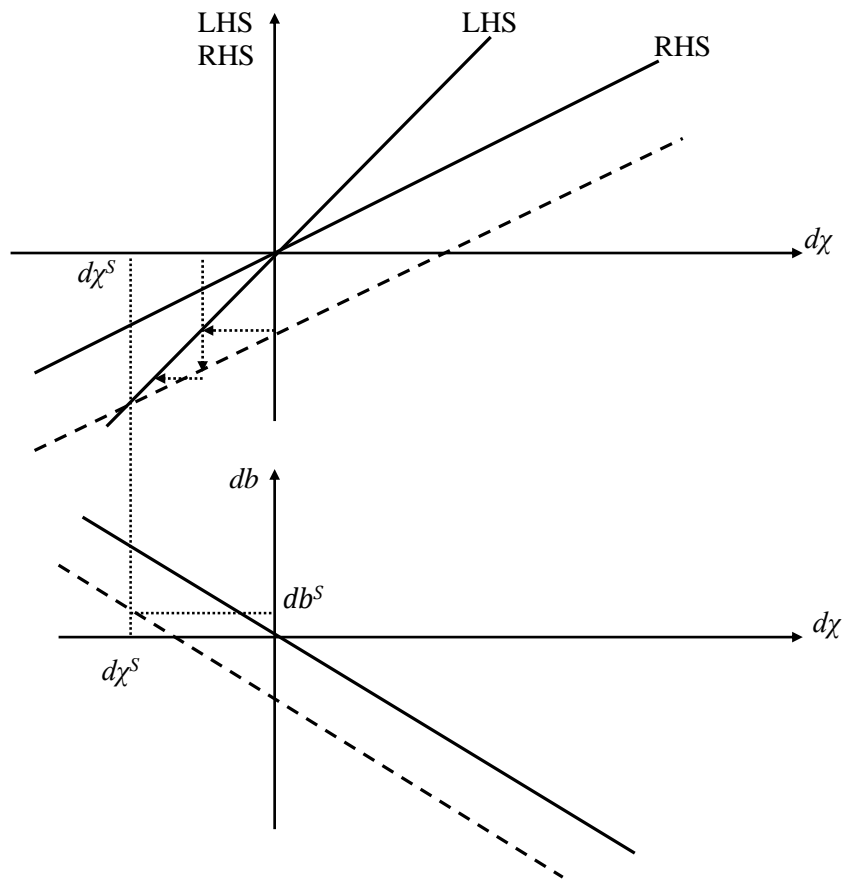
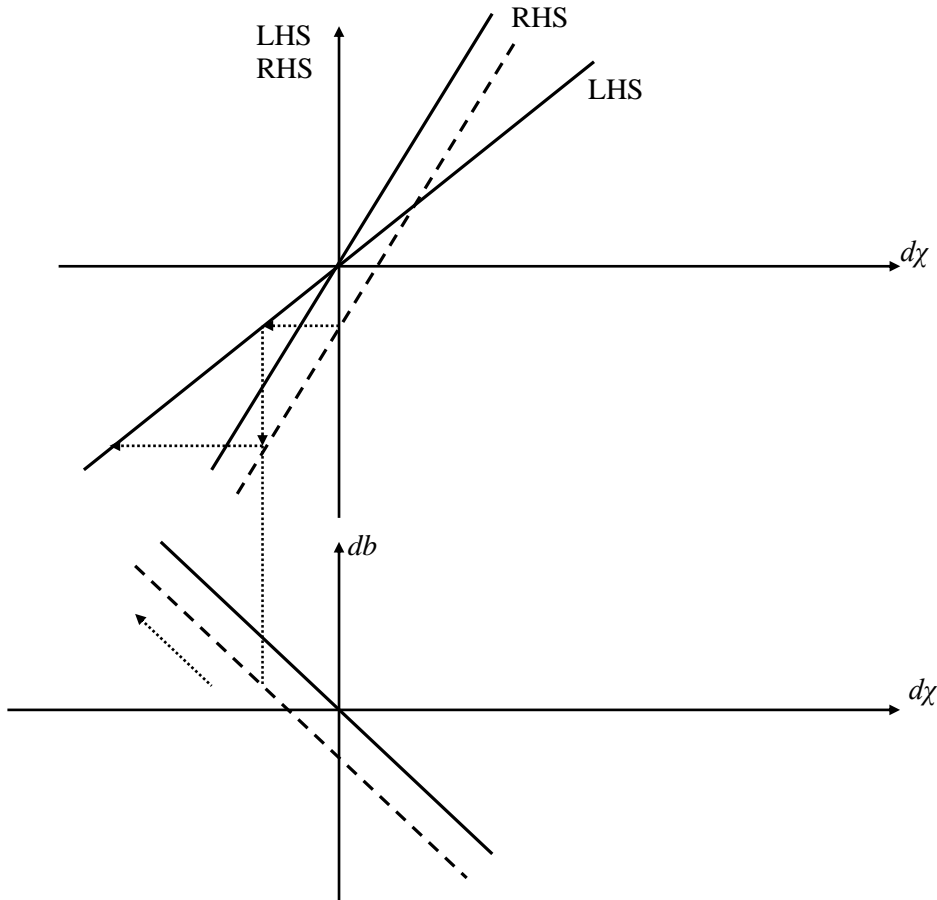


Figure B2 – Austerity-led “endless” economic contraction and explosive deficit-to-GDP (and debt-to-GDP) dynamics in an *unstable* short-run setting.



In Figures B1 and B2 we portray the effects of discretionary budget cuts that are contractionary on the onset (the RHS curve in Figures B1 and B2 moves downward). Differences between the two worrisome dynamics we describe in Figures B1 and B2 lie in the stable (see Figure B1) or unstable nature (see Figure B2) characterizing them.